Personalized Technology for All

An inclusive approach

David Banes

CEO Mada Center, Qatar

بحث مقدم الى
الملتقى الثاني عشر للجمعية الخليجية للاعاقة
سلطنة عمان – مسقط
خلال الفترة من 6-8 مايو 2012م
الموافق 15-17 جمادى الثاني 1433هـ

Introduction

During 2008 and 2009, I was working as a consultant to the UK building schools for the future project. Although that project has since ceased the lessons are now being applied in Qatar to facilitate the use of accessible technologies in schools to support students with additional needs. The challenge in both settings was to ensure that accessible technology was being fully utilized, recognizing that expertise was not consistent across schools, and that it was unrealistic to expect all to receive intensive support from consultants. The response to this challenge was not to limit resources to a small number of learners, but instead to develop a model that could be applied to all students at a school.

Barriers to implementation

The barriers to successful implementation of personalized access to technology were extremely similar in both settings. The barriers were fundamentally related to the AT ecosystem operating within the country at the time.

- IT competence

  Many teachers had only limited ICT skills and knowledge, they used a small portfolio of technology but found it difficult and were not motivated to introduce new technologies to their practice. They could often be defined as digital consumers, rather than digital creators.

- Disability Awareness

  In mainstream schools the level of awareness of special needs issues was often limited. Teachers were willing to support inclusive education, but were concerned about their level of readiness to deliver to a high standard.

- Awareness of AT

  Some teachers had some awareness of some solutions. But too often teachers had very limited awareness of the scope of access technologies. Information was often provided by vendors and hence there was little independent comparison of solutions to help teachers make decisions about the best form of support to an individual or class. Teachers were often especially weak on knowledge of free technology and those built into the operating system

- Confidence with AT

  Many teachers felt deskilled by the technology, they did not feel in control of the technology so as to help students, as a result, they often opted for low tech solutions that they felt they understood and could control better.

- Budget

  As many teachers were unaware of free and low cost solutions, they often worried unduly about the cost of providing technology for students. Rather than finding a low cost entry point and evaluating

success, they instead avoided the provision issue until funding could be found from a third party source such as a charity or parents.

- Technical Support

Teachers were also concerned about the need to install drivers or software onto networks and the risk of losing pupils work if not effectively backed up and secured.

Both the UK and Qatar have a blended approach to the education of students with additional needs. The majority of students are educated within Mainstream settings, with a smaller percentage of students educated within special schools or other provision for students with Special educational needs. It was recognized that many students need some form of short term additional support owing to illness or injury and that needs were not fixed, varying with the student, the task and the technology.

To address the underlying issues and the complexity to individual needs, a more structured approach to meeting the needs of students through technology was required.

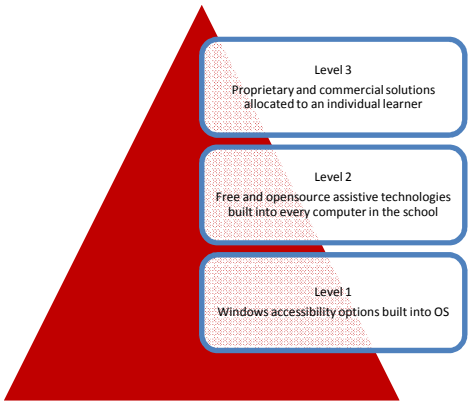
An Inclusive approach – Personalized Access for All

The model as developed is based upon the premise that all students benefit from personalized learning, and hence could equally all benefit from personalized technology. But that the means of delivery of such technology, and the technology itself would be escalated in greater levels of intensity and cost according to individual and organizational needs.

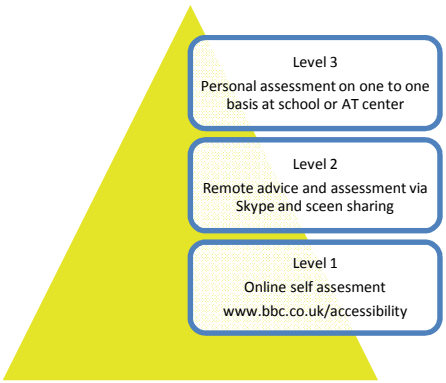
Delivery is then founded upon three pillars of accessible technology:-

1. Accessible technology provision
2. Assessments of needs
3. Training for students and staff

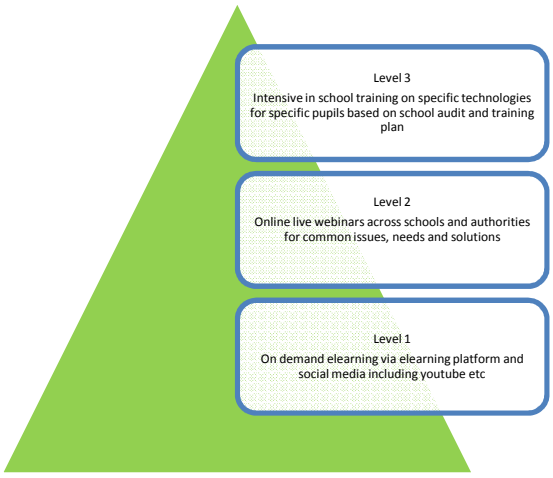
Across the three pillars, a model of escalation developed that offered low cost solutions to all users, escalating to high cost, intensive, individual solutions to those with greater needs. These can each be represented as pyramids.



Technology Provision Model



Assessment Model



Training Model

At each level resources can be allocated according to needs, most importantly where schools have limited budgets, or where human resources are stretched, a significant degree of capacity building within schools can be achieved through levels 1 and 2 of the pyramids. The model also had a number of other benefits which had been unanticipated

- Teachers have access to on demand materials to support them when they most need them. This helps build confidence in the teachers that they could cope with the new technologies being introduced
- Teachers have the opportunity to compare solutions and practice with other teachers facing similar issues. This again gives an alternative approach to issues by drawing upon in school experience
- All students in the school undertake level 1 assessments, this helps reduce risks of pain and strain at workstations, introduces good habits in the use of technology and also identifies students who need more intensive support who might otherwise go undetected.

- Schools made better use of OS accessibility and open source solutions, by incorporating these into the design of workstations, schools may find some solutions that replace outdated third party products, and allows for greater opportunity to invest in innovative products

The model continues to evolve to take account of changing technologies and changing schools, for instance touch is now a widely used mainstream interface and is increasingly built into the operating system rather than requiring additional products and similarly new technologies such as gesture, eye tracking and voice recognition are increasing widely available.

Delivering the model

Key actions have needed to be taken in Qatar to establish the model as a potential means of delivery. At the heart of this model was the development of the Mada center as a hub around which an AT ecosystem could be built. This involved forming relationships with a range of stakeholders around which services and collaborations could coalesce to form an integrated model of inclusive provision.

Whilst still a work in progress, Mada has delivered a number of services and products to support the overall ecosystem and model :-

- Awareness and Information

Mada provides a free awareness and information service, both across the web and through an open resource center. All materials are published under creative commons license, and are available for use and reuse. Playlists of useful demonstrations of technologies are being constructed on YouTube such as the ones at www.youtube.com/davebanesaccess

- Assessment and Advice

Assessment and advice is critical to helping people make the changes to the technology that will be most likely to lead to success. Mada is developing a portal for self assessment that will be available in English and Arabic and freely available for use.

- Arabic Assistive Solutions

The lack of Arabic assistive technologies has been a significant barrier to uptake of technology by disabled people in the Middle East and Gulf. Mada has commissioned eight products including freely distributable and open source project to help address this issue. The first product (Clicker 5) was launched in November and a further six are likely to become available in the coming weeks.

Mada has made a call to companies for additional Arabic solutions and currently has 25 proposals to consider.

- Open Source Technologies (free and low cost)

Mada has been supporting the development of open source technologies for use across the Arabic speaking world. The code and applications for the first of these are now due for launch. There

remains a real need to develop a community of Arabic programmers to contribute to code, so as to further extend the reach of such solutions to communities where the current entry level price is too great and to stimulate innovation and new ideas.

- Elearning

Mada has launched an elearning site at www.elearning.mada.org.qa Based upon the open source LMS "Moodle" the site demonstrates how free resources can be made available to support both professionals and students with a disability. Mada invites others to make use of the site and welcomes those that are willing to contribute materials in both English and Arabic to extend the portal further .

- Blended learning and training

eLearning only offer a partial solution to the training needs of people with a disability and professionals. Mada offers a programme of seminars around key issues of access technologies on a monthly basis and is currently exploring how to stream these online to make them available more widely at low or no cost to others within the access community. Mada has delivered accredited training to 50 professionals leading to a foundation qualification in assistive technology and are seeking to extend this, through collaborations with Universities within the region.

- Accessible design

Activity with teachers, government departments and major institutions has led to the establishment of a department that focuses upon issues of accessible design. Issues range from guidance on accessible design of documents to the tools and techniques required to create content in arrange of alternative formats, from a process for accessible website certification to guidance on the design of kiosks and ATM's.

The work on eAccessibility has been accelerated by the launch of a national eAccessibility policy produced by ictQatar. The policy mandates levels of accessible technology in Qatar for the future, and establishes Mada as a core element in ensuring the implementation of the targets and objectives

These collaborations have led to practical initiatives to support people with a disability in Qatar which include:-

1. Connected
   Connected is an initiative with Qtel in Qatar. The agreement provided a 50% discount on all Qtel tariffs, free advice and free AT for people with a disability in Qatar
2. Imkaan
   Imkaan is an initiative with Microsoft in Qatar to support the needs of people with a disability in a range of settings. Notably it has supported the production of freely available digital literacy materials and the integration on accessible technologies into rehabilitation services and wards at the hospital in Doha.
3. Bookshare

Through Bookshare Mada has made 80,000 English ebooks available to people with a disability in Qatar and is now working to establish a repository of Arabic ebooks with Bookshare. The first 100 books are already available for people with a print impairment

4. Kiosks
   Mada is working with banks and the ministry of the interior to introduce accessible kiosks into a wider number of locations in Qatar. Such kiosks facilitate on demand services for finance or information needs.

Future Steps and Recommendations

Although the model was based upon experience with schools, a very similar approach can be introduced to both employers, ministries and colleges. Although the sample is small, feedback was positive that such escalation helps all computer users to use computers effectively and productively. As a result of the implementation of the approach across all users, provision for people with a disability in higher education or employment becomes much easier to accommodate.

At the heart of the model of personalized learning and personalized technology is a continuum. That continuum is one which we all move through as we age and our needs change. Hence our model is one for every student, citizen and resident.

Mada are proud of the steps that have been taken within Qatar to stimulate greater uptake of technologies by people with a disability, and we are increasingly playing a role internationally to ensure that the needs of Arabic speakers with a disability are given voice. To maintain the momentum which has been established, there is a need for activities within Qatar to blend and cooperate with other access provision within the region and wider Arabic speaking world as many of the steps taken will have significant benefits beyond the borders of the state.

The next phase of development should be based upon co-operative and collaborative efforts between AT services regionally to address the need for shared Arabic materials and solutions. Mada would wish to encourage others to join with them to form a network of AT centers who can work together to

- Localize and translate assistive technologies to support Arabic speakers
- Produce information and guidance in accessible formats for people with a disability and their supporters.
- Train and support professionals to develop skills in the use of AT in the classroom and beyond
- Collaborate on new projects and research opportunities

In addition we need to address some substantive issues that are preventing the full implementation of accessible technology for Arabic speaking people with a disability. These include :-

- Lack of effective OCR
- Lack of freely usable TTS
- Lack of voice recognition for Arabic speakers
- Lack of effective and usable word prediction in Arabic.

We believe that such a network would have a significant impact on the lives of all Arabic speakers with a disability across the gulf states, and beyond. In addition it would play a role at both policy and practice levels as a member of the newly formed G3ICT AT center leadership network. Mada is willing to host the first meeting of such a regional network in Doha later this year. We look forward to taking this opportunity to further extend digital inclusion in Qatar, the gulf and on behalf of Arabic speakers everywhere.