Video as a means for promoting student voice and critical thinking, within the evaluation of assistive technology.

xxxx Inclusive Digital Technology

Introduction

Throughout my career in education with children and young people who have Additional Support Needs (ASN), I have had a particular interest in, and passion for, the use of multimedia to promote student voice, to develop student confidence and independence. As a teacher, a practitioner in the field of assistive technology, and the Head of the Assistive Technology service (XXX), I have observed countless examples of technology enabling and communicating student voice, impacting positively on learning, social and other outcomes. Yet all too often, practice in this area focuses narrowly on the need to achieve specific learning outcomes based on curriculum and on strengths and weaknesses as observed by professionals, risking the marginalisation of the voice and aspirations of students. While research often asserts that student views should be key to assessment, there is limited reference made to how this is to be achieved. As Joy Zabala notes in her discussion on the Student, Environment, Tasks and Tools framework (SETT), 'not only is it important to include multiple professional perspectives, student and the parents voice must also be part of the process. This can make the difference between success and lack there-of'(Zabala, Revised 2005).

This is a complex and multifaceted area to be working in. Here, children and young people often experience unequal access to the very technology that has the potential to transform their ability to communicate, learn and participate in daily life. A recent survey of technology-enhanced personalised learning from around the world (Holmes et al, 2018) found that there is a tendency for evaluations of technology within education to be 'uncritically positive'. The report, which does not specifically include the use of technology for children and young people with ASN, aims to support educators to make decisions about the use of technology. Too often in discussions about technology in education, assumptions are made about the learner's level of literacy and problem solving skills, this contributes to digital exclusion and wider inequalities and then eventual abandonment of the technologies. Dave L. Edyburn concludes, 'the gap between the potential of technology and current practice has been a source of frustration to consumers, parents, professionals, and

policymakers' (Edyburn, 2000). Furthermore, for each learner their experiences will vary depending on the context, the skills and capacity of staff and family members and individual health needs etc. According to Zabala, 'the most persuasive barrier to effective use of assistive technology was the lack of understanding of the interaction of the different factors that influence effective use of assistive technology' (Zabala, 2000: p27).

Here, I am concerned with how we design processes which ensure the ASN student has a greater role in the evaluation of technology, this includes identifying how we might support them to achieve what is important to them (beyond learning outcomes). The ability to self-determine can enable students to make personal life decisions and to have more control over their lives' (Toni Van Laarhoven-Myers et al, 2016, Duffy, 2006). I argue that by developing skills in reflection, critical thinking and self-determination in relation to technology, students can begin to build confidence and resilience for the future. This essay considers how we might use video as a tool for achieving this, at an important moment in the lives of disabled children, the transition to adult life.

In the United Kingdom statutory guidance, *Listening to and involving children and young people* (Department for Education and Employment, 2014), a link is made between student voice and the United Nations Convention on the Rights of the Child. Here they promote the need for children and young people to have opportunities to express their opinion in matters that affect their lives. Yet in a recent survey of the Education, Health and Care planning process, Adams et al found that only 44% of young people and families said they had been asked if they wanted to be involved, and only 19% had been given choices about how they took part. This indicates more work is needed around student participation (Adams et al, 2017).

The Case Study

The case study involved one young person, aged seventeen, whom XXX has supported over the past three years. I selected this young person because his experience of technology, and his perspectives on what works and what doesn't, can provide insights for other students, practitioners and researchers. He is a social and engaging student with a strong desire to achieve greater independence, including at home where he needs his mother's support to access the internet. His experiences with technology have at times been difficult because devices and software have not always worked well with his physical and cognitive needs. His

physical disability means that he is completely ‘hands free’, while levels of fatigue impacts on what technology he uses. After two years of trialling different options, he has found the most effective technology to be a tablet mounted to his wheelchair, with the use of a Head Mouse Nano, Dwell software and voice control including Dragon Dictation. He is currently in his transition year to college and has expressed a range of anxieties about his equipment, and the availability of technological support at the college. While consent was given by the student, in order to maintain anonymity, I will from now on refer to this student as ‘H’.

As a service XXX has been piloting the SETT framework (Zabala, Revised 2005). I wanted to look specifically at the way we gain input from the student, not only for the initial assessment, but as part of an on-going process. Previously I have used Talking Mats (a visual tool for helping people to share their views) to support H evaluate his access to technology. Through the Talking Mats I was able to hear how technology gave H independence, and reduced reliance on adults, but I also received a strong message about the anxiety and stress involved with transition.

Method

Firstly, I videoed H using his tablet from start up, to opening and using a number of applications. As the research was undertaken in a busy school environment, it was difficult to access a space where we would not be interrupted. During our session H’s physiotherapist and a visitor entered the room, and H ended up giving a demonstration of how he used his technology. While using Gmail the physiotherapist suggested he added her to his contacts, this gave him the opportunity to use the keyboard while she spelt out her details. I chose not to support or help in anyway and allow H to use his technology as independently as possible.

Immediately following our discussion, we watched the video on an iPad. I supported him to evaluate each tool with a simple rating scale of 1-10 (happy face one end and sad face at the other). I drew on Edyburn’s quality assurance indicators and measurement definitions (Edyburn, 2000), in order to encourage him to reflect on quality, quantity, accuracy, rate, frequency, spontaneity and independence. In order to do this, I had to simplify the language and make each question relevant to his particular experience, and need for access in a range of contexts. As we watched I paused the video as he pointed out particular functions and examples to discuss further. The entire session lasted around an hour.

H felt certain things were especially effective such as login via face recognition, the use of Skype for socialising with friends, setting up ‘shortcuts’ that would make things easier, (for example, saving pages of interest in to ‘favourites’, and pinning useful applications to the task bar). Of particular interest to H was how effective the technology has been for building and maintaining friendships. The particular aspects H was highlighting, led me to reflect on his emotional wellbeing, and thus I added in some questions around happiness, relationships and self-esteem/confidence.

The visual scale and key questions around quality indicators supported understanding, but considerable difference in engagement was noticed between similar discussion when using the technology to reflecting and watching the use.

This experience appeared to be self-affirming for H. He enthusiastically cheered himself on, as he observed himself achieving small things, working out problems, gaining access and finishing tasks. This in itself I would argue was important for confidence building. One of the questions included: ‘Is it faster using the technology or getting your Teaching assistant to help?” For H, having greater independence was by far of greater importance than speed. The video enabled me to help H focus on the specific tool we were evaluating at any one moment. Removing him from task demands appeared to free him up to focus, observe and think reflectively. It also highlighted where assumptions may have been made about the level of knowledge and skills H had, this included identifying gaps in literacy skills.

Following the session, H contacted me to share the following feedback. He told me how he had wanted to Skype a friend and was about to call his mother to help him, and then thought: ‘No. I can do it’. He independently went on to Skype and typed a message to his friend asking if he could call him the following day at 4pm. He expressed significant pride and enthusiasm that he had been able to achieve this. This suggests to me that the process of evaluating his use of technology in this way, contributed to him building confidence and skills, and ultimately becoming more independent. In addition we have arranged additional support around developing his literacy, this shows how this method can support schools to be more responsive to individual need.

Discussion

Reflective practice is ‘learning through and from experience towards gaining new insights of self and practice’ (Brian Lystgaard Due & Simon Bierring Lange 2015, Finlay, 2008). Video reflection is used widely in teacher professional development and training. Video as a

reflective tool was particularly valuable here because when a young person with ASD uses technology, they are having to negotiate multiple issues i.e. processing information, attempting to undertake the task, negotiating access issues. King identified several areas of demands that tasks place on the students: physical, cognitive, and linguistic (Illinois Assistive Technology Guidance Manual, Hasselbring et al, 2012 Edition (King, 1999).

By videoing the use of technology and then removing the demands of the task, and just watching, H was more able to concentrate on the evaluation and undertake critical thinking. This method gave opportunity to consider and use the principals of Universal Design for Learning (UDL) for representing information, for expression of knowledge, and engagement in learning (Rose & Meyer, 2002). Critical thinking skills in this area do not just happen, they need to be nurtured and taught, particularly when technology is rapidly advancing, tasks and functions change and the technology itself can fail.

This case study was limited due to its size, scope and timeframe. A short-term study of one individual does not allow for themes and patterns to be identified, nor for generalisations to be made (Yin, 2003). It would be worthwhile testing this method across a diverse sample of students, accessing a range of technologies within different educational contexts, over a longer period of time. It is important to acknowledge here that H was able to communicate his views, and confident enough to assert them, other young people may struggle with this. Each young person will have their own strengths, needs and motivations.

It was surprising how effective it was watching the video with H, it gave him the additional visual prompt and the ability to focus on his abilities, strengths, weaknesses and functional use, despite his processing difficulties. What initially appealed about the SETT framework was its simple format, the video adds an accessibility to this, which enables the student to be at the centre. It appeared to increase and highlight the agency of the young person, his motivation and ability to self-determine in relation to accessing technology. As such it also has the potential to improve the engagement of others (whether they be teacher, other professionals, family or friends), as the individual asserts their preferences, links technology to their personal goals, and enables them to be seen as experts in their experience of accessing technology. This method aligns with person-centred approaches (Sanderson, 2000) currently widely accepted to be good practice for young disabled people as it keeps the young person in the centre of discussions about what matter to them.

All too often conversations about technology default to issues of staff capacity, skills and values. Video puts the focus back on to the young person and their experience of accessing technology. Key learning here is the need to focus on what is important to the young person. For H this was not his disability, nor his learning outcomes, it was his independence. This process can encourage deeper, more philosophical thinking about what technology is for, supporting students to ask important questions about their engagement with technology, prompting teaching staff to think beyond the educational curriculum, widening possibilities and building resilience for adult life.

Conclusion

This project found that using video to view and evaluate technology reduced the task demands and enabled a positive engagement which appeared to be self-affirming and supported some crucial thinking and most importantly the motivation to increase his knowledge and understanding. Areas for further research include the development of questioning and tools for interrogating the video and how this fits simply into the SETT framework. Of particular interest are what the key indicators for children and young people might be, and how the use of additional visuals and symbols could be used to involve those with additional communication needs.

'In a world where we are very aware that understanding human behaviour requires knowledge of the complex interaction between both cultural and individual development, we should not be surprised to find that fostering human learning will require access solutions that are optimal interactions between what is universal and what is individual' (Rose, Hasslburring, Stahl, and Zabala, 2005: p517) I believe when we focus of the human element and really listen it can have a greater impact on the wider picture.

References

Adams, Adams, L., Tindle, A., Dobie, S., & Shepherd, C. (2017). Experiences of Education , Health and Care plans : a survey of parents and young people, (March 2017).

Assistive technology and students with mild disabilities Edyburn, Dave L Focus on Exceptional Children; May 2000; 32, 9; Social Science Premium Collection pg. 1

CENMAC (2019). A Voice for All: 50 Year of Assistive Technology in Education [Web]. Available at: https://cenmac.com/2019/01/cenmac-a-voice-for-all/ Accessed 25 March 2019.

Duffy, S. (2006). *Keys to Citizenship.* 2nd ed. Sheffield: Centre for Welfare Reform.

Due, B. L., & Lange, S. B. (2015). *Videobased Reflection on Team Interaction (The ViRTI-method)* (Vol. 1). Finlay, W. M. L., Walton, Chris & Antaki, Charles (2011). I Applied Conversation Analysis: Intervention and Change in Institutional Talk. Palgrave Macmillan: GB, 161-183.

Department for Education (DfE). (2014). *Children and Families Act.* Retrieved from The National Archives https://www.legislation.gov.uk/

Edyburn, Dave, L. (2000). Assistive technology and students with mild disabilities, (May). Focus on Exceptional Children.

Adams, L., Tindle, A, Basran, S., Dobie, S. and Thomson, D. (2017). *Experiences of Education, Health and Care plans: A survey of parents and young people*. IFF Research; University of Derby

Holmes, W., Anastopoulou, S., Schaumburg, H., & Mavrikis, M. (2018). *Technology-enhanced Personalised Learning Untangling the Evidence.* Available from https://www.bosch-stiftung.de/sites/default/files/publications/pdf/2018-08/Study_Technology-enhanced%20Personalised%20Learning.pdf Accessed 20 March 2019.

Laarhoven-myers, T. E. Van, Laarhoven, T. R. Van, Smith, T. J., Johnson, H., & Olson, J. (2016). *Promoting Self-Determination and Transition Planning Using Technology : Student and Parent Perspectives*. https://doi.org/10.1177/2165143414552518

Sanderson, H. (2000). Good Practice Guidelines on Person-Centred Planning. Available at: http://nda.ie/Good-practice/Guidelines/Guidelines-on-Person-Centered-Planning/Guidelines-on-Person-Centred-Planning-format-versions/2-What-is-Person-Centred-Planning-/ Accessed 20 March 2019.

Talking Mats. *About Talking Mats.* Available at: https://www.talkingmats.com/about-talking-mats/ Accessed 20 March 2019.

Rose, D. H., Hasselbring, T. S., Stahl, S., & Zabala, J. (2005). *Assistive Technology and Universal Design for Learning: Two Sides of the Same Coin*, (January).

Yin, R. (2003). *Case Study Research.* Thousand Oaks California: Sage Publications.

Zabala, J. S. (2005). Using the SETT framework to level the learning field for students with disabilities. *Retrieved August*, *10*(Revised), 2010. Retrieved from http://www.ode.state.or.us/initiatives/elearning/nasdse/settintrogeneric2005.pdf

Zabala, J., Blunt, M., Carl, D. and Davis, S. *Quality indicators for assistive technology services in school settings,* Journal of Special Education Technology; Fall 2000; 15, 4; Social Science Premium Collection pg. 25