INTERGENERATIONAL LEARNING PRACTICES – DIGITAL LEADERS IN SCHOOLS

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Abstract
This paper explores the management and outcomes of a specific model of intergenerational learning, concerned with student digital leader support in a number of secondary schools in England. A local educational partnership set up a student digital leader project late in 2011, which aimed to develop a range of skills and outcomes for both the digital leaders themselves and for a potentially wider variety of personnel within the schools. Five schools were involved in the project. The student digital leaders shared their digital technology expertise with others with less developed skills, including teachers and managers in these schools. The study reported in this paper explored ways that the digital leader initiative was implemented, identifying and analysing outcomes and issues arising. Evidence from informants and from the analysis of benefits arising indicates that the student digital leader initiative led to a variety of positive outcomes. A key finding and conclusion is that this form of initiative has involved some students who tend not to be involved in other leadership or school-wide activities. The initiative enables these students to contribute to the community, rather than just receiving from it; students become active contributors to, as well as receivers from, the educational system.

Keywords
Intergenerational learning, digital leaders, school support, management involvement, digital skill sharing

Introduction

Intergenerational learning (IL) is defined by the European Union-funded European Network for Intergenerational Learning (ENIL) Project (2013, p.4) as "a way that people of all ages can learn together and from each other. IL is an important part of Lifelong Learning, where the generations work together to gain skills, values and knowledge." The relationship and accord between social development and learning development is strongly linked through educational practice. In the case of learners in their early years, children are expected to develop socially, emotionally and cognitively through interactions with older people, with those who possess a wider and deeper range of knowledge and understanding. This type of interaction often continues into employment through apprenticeship models where younger employees are 'shown the ropes' by older and more experienced employees.

Digital technologies are breaking down these accepted social and learning practices in some respects, and research into intergenerational learning has been concerned with exploring models and practices that are developing. Boström (2003), for example, undertook an early study that explored:

> *...the relationship between lifelong learning, intergenerational learning and social capital by reporting on an analysis of the concepts and an investigation of one instance of intergenerational interaction, namely "the granddad programme" – an intervention project run by a limited number of schools in the Stockholm area (p.3).*

Some other models explored have also been concerned with how younger people support older people through uses of digital technologies, but not necessarily in school-based contexts. For example, the Age Concern and Help the Aged report (2009) notes that many older people have gained their knowledge of what the Internet does from their children or grandchildren or partners, and from watching them use the Internet for certain functions in informal settings. Other models researched have explored the ways that more junior professionals and more senior professionals interact; Löfgren et al. (2013), for example, have studied this in the context of teacher development. This present paper, however, looks at a specific intergenerational learning model and context - how younger learners are supporting older learners and teacher professionals within educational institutions.

In the study reported here, a number of students, in a number of secondary schools in a local authority in England, were identified from their background skills and interests in digital technologies to support other students, teachers and school managers in developing digital technology practices in their school; these students were called 'digital leaders'. This paper is based on a project run by a business and education partnership called *inspire* (2010). *inspire*, Wolverhampton's Local Education Partnership (LEP), set up a student digital leader project late in 2011. *inspire* managed this digital leader project, which aimed to develop a range of skills and outcomes for both the digital leaders themselves and for a potentially wide variety of personnel within the schools – teachers as well as technical and educational managers. In the 2012 to 2013 school year, five schools were involved in the project. All of these schools were secondary schools, with learners aged from 11 to 18 years.

In this initiative, it was intended that the student digital leaders would share their digital technology expertise with others with less developed skills in that area, including teachers and managers in schools. The research literature certainly indicates that learning through such intergenerational practices (where young people are more expert than older adults) is happening already in some contexts, and that practices such as this digital leader initiative could not only be implemented effectively, but could also lead to benefits for students, teachers and other personnel involved. However, it is clear also from the research literature that background strategy, planning and support are all necessary if educational benefits are to be fully realised (see, for example, The Knowledge Volunteers, 2012).

This study explored ways that the digital leader initiative was implemented, and identified outcomes and issues arising. Evidence gathered is reported here, initially as case studies and vignettes of practice, prior to a subsequent analysis of findings.

Background to the research

A traditional approach to learning has used an 'apprentice' model (Brown, Collins and Duguid, 1989); young people are supported in their acquisition of knowledge, skills and attitudes, to a wide range of social, emotional and behavioural concerns, by older people. In the field of digital technology, there has been a widening access to and use of emerging technologies by young people. Latest data from Ofcom (2013), the official regulatory body for communications markets in the United Kingdom (UK), indicates that Internet take-up and Internet on mobile take-up continue to increase, and 2013 levels were 80% and 49% of individuals surveyed respectively. The mobile Internet access level for 16- to 24-year-olds, however, is at 75% of individuals surveyed, and their home access level is at 91% of individuals surveyed. This age group also has the highest access levels of any age group for a personal computer or laptop at home, a mobile telephone, a games console or player, a portable media player, and a tablet (the latter at the same level as those 25 to 34 years of age).

Often having time, opportunity and interest in developing digital technology skills, young people involved in this phenomenon have sometimes been referred to as 'digital natives' (Prensky, 2001); they devote time and efforts to acquisition and application of certain ranges of technological skills that advance selected interests (Bennett, Maton and Kervin, 2008). It is often said that young people (particularly those in schools) acquire skills and knowledge about technologies that go well beyond those of their teachers (Crook and Harrison, 2008). Consequently, whilst some might argue that this situation creates issues and challenges (Kennedy, Judd, Churchward, Gray and Krause, 2008), others (Druin, 1999, for example) argue that this creates opportunities – that the young people can share their expertise with older people in order to support a learning arena that is no longer unidirectional.

However, research clearly shows that not all young people have the same range of digital technology skills and capabilities, and not all young people have skills that relate to particular aspects of learning. Sánchez, Salinas, Contreras and Meyer (2011), through their in-depth interviews with students and teachers in Chile, found "evidence of a generation of learners without shared traits, with segments of learners presenting practices that do not characterise the entire generation" (p.543). As they went on to say, "the skills and abilities described in the literature do not represent a precise description of those that the students exploit when using technology" (p.543). Indeed, they highlighted the fact that some

students have “a taste for reading actual printed books” (p.543). This research showed that although students had “wide-ranging access to ICTs [Information and Communication Technologies] …there are differences in the intensity of this use” (p.553). They found further that “in no cases of the subjects interviewed was it shown that ICTs replaced those activities that are the most significant and valuable for the students, such as those related to their sociability”, concluding that “electronic communication is performed in the service of sociability, by expanding the possibilities for contact and coordination with friends” (p.553).

This research suggests that an integration of student digital leaders into schools will indeed need to be managed, in order to develop and match digital skills and capabilities with learning needs and intentions within a school context. As Searson, Jones and Wold (2011) said, in considering the opportunities that future virtual schools might hold, “the opportunities to use these emerging environments as a space to foster change, embrace new technologies, implement innovative pedagogies and better connect with digital learners is unprecedented” (p.367). But they went on to say that “we must continue to explore emerging ideas such as incorporation of mobile devices, integration of informal learning models such as gaming, and incorporation of hybrid learning environments” (p.367).

So, whilst the concept of intergenerational learning has potential virtue, it is not always clear that, if ‘left to its own devices’, learning will accrue and be of benefit to stakeholders involved (the young, and the older, people). Sharing is a useful intentional concept, but does it need to be planned, structured or supported in certain ways, for outcomes to be of mutual benefit? As Kaplan (2001, p.5) said:

> *...with the intergenerational studies field still in its infancy, it is unclear whether there is enough information available to guide program development efforts. Whereas there is an abundant amount of information on how to create intergenerational programs, there have been few extensive efforts to assess program impact.*

A recent report about a European Commission-funded project “The Knowledge Volunteers” (2012) describes the roles of young people in supporting digital skills and practices of older people, in school settings. The evaluation report indicated success of the project, but management of the support provided by teachers was clearly an important factor in this success.

The role and importance of managing such interactions is clearly identified within specific case studies. A community project supporting long-term development of a locality of high socio-economic deprivation in a major city in the UK was initiated in 2004. The project implemented home and community-based technologies to enhance educational, leisure and work-based outcomes for individuals within the community. The project was evaluated over its 7-year period, looking at aspects of strategy, management and outcomes associated with each of the major stakeholder groups (project managers, young people in schools, teachers, support workers, family and community members). The study explored ways that the project introduced practices that might lead to identifiable educational outcomes, enabling younger members and older members of the community to be involved in a shared initiative, leading to learning appropriate to the individual. The study took a case-study approach, gathering data from the full range of stakeholders, and using mixed methods to identify outcomes of a qualitative and quantitative nature. Evidence from different stakeholder groups was complementary and indicated agreement that intergenerational learning was a result of the initiative. However, it was clear that certain practices were used to support this form of learning (reported in Passey, 2011). There was a need for clear project intentions and aims, a monitoring and feedback process, and accepted intentions and aims managed through project leaders, as well as senior leaders within each school involved.

Research study results indicate that intergenerational learning can be practically and potentially implemented through appropriate applications of digital technologies, and that newly-emerging technologies can continue to drive practices in this respect. However, it is clear that strategy, planning and support are all necessary if educational outcomes are to be fully realised. Evidence to date indicates the clear need for managing two complementary aspects: intergenerational sharing of

identified digital skills and capabilities; and management of leadership skills within the school and within the digital leader group. As McAllister (2013) says, there is an argument for considering the role and development of leadership skills by students within schools. He states that "One person advocating greater emphasis on teaching these skills in schools is leadership development expert and author Jim Kouzes. …He argues that this is essential if we're to create visionary leaders who can hit the ground running" (p.29).

Within the context of the study reported here, therefore, key questions are:

- Has this student digital leader project supported and developed intergenerational sharing of identified digital skills and capabilities in these schools?
- How has the management of leadership skills within the school and within the digital leader group supported or integrated with the sharing of digital skills and capabilities?

The Digital Leaders Project

inspire, Wolverhampton's Local Education Partnership (LEP), set up this project late in 2011, involving at that time two of its Building Schools for the Future (BSF) schools. BSF was the major national school-rebuild project, announced in 2003 and starting in 2005, which sought to rebuild secondary schools across England in ways that would provide up-to-date digital technology resources integrated within a range of appropriately-designed learning settings (House of Commons Public Accounts Committee, 2008). Working with an initial concept described by *The Specialist Schools and Academies Trust* (SSAT), *inspire* supported these BSF schools in the selection and training of digital leaders and supported their integration into the needs and practices of the two schools. The two schools developed appropriate management and communication practices to gain from the wide technological knowledge and understanding of the selected digital leaders (students in the schools). The project aimed to develop interest and aspirations for the students involved, and to provide a wider understanding of career pathways and development opportunities for the students. In the 2012 to 2013 school year, three more schools joined the project.

Research approaches

The overall approach adopted for this research was to develop case studies, to include largely qualitative elements (indicating types of outcomes, and their characteristics and potential importance). The case studies were developed and reported using elements suggested by Yin (1994): an overview of the case study project (its objectives, issues, and topics being investigated); field procedures (including role of the researcher, access to evidence, and sources of information including documents, interviews, and direct observation); case study questions (specific questions that the investigator explored during data collection); and an analysis of the results (in terms of relevance and relationship to the proposed framework).

The research sought to answer a number of specific pertinent questions:

- How were students identified as digital leaders?
- What specific knowledge and skills did they have at the outset, and what knowledge and skills did they acquire across the period of the project?
- How did schools develop management and integration practices that allowed a sharing of the knowledge and skills of the digital leaders?
- How did students work alongside staff to up-skill and support them?
- Were any potential cost savings to a school identified, such as elements of technician time being saved, or using better communication methods leading to saving of paper costs?
- Did support and involvement practices allow a mutual sharing for digital leaders, and what did they gain in the short term?
- Did any issues or challenges arise, particularly for digital leaders engaged in supporting others?
- Did the aspirations and career ideas of digital leaders change and shape in any particular ways across the period of the project?
- What examples of practice and outcomes indicated that key skills and outcomes had been gained and achieved?
- What lessons did this project offer to the wider educational community?

The study was structured to enable a gathering of appropriate evidence to address the research questions listed above. To explore the development of skills and outcomes by digital leaders and schools, evidence was gathered across the period of the project, through discussions with key project personnel, school personnel and digital leaders, as well as from documentation provided by the Wolverhampton LEP, and email survey questions from key teachers.

None of the data gathered for this study were considered to be 'sensitive'. But to ensure security, anonymity and confidentiality needs for those involved, discussions with project personnel, school personnel and digital leaders were done in open meetings, and subsequent discussions with project personnel, school personnel or digital leaders were via email, and handled in the same way. Confidentiality and anonymity relating to individuals and to individual schools were guaranteed.

From the data gathered, two case studies and three vignettes were drawn together. These are presented in the sections following. Throughout these case studies and vignettes, original phrases and statements made by lead teachers and other school personnel in interviews and email responses are placed in quotation marks.

Case Study 1

Why undertake the initiative

The lead teacher in this school (an assistant head teacher) said that the reason for undertaking this project was to "explore how realistic the idea of students supporting other students and staff was". He recognised that while the idea of students supporting teachers was a worthy idea, it might be "difficult to implement". He felt that issues might arise in terms of student confidence in handling this form of interaction, with some teachers possibly "feeling threatened by the role reversal".

Prior to the project, the school had supported students in undertaking digital media projects that involved group work in digital development activities. Late in 2011, twelve year 7 students (aged 11 to 12 years) worked on projects for the Wolverhampton multimedia awards (called the WOSCARs), and for the BBC News School Report. Drop-in workshops had been set up on Wednesday evenings that staff and students could pre-book, to focus on a specific software or resource.

The school had a media room, already established at that time, and it was envisaged that digital leaders would use this existing room as their base. The lead teacher anticipated that the digital leaders appointed might work on news stories as digital journalists, but that they would need to broadcast their stories via a website rather than via their virtual learning environment (VLE) as it was difficult to use the latter for video broadcast. The lead teacher felt that digital leaders could take a role in getting media-created work displayed around the school, as well as supporting specific digital technology training. Roles of digital leaders being considered at that point ranged from broadcast communication, through support for classroom uses of digital technologies (by staff and students), to supporting home use (by staff, parents and students).

At an early stage, the school thought it likely they would purchase a number of Apple iPads, and that digital leaders might have some responsibility for supporting uses of these devices. To assist the digital leaders, it was felt that they could maintain a useful portfolio record, perhaps using an appropriate e-portfolio (in this case, called iPlan).

When and how the initiative was set up

Initially, the project was advertised around the school. The advertising was "done through on line information to form tutors, posters around school and presentations in assemblies". The leader of a local Media Club was asked to produce posters advertising the digital leader posts, and these were displayed around the school to promote the idea of student digital mentors. Students interested in the project were asked to email the lead teacher with "reasons why they should be considered for the position of a Digital Leader".

Those students who were interested then applied; they were asked to email their name, year group, what roles they thought the school would need a digital leader to undertake, why these might be needed, and why they personally should be considered as a digital leader. By the end of 2011, the school had considered how to run the interview process, students were interviewed, and this was felt to be a "good experience for students".

By the time interviews were undertaken, digital technology facilities in the school were being enhanced and widened. An updated network had been installed across the school, so connectivity was no longer an issue. Digital slates, with built-in audio capabilities, were up and running, and had been divided physically into two sets. Teachers were reported to be happy with them, having received only 20 minutes training on how to use them. Although it was reported that the digital slates were not as responsive as the iPads, it was found that the Microsoft (MS) environment was easier to use for some teachers. Teachers liked the digital tablets as they had fast boot-up facility, which they found to be important for gaining rapid attention from students; a slow boot-up was found to interfere with the flow of a lesson. Devices to be used around school, however, still needed at that time to be pre-loaded with software. Additionally, a range of digital media projects with external groups was being considered – for example, a Wolverhampton City National Health Trust Health Action Plan, on which sixth form students (students choosing to take advanced level studies following year 11, and aged 16 to 18 years) might work.

In late 2012, 30 applications for digital leader positions had been received from students across the school, mostly from year 7 to year 9 (11- to 14-year-old) students. They all wrote 100 words on 'why' they wanted to be involved, and in January 2013, interviews took place. The students were interviewed by a project manager from the Wolverhampton LEP and by the lead teacher in the school. Those students interviewed ranged across years 7 to 11 (aged 11 to 16 years). Each student was asked to "come up with a list of equipment that could support their work" (£5,000 was provided for the digital leader team by the Wolverhampton LEP), to "identify the specific areas of technology and job roles" that they would support, and to organise themselves into teams that would "support different technology areas, organise their meetings, projects etc."

Initially some 15 digital leaders were identified and offered places on the project. While some dropped out at later times, others subsequently joined the project. Being a BSF school, and being involved in a new build programme, the project did need to consider and accommodate the disruption caused by moving into a new school building. The lead teacher did feel that this "hindered the Digital Leaders programme a little". As he said, it was difficult to gain "any continuity … due to room moves, equipment being moved, changed etc."

Management tasks as a lead teacher

Managing the digital leaders was a focus of concern for the lead teacher throughout the initiative. As the lead teacher said, "It has been a challenge but a pattern of how we use the Leaders has emerged". It is clear from the descriptions of what happened in this school that the project was managed, in order to ensure that it could work as effectively as possible for the digital leaders as well as those they were supporting. The lead teacher developed ways of working with a "nucleus" of some 8 to 10 digital leaders. The pattern emerging he described as "they are used as and when we need them. This flexible approach has worked well".

Major roles of the digital leaders

The lead teacher identified five major roles for the digital leaders. It should be noted that the latter four of these five roles required the digital leaders to manage situations concerned with intergenerational learning, where they were supporting older and professional groups:

- Reviewing and testing new equipment and software in school (advising on aspects of the BSF development and implementation).
- Helping to deliver workshops in school to staff (with sessions such as showcasing iPad Apps being led by digital leaders).
- Recording school events on video or through still imagery.
- In-class support to staff when requesting this.

- Representing the school at multimedia events (and, indeed, in one of these events, the school won a regional final concerned with developing Apps).

Who has benefited

The lead teacher indicated that the digital leaders themselves "have enjoyed what they do". He also said that "staff have also been very supportive and appreciative". As he stated, "Staff and student response is very positive".

The management of this initiative required the lead teacher to foster intergenerational learning involvement through a variety of activities. So, by the end of 2012, digital leaders had participated in a range of activities, including being involved in and winning two out of the three places on an 'Oxygen Accelerator programme', which was featured on local television. The two winning teams presented their ideas for developing new Apps for Apple and Android markets. The digital leaders presented to a board of leading information technology (IT) specialists. Their Apps were subsequently developed and went through an approval process for release through the Apple Apps store and the Android Marketplace. This form of activity is clearly requiring younger learners to present themselves and their ideas as equals; the winning products are placed with similar products created by older professional groups.

Digital leaders also worked as the school media team, producing multimedia presentations for use at school presentation evening events. In this form of activity, the young learners are concerned with considering an audience that includes older as well as younger members. The media team developed media programmes to run on the school's e-stream display panels that were placed in various locations around the new school buildings. Additionally, they were involved in activities that required their engagement with different professionals (media professionals, educational professionals, technology development professionals, and design professionals):

- Multimedia workshops run in conjunction with specialists from a number of professional media groups - iWisdom Ltd., Julian Fellows Games Design, Bullet Studios Music Production, and with the film maker Mike Ford.
- Initial workshops run with school departments - English, psychology, mathematics, and IT.
- Offering consultancy to the school's learning platform developer.
- Supporting staff workshops – on topics including sport and technology.
- Completing work with the photographer/designer Ming De Nasty as part of a BSF design project.

By early 2013, the digital leader group had expanded, including by that time "a wider cross section of our student community". These included students from year 7 to year 13 (11 to 18 years of age), all involved in on-going activities that focused on intergenerational learning aspects, in many cases identifying the needs and concerns of older professionals, creating materials and broadcasting these so that they fitted the needs of those audiences, including:

- A workshop by a year 9 (13 to 14 years of age) digital leader, to show staff the advantages of using the Snapguide App on the iPad. The digital leader demonstrated learning guides that he had produced and published to a website. Following the workshop, a number of other students and staff published teaching and learning guides for wider access and use.
- A media team covered a wide range of events. Their event photography work was assessed to be of a very high standard and was used at all school events including the annual 'prom'.
- Learning platform consultancy occurred regularly, leading to, as the lead teacher said, "real progress …being made in this area …over design and content issues".
- Safer Internet Day involved digital leaders actively in promoting 'Safer Internet'. Posters designed to promote Internet safety were displayed in school and on the new learning platform.
- A Computing Club for Girls was established as girls were under-represented as digital leaders. This was set up in conjunction with the University of Wolverhampton to explore the 'World of Computing' and to give girls a "chance to learn with leading experts about the latest developments".
- Multimedia Course Development involved a number of digital leaders, described by the lead teacher as "invited to help shape our new course that will run from September 2013 - the course

will be available as part of our new Curriculum offering". Students were consulted about the areas they would most like to study and this helped "determine the structure and content of the new course".

Issues encountered

In this case study, and in the other case study and the vignettes, specific questions were asked of the lead teachers about issues arising, particularly with regard to issues for the digital leaders. It is clear that the digital leaders' focus on developing and supporting digital technology skills could detract from other learning needs; however, this was not reported as an issue in this or in any other case. The lead teacher managed the situation so that conflicts of time would be minimised. The issues stated by the lead teacher were not concerned with management or engagement issues; they were concerned with time needs. As he said, "Many of the Digital Leaders have other commitments and it has been in some cases about making sure that they get the balance right". It would clearly be helpful for others developing these practices to gain more detail about how this balance was achieved.

The future

The lead teacher said that the school will continue to run the initiative in the future. He felt this "will be easier to do as we settle into our excellent new facilities. I have also recognised the need to give Leaders responsibility and the freedom to work on the areas that they are most interested in. Their roles as consultants will continue though". At the end of 2013, the lead teacher was considering how to run the initiative on a "more stable footing", for, as he said, "Where it has worked, it has worked very well indeed". There was also an intention to further involve those that could bring in outside support to work with the digital leaders (such as members of a local multimedia company).

Case Study 2

Why undertake the initiative

The lead teacher in this school stated very clearly the reasons for undertaking this initiative. "In September 2012 we moved to a brand new build as part of the BSF programme. Within the new build we have invested heavily in digital technology to support learning. As part of our vision we wanted to empower our students with the use of technology and give them a voice on how technology may be used within our Academy." It was clear that the lead teacher wanted to engage the young learners as full contributors within a wider school setting.

When and how the initiative was set up

The school started this initiative in September 2012. Sessions with student class groups were used initially to raise awareness of the idea, in which class tutors used a MS PowerPoint presentation to offer details about the initiative to all students. Students were given an application form during the session, and were "offered extra support to complete the form". The lead teacher also led support sessions on completing application forms. All applications were completed before the summer break in 2012, with over 50 applications received.

The application forms were used to shortlist 21 students who were interviewed over a period of two days. Students interviewed were asked "a series of questions about their experience and vision for the role". Following completion of the interviews, 14 digital leaders were appointed; they were notified by letter, and a copy of the letter was sent home to parents.

In September 2012, a first meeting was held, to discuss and agree expectations. How the group would communicate was agreed, with digital leaders indicating their preference for use of email. In this meeting they also "designed a job description which included roles and responsibilities". It was clear that managing the initiative was a clear focus for the lead teacher in this school also.

The need to engage the digital leaders with educational technologies being used in the school was recognised and acted on early. As the school had invested in new software, it was agreed that the digital leaders would "receive training on its use within lessons". Training sessions were run on using Channel 4 Learning Clipbank resources (2014), run by training personnel from the company, and on GCSEPod (2014) training run by the lead teacher. Both training sessions were reported to be

successful; students reported they had "found the information interesting and helpful". The potential of this initiative was recognised by others outside the school too. Following the sessions, an e-learning consultant from the local authority e-learning technologies team asked whether it would be possible for him to produce a "short video of the Digital Leaders, exploring why they feel it is worth getting involved with and the benefit of this resource" to the school. A trainer from Channel 4 Learning also asked about producing a case study on the digital leaders "to see if the approach of the students pushing technology encourages more teachers to engage with new technologies sooner".

In October 2012, a meeting was held to discuss how the initial training would be used to support teachers and other students across the school. In this meeting a focus on the needs of the older professional audience was the focus. The digital leaders developed a 3-stage framework:

- Stage 1 – continuous professional development would be delivered to teachers through department meetings led by the digital leaders. A meeting in November 2012 finalised the planning for this stage, which would be implemented throughout the remainder of that school term.
- Stage 2 – Drop-in sessions would be set up at lunch times, to look at new technologies or provide training on uses of the interactive whiteboard, led by digital leaders.
- Stage 3 – Support would be provided in lessons, but this would be mapped against a digital leader's ICT lessons so they could "put what they have learnt into a practical setting".

Across the school, each faculty was allocated two digital leaders who could support "research in digital practice". Students were appointed from across the entire age range, from year 7 to the sixth form (from 11 to 18 years of age). This was done to enable different types of expertise and experiences to be covered. Initially, 14 digital leaders were appointed, and by May 2013, as the lead teacher said, the "majority of them have maintained their commitment". It was found that commitment waned for year 11 (15- to 16-year-old) digital leaders during examination periods, which had been expected. As a consequence of this experience, the lead teacher felt that the school would "probably not focus the support on year 11 students" in the future.

Management tasks as a lead teacher

In this school the lead teacher focused on specific management tasks across the period of the initiative: arranging the application process; interviewing students; booking and arranging meetings; preparing agendas; preparing minutes of meetings; and organising bookings of ICT facilities to support the work the digital leaders were undertaking. It was clear from this list of tasks that the digital leaders were enabled to focus on activities that involved research, support and advice, rather than them having to focus on certain organisation, administrative and management tasks.

Major roles of the digital leaders

As part of the initiative, the school "purchased iPads to loan to the digital leaders to support their research on how iPads/ iPods can be used to support learning". As the lead teacher said, "The digital leaders have supported individuals, including other students in using their iPods to support learning", they have "supported teachers to use packages such as GCSE pod and clip bank", and "have suggested how to develop practice in a way which is student friendly". Digital leaders supported educational professionals through the delivery of continuous professional development (CPD) activities for a wide teacher group. "They have provided drop-in sessions for students and have supported during tutor periods" and each digital leader supports a specific department "to help research for new methods of using technology to support learning".

The more specific activities that digital leaders had undertaken were listed in early 2013, showing a similar focus to that described in the first case study, which included identifying the needs and concerns of older professionals, creating materials and broadcasting these so that they fitted the needs of those audiences:

- Researching revision Apps and resources for students to use on the iPads and iPods.
- Leading a Clipbank CPD session for all staff.
- Looking at what user guides needed to be produced for students when they received their iPod.
- Assisting in the roll-out of the iPod with any questions students had during tutorial times.

- Working with the lead teacher to update student acceptable use policies.
- Continuing working with staff members who were reluctant to use technology.
- Being attached to work directly with a faculty on teaching and learning through iPods and iPads.

Who has benefited

The digital leaders were also involved in this school in a wide range of activities, which had supported them and their interests as well as others across the school. Digital leaders had, for example, shared Apps such as the GCSEPod App with fellow students, and had worked with the school literacy co-ordinator to look at ways in which literacy could be improved across the school by using technology.

Specifically, the lead teacher and teachers in the school reported that digital leaders benefited in terms of:

- Receiving training on resources such as GCSEPod and Clipbank.
- Using iPads funded through the digital leaders' programme - a bookable resource for digital leaders to use.
- Positive impact on self-esteem, particularly reported by staff.
- Showing commitment, using their own time to attend training sessions and meetings, including a number of Friday meetings after the school day.
- Receiving positive feedback from outside contacts who had heard what they were doing at the school.

Teachers reported to the lead teacher that they (the teachers) had benefited in terms of:

- Raised awareness through workshops and CPD.
- Drop-in sessions for assisting and supporting with new technologies or software.
- Support for those reluctant to use technology.
- Being helped to develop use of translation/dictionary Apps for iPods/iPads to support the English as an Additional Language (EAL) students and literacy work generally.

The lead teacher stated that the school benefited in terms of:

- Expertise focused on specific areas of development relevant to the school.
- Assisting the lead teacher in developing the virtual learning environment (VLE).
- Working on digital signage around the school.

The lead teacher identified four different groups benefiting from this initiative, highlighting intergenerational focus and outcomes:

- The ICT support staff "have benefited as the digital leaders have taken away a lot of the time the ICT Support Team was spending dealing with the same questions about student iPods".
- "Students have benefited by having someone their own age explain in their own terms how to overcome some of the issues they are facing in using technology to support learning" and "by having a voice on what software would best support them to learn".
- "Staff have benefited by having a range of support during lessons if they find a piece of software or hardware difficult to use."
- The school "has benefited by having a joint approach between students and staff."

Issues encountered

Issues regarding over-commitment of the digital leaders through their focus on supporting others were not highlighted by the lead teacher. Again, in this case, engagement and management issues were not identified. As the lead teacher said, "As with all new bits of work the main issue has been ensuring that there is enough time committed to fully establish the programme across the school".

The future

The lead teacher said the initiative would be continued beyond that school year. "We will have a new ICT Faculty in September and will also be looking at new accreditation options. The Digital Leaders will support this work."

Vignette 1

This school put in place a range of measures to raise its academic results, from 28-29% 5 A*-C (highest level) General Certificate of Secondary Education (GCSE) results in the past, to 85% 5 A*-C (49% with English and mathematics) GCSE results at the time of the initiative. A part of that range of measures was concerned with elements of the school gaining Sports College status, which had focused on developing more positive self-esteem. The school reported these measures had been successful over the years, that students increasingly reported feeling more socially adept, and that a lot of this had been due to a focus on leadership. Following the implementation of these measures, students were reported to seek to do as well as they could. For this school, therefore, the introduction of the digital leaders' initiative linked well within its overall concerns and ethos focusing on supporting and developing leadership qualities and attributes.

The school introduced the initiative in a similar way to that described in the previous case studies, through an application and interview process. The initiative was announced in a school-wide assembly, and an application was completed online. In total, 49 students were interviewed in groups, each group associating itself with interests with certain digital technologies. Those appointed had not done any leadership work in any other subject area, so the cohort had a different set of interests from those in other leadership groups. In itself, this opportunity was important for those students. Indeed, the lead teacher reported that the initiative helped to "turn one pupil around".

The lead teacher set the agenda for the first meeting, but subsequently the group met after school, on a Friday, and set their own agendas. There were 18 digital leaders in total appointed. The appointments were recognised at a school level, and were celebrated by the head teacher in an assembly. Each digital leader had a specific role, and a chair of the group was elected. Interestingly, the chair had been working with hardware since he was 12 years old, had worked with ICT outside school a great deal, and repaired computers in his spare time. The group was able to use a specific website for their needs and purposes.

In terms of developing practices across the school, the group was asked to justify bidding for funding for equipment and to justify their choices of equipment for learning. They trialled equipment in lessons, teachers made notes about uses of the equipment, and students completed questionnaires about their uses. The digital leaders suggested equipment, trialled them, reported back on their advantages and disadvantages, and indicated how they might be used.

As well as being involved in trialling uses of digital technologies, the digital leaders each had to engage with older professionals. Each digital leader was assigned to an 'attached teacher' – they planned joint lessons. The digital leaders operated for teachers as 'bookable facilities', for training sessions or for a lesson. They covered all year groups and sets across the school.

At the start of the initiative, a range of digital technologies were already being used across the school in a variety of ways. Interactive whiteboards were installed in most classrooms, and these were felt to be used 'fairly well' – a lot by teachers in modern foreign languages, and used for quizzes in mathematics lessons, for example. Coursework was completed by students using laptops, and 8 iPads were used for this purpose in science, for example. The lead teacher felt that introducing digital technologies could support a greater independence of learning, which she believed was needed at that time.

In this school, digital leaders were involved in a variety of activities. Those activities required them to engage with older professionals, and again to consider broadcast and audience needs:

- Meeting with staff to organise future events and assisting with their digital needs.
- Meeting with the school website creators.
- Supporting specialist training in photography and videography.
- Being involved as required for IT support in lessons – the digital leaders were available during their own ICT lessons as a first level of support for students who needed assistance when a teacher or technician was not available.

- Maintaining the school television (TV) and radio channels. They maintained and updated the television material throughout the school and renovated the TV room to create an effective space in which to complete their digital work. The main digital screen in the reception area of the school was used to show images, video and audio of the schools' recent events.
- Filming and photographing school sport fixtures for the school newsletter.
- Creating a sports bulletin on a termly basis.
- Organising equipment, allocating job roles and uploading footage of presentations at the end of events.
- Interviewing key staff at events and taking photographs and capturing video footage to create broadcast material.
- Interviewing, photographing and filming key staff and young ambassadors from schools across the Black Country at the Black Country Young Ambassador Conference 2012. The students edited footage and used new digital single lens reflex cameras to capture still images, upload these onto a presentation for the end of the conference, for all participants to see.
- Creating 'Building an Educational Legacy' – a former Olympic swimmer visited the school and the digital leaders filmed the sessions and photographed other students for the school newsletter.
- 'Empowerment Day' – digital leaders filmed empowerment days across the school, taking pictures and creating videos for the end of day closing ceremony.
- 'Presentation Evening' – digital leaders filmed the annual Christmas event and helped take photographs of those receiving awards.

Vignette 2

Digital leaders in this school were engaged more focally in two main groups of activities:

- Developing sharing practices via blogs.
- Trialling and evaluating uses and applications of new digital technologies.

Sharing practices via blogs was a development inspired by the digital leaders themselves. As a result, the school gained access to four blogs that had been set up, able to be used by both staff and students. The blogs focused on: teaching and learning; performing arts; ICT advice; and a Flanders battlefield trip.

The digital leaders considered the technologies that they should deploy. The blogs were authored using Word Press to accommodate a range of web browser software, including those on iPad devices using Safari, for example. Each of the blogs was used to discuss a focal area:

- Teaching and learning - a staff-focused blog for sharing good practice, containing wide and varied information on useful iPad Apps, tips for lesson planning, and advice for using new planners.
- Performing arts - used as a tool for recording student assessment and progress, across Key Stages 4 and 5 (covering 14- to 18-year-old learners) for all performing arts courses in the school. The record of progress formed a diary of events and tasks completed by students to replace paper versions used previously.
- ICT advice - offered ICT tips to staff, including information regarding more technical aspects of using and supporting iPads. It also provided tips regarding online privacy and the use of Word Press for administering blogs.
- A Flanders battlefield trip - those digital leaders who took part in a trip to Flanders used the iPads to document and share their experiences with other students back in school, through a combination of images and textual information.

In terms of trialling and evaluating uses and applications of new digital technologies, the school reported that the experiences and opinions of digital leaders had "been quite instrumental in our approach to buying new equipment. Through their experiences with the use of iPads the school has decided to buy 60 more of these devices". Of these, 30 were used by performing arts and 30 could be booked by staff. The Apps installed were selected on the advice of both digital leaders and staff. The school purchased a range of new technology including Smart Board Active Expression handsets (choice selection tools), some global positioning system (GPS) watches for use by the physical education department, geographic information system (GIS) mapping software for use in geography, a

set of iPod touch devices for use in mathematics and English, and several visualisers for use in art and design.

Following initial success of the initiative, the school extended the range of digital leaders to include those in the sixth form. This latter group of digital leaders evaluated uses of iPads from a post-16-year-old perspective, concluding that a laptop or MS Windows-based tablet would be more beneficial as these would enable a higher standard of work required, there being few useful Apps on the iPad for A-level (advanced level) work. The school concluded that to make the most of the iPads, "we would need to invest in some extra software that isn't installed as standard".

From 2012, the school focused on younger students evaluating uses of tablet technologies (in Key Stage 3, with students aged 11 to 14 years), recruiting more digital leaders from its new year 7 cohort (aged 11 to 12 years), performing evaluations of new technology such as the Active Expression handsets and GPS watches, and investigating the uses of the iPad in speaking and listening-based subjects.

Vignette 3

In this school, digital leaders also focused on the needs of an older professional audience. They created a "workflow model" of how Apps could be "integrated into lessons". This included detailing the steps needed to "approach teaching staff" and ensure Apps were installed onto the iPads. The digital leaders shared amongst themselves the Apps they were then using, highlighting advantages and disadvantages. They found that Apps for mathematics were popular choices, as were time management and timetable Apps.

In the school, the use of iPads in lessons was reported to have increased significantly from late 2012, with very many bookings for class sets being made. It was found that "staff who have struggled with traditional technologies" were finding using iPads "more convenient than previous technologies". Digital leaders helped some more reluctant staff to engage with these technologies.

Digital leaders were also involved in school-wide developments. They took a lead in developing a school-wide digital reward system (called 'My Stickers'), and requested a visit to the new school site to film and record progress.

Following initial success of the initiative, the school looked to recruit new digital leaders from its new intake - a year 7 (11- to 12-year-old) cohort. It was recognised by the school that digital leaders were influencing strategic decisions about ICT investment under BSF. More specifically, digital leaders had trialled Nexus tablets to compare an iPhone operating system (iOS) with an Android operating system.

Discussion

It is clear, from across the 2 case studies and 3 vignettes, that digital leaders provided technological support and advice, but were also engaged in social intergenerational involvement (with teachers, managers and peers), in management intergenerational involvement (with the lead teachers, department and faculty leads, and teachers in classrooms), they offered a support focus (for the schools, as well as for individual managers, teachers and peers), and they needed to consider a broadcast and audience focus (in generating and publishing multimedia materials and outputs).

Digital leaders needed to commit to an intergenerational engagement and involvement – offering to professionals as well as taking from professionals. The initiative was advertised to students in a range of possible ways, using posters, announcements in form tutor sessions and in school assemblies. Students completed an application and were then involved in an interview (usually in a group with some common digital technology interests). Their breadth of experience with digital technologies, interests in working with them with other students and teachers, coverage of different digital technologies and age groups, and identifying and discussing possible roles to support students and teachers, were all used as indicators during interview and application selection processes. Individuals identified as digital leaders were given support, but then offered and provided long periods of commitment to the schools.

Specific knowledge and skills were involved and gained by the digital leaders and others. Digital leaders already possessed some levels of experience and expertise with specific digital technology types and an interest in developing these in an educational context. These were skill levels considered and identified at the outset. But digital leaders acquired greater skills in uses of either specific learning software and hardware or applications to educational practices (often gained after being involved in training sessions with professional providers or users of educational technologies). Evaluation skills were focused on (when reviewing potential uses for learning), as were liaison and discussion skills (when they interacted with both students and teachers). Group and team working skills were focused and used (when digital leaders worked in groups to capture news items and to produce them for broadcast across school media systems, for example). Presentation skills were involved (of how to put ideas and content together, when running a CPD session for staff, for example).

Managers provided an essential framework for the digital leaders. Lead teachers provided spaces in which digital leaders could work (perhaps a media room). They provided a width of activity opportunities. They encouraged digital leaders to develop and be involved in creating resources that could be shared and broadcast. They encouraged digital leaders to offer drop-in sessions for students and teachers. They supported opportunities for work in classrooms alongside teachers. They asked digital leaders to explore learning uses of digital technologies at home as well as at school. They looked at possible opportunities for digital leaders to be involved in projects with external groups. They encouraged digital leaders to offer consultancy and advice to school management and to school providers (such as learning platforms providers). They monitored digital leader involvement, and ensured they were balancing this involvement with their other learning needs. Lead teachers in some schools assigned digital leaders to support specific teachers, departments or faculties. Digital leaders often worked alongside teachers, working with individual teachers in drop-in and one-to-one sessions, as well as running CPD activities with groups of teachers.

In some cases, digital leader involvement offered time saving benefits. A cost saving in terms of time of ICT support staff time was identified in one school, when ICT support staff had limited time or where the same questions were being asked of them. But importantly, gains reported were concerned focally with mutuality and respect. Mutual sharing was seen to result in a range of benefits, including enhanced self-esteem. Digital leaders in their various roles were essentially contributing to the community, so they were involved in contributing positively to it to a much greater extent than they had experienced previously. In this way they were involved and directly contributing, rather than being more passive recipients of the system. But it was not clear from the evidence gathered that aspirations had shifted. However, in one school, to enable aspirations to be considered, a club for girls was established, in order to ensure their potential interests were met.

Digital leaders often demonstrated their skills and abilities in areas not previously recognised by teachers and managers in the schools. Evaluation and feedback skills were demonstrated following trials on digital technologies. Creation, presentation and broadcast skills were demonstrated when producing and presenting news and events through different forms of digital media. Digital leaders demonstrated their skills in working with individual students and teachers to support their specific interests and needs. Digital leaders demonstrated collaboration with external personnel.

Although digital leaders in some cases focused their attention on the development and sharing of their digital technology skills, there was no direct report of this detracting from their other learning needs. Lead teachers did indicate the need for them to manage this situation, however, and it is clear that without careful management, digital leaders could have become over-committed. Lead teachers met regularly with digital leaders to discuss their commitments, and gained feedback from subject teachers regularly to check their concerns or responses about how the initiative was progressing. There was no evidence of digital leaders missing classes due to their duties as digital leaders (except in the case of some ICT lessons where their digital capabilities were assessed as being beyond those being covered within those lessons).

Overall, contributions were reported by school leaders and teachers as being valuable and worthwhile. It was clear that the gains and benefits for digital leaders observed and reported by lead teachers and other teachers might not have arisen otherwise, especially as a number of the digital leaders were not involved in other school activities. But for these sorts of benefits to arise, the case studies and vignettes have shown that dedicated management time and support are needed.

Conclusions

Recommendations for schools wishing to undertake this form of initiative are now becoming more publicly accessible. In a review of the literature on intergenerational practices, although not specifically considered in technological contexts, Springate, Atkinson and Martin (2008, p.16) identified the need for: "activities to be suitable, enjoyable and of interest to both the young people and the old people so that they can both participate and so neither group are 'onlookers'." Since that time, guidance and recommendations are becoming accessible that consider such activities and practices from a technological perspective. For example, recommendations are offered in a report on the Wolverhampton initiative (Passey, 2013) and in a Rising Stars leaflet (2014).

In terms of conclusions that can be drawn from the case studies, vignettes and the discussion of findings presented in this paper, it is clear that a student digital leader initiative is worthy of being considering and undertaken by a secondary school. This form of initiative, as shown in the schools studied, enables students who are not necessarily involved in other leadership or school-wide activities to have opportunities to be involved. The initiative enables students to contribute positively to the community, rather than just receiving from it; students become school community contributors as well as receivers.

Management time from a lead teacher is needed. The initiative needs to be announced across the school, so that all ages of students might be represented. An application and interview process has been shown to be an appropriate way to identify and select digital leaders. Digital leaders need to demonstrate interests in specific and different digital technologies, particularly those that are or might be considered for use within the school over a period of two years or more. Digital leaders selected from across the widest age range of the school can represent a width of digital technology interests and be concerned with long-term involvement and commitment. There need to be opportunities provided (and a focus) for digital leaders to develop soft skills alongside technical skills. Indeed, at an early stage, digital leaders are likely to benefit from receiving training from external providers, such as those providing resources that are used on interactive whiteboards or iPads or tablets. A lead teacher needs to consider spaces where digital leaders can work (such as a media room), and opportunities for digital leaders to engage in formal, informal and non-formal learning settings as these arise. In the case studies, for example, digital leaders were involved in support and advice in formal settings (in classrooms), in non-formal settings (in clubs or groups when putting together media presentations), and in informal settings (undertaking evaluations at home as well as in school). Lead teachers need to consider how digital leaders can contribute to the school community, through being digital journalists, broadcasters, project team members, classroom supporters, home and classroom technology-use evaluators, advisors and consultants. Lead teachers need to consider whether to assign digital leaders to specific teachers, or departments, or faculties, and to consider how digital leader expertise can be integrated into management practices and processes to inform longer-term policies. At the same time, lead teachers need to check regularly with digital leaders and subject teachers that they are not becoming over-committed to supporting others, and missing important aspects of learning.

Digital leaders have been given opportunities in the schools studied to work with individuals, to look at options and opportunities. They have offered CPD sessions, drop-in sessions for students and staff, lesson support as requested by teachers, they have met with school managers to advise on specific aspects of potential development, and they have offered consultancy to external professionals such as learning platform providers. Digital leaders have also been involved in individual sharing, with other learners and teachers. They have been involved in team work and group sharing events, such as workshops, in creating and producing broadcast material of news and other events, in project work, working with others external to the school, and on wider national or regional challenges. They have additionally represented schools at external media events.

From the study reported here, limited evidence was gathered about how the digital leader initiative affected aspirations. This is an area worthy of future focus; lead teachers need to consider how aspirations might be affected, and how involvement with external groups and experts might support and enhance those aspirations. The effect of leadership opportunities on specific groups within the school could be considered in this context (for example, the need to encourage girls to more actively participate in this initiative).

The involvement of digital leaders in a balance of formal, informal and non-formal activities is worthy of more focus in future research. The outcomes of involving digital leaders in one-to-one, drop-in, workshop, broadcast development, project challenges, equipment evaluation, advice and consultancy opportunities, for example, are all worthy of more detailed consideration. The digital leader perspective has not been explored in this study, but would again be a valuable future research avenue.

Overall, findings from this study indicate that this is a worthy area of school and educational development. Features and factors that have enabled those positive developments have been identified within this study, but there is a need for other studies to explore these dimensions further, if elements of intergenerational learning are to be developed in schools with best effect in the future. In their conclusions from a study in a non-technological context, as Cumming-Potvin and MacCallum (2010) stated, "On the one hand, a student may be given opportunities to increase self-esteem and develop academic skills. On the other hand, schools can also silence individuals by excluding those actors who possess social capital considered to be 'non-mainstream'" (p.318).

Acknowledgement
The author thanks most sincerely the head teachers, lead teachers and students who were willingly and openly involved in this study and who provided invaluable evidence. Thanks particularly to Jill Purcell, Wolverhampton Local Education Partnership, who made this study possible. Individuals and schools in this report have not been named, to conform to ethical needs placed on reports of research of this nature - this should not be seen as devaluing the commitment and contribution played by all involved.

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