

# Assistive Technology Workforce Development



**Appendix 3: Application of the framework to  
areas of AT practice – competence clusters**



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## **Appendix 3: Application of the framework to areas of AT practice – competence clusters**

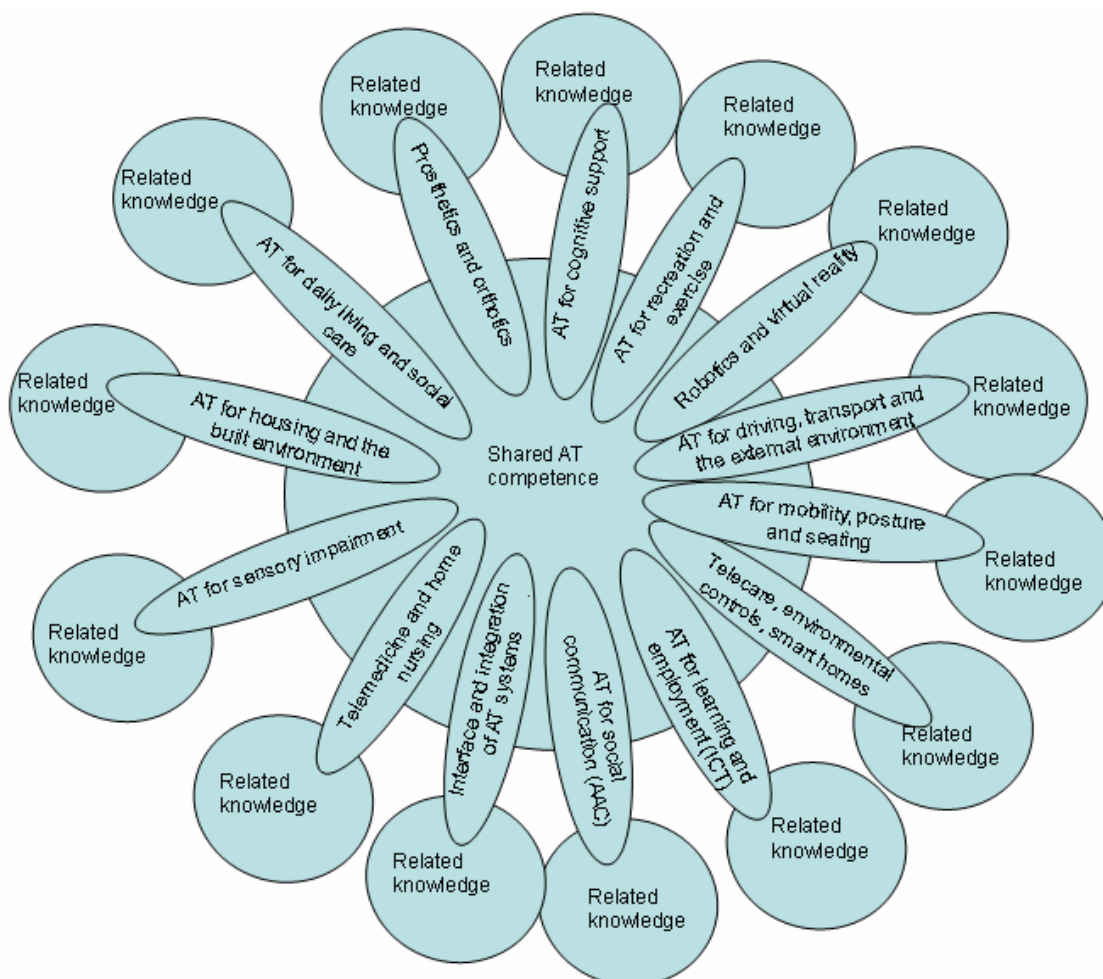
### **1.1 Appendix format**

- 1.1.1 Within the shared area of practice in assistive technology (AT), there are areas of specialist practice which require practitioners to demonstrate skills, knowledge and aptitudes which vary from those required in other areas of AT; termed competence clusters. An example would be the difference between prosthetics and orthotics and AT for vision. The related knowledge, in terms of an understanding of impairments and conditions, the task requirements and the disabling social and environmental conditions which lead to a requirement for AT, vary considerably between these two areas. What does not vary, we propose, is the process of applying the clinical reasoning embodied in the core competences within the proposed AT framework.
- 1.1.2 The division of AT practice into these ‘competence clusters’ partly relates to:
- the requirement to build competence in an area of AT that varies to a significant degree from other areas due to the nature of the impairments, medical conditions, task requirements, social and environmental factors and the current core technologies within that area of practice;
  - such a division into competence clusters also relates to education provision which, though outside the scope of this exercise, is enabled by the foundation of National Workforce Competence and must be accommodated as the framework is developed;
  - there must also be an acknowledgement within this development phase of existing job roles and service delivery practice which, though likely to change over the next decade, will influence the implementation and adoption of the framework – it has to be relevant to current employers.
- 1.1.3 This is a pragmatic division of the field of AT, rather than an attempt to present a coherent taxonomy. Such taxonomies exist elsewhere and may influence future development of the competence clusters as service remodelling takes place. These proposals are open to discussion and it is expected that the breakdown by competence cluster may change over the development and implementation phases.

## 1.2 Competency clusters within AT:

- AT for mobility, posture and seating
- Electronic AT: telecare, environmental controls and automated homes
- AT for lifelong learning and employment - Information, Communication Technology (ICT)
- AT for social communication - Alternative and Augmentative Communication (AAC)
- Interface and integration of AT
- AT for sensory impairment
- AT for housing and the built environment
- AT for daily living and social care (community equipment/ household activities)
- Prosthetics and orthotics
- AT for cognitive support (AT for dementia and learning disabilities)
- AT for recreation and exercise
- Robotics and virtual reality
- AT for driving, public transport and navigating the external environment

## 1.3 Model of the AT workforce framework showing an area of shared competence and the competency clusters which are proposed



## 2 **Competence clusters within AT – a detailed review**

- 2.1 The tables below provide an overview of the main groups of practitioners currently involved in the provision of AT within competency cluster areas of practice. This overview does not include a listing of particular job titles or a note of those in the workforce who work in managerial or support role who would also need education and training in AT. Nor does it include the significant numbers of related disciplines whose practitioners are likely to want to access training and some education in AT.
- 2.1.1 The tables give an indication of the registration requirements, entry qualifications/ qualifications for practice, an indication of career development problems in the specialist areas and of the provision and geographical access to education and training. This listing is subject to confirmation by further consultation with practitioners and education providers within the 15 specialist areas.
- 2.1.2 The courses are listed according to their position in the National Qualifications Framework (NQF) (detailed below). Not all the course information that was reviewed included information of the relevant NQF level and so this resulted in an estimation of their level. There is a further caution on the listing of level 0 courses. These courses range widely from 2 hour sessions to 1 or 2 day courses and may cover advanced product -specific information or generic introductory material. Most are unaccredited and change title and focus regularly. Those included in the listing were identified at the time of review and similar CPD opportunities may be available from other education providers in the sector. A comprehensive listing of AT events can be found on the FAST website at: <http://www.fastuk.org/services/events.php>. What such an overview provides is an indication of the spread of courses along the educational pathway for each specialist area/ competency cluster.
- 2.1.3 What is apparent from this review is the significant lack of education provision at levels 2-6 on the educational pathway for the majority of competency cluster areas. This is reflected in the listing of practitioners involved in provision of AT, with most requiring professional or post graduate education and, at the other end of the scale, many practitioners entering the sector with unrelated qualifications and accessing CPD mainly through in-house and short course training in AT.

**Table 1: Pathways for Learning Progression Linked to Role Progression**

NQF Level	Academic Awards	General Vocational Awards	Key and Basic Skills	Employment-led Awards, Certificates, Diplomas	Specialist Vocational Qualifications	Work-related Vocational Qualifications	Apprenticeships (work based)	Proposed to links to Career Framework.
8	Doctorate				Professional qualifications - e.g. clinical psychology	e.g. Doctorate in Business Administration		Consultant Practitioner
7	Masters degree, Post Graduate Certificate, etc				Professional qualifications / Post graduate e.g. drama therapy, pharmacy	e.g. MBA		Consultant Practitioner/Advanced Practitioner
6	Honours degree				Professional Qualifications - e.g. nursing			Practitioner
5	Higher Education Certificates, Diplomas and Degrees	Foundation Degree (Year 2)	Key Skills Level 5	BTEC Advanced Professional		NVQ Level 5		Assistant Practitioner
4		Foundation Degree (Year 1)	Key Skills Level 4	BTEC Professional	BTEC Higher Nationals	NVQ Level 4		Assistant Practitioner
3	A/As GCE Advanced Ext.Awards Advanced FSMQ	Vocational A/AS Levels (VCE)	Key Skills Level 3	BTEC Advanced	BTEC Nationals Diploma in Foundation Studies (Art & Design)	NVQ Level 3	Advanced Modern Apprenticeships Technical certificates	Senior Healthcare Assistant

NQF Level	Academic Awards	General Vocational Awards	Key and Basic Skills	Employment-led Awards, Certificates, Diplomas	Specialist Vocational Qualifications	Work-related Vocational Qualifications	Apprenticeships (work based)	Proposed to links to Career Framework.
2	GCSE (grade A* - C)	Intermediate GNVQ	Key Skills Level 2	BTEC Intermediate	BTEC First Diploma	NVQ Level 2	Foundation Modern Apprenticeships Technical Certificates	Support Worker
	Intermediate FSMQ	GCSE in vocational subjects (grade A* - C)	Basic Skills Level 2					
1	GCSE (grade D - G)	Foundation GNVQ	Key Skills Level 1	BTEC Foundation		NVQ Level 1	Entry to employment (E2E)	
		GCSE in vocational subjects (grade D-G)	Basic Skills Level 1					
Entry Level	Entry Level Certificates	Entry Level Certificates in Skills for Working Life and Life Skills (EDEXCEL) Career Planning (ASDAN) Life Skills (ASDAN) Job Seeking Skills (OCR) Preparation for employment (OCR)	Entry Level Level 3  Entry Level Level 2  Entry Level Level 1		BTEC Introductory Certificate			Entry Level Jobs and Cadets

## 2.2 AT for mobility, posture and seating:

### 2.2.1 Range of AT to be covered is proposed as: wheelchairs, electric and manual, (scooters - shared with AT for driving) seating and posture management

**Areas of related knowledge to be aware of:** biomechanics

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Physiotherapists/ Physiotherapy support workers (registered with HPC)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- (Industry – no practitioner titles – some voluntary registration with *BHTA)</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education than that for rehabilitation/ clinical engineers focused on technical competence covering range of technical areas (one of which may be AT).</li> <li>- Physiotherapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Volunteers: in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- None</li> <li>-</li> </ul>
* HPC IPEM NAEP BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- National Association of Equipment Providers</li> <li>- British Healthcare Trades Association</li> </ul>

## 2.2.2 AT for mobility, posture and seating: education and training available

Degree, Diploma and Certificate Courses in Mobility				
NVQ Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
7	MSc / PgCert / PgDip	Rehabilitation Science	University of Brighton	No
7	MSc/PgDip	Orthopaedic & Rehabilitation Technology Programme	University of Dundee	No
7	MSc / PgDip/ PgCert	Assistive Technology [Module in mobility available]	Centre of Rehabilitation Engineering (CORE) King's College London	No Yes
7	MEng (Levels 1-4) BEng (Levels 1-3)	Medical Engineering	University of Surrey, Guildford	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
3	60 credits at Master level from Oxford Brookes University	Posture Management for People with Complex Disabilities	Oxford Centre for Enablement	Yes
Other Accredited Courses				
NVQ Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
	None identified			
Short and Product-Specific Courses				
NQF	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	2 day short course	The Chailey Approach to Postural Management	Active Design	Yes
0	Certificate of attendance	Postural Support Systems for Children	Disabled Living Foundation (DLF)	Yes
0	Informal	Posture Management for Adults and Children with Complex Disabilities, Customised Seating for Adults and Children with Complex Disabilities	Oxford Centre for Enablement	Yes
0	Informal	Sunskill STEPS course	Sunrise Medical Ltd	Yes
0	3 day short course	Wheelchairs and Seating	University of Strathclyde, National Centre for Training and Education in Prosthetics and Orthotics	Yes
0	Informal	WhizzKidz courses	Whizz Kidz	Yes

\*\*NQF = National Qualification Framework (see Appendix 4 for details)

### 2.2.3 AT for mobility, posture and seating: analysis

- **Stakeholders/ career development/ educational pathways:**

Most wheelchairs are provided by local NHS wheelchair services, while users with complex needs, particularly for special seating, may be referred to specialist regional centres. Local and regional services have differing organisational structures and professional involvement.

Rehabilitation engineering services are represented by the British Society of Rehabilitation Medicine and the Rehabilitation Engineering Services Management Group (Resmag) while the Wheelchair Managers Forum and Posture and Mobility Group are also active in representing practitioners in the field. A range of voluntary sector organisations are involved in campaigning and standards production in this area, including: Whizz-Kidz, emPOWER and the National Forum of Wheelchair User Groups.

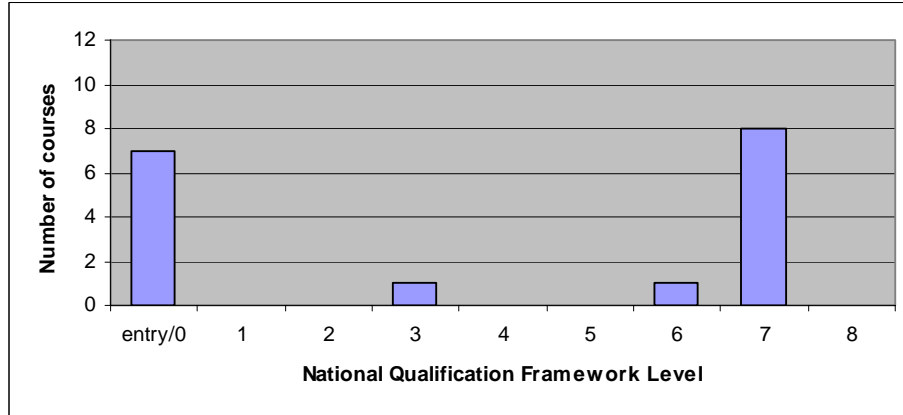
Career development tends to be through either clinical/ rehabilitation engineering routes or through occupational and physiotherapy routes. Voluntary sector organisations actively provide wheelchairs and wheelchair services, for example, the British Red Cross sell a wide range of wheelchairs and mobility equipment and loan mobility equipment in return for a voluntary contribution. There are also a large number of independent manufacturers and retailers in this field providing services directly to the public and providing training and demonstration to wheelchair services staff.

There are poor career and educational pathways in this field, though it is possible to take the clinical technologist route within the health sector. In January 2007 NHS Estates and SEMTA produced Engineering and Maintenance and Installation NVQ Level 2 units relating to Assistive Technology Systems and Equipment. These cover fault location, scheduled servicing activities, hand over and maintenance and repair activities for a range of AT, 'such as manual and powered wheelchairs, buggies and scooters, postural support systems, hoists, personal communication aids, walking aids, adjustable beds, pressure relief and distribution equipment, telecare alarm systems, aids for daily living, environmental control systems [and] associated battery charging systems for assistive technology systems and equipment.' It is reported in minutes of the Wheelchair Managers Forum of October 2005<sup>i</sup> that when available at NVQ Level 2, wheelchair services could then set an NOS requirement into the staffing element of their maintenance and repair future contracts.'

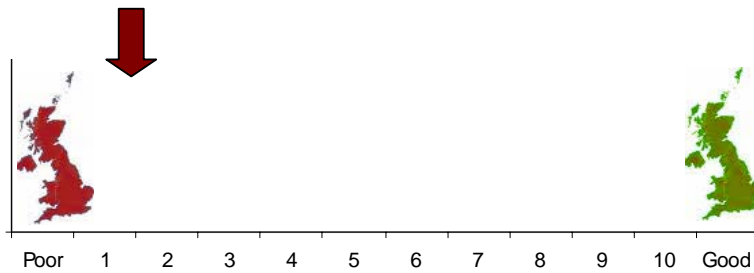
One concern about the approach used in developing these NVQ units is that, although a broad competence in relation to safe and effective engineering practice must be demonstrated, application is required in relation to just two of the types of assistive technology systems and equipment covered. It will be useful to see how this works in practice and what the implications are in relation to practitioners working across the range of AT. Framing these competences within a broader role, as proposed in this paper, would enable practitioners to also support the client in sustaining the safe and effective use of AT in the home and community setting and enable more diverse career development options for the practitioner.

The Wheelchair Managers' Forum have recently launched some proposed competences for entry level and advanced level practitioner which can inform the development of national occupational standards in this area.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in AT for posture and mobility:**



## 2.3 Electronic AT: telecare, environmental controls and automated homes:

2.3.1 **Range of AT to be covered is proposed as:** telecare, environmental controls, automated homes (lifestyle monitoring), physical electrical and data management systems (client side) (shared with housing and built environment)

**Areas of related knowledge to be aware of:** electronics engineering, data management, building construction

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Social work practitioners (registered with GSCC)</li> <li>- Housing practitioners: housing developers, managers and home improvement agency staff</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- (Industry – no practitioner titles – some voluntary registration with *BHTA)</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Social work practitioners – in-house and short course</li> <li>- Housing practitioners – housing degree/ diploma, vocational training, in-house training and specialist short course training</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- Electronic engineering (NVQ/ HND and degree pathways available)</li> <li>- Data management (NVQ/ HND and degree pathways available)</li> <li>- Housing design and management (Chartered Institute of Housing)</li> </ul>

*	<ul style="list-style-type: none"> <li>HPC</li> <li>GSCC</li> <li>IPEM</li> <li>NAEP</li> <li>BHTA</li> </ul>	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- General Social Care Council</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- National Association of Equipment Providers</li> <li>- British Healthcare Trades Association</li> </ul>
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### 2.3.2 Electronic AT: telecare, environmental controls and automated homes: education and qualifications available

Electronic AT: telecare, environmental controls and automated homes				
Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc / PgDip/ PgCert	Assistive Technology [Module in EAT available]	Centre of Rehabilitation Engineering (CORE) King's College London	No Yes
7	MSc	Human Centred Systems	City University London	No
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	MSc / PgDip / CPD	Inclusive Environments: Design and Management	The University of Reading	No
7	MSc/PgDip	Medical Engineering and Physics	School of Medicine, King's College London	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
3	Level 3 - City and Guilds SVQ (Scotland)	Working with Assistive Technology (3063) [Telecare]	City and Guilds, Scotland	Yes
2	VRQ Level 2	Supporting Users of Assistive Technology	Hereward College [City and Guilds, London]	No
Other Accredited Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
3	15 credits (Level 3)	Assistive Technology, Telecare and Enablement: Matching Technology to the Person	York St John College	Yes
1	Continuing Professional Development	Certificate of Continuing Professional Development	Enable Ireland	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Informal	Making Telecare Sustainable	CUHTec, University of York	Yes
0	Short course	Telecare Solution and Assessment of Service Users	Disabled Living Foundation (DLF)	Yes

### 2.3.3 **Electronic AT: telecare, environmental controls and automated homes: analysis**

- **Stakeholders, career development/ educational pathways:**

Electronic AT (EAT) as a term can encompass communication aids, environmental control systems, computer access technology, telecare services, integrated switch and access technologies. Regional rehabilitation engineering services within the NHS are involved in assessment and provision of some of these technologies at a specialist level. EAT at a less specialised level may be available from local equipment services, with community alarm services based in local authority social services departments or contracted out to independent service providers and computer access technology provided predominantly through education or the voluntary sector. For this competency cluster it has been proposed to substantially include neither electronic technologies for communication nor computer access technologies as it has been proposed that it makes sense to include a focus on these technologies within other competency clusters.

Telecare, environmental controls and smart or automated home technologies share a common requirement to build an information infrastructure that relates to the home environment. These technologies are not currently provided by a single service in most areas across the country. The ICES initiative proposed that provision of telecare should fall within the scope of community equipment services with the aim of delivering a community based, preventative service with minimal barriers to accessing these services. Telecare services are not widespread yet although roll-out is being supported by the Government's Preventative Technologies initiative. The evidence from pilot studies is that telecare services, including lifestyle monitoring, can be useful to a wide range of people with physical and cognitive impairments. Telecare Services Association (TSA) is the representative body for the telecare industry within the UK. TSA have developed a management framework for telecare services which could contribute to understanding of best practice.

Environmental controls are provided predominantly through specialist rehabilitation services linked to regional health services and have historically been provided to relatively small groups of disabled people to assist with physical independence in the home but have not, on the whole, been commonly available to large numbers of older people. Automated or smart home technologies are, at the moment, predominantly pilot or research study services. There are considerable barriers to mainstreaming these services in line with the development of new housing or regeneration of old housing stock.

Professional organisations representing regional rehabilitation services have contributed to the production of standards in relation to specialist EAT services, including environmental controls. There appear to be few voluntary sector organisations involved in standards development for electronic assistive technologies, though there has been participation from Help the Aged, Age Concern and Dementia Voice in service planning for telecare.

Career development in these technologies is diverse with bodies of practitioners coming through the clinical engineering routes in the NHS or

through local authority social work, housing, fire service or occupational therapy routes.

Current activity in developing the workforce includes interest by industry in developing an education and training framework, work by the CSIP team building on the Trusted Assessor training framework, course development by York St John, an optional module on the Hereward/ City & Guilds VRQ2 and various short courses.

CSIP propose that approximately 50,000 people will be required to make up the telecare workforce, which is a substantial training need, particularly given the diverse backgrounds of the practitioners.

A meeting hosted by CSIP in July 2006<sup>ii</sup> to look at education and learning programmes concluded that 'knowledge and skills were required at different levels and depths if telecare is to be successfully implemented across the country' and recommendations included:

**Recommendation 3:** Liaise with the AT Forum to draw on their feasibility study for National Occupational Standards in Assistive Technology. If necessary, commission further work with users, clinicians and industry to identify and/or map the roles/ competences that are specific to Telecare, in addition to those already set out in the Trusted Assessor Framework.

Recommendation 4: Liaise with Skills for Care and Skills for Health to promote the need for the competences identified in (3) to be reflected in relevant National Occupational Standards and Induction programmes.

Recommendation 5: Influence the relevant Qualification and Curriculum Authorities to incorporate Assistive Technology/ Telecare as an integral component of appropriate vocational, graduate and post graduate learning programmes (e.g. social worker, nurse, occupational therapists, physiotherapists, public health workers, etc)

There also appears to be some activity to scope workforce implications of the Our health, our care, our say White Paper specifically in relation to the potential telecare workforce by teams within the Department of Health, though it is unclear what progress has been made.

The potential of telecare and remote monitoring have been highlighted in several policy papers and in the Wanless Review. The more considered papers highlight the fact that emerging AT which provides potentially useful information to manage care is only useful if the associated organisational infrastructure is in place (see West Lothian project review: Opening Doors for Older People<sup>iii</sup>). As implementation of some of the telecare projects has highlighted, reliance on intelligent information systems is not a cut price alternative to personal care but sits alongside it, a technology driven approach does not work and a focus on cost savings/ shunting does not work. The implication is that there will be a considerable workforce development requirement in relation to working with environmentally intelligent AT. There is some optimistic reference to the increasingly 'ubiquitous' character of such AT which usually means that it is hoped that such AT will turn into a magic box that requires little attention. Like computers, such AT needs to be seen as a tool to manage intelligence not

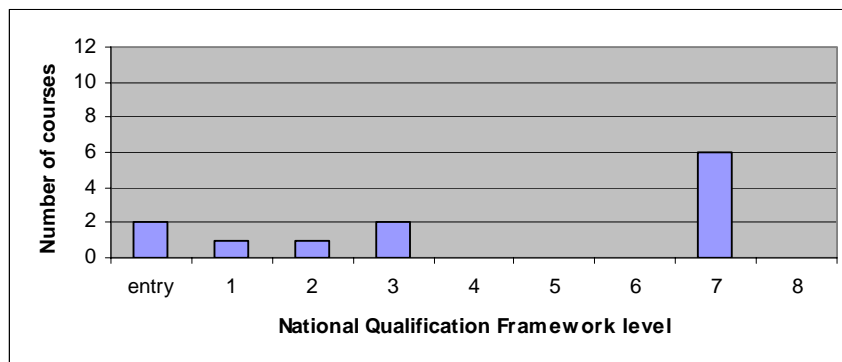
replace it. The workforce, at every level, need to be supported to use intelligence in dealing with a range of AT.

It is likely that smart or automated homes will become increasingly mainstreamed, particularly as architects consider new ways of conserving energy in house design through modelling and controlling energy consumption. This will increasingly provide the opportunity to build in AT add-ons for lifestyle monitoring and support. The requirement for a range of practitioners in the building and design workforce, including electricians, to be able to get access to education and training on smart home AT may be considerable.

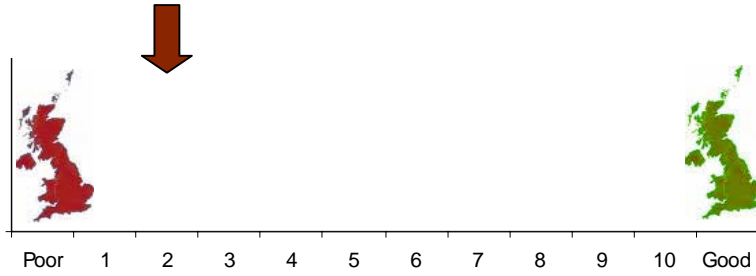
The European Telecommunication Standards Institute (ETSI) has recognised that many telecare designs and approaches to implementation have been technology led and that factors hindering the acceptance of telecare are complex issues of trust, poor usability and accessibility and in general, designs that do not sufficiently take the full user experience of the service or equipment into consideration.

ETSI has therefore set up Specialist Task Force 299 to provide design, development and deployment guidelines for optimising the user experience of telecare services. It highlights the importance of the user experience elements such as trust, user interaction and service aspects of telecare services, including user confidence in the equipment and service; ethical and legal issues; security and confidentiality issues; accessibility of equipment for those having physical, sensory or cognitive impairments; usability of telecare equipment and services; and integration with and adaptation to the client's cultural background and social environment. For sustainable implementation, these issues need to be covered by education and training.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training for telecare, environmental controls and automated homes:**



## 2.4 AT for life long learning and employment (ICT):

2.4.1 **Range of AT to be covered is proposed as:** AT to access computers and the internet - access hardware and switches, software, as well as a range of digital learning aids, (e.g. electronic abacus) to also include AT to support recording (written communication) – will share areas with AT for social support, Integrated switches, AT for cognitive support (learning disability) and with AT for vision and hearing

**Areas of related knowledge to be aware of:** learning development, vocational rehabilitation strategies

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] HPC registration</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Physiotherapists (registered with HPC)</li> <li>- Vocational Rehabilitation Professionals registered with VRA*, includes:             <ul style="list-style-type: none"> <li>- Rehabilitation Case Managers</li> <li>- Rehabilitation Counsellors</li> <li>- Vocational Rehabilitation Service Managers</li> <li>- Vocational/Employment Counsellors</li> <li>- Rehabilitation Training/ Treatment Providers</li> <li>- Disability Employment Advisers</li> <li>- Employment Support Workers</li> <li>- Occupational Therapists</li> </ul> </li> <li>- Technical/ Disability Officers registered with *NADP</li> <li>- Disabled Student Allowance Assessors (HE) – regulated by QAG/DfES</li> <li>- Special Educational Needs Co-Ordinators (SENCO)</li> <li>- Teachers registered with the (DfES)/ General Teaching Council</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Third sector</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Vocational Rehabilitation Professionals: UK Vocational Rehabilitation professionals require a University degree. Degrees in Vocational Rehabilitation, Counselling, Disability Management or Case Management. Other acceptable fields of study include Occupational Health, Rehabilitation Nursing, Occupational Therapy, Physiotherapy, Psychology, Psychiatry, Social Work, Cognitive Behaviour Therapy, and Education. Individuals are given chartered status if they can demonstrate equivalency through other education, training or experience.</li> <li>- Technical / Disability Officers: in-house and short course</li> </ul>

	<ul style="list-style-type: none"> <li>training</li> <li>- Disabled Student Allowance Assessors (registered with QAG/DfES): in-house and short course training</li> <li>- Teachers: The Education (School Teachers' Qualifications) (England) Regulations 2003 qualified teacher status (QTS) plus mandatory qualification relating to hearing impairment (HI), visual impairment (VI) or multi-sensory impairment (MSI)</li> <li>- Special Educational Need Co-ordinators (SENCOs): Accredited short course training relevant to pupils being supported</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Third Sector: AbilityNet/ITCH*: may have completed AbilityNet accreditation course</li> <li>- Volunteers: in-house and short course training (may have completed AbilityNet accreditation scheme)</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- Electronic engineering (NVQ/ HND and degree pathways available)</li> <li>- ICT qualifications (NVQ/ HND and degree pathways available)</li> </ul>

*	<p>HPC</p> <p>IPEM</p> <p>BHTA</p> <p>VRA</p> <p>NADP</p> <p>QAG</p> <p>DfES</p> <p>ITCH</p> <p>NAEP</p>	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- British Healthcare Trades Association</li> <li>- Vocational Rehabilitation Association</li> <li>- National Association of Disability Practitioners</li> <li>- Quality Assurance Group</li> <li>- Department for Education and Skills</li> <li>- National Association of Equipment Providers</li> <li>- IT Can Help (third sector)</li> </ul>
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#### 2.4.2 AT for life long learning and employment (ICT): education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Human Centred Systems	City University London	Yes
7	MSc / PgDip/ PgCert	Assistive Technology [Module in EAT available]	Centre of Rehabilitation Engineering (CORE) King's College London	No Yes
7	Postgraduate CPD	Inclusion and Special Education	University of Birmingham, School of Education	Yes
7	PgDip/ MSc or stand-alone	ICT and Special Education Needs module	University of Edinburgh/CALL Centre	Yes
3	Level 3	The ACE Module	ACE Centre North	Yes
3	Level 3	The Assistive Technology Module	ACE Centre North	Yes
2	VRQ Level 2	Supporting Users of Assistive Technology	Hereward College [City and Guilds, London]	No
Other Accredited Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	

3	Level 3 Open College Network (OCN)	Professional Development in Adaptive Technology	AbilityNet	Yes
1	The High Tech Certificate Training Course	Certificate of Continuing Professional Development - awarded by Dublin Institute of Technology	Enable Ireland	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Short course	Into work – a review of current practice	Disabled Living Foundation	Yes
0	Short course	Alternative pointer control	ACE Centre Advisory Trust, Oxford	Yes
0	Short course	Maths recording for students with physical disabilities	ACE Centre Advisory Trust Oxford	Yes
0	Short course	Computers, technology and disability	TechDis	Yes
0	Short course	E-learning developer's training event	TechDis	Yes
0	Certificate	Access Technology Foundation Certificate	BCAB - British Computer Association of the Blind	Yes
0	Certificate	British Computer Association of the Blind Trainer Certification Scheme (BTCS)	British Computer Association of the Blind Trainer Certification Scheme (BTCS)	Yes
0	Informal	Access Technology Primer	National Library for the Blind (NLB)	Yes
0	Informal	DSE (Display Screen Equipment) Assessor Training Course	Posturite (UK) Ltd	Yes
0	Informal 1 day training	Assistive and Enabling Technology	Royal National College for the Blind	Yes
0	Informal study day	ICT and Inclusion	The Call Centre, Edinburgh	Yes
0	Informal 1day training	Talking Tactiles	Royal National College for the Blind	Yes

#### 2.4.3 AT for life long learning and employment (ICT): analysis

- **Stakeholders/ career development/ educational pathways:**

**Education:** A wide range of professionals assess and provide for AT in education. Health and social care staff work with teachers, teaching assistants and learning support staff in schools to enable disabled students to access learning material and ICT. Some schools with higher levels of disabled students have specialist AT technical staff. In higher and further education disability support services and are more clearly defined. Disabled Student Allowance (DSA) assessment services are provided by a range of providers and regulated by the Quality Assurance Group (QAG). DSA QAG was originally set up by the Department for Education and Skills (DfES), but is now an independent group made up of representatives from local authorities, the Open University, higher education institutions, DSA-needs

assessors, DSA equipment suppliers, SKILL and the National Union of Students. It has designed a scheme to assess the quality of the work of those carrying out DSA-needs assessments and supplying the recommended equipment.

Teachers who support disabled students are represented through teachers' unions. The National Association of Disability Practitioners (NADP) is the professional body representing AT technical support staff in schools. The British Educational Communications and Technology Agency (Becta) is the Government's key agency in the strategic development and delivery of its information and communications technology (ICT) and e-learning strategy for the schools and the learning and skills sectors. There is some voluntary sector activity in this area, including AbilityNet (computer access) and the ACE Centres (computer access and communication aids). Other voluntary sector organisations, such as Disability Equality in Education (DEE) work to support the inclusion of disabled children in mainstream education.

Some concern has been voiced about the competence of staff in the education sector to support disabled students and the DRC have highlighted the deficit in training in this area. Liz Sayce, Director of Policy and Communications at the DRC, said: "For some disabled children it is a real lottery as to whether they have a good experience of school, be it mainstream or special school. Whilst we welcome the call for a national standard of SEN provision, with the funding to match, we must have higher expectations of the education system than just asking that the basic minimum be delivered.

"Training our teachers to deliver a good education for children with Special Educational Needs is an imperative. One in five children is identified as having an SEN, so it is hardly a minority issue. Yet many factors militate against these children getting in and getting on in today's education system when the major drivers for a successful school revolve around league table results."<sup>iv</sup>

The Common's Select Committee on Education and Skills have recently outlined a strategy on special educational needs. The Government's response, published in October 2006, sets out the action it will be taking over the next three years as part of its SEN strategy to address issues raised by the Committee. The main focus of that action is on improving training and making special educational needs and disability a national priority for continuing professional development. Activity will focus initially on speech, language and communication needs (SLCN) and dyslexia, followed by work to support students with autistic spectrum disorder and moderate learning difficulties. The role of SEN Co-ordinators (SENCOs) in schools will be strengthened and schools will be expected to name a senior teacher with lead responsibility for this work. Regulations will set out the role, responsibilities, training and experience required for the coordination of provision for children with SEN following advice from the Teachers Development Agency. The TDA will also advise on the development of nationally accredited training for all those new to the role of SENCO.

Career pathways in AT in Education have not been developed and there is little focused support and training, though this is increasingly available to the workforce in higher education and in specialist colleges, with resources and advice on good practice available from TechDis. TechDis also provide a

database of AT for ICT access and run and co-ordinate short courses across the country.

**Employment:** The government has given itself a target of getting one million people who are currently on incapacity benefit back to work over the next ten years. This means 2000 people a week will need to be assessed, supported and followed up to get them back into the workplace. In “Caring for our future”, published in November 2005<sup>v</sup>, the government sets out its strategy behind the incapacity benefit plans and hints at the role of Occupational Health Professionals and expanding the role of rehabilitation services.

The main AT service provider in this area is currently Access to Work, a scheme funded by the Department of Work and Pensions (DWP), although individual employers may contract AT services to support employment through occupational health schemes and NHS services also provide AT to support rehabilitation and maintenance of function, including support for employment. Many of the other initiatives to support disabled people into work do not have a focus on assistive technology, though it is not clear why this is the case.

A wide range of professionals, primarily occupational therapists, physiotherapists and ergonomists, who are employed either directly or through contracted services to Access to Work, assess and provide for AT in employment. Disability Employment Advisers in Job Centres also provide information and signposting in relation to AT. At a specialist level, services are provided by Vocational Rehabilitation practitioners working in the NHS and through services funded by the DWP.

Rehabilitation medicine professionals are represented by the British Society of Rehabilitation Medicine (BSRM) and Royal College of Physicians and have produced a strong body of evidence in relation to good practice in vocational rehabilitation. Vocational Rehabilitation practitioners are represented by the Vocational Rehabilitation Association (VRA). There appears to be no voluntary sector involvement in this area.

Apart from clinical engineering/ rehabilitation medicine routes and therapy routes, neither of which is directly related to this field, there is no educational pathway developed in this area. In the absence of a recognised and related diploma or degree in the field, Vocational Rehabilitation professionals are required by the VRA to demonstrate 4 years of directly related and supervised work experience to qualify for acceptance for chartership status.

The VRA set up an Educational and Training sub-group in April 2005 in response to concern within the field that national standards and national qualifications were required. A comprehensive set of standards relating to the scope of practice of vocational rehabilitation practitioners was disseminated to members in April 2007 for comment and should be available publicly shortly. These will inform the standards required for membership of the VRA though there are no plans currently to develop National Occupational Standards in vocational rehabilitation.

**ICT use in older age:** From an ICT point of view it looks like “future technologies have the potential to diminish problems of accessibility”<sup>vi</sup>. Older people who have historically been thought to be out of touch and not

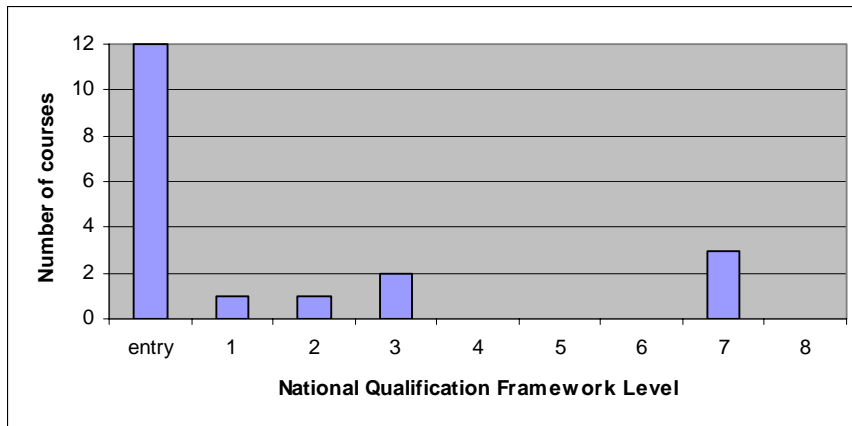
keeping pace with technology now appear to be embracing it with 4 million over 65 (1.5 million people over 75) owning a mobile phone and 300,000 texting family and friends to keep up social networks. Over 1.5 million own a PC or a laptop computer<sup>vii</sup>.

In a recent poll<sup>viii</sup> disabled adults rated the value of the internet much more highly than non-disabled people, reporting that the internet:

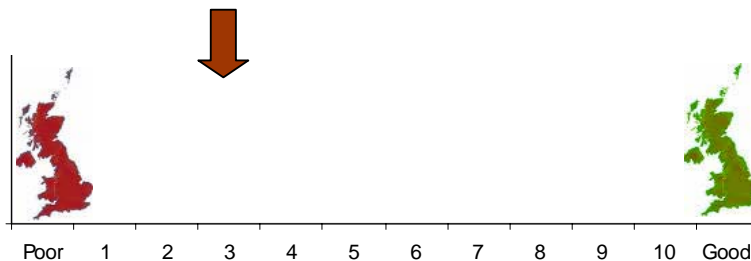
- improved the quality of their lives (48% vs. 27% non-disabled).
- made them better informed about the world (52% vs. 39% non-disabled),
- helped them feel more connected to the world (44% vs. 38% non-disabled)
- helped them reach out to people with similar interests and experiences (44% vs 38% non-disabled).

There is currently little education or training to equip the AT workforce to be competent to support the use of ICT by older people and to integrate it with other AT.

• **Education and training available – quantity and spread:**



– **Visual analogue scale describing geographical availability of education and training in AT for lifelong learning and employment (ICT):**



## 2.5 AT social communication:

### 2.5.1 Range of AT to be covered is proposed as: Alternative and augmentative communication (AAC) devices, both low and high tech

**Areas of related knowledge to be aware of:** language development

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] HPC registration</li> <li>- Occupational Therapists and support workers and Physiotherapists (registered with HPC)</li> <li>- Speech and Language Therapists (registered with the HPC)</li> <li>- Technical/ Disability Officers registered with *NADO</li> <li>- Special Educational Needs Co-Ordinators (SENCO)</li> <li>- Disabled Student Allowance Assessors (registered with QAG/DfES)</li> <li>- Teachers registered with the DfES/ General Teaching Council</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement) (in some areas)</li> <li>- Third sector (ACE Centres primarily, also AbilityNet)</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Physiotherapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>-</li> <li>- Speech and Language therapy: specialised 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Technical / Disability Officers: in-house and short course training</li> <li>- Disabled Student Allowance Assessors (registered with QAG/DfES): in-house and short course training</li> <li>- Teachers: The Education (School Teachers' Qualifications) (England) Regulations 2003 qualified teacher status (QTS) plus mandatory qualification relating to hearing impairment (HI), visual impairment (VI) or multi-sensory impairment (MSI)</li> <li>- SENCOs: Accredited short course training relevant to pupils being supported (some Local Authorities provide in-house training for teaching assistants and learning support assistants.</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Third sector – in house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- Electronic engineering (NVQ/ HND and degree pathways available)</li> <li>- ICT qualifications (NVQ/ HND and degree pathways available)</li> </ul>

*	HPC IPEM BHTA NADO DfES NAEP	- Health Professions Councils - Institute of Physics and Engineering in Medicine - British Healthcare Trades Association - National Association of Disability Officers - Department for Education and Skills - National Association of Equipment Providers
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## 2.5.2 AT for social communication: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc / Diploma	Human Communications	City University London	Yes
7	PgDip/ MSc or stand-alone	ICT and Special Education Needs module	University of Edinburgh/CALL Centre	No
7	MSc / PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	No
7	MSc/PgDip	Medical Engineering and Physics	King's College London	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
3	Level 3	The AAC Module	ACE Centre North	Yes
Other Accredited Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
	None			
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Short course	Clicker 5	ACE Centre North	Yes
0	Short course	Assessment for communication and learning	ACE Centre Advisory Trust Oxford	Yes
0	Short course	Developing low tech communication resources	ACE Centre Advisory Trust Oxford	Yes
0	Informal study day	AAC Study Day	ISAAC / Communication Matters Study Days	Yes
0	Informal study day	Communication Aids and AAC Technology	The Call Centre, Edinburgh	Yes
0	Informal - 2 days	The Picture Exchange Communication System (PECS) training	Pyramid Educational Consultants UK Ltd	Yes

### 2.5.3 AT for social communication: analysis

- **Stakeholders/ career development/ educational pathways**

Regional rehabilitation engineering services within the NHS, NHS funded Communication Aid Centres, and charities such as the ACE Centres, are involved in assessment and provision of communication aids at a specialist level, often due to the need to integrate them with other AT such as wheelchairs. The ACE Advisory Trust also provides full details of AAC devices as a resource to the sector. Regional coverage of specialist services is uneven across the country. Stand alone communication aids are occasionally available from local equipment services, or from AT services in schools and colleges and social services departments. Communication aids range from low tech to high tech and a range of strategies may be required in different settings or with different communication partners.

While assessment for communication aids is usually led by speech and language therapists they are often unable to prescribe and may spend time seeking funding on behalf of their clients from charitable funding. Increasingly they are asked to take a consultative role which means that the effectiveness of the programme often depends, for children, on support staff such as teaching or learning support assistants and, for adults, on social care staff and informal carers. Involvement from occupational therapists and physiotherapists is often vital as achieving the most effective posture for a client is often a key factor to enabling access to communication AT. The ICES initiative proposed that provision of straightforward communication aids should fall within the scope of community equipment services with the aim of mainstreaming provision and the ICES team and CSIP have produced guidance on developing these services. Few ICES services (around 20%) currently provide communication aids.

There are some voluntary sector organisations active in campaigning and service planning in this area including Scope, 1Voice, and TALK. Professionals may participate in service planning through Communication Matters, an umbrella body that provides professional representation and networking opportunities and that also has a user representative sub-group. ISAAC and Communication Matters, who combine practitioner representative roles with training provision, also hold regular study days on communication aids and AAC.

Becta has recently led the implementation of the Communication Aids Project (CAP) (this initiative finished in March 2006) that provided funding for communication aids and ICT for children and young people through schools.

Career development in this area is through professional qualification as a speech and language therapist or assistant (though there is reported to be little content in relation to technology on these courses) or through educational routes of teacher or teaching assistant, perhaps with qualification and experience in ICT. Several courses, such as those at the University of Northampton, focus on courses for teaching assistants and teachers who require support to work with learners with communication and learning disabilities. One reason for considering this area to be a competency cluster in its own right is that the complexity of learning and communication issues that need to be considered, though covered through other courses, has implications for considering the technology (low and high

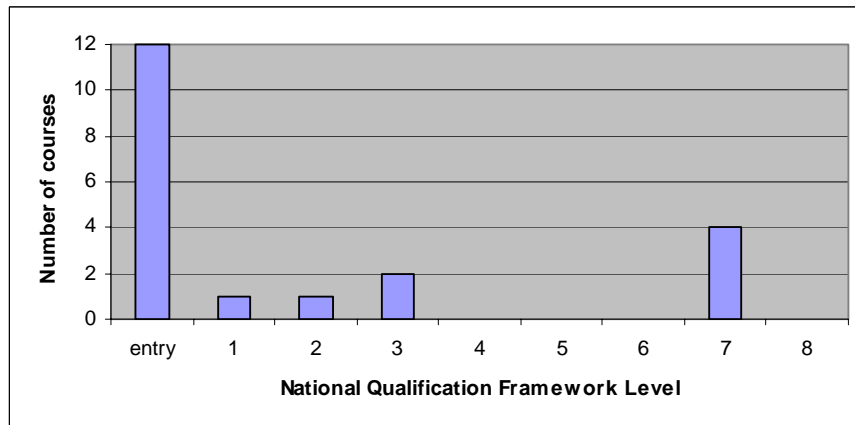
tech) interventions that may be considered. Achieving an effective AT intervention in this area is proposed as difficult given the range of issues to be considered.

There are several indications of a need for work in this area beyond that indicated by survey respondents' comments contained in Appendix 3. The West Midlands Rehabilitation Centre has led work in this area and has developed an Augmentative and Assistive Communication (AAC) care pathway as a tool for service improvement. They have identified that training is a barrier to take up and sustaining the improvements which have been achieved so far:

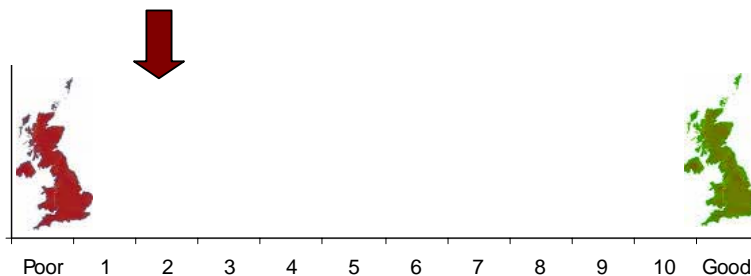
“the meeting once again touched on training as it links to skills and competences of those involved in delivering AAC as discussed in the working group minutes (11<sup>th</sup> June 03, 9<sup>th</sup> July 03 and August 6<sup>th</sup> 03). The following points were raised:

1. Training to increase the level of support in the environment is essential
2. Training on use of equipment
2. Training around awareness of AAC
3. Looking at basic skills/knowledge across region and linking to the knowledge and skills framework.

• **Education and training available – quantity and spread:**



– **Visual analogue scale describing geographical availability of education and training in social communication:**



## 2.6 Interface and integration of AT:

2.6.1 **Range of AT to be covered is proposed as:** hardware and software, control interfaces (partly covered under Telecare, environmental controls, and automated homes, AT for home nursing and telemedicine, AT for mobility, posture and seating, AT for lifelong learning and employment and AT for social communication)

**Areas of related knowledge to be aware of:** electronics, data management, usability design

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Physiotherapists and support workers (registered with HPC)</li> <li>- Speech and Language Therapists (registered with the HPC)</li> <li>- Technical/ Disability Officers registered with *NADAP</li> <li>- Disabled Student Allowance Assessors (registered with QAG/DfES)</li> <li>- Special Educational Needs Co-Ordinators (SENCO)</li> <li>- Teachers, teaching assistants, learning support assistants registered with the DfES/ General Teaching Council</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Third Sector</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Speech and Language therapy: specialised 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Technical / Disability Officers: in-house and short course training</li> <li>- Disabled Student Allowance Assessors – in house and short course training</li> <li>- Teachers: The Education (School Teachers' Qualifications) (England) Regulations 2003 qualified teacher status (QTS) plus mandatory qualification relating to hearing impairment (HI), visual impairment (VI) or multi-sensory impairment (MSI)</li> <li>- SENCOs: Accredited short course training relevant to pupils being supported</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry – (in-house and short course training)</li> <li>- Third Sector – (in-house and short course training)</li> </ul>

	- Volunteers – (in-house and short course training)
Related qualifications:	- Electronic engineering (NVQ/ HND and degree pathways available) - ICT qualifications (NVQ/ HND and degree pathways available)
* HPC IPEM BHTA NADP DfES NAEP	
	- Health Professions Councils - Institute of Physics and Engineering in Medicine - British Healthcare Trades Association - National Association of Disability Practitioners - Department for Education and Skills - National Association of Equipment Providers

### 2.6.2 Interface and integration of AT systems: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Clinical Engineering	Cardiff University	No
7	PgDip, MSc or stand-alone	ICT and Special Education Needs module	University of Edinburgh/ CALL Centre	No
3	Level 3	The Assistive Technology Module	ACE Centre North	No
Other Accredited Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
3	Level 3 Open College Network (OCN)	Professional Development in Adaptive Technology	AbilityNet	No
1	CPD	High Tech Assistive Technology Training Course	Enable Ireland	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
	None			

(some courses listed under AT for lifelong learning and employment and AT for social communication will also be relevant here)

### 2.6.3 Interface and integration of AT systems: analysis

- **Stakeholders/ career development/ educational pathways**

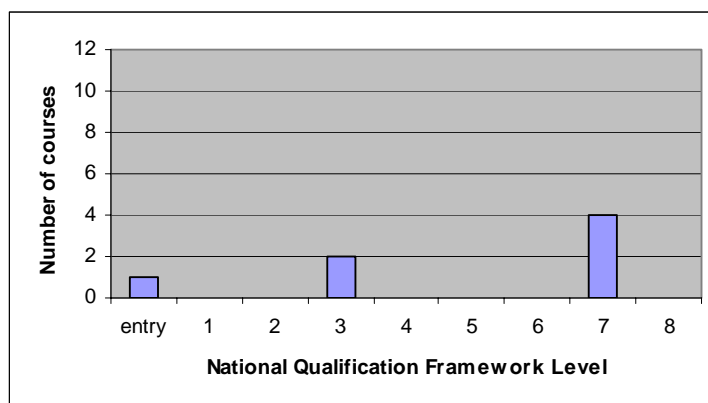
Due to the need to integrate different technologies, particularly to support disabled and older people with complex needs, there is a requirement for training and support in relation to integrated systems. Some products are now sold as integrated packages but there will be a continuing need to understand these issues at a variety of levels. At the most basic it relates to buying/ recommending equipment that is future proofed in terms of offering the potential for add-on components and interoperability to ensure it will continue to offer value for money and meet the needs of people with progressive conditions, for example.

At the moment the practitioners engaged in this work are rehabilitation and clinical engineers working in specialist AT services but there is some indication of a need for such training and education by the enthusiastic take up of a workshop on integrated systems by delegates at the recent RAATE conference.

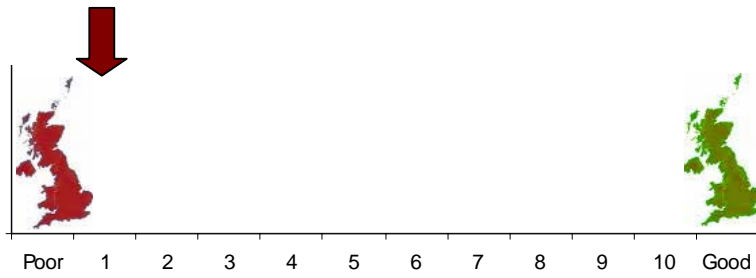
There is also a requirement to support competence in relation to information management and data flow. This is required for related competency clusters of telecare, environmental controls and automated homes, for AT for home nursing and telemedicine and also AT for housing and the built environment. It might make sense to include such competence within this cluster as it brings together electrical engineering and data management competence in relation to individual AT products and AT systems.

At the moment there are some educational / career routes provided by clinical technologist role though this is not focused on AT or electronic AT.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in Integrated Systems:**



## 2.7 AT for home nursing and telemedicine:

2.7.1 **Range of AT to be covered is proposed as:** stoma care, pressure care, continence, (shares interest in moving and handling with AT for daily living and social care, community equipment), home monitoring of LTC such as diabetes, lifestyle monitoring and remote communication with support staff (shares these elements with Telecare, environmental controls, automated homes)

**Areas of related knowledge to be aware of:** electronics, data management, usability design, medicine and nursing

Practitioners directly involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- GPs – registered by General Medical Council</li> <li>- Nurses - (District, Community Matrons, Condition Specialist Nurses, etc) registered with General Nursing Council</li> <li>- (Industry – no practitioner titles – some voluntary registration with *BHTA)</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- GPs – no/ little AT education or training</li> <li>- Nurses – no/little AT education, possibly some in-house and short course training</li> <li>- Industry - in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- General medical training for GPs/ nurses</li> <li>- Electronic engineering (NVQ/ HND and degree pathways available)</li> <li>- ICT qualifications (NVQ/ HND and degree pathways available)</li> <li>- Data management/ IT infrastructure qualifications</li> </ul>
* HPC IPEM BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- British Healthcare Trades Association</li> </ul>

### 2.7.2 AT for home nursing and telemedicine: education and training available

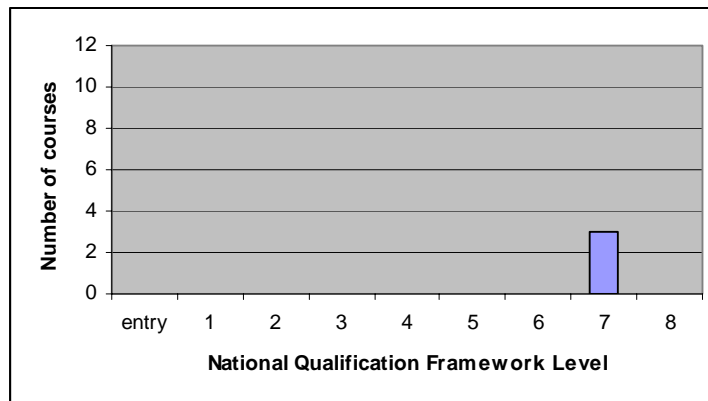
Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Telemedicine and e-Health Systems	Brunel University	Yes
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc	Human Centred Systems	City University London	No

### 2.7.3 AT for home nursing and telemedicine: analysis

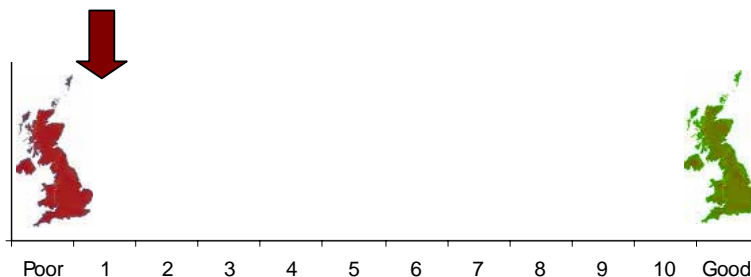
- **Stakeholders/ career development/ educational pathways**

Telemedicine is an emerging field and one that requires medical knowledge, specialised knowledge of information systems, as well as person-centred knowledge outlined in the generic AT framework. At the moment there is only one course being offered in this area, the MSc Course at Brunel University. In order to develop this area of AT then both standards and educational pathways need development. It is unclear what training is available to District Nurses and care workers in relation to the technology aspects of home nursing equipment.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in AT for home nursing and telemedicine:**



## 2.8 AT for sensory impairment:

- 2.8.1 **Range of AT to be covered is proposed as:** **Vision:** low vision aids, AT for navigating the environment, AT for lifelong learning including ICT.  
**Hearing:** alarms and alerters, navigating and receiving information on the move, voice output communication aids, avatars, translation and communication equipment such as phones, graphical interpretation equipment, etc

**Areas of related knowledge to be aware of:** Rehabilitation, communication systems such as Braille, Moon, signing, etc.

<b>Vision</b>	
Practitioners directly involved include:	<ul style="list-style-type: none"> <li>- Orthoptist – registered with the HPC</li> <li>- Optometrists – registered with GOC</li> <li>- Dispensing Optician – registered with GOC</li> <li>- Therapeutic prescribing opticians – registered with GOC</li> </ul> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <ul style="list-style-type: none"> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Social Services Sensory Impairment practitioners (may be registered with GSCC* or contracted out?)</li> <li>- Technical/ Disability Officers registered with *NADAP</li> <li>- Special Educational Needs Co-Ordinators (SENCO)</li> <li>- Disabled Student Allowance Assessors (registered with QAG/DfES)</li> <li>- Teachers registered with the DfES/ General Teaching Council</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Industry: qualified as Optometrists/ dispensing opticians (registered with GOC) or involved in provision of low vision AT products and registered with BHTA</li> <li>- Third sector: no registration required</li> <li>- Volunteers:</li> </ul> </div>
AT education and qualifications:	<div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <ul style="list-style-type: none"> <li>- Orthoptist (diagnosis and treatment) – degree followed by course leading to professional qualification</li> <li>- Optometrists/ Dispensing Optician/ Therapeutic prescribing optician: Degree followed by course leading to professional qualification</li> </ul> </div> <ul style="list-style-type: none"> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail (in-house and short course training)</li> <li>- Social Services Sensory Impairment practitioners (may require RNIB accredited qualifications)</li> <li>- Speech and Language therapy: specialised 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Technical / Disability Officers: in-house and short course training</li> <li>- Teachers: The Education (School Teachers' Qualifications) (England) Regulations 2003 qualified teacher status (QTS) plus mandatory qualification relating to hearing impairment</li> </ul>

	<p>(HI), visual impairment (VI) or multi-sensory impairment (MSI)</p> <ul style="list-style-type: none"> <li>- SENCOs: Accredited short course training relevant to pupils being supported</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Third Sector: RNIB in-house trainers (may require RNIB accredited qualifications)</li> <li>- Third Sector: See Ability: in-house training (may also require RNIB accredited qualifications)</li> <li>- Industry - in-house and short course training</li> </ul>
*	<p>GOC HPC GSCC BHTA NAEP</p> <ul style="list-style-type: none"> <li>- General Optical Council</li> <li>- Health Professions Councils</li> <li>- General Social Care Council</li> <li>- British Healthcare Trades Association</li> <li>- National Association of Equipment Providers</li> </ul>
	<p><b>Hearing</b></p>
	<p>Practitioners directly involved include:</p> <ul style="list-style-type: none"> <li>- Audiology– (registered?) with NCPA group of related bodies covering: <ul style="list-style-type: none"> <li>- Audiology Scientist</li> <li>- Audiologist</li> <li>- Hearing Therapist</li> <li>- Audiological Physician</li> <li>- Community Doctor in Audiology</li> <li>- Educational Audiologists</li> <li>- Otolaryngologists</li> <li>- Teachers of the Deaf</li> <li>- Hearing Aid Audiologists</li> </ul> </li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Speech and Language Therapists (registered with HPC)</li> <li>- Social Services Sensory Impairment practitioners (may be registered with GSCC* )</li> <li>- Technical/ Disability Officers registered with *NADP</li> <li>- Special Educational Needs Co-Ordinators (SENCO)</li> <li>- Teachers registered with the DfES/ General Teaching Council and represented by *BATOD</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Industry: may be registered with BHTA</li> <li>- Third sector:</li> <li>- Volunteers:</li> </ul>
	<p>AT education and qualifications:</p> <ul style="list-style-type: none"> <li>- Audiologists: Degree followed by post graduate course leading to professional qualification</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail (in-house and short course training)</li> <li>- Speech and Language therapy: specialised 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Technical / Disability Officers: in-house and short course training</li> <li>- Teachers: The Education (School Teachers' Qualifications) (England) Regulations 2003 qualified teacher status (QTS) plus mandatory qualification relating to hearing impairment (HI), visual impairment (VI) or multi-sensory impairment (MSI)</li> </ul>

	<ul style="list-style-type: none"> <li>- SENCOs: Accredited short course training relevant to pupils being supported</li> <li>- Social Services Sensory Impairment practitioners (may require British Sign Language training)</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Third Sector: RNID in-house trainers (may require British Sign Language accredited qualifications)</li> <li>- Third Sector: See Ability: in-house training (may also require RNIB accredited qualifications)</li> <li>- Industry - in-house and short course training</li> </ul>
*	<ul style="list-style-type: none"> <li>- The National Committee of Professionals in Audiology</li> <li>- Health Professions Councils</li> <li>- General Social Care Council</li> <li>- British Healthcare Trades Association</li> <li>- British Association of Teachers of the Deaf</li> <li>- National Association of Equipment Providers</li> </ul>

### 2.8.2 AT for sensory impairment: education and training available

NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc / PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
5	Diploma in Higher Education	Rehabilitation Work (Visual Impairment)	University of Central England in Birmingham	Yes
Other Accredited Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
3	Advanced Diploma Level 3	Technical and Rehabilitation Work with Deaf and Hearing Impaired People	Technical Officers Association	Yes
3	Level 3 Open College Network (OCN)	Professional Development in Adaptive Technology	AbilityNet	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	BCAB Foundation Certificate	Access Technology Foundation Certificate	British Computer Association of the Blind (BCAB)	Yes
0	BCAB Trainer Certificate	British Computer Association of the Blind Trainer Certification Scheme	British Computer Association of the Blind (BCAB)	Yes

0	Informal	Access Technology Primer	National Library for the Blind (NLB)	Yes
0	Informal 1 day training	Assistive and Enabling Technology	Royal National College for the Blind	Yes
0	Informal 1 day training	Low Vision Awareness and AT Needs Assessment	Royal National College for the Blind	Yes
0	Informal 1 day training	Talking Tactiles	Royal National College for the Blind	Yes
0	Mandatory qualification for teachers of pupils with a vision, hearing or multiple sensory impairment	Mandatory Qualification for teachers - vision, hearing and multiple sensory impairment	University of Birmingham	No
0	Mandatory qualification for teaching pupils with a vision impairment	Mandatory Qualification for teachers - Vision Impairment	University of London (Institute of Education)	No
0	Mandatory qualification for teachers of pupils with either a hearing or vision impairment	Mandatory Qualification for Teachers - hearing impairment and vision impairment	University of Plymouth/ West of England & Devon School	No
0	Mandatory qualification for teachers of pupils with a vision impairment	Mandatory Qualification for teachers - vision impairment	University of Wales College Newport/ RNIB Cymru	No
0	Mandatory qualification for teachers of pupils with hearing impairment	Mandatory Qualification for Teachers - hearing impairment	Oxford Brookes University/ Mary Hare Grammar School	No
0	Mandatory qualification for teachers of pupils with a hearing impairment	Mandatory Qualification for teachers - Hearing impairment	University of Hertfordshire	No
0	Mandatory qualification for teachers of pupils with a hearing impairment	Mandatory Qualification for teachers - hearing impairment	University of Leeds/ Bretton Hall College	No
0	Mandatory qualification for teachers of pupils with a hearing impairment	Mandatory Qualification for teachers - hearing impairment	University of Manchester	No

### 2.8.3 AT for sensory impairment: analysis

- **Stakeholders/ career development/ educational pathways**

**Vision:** Assessment for vision is mainly through high street opticians and by ophthalmology departments in hospitals, which are accessed by referral from GPs or A&E departments. Regulation is through the Royal College of Ophthalmologists. Provision of most glasses is privately through high street stores. Provision of glasses and specialist vision equipment is an area of practice and related educational provision/ qualification route is not considered under the AT framework but the AT framework, specifically this competency cluster, will need to be shaped to enable integration with, or at the least to complement, this professional education.

What this competency cluster will consider is supporting practitioners who will provide and support the use of a range of low vision aids. These are currently available through NHS clinics, and the RNIB produce a catalogue of AT devices that can be purchased privately online or through voluntary sector outlets at a local level. Community equipment stores also usually stock a range of low vision and AT devices.

There are few educational pathways developed to support practitioners who work with people with impaired vision to identify and sustain the use of low vision aids and to support rehabilitation. The area of rehabilitation in vision has also become a career silo and there is a requirement to enable workforce flow in and out of this area.

**Hearing:** The Modernising Hearing Aid Services (MHAS) programme, which ran between 2000 and March 2005, was funded by the Department of Health and managed by the Royal National Institute for the Deaf (RNID). The aim was to improve services to patients and make the latest digital hearing aid technology available on the NHS. At present NHS audiology services are mostly located in NHS acute hospitals, although some, for children in particular, are provided on an outreach basis in the community.

Professionals in this field are represented by associations for: audiology physicians and scientists; hearing therapists; and audiologists. The British Association of Teachers of the Deaf represent the education sector. NHS provision of hearing aids through specialist NHS services is supplemented by private purchase through high street dispensers who are regulated by the Hearing Aid Council. As with AT for vision, these professional routes are outside the scope of the AT framework being proposed here but will impact on the shape of this competency cluster and related educational provision in that the aim will be to produce training and education which is complementary to these professional roles and services. Older people make up a large proportion of hearing aid users and the National Clinical Director, in his recent 'Recipe for Care' report<sup>ix</sup> identified the need to bring care closer to home and to provide early intervention and assessment for older patients with hearing problems. A case study highlighted in the recent report 'Improving Access to Audiology Services in England'<sup>x</sup> notes the provision by Hearing Concern of a volunteer service to support NHS audiology services. The volunteers provide rehabilitative advice to help patients live with and managing their hearing loss. The case is used to illustrate the role that the voluntary sector can play. In this paper we would suggest that there might

be a substantial role for such supplementary support roles in voluntary and private sectors which require both person-centred and technology competences.

The AT for hearing that will be considered under this competency cluster includes, alerting systems such as alarm clocks, baby monitors, doorbells, smoke alarms, avatar signing systems, listening and communication equipment, including mobile phone, telephones, and video communication. Some of this equipment is provided by community equipment stores, some through the RNID and private purchase. There are issues in relation to the role of cochlear implants, signing versus non-signing, and the use of voice output communication aids which may also be relevant to a support role. There is a high level of voluntary sector activity in product sales and service provision and planning with input from the RNID and The National Deaf Children's Society (NDCS).

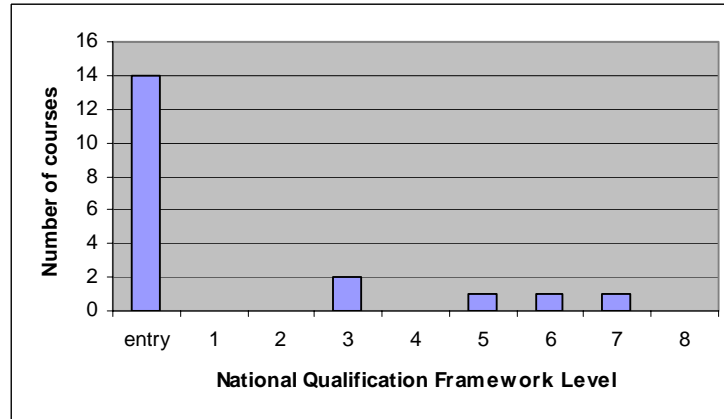
There is poor career development in the field with only one course at level 3 for technical and rehabilitation officers or at entry level with mandatory but unaccredited short courses available to teaching staff (with little information available on the focus on AT within these courses). There is a need to support various levels of competence in relation to supporting practitioners to work with Deaf and hard of hearing adults and children, in various educational and employment settings, in terms of equipment at home and on the move, in terms of trouble shooting and sustaining the use of equipment, including hearing aids.

**Deafblind:** There are additional issues to be considered in relation to support for people who are Deafblind and it is not clear how these issues are covered in the current education and training provision.

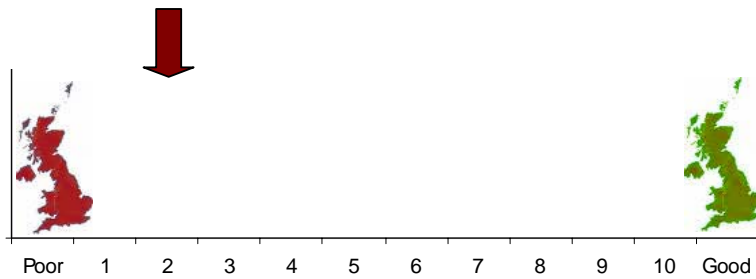
**Current activity:**

There is current work underway, led by Skills for Care and Development to draft a workforce strategy, including developing National Occupational Standards, for the Sensory Need/Impairment workforce. Representatives of FAST and other members of the AT Forum, such as the RNID, National Deaf Children's Society, RNIB, are participating in this activity. It is likely that it will not be required to take forward this competency cluster separately. It is aimed to ensure the proposed activity to develop a workforce strategy for the AT workforce and this activity to develop a workforce strategy for the Sensory Impairment workforce will be closely aligned. There are some concerns that this work is focussed on the social care workforce and that other sections of the workforce, such as those working in education, are outside the scope of the consultation and development activity though there is ensure links at a strategic level.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in AT for vision:**



## 2.9 AT for housing and the built environment:

2.9.1 **Range of AT to be covered is proposed as:** physical design of the home environment and information infrastructure, electrical systems (for telecare/lifestyle monitoring), physical adaptations, stairlifts, permanently mounted hoists, etc, Disabled Facilities Grants (DFGs), design of public spaces, access requirements, signage, etc

**Areas of related knowledge to be aware of:** Building construction, architectural design, urban design, engineering, electrical engineering

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Access auditors (registered on NRAC*)</li> <li>- Access consultants (registered on NRAC*)</li> <li>- Architects and urban planners (registered by RIBA*)</li> <li>- Interior designers</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Social work practitioners (registered with *GSCC)</li> <li>- Housing practitioners (registered with *CIH)</li> <li>- Equipment provider staff in community equipment services (may be members of *NAEP – no registration requirement)</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Access auditors and consultants are assessed by NRAC by on experience and knowledge.</li> <li>- Architects – some modules within professional qualification relating to disability access and design issues</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Social work practitioners – in-house and short course training</li> <li>- Housing practitioners – housing degree/ diploma, vocational training, in-house and short course training</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- Architecture</li> <li>- Law relating to Disability Discrimination Act</li> <li>- Housing management and design (e.g. CIH)</li> </ul>
-	
* NRAC RIBA HPC GSCC CIH NAEP	<ul style="list-style-type: none"> <li>- National Register of Access Consultants</li> <li>- Royal Institute of British Architects</li> <li>- Health Professions Councils</li> <li>- General Social Care Council</li> <li>- Chartered Institute of Housing</li> <li>- National Association of Equipment Providers</li> </ul>

## 2.9.2 AT for housing and the built environment: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc / PgDip / CPD	Inclusive Environments: Design and Management	The University of Reading	Yes
7	PgCert / PgDip / MSc	Accessibility and Inclusive Design	University of Salford	Yes
7	MSc / PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Continuing Professional Development	Inclusion and Building Schools for the Future Workshop	Centre for Accessible Environments	Yes
0	Continuing Professional Development	Inclusive environments and the DDA – access auditing and building management	Centre for Accessible Environments	Yes
0	Continuing Professional Development	Shared Space, Shared Surfaces and Inclusive Design Workshop	Centre for Accessible Environments	Yes
0	Short course	Home Adaptations: Law and Practice	Disabled Living Foundation (DLF)	Yes
0	Short course	Home adaptations	Disabled Living Foundation (DLF)	Yes
0	Short course	Reading and Using Plans	Disabled Living Foundation (DLF)	Yes
0	Unaccredited but provides entry onto a register of practitioners	Access Audit Practitioner (AAP)	Gallant2000 Ltd	Yes
0	Short course	Aids and Adaptations for Disabled People	Foundations	Yes

### 2.9.3 AT for housing and the built environment: analysis

- **Stakeholders/ career development/ educational pathways**

**Housing provision and adaptation:** A variety of organisations provide housing, including local authorities and agencies working on their behalf, registered social landlords (previously known as housing associations) and private landlords. The Audit Commission is the lead inspectorate of housing services provided by local authorities. Registered social landlords are regulated by the Housing Corporation.

Both local authorities' housing departments and social services are involved in the provision of housing adaptations to maintain an individual's independence. Home improvement agencies (HIAs) are not for profit, locally based organisations funded through the local authority that assist vulnerable homeowners or private sector tenants who are older, disabled, or on a low income to repair, improve, maintain or adapt their home. The Supporting People programme has been influential in setting standards for housing support services to vulnerable client groups and providing guidance on Support Planning. Schemes such as the Handypersons' Scheme are aimed at providing practical support around the home for older people to enable them to remain living in their own home. It would be likely that such practitioners would wish/ need to build competence in AT for housing and AT for daily living and social care as complementary to their existing services.

The Communities and Local Government Office currently has proposals out for consultation relating to Disabled Facilities Grants (DFG). The DFG proposals outline a potentially greater future role for Home Improvement Agencies in delivering adaptations. Certain proposals, if implemented, would have a radical impact on the sector including:

- 100% HIA coverage across England
- Rapid Response services for the prevention of accidents and promote early release from hospital, to be run by HIAs alongside their existing services
- HIAs in county areas taking over full housing adaptations services from local authorities.

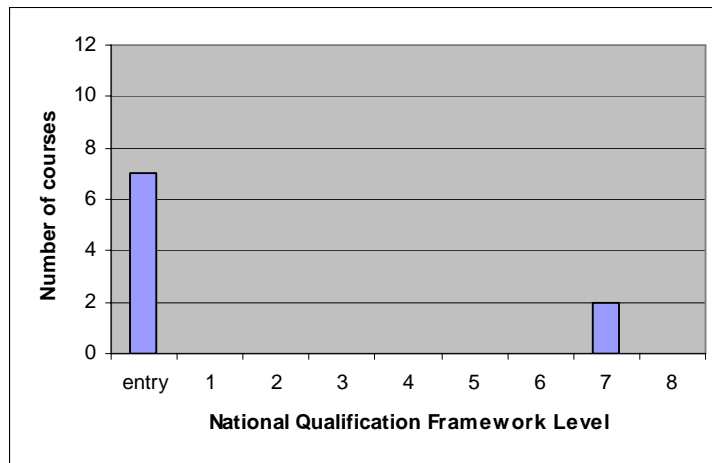
**Extra care housing:** Work has recently been completed <sup>xi</sup>to outline a set of competences which local authorities, registered social landlords, voluntary and independent sector providers of Extra Care Housing may wish to use in defining the tasks and duties of scheme managers. This identified that key skills required included:

- Basic knowledge of designing for older people, people with dementia and sensory impairment and people with disabilities.
- Understanding Assistive Technology, its availability, assessment methods and ethical issues
- Understanding the contribution of aids and adaptations to independent living
- Spoken and written communication which meets the needs and styles of a wide range of people and the ability to use and respond to alternative forms of communication.

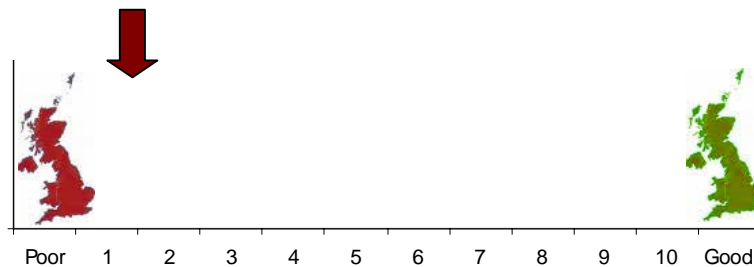
Access practitioners: In response to the requirement to provide access to services contained in the Disability Discrimination Act 1995 and 2005 the

requirement to develop a workforce able to assess and advise on access to the built environment has substantially increased. The Centre for Accessible Environments (CAE) provides training and CPD and hosts the National Register of Access Consultants and Auditors (NRAC). Access practitioners assist clients undertaking major adaptations to their homes under a Disabled Facilities Grant (DFG) and also advise on other small-scale projects such as local churches, village halls and community and day centres. In practice anyone can claim to be an access practitioner though CAE register those who have passed required training on the NRAC register. CAE work with the Royal Institute of British Architects to develop the understanding of architects and urban planners of the principles of inclusive design. There are two courses providing post graduate education in this area.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in AT for housing and the built environment:**



2.10 **AT for daily living and social care (community equipment/ household activities):**

2.10.1 **Range of AT to be covered is proposed as:** moving and handling (shares fixed hoists with AT for housing and built environment), mobility aids, bathing, kitchen equipment, clothing and continence, home communications, (also covers telecare), children’s equipment including play, etc

**Areas of related knowledge to be aware of:** social care planning

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Physiotherapists/ Physiotherapy support workers (registered with HPC)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Speech and Language Therapists (registered with the HPC)</li> <li>- Nurses (District, Community Matrons, Equipment Specialist Nurses, Tissue Viability and Stoma Care Nurses, etc) registered with General Nursing Council</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Social care practitioners: domiciliary care workers, residential care workers, social workers, etc (registered with *GSCC)</li> <li>- Industry – no practitioner titles – some voluntary registration with *BHTA</li> <li>- Volunteers – no practitioner titles</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several unrelated modules.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- Physiotherapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Volunteers: in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- None</li> </ul>
* HPC IPEM NAEP GSCC BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- National Association of Equipment Providers</li> <li>- General Social Care Council</li> <li>- British Healthcare Trades Association</li> </ul>

## 2.10.2 AT for daily living and social care (community equipment/ household activities): education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
7	MSc / PgCert / PgDip	Rehabilitation Science	University of Brighton	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
5	Certificate and Diploma	Assistive Technology	Central Remedial College/ University College Dublin	No
5	BTEC Advanced Award	Provision of Community Equipment	The Training Consultancy, Personal Care Consultants	Yes
4	BTEC Short course	Healthcare and Assistive Technology (Know Your Industry)	British Healthcare Trades Association (Edexcel)	Yes
2, 3, 4	OCN accreditation pending	Trusted Assessor	Assist UK	Yes
2	VRQ Level 2	Supporting Users of Assistive Technology	Hereward College	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Informal	Dementia Falls and Older People Moving and Handling	Age Concern	Yes
0	Informal	Risk Assessors and Training for Trainers	Disabled Living Foundation (DLF)	Yes
0	Informal	Moving and Handling (various) 'Bariatric' workshop Grab rail workshop Hoist and Sling Assessment and Problem Solving Moving and Handling People with Challenging or Aggressive Behaviour Principles of Accessible Kitchen Design Shower and Bathroom Solutions Trusted Assessor Training	Disabled Living Foundation (DLF)	Yes

### 2.10.3 AT for daily living and social care (community equipment/ household activities): analysis

- **Stakeholders/ career development/ educational pathways**

Community equipment services provide a wide range of assistive technology for use by people at home, in schools, care homes, etc, with the range of equipment provided varying between services. Currently social services occupational therapists assess and provide community equipment jointly with health professionals.

The National Association of Equipment Providers (NAEP) represents the statutory and private sector staff providing community equipment services. The voluntary organisation Assist UK (formerly the Disabled Living Centres Council) is active in this area through local advice, information and demonstration centres and in campaigning at local level. The Disabled Living Foundation, one of the network of Disabled Living Centres, provides the UK's most comprehensive independent source of information on products through its websites, fact sheets and training.

The Department of Health is currently conducting a wide ranging review of community equipment and wheelchair services. The collaborative model this programme has developed is predicated on the basis that neither local authorities or NHS would in future hold equipment for issue, they would recommend equipment; the recommendation would be met by the third or private sector organisations in a local retail environment. To ensure that the new market is build with appropriate checks and balances, the model envisages that a new regulatory role is required. It is envisaged that all participants engaged in retailing equipment would be required to have a minimum skills set to ensure users had access to knowledgeable retailers whether private or third sector. The equipment envisaged as being included in the national product agreement would in the first instance be community equipment and the equipment covered by the recent PASA telecare procurement framework and, at a later date, possibly extending to wheelchairs, education equipment and other AT.

The range of staff likely to want to build competence in this area is likely to grow substantially as a consequence of the service remodelling to take place as a result of the Transforming Community Equipment Review. Among a range of practitioners with a potential requirement for AT competence, there are indications of a need to support the competence of social work practitioners to be competent in this area of AT. One correspondent summed this up: 'my past career experience has been in various areas of social care including management and training, of late I have become increasingly concerned re the lack of training available in assistive technology for social workers. For the last two years I have spent a limited amount of time with social work degree students at the local university giving a taster session in the types of AT available and its uses, however while this has been useful it is far from satisfactory. I believe that technology should be thought of at the outset of solutions and become an integral part of care options but in order for this to happen widespread basic training in AT is needed and is needed now.'

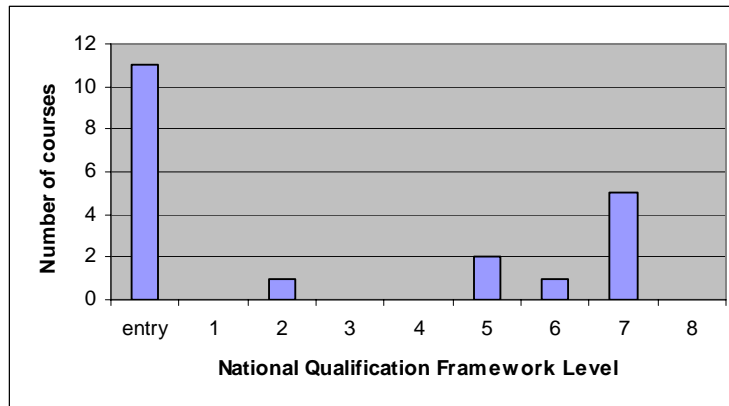
The Options for Excellence report which reviews the future for social care in England has prompted the Department of Health and the Department for

Education and Skills to undertake further work to define the roles and asks of social work and to look forward to how the profession will develop over the next decade. The General Social Care Council has been asked to lead a project which will produce an authoritative statement about the purpose, value, role and contribution of social work in England, across the whole range of services for children and adults.

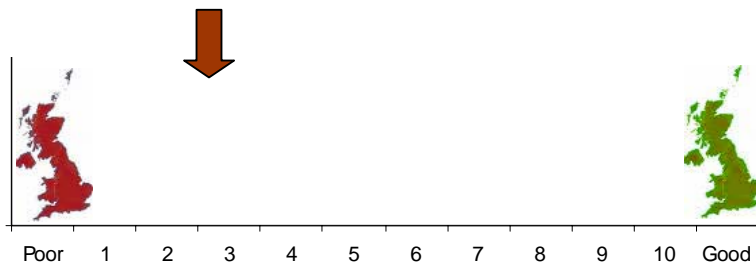
The development of the Trusted Assessor training framework for community equipment has been met with widespread welcome that indicates the receptivity of employers to this role development. For an equipment management service there are additional competences required but the Trusted Assessor framework provides a sound basis for any community AT service and also provides some of the core competences/ knowledge and understanding that would be required by any AT practitioner. These competences are reflected in the National Occupational Standards Framework for AT proposed in this paper.

The role of support broker for people using Individual Budgets is also currently being developed. A recent paper from the Care Services Improvement Partnership<sup>xiii</sup> highlighted the range of tasks that could be included under the heading Support Brokerage, including advice-giving on decisions about equipment, home ownership and other housing options. The potential role of private Support Brokers, of those working in the voluntary sector, such as in National Centres for Independent Living, and of informal carers and family raises the issue of capacity and competence in advice-giving in relation to a broad range of AT options and the employment of AT for providing choice. To maximise the potential benefits from Individual Budgets it would seem likely that a broad range of users, volunteers and practitioners would benefit from training and education in AT for daily living and social care (community equipment), plus gaining competence in other areas of AT as required.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in community equipment:**



## 2.11 Prosthetics and orthotics:

### 2.11.1 Range of AT to be covered is proposed as: prosthetics and orthotics

#### Areas of related knowledge to be aware of: biomechanics

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Prosthetists (HPC registration)</li> <li>- Orthotists (HPC registration)</li> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Physiotherapists/ Physiotherapy support workers (registered with HPC)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- (Industry – no practitioner titles – some voluntary registration with *BHTA)</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Prosthetists and Orthotists - a four-year honours degree course, which contains a final year of clinical experience consisting of two six month clinical placements, one orthotic and one prosthetic</li> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- Physiotherapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Volunteers: in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- None</li> </ul>
* HPC IPEM NAEP BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- National Association of Equipment Providers</li> <li>- British Healthcare Trades Association</li> </ul>

## 2.11.2 Prosthetics and orthotics: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc	Orthopaedic Engineering	Cardiff University	Yes
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	MSc	Rehabilitation	Oxford Brookes University (not available 2007)	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
7	MSc / PgCert / PgDip	Rehabilitation Science	University of Brighton	No
7	MSc/PgDip	Orthopaedic & Rehabilitation Technology Programme	University of Dundee	Yes
7	MSc / PgDip / PgCert	Rehabilitation Studies	University of Strathclyde, National Centre for Training & Education in Prosthetics & Orthotics	Yes
7	MEng (Levels 1-4) BEng (Levels 1-3)	Medical Engineering	University of Surrey, Guildford	No
6	Introductory course/Certificate	College Certificate In Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
6	BSc (Hons)	Prosthetics and Orthotics	University of Salford, Directorate of Prosthetics and Orthotics	Yes
6	BSc (Honours)	Prosthetics and Orthotics	University of Strathclyde, National Centre for Training & Education in Prosthetics & Orthotics	Yes

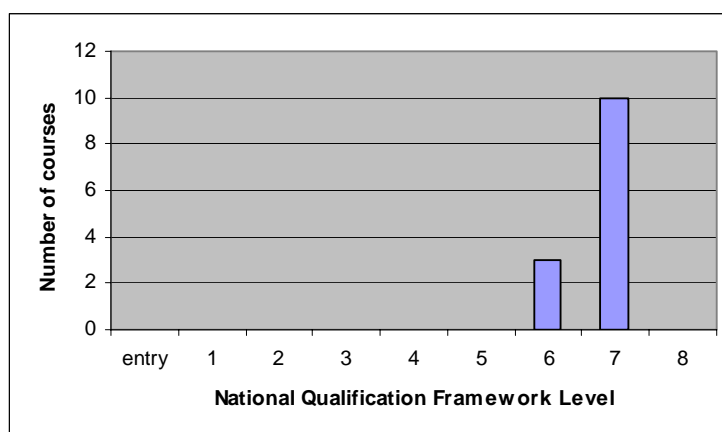
### 2.11.3 Prosthetics and orthotics: analysis

- **Stakeholders/ career development/ educational pathways**

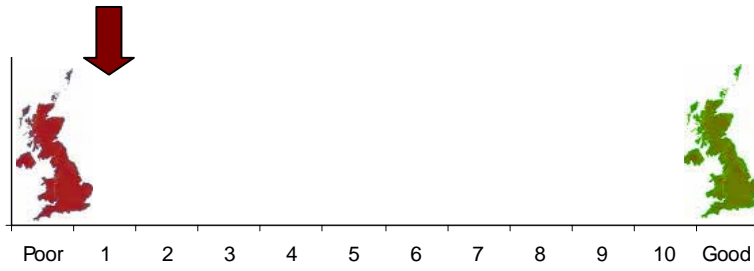
Prosthetics services are provided by specialist rehabilitation services based in NHS regional centres, either within contracted specialist services or employed directly by the NHS. Orthoses are provided at a local level by many NHS trusts, although the more complex orthoses are provided by specialist regional services. Prosthetists and orthotists have a dual qualification and their professional association is the British Association of Prosthetists and Orthotists (BAPO). Several voluntary sector organisations are active in this sector, with emPOWER/Limbless Association and Peggy and Friends involved in service planning.

There are particular problems reported by practitioners and manufacturers in the education pathways and career development. These are described in the BHTA Briefing Paper 'Manpower Planning in Prosthetics and Orthotics', July 2005<sup>xiii</sup>. Some of the particular problems relate to a lack of applicants onto courses and entrants into the field, the geographic concentration of training in the north of England, at Salford and Strathclyde, the age and gender profile of the workforce and the expected 50% increase in demand for qualified Prosthetists and Orthotists. There are also some indications that the technical component of the course does not leave UK graduates as competent as those from Europe and this has been exacerbated by a reduction in entrants with related vocational experience in manufacturing. There are no obvious vocational pathways into this area of practice. An occasional course 'Limited Orthotic Practitioner course' run by BAPO in conjunction with Salford has been successful in providing trained assistants, however the course is reported as not run frequently enough to meet workforce demand. There are also problems for staff in this area as it has developed into a career silo and there are few career pathways from this field into related fields.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in prosthetics and orthotics:**



## 2.12 AT for cognitive support:

2.12.1 **Range of AT to be covered is proposed as:** AT for prompts and reminders, safety devices, such as gas alerts, communications and leisure equipment (includes Telecare, environmental controls and automated homes and AT for lifelong learning and employment)

**Areas of related knowledge to be aware of:** strategies for supporting people with dementia, and those with learning disabilities, risk management and ethics are particularly relevant bodies of knowledge

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Social work practitioners – registered with GSCC</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Nurses – (Dementia Services, District Nurse) – registered with NMC</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Industry – no practitioner titles – some voluntary registration with *BHTA</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Social work practitioners – in house and short course training</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Nurses – training in care of the elderly and mental health nursing (not much coverage of AT) in-house and short course</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Volunteers: in-house and short course training</li> </ul>
Related qualifications:	- None
* GSCC NMC HPC NAEP BHTA	<ul style="list-style-type: none"> <li>- General Social Care Council</li> <li>- Nursing and Midwifery Council</li> <li>- Health Professions Councils</li> <li>- National Association of Equipment Providers</li> <li>- British Healthcare Trades Association</li> </ul>

## 2.12.2 AT for cognitive support: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
3	Level 3 - City and Guilds SVQ (Scotland)	Certificate in Working with Assistive Technology - Vocational (No. 3070 )	City and Guilds Scotland	No
2	VRQ Level 2	Supporting Users of Assistive Technology	Hereward College	No
Other Accredited Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
3	15 credits (Level 3)	Assistive Technology, Telecare and Enablement: Matching Technology to the Person	York St John College	No
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Informal	Dementia, Falls and Older People, Moving and Handling	Age Concern	No
0	Informal	Problem Solving and Handling the Adult Client with Learning Disabilities	Disabled Living Foundation	No

## 2.12.3 AT for cognitive support: analysis

- **Stakeholders/ career development/ educational pathways**

A variety of housing, social work and health care providers work with older people with dementia. Several voluntary sector organisations are active in this area, primarily Dementia Voice. There are a variety of courses providing education and training on supporting people with dementia but few covering the potential of AT to contribute to the care package. This is an area that has only recently developed. There is some cross over here with telecare which has the potential to provide significant support to people with dementia, but there is a range of low-tech AT which has also been shown to be potentially as useful.

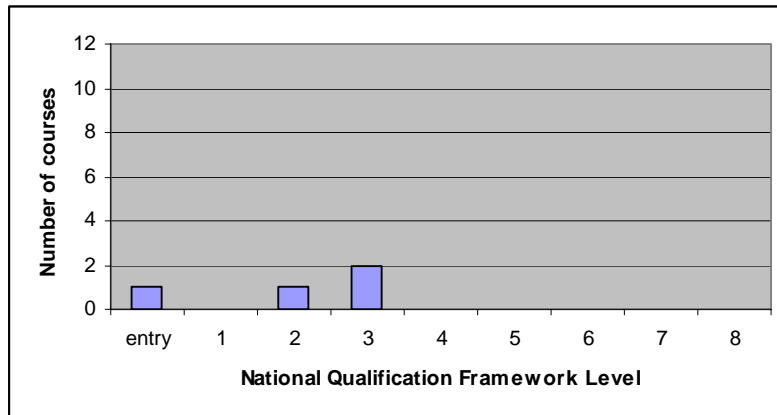
AT is not being fully exploited to support this client group and there is a need to develop educational and training provision in this area using a person-centred approach and dealing with specific aspects such as ethics, consent, risk management and effective strategies for social inclusion.

It is likely that a separate module relating to supporting children and adults with learning disabilities could be included under this competency cluster, although these groups may also be covered by competency clusters in other areas. A similar range of AT is used to that used with people with dementia, though with differing issues in application, both looking at supporting life skills and empowering people with cognitive impairments to exercise control over their lives. Voluntary sector organisations have been active in focusing work on this are, specifically Home Farm Trust who, through their involvement in the TATE project have developed telecare applications relevant to people with learning disabilities.

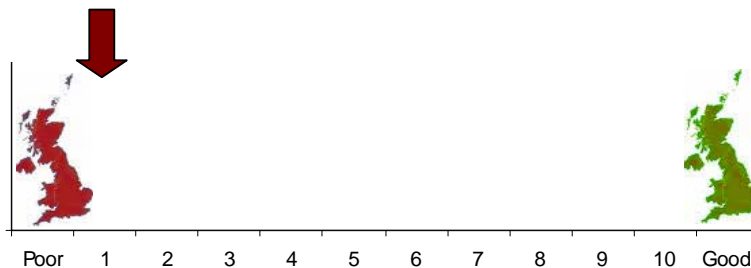
Advance Housing launched a report in January 2007 “Gadgets, Gizmos and Gaining Independence”<sup>xiv</sup>, which was the outcome of a two-year research project funded by the Department of Health and conducted on behalf of Advance Housing and Support. In the foreword to the report, Ivan Lewis states: “This report reflects the policy and practice ambitions of commissioners, providers and, above all, users of services. It also complements and supports the objectives of the White Paper, Our health, our care, our say: a new direction for community services and the recent guidance on the development of assistive technologies and the Preventative Technology Grant, Building Telecare in England. The report is therefore timely as it makes crucial links to the aspirations and demands of people with learning disabilities and how technologies can support social care in the 21st century.”

AT could, according to the research, be applied in numerous ways towards caring and supporting people with a learning disability however the research also found that there was little use of AT within the learning disability sector currently, due to a number of factors including:

- Entrenched attitudes and working practices, among staff and organisations that are ‘people-orientated’ rather than technically orientated
- Existing use being confined to small, specialist providers lacking the resources to build capacity and expertise
- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training:**



## 2.13 Recreation and exercise:

2.13.1 **Range of AT to be covered is proposed as:** gym equipment, specialised mobility equipment such as wheelchairs for basketball, adapted rowing and cycling products and systems, adapted leisure equipment such as for sailing, fishing, etc,

**Areas of related knowledge to be aware of:** sports physiology, engineering

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Physiotherapists/ Physiotherapy support workers (registered with HPC)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Leisure centre staff (no registration)</li> <li>- Equipment provider staff in community equipment services (may be members of NAEP – no registration requirement)</li> <li>- Industry – no practitioner titles – some voluntary registration with *BHTA)</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- Physiotherapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- PE Teachers – in house and short courses</li> <li>- Leisure centre staff – in house and short courses (may take accredited RNIB leisure course)</li> <li>- Equipment provider staff in community equipment services – in-house and short courses</li> <li>- Industry - in-house and short course training</li> <li>- Volunteers: in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- None</li> </ul>
* HPC IPEM NAEP BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- National Association of Equipment Providers</li> <li>- British Healthcare Trades Association</li> </ul>

## 2.13.2 Recreation and exercise: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	MSc	Rehabilitation	Oxford Brookes University (not available 2007)	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
7	MSc / PgCert / PgDip	Rehabilitation Science	University of Brighton	No
7	MEng (Levels 1-4) BEng (Levels 1-3)	Medical Engineering	University of Surrey, Guildford	No
7	MSc / PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No

## 2.13.3 Recreation and exercise: analysis

- **Stakeholders/ career development/ educational pathways**

A variety of organisations provide leisure services, including local authorities and agencies working on their behalf, community not for profit recreational facilities and private providers. There is no inspectorate service.

Most public services have to meet the requirements of the Disability Discrimination Act (DDA) and the English Federation of Disability Sport supports the fitness industry to go beyond the requirements of the DDA to offer more inclusive provision.

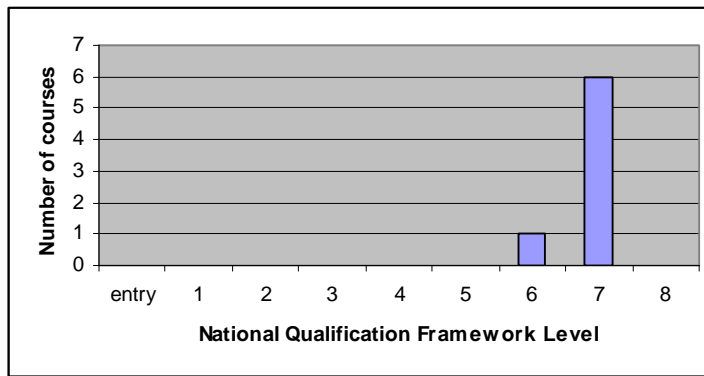
In addition to publicly provided recreational activity there are a range of voluntary organisations, such as Remap, who provide custom-built or adapted recreational activity (e.g. sailing for the blind) often using the expertise of retired rehabilitation engineers.

There is a growing interest in recreation which mirrors the Para Olympics and a considerable amount of activity is currently focussed on enabling people with spinal cord injury to take part in cycling and rowing to professional standards using functional electrical stimulation. This is an area led by clinical/ rehabilitation engineers and physicians and supported by the Spinal Injuries Association. There are several Sports Engineering courses around the country though it is not clear if any provide a module on supporting disabled athletes and those pursuing recreation.

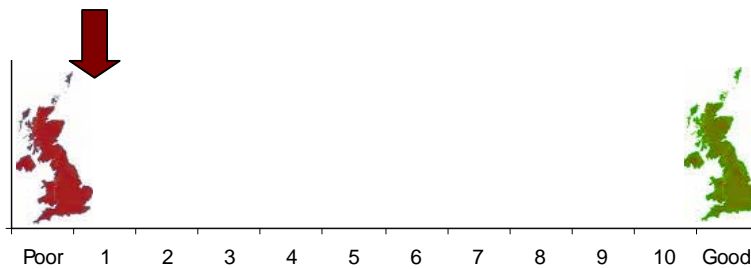
The requirement to support AT practitioners' knowledge around leisure and recreation (and on the other hand that of sports practitioners to understand issues of disability and of AT) is considerable given the demographic challenges of caring for an increasingly disabled older population who are predicted to have similar levels of increasing obesity as the rest of the population. Over 8 million people in the UK are currently considered to be clinically obese and the market for bariatric products is increasing accordingly<sup>xv</sup>. Increasing disability is itself likely to increase obesity as the opportunity for physical activity reduces. The difficulties in providing care in activities of daily living for people who are over weight are considerable.

It is likely that 'wellbeing issues' for disabled people will rise up the agenda. This is currently an emerging field of AT, but one that is likely to grow.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training:**



## 2.14 Robotics and virtual reality:

2.14.1 **Range of AT to be covered is proposed as:** computer aided rehabilitation using virtual reality simulation of real life activity and robotic therapeutic assistance for rehabilitation. Robotic aids for independent living (research prototypes only? Automated vacuum cleaners?) and animated robots to support social inclusion.

**Areas of related knowledge to be aware of:** electronics and usability

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Physiotherapists/ Physiotherapy support workers (registered with HPC)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Industry – no practitioner titles – some voluntary registration with *BHTA</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- Physiotherapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Industry - in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- None</li> </ul>
* HPC IPEM BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- British Healthcare Trades Association</li> </ul>

## 2.14.2 Robotics and virtual reality: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	BEng	Module: Robotics	Queen Mary, University of London	No
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
7	MSc / PgCert / PgDip	Rehabilitation Science	University of Brighton	No
7	MEng (Levels 1-4) BEng (Levels 1-3)	Medical Engineering	University of Surrey, Guildford	No
7	MSc / PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	No

## 2.14.3 Robotics and virtual reality: analysis

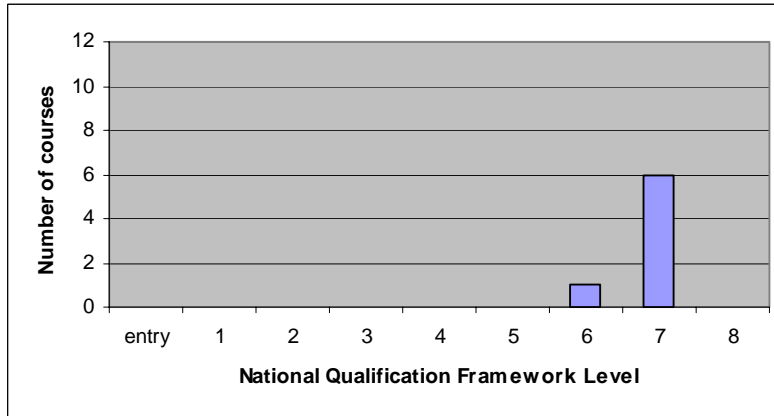
- **Stakeholders/ career development/ educational pathways**

This is one of the most recent areas of AT practice and has not yet developed much beyond the research field. At the moment most practitioners are the clinical engineers/ rehabilitation engineers and physicians, and occupational and physiotherapy staff working in research units. There is however, considerable scope for the use of virtual reality in terms of rehabilitation following stroke (see the current FAST Annual Report to Parliament<sup>xvi</sup> for details of such a project).

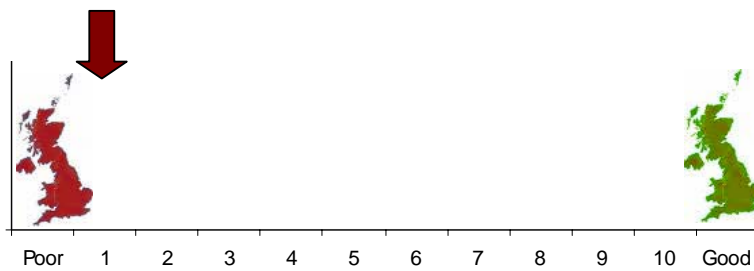
The use of robotics has until recently appeared to be science fiction but developments in Japan and the USA mean that it is possible to predict that robots and robotic aids could provide a contribution to care for disabled and older people within a decade. Stanger & Cawley<sup>xvii</sup>, estimated that between 100,000 and 500,000 people in the USA could benefit from a robot based on the type and extent of their ability. On this basis one could project that there would be between 20,000 and 100,000 people in the UK in a similar position.

It is likely that there will be a growing need for education and training in this area over the coming 5 years.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training for robotics and virtual reality:**



2.15 **AT for driving, transport and navigating the external environment:**

2.15.1 **Range of AT to be covered is proposed as:** car adaptations, design and assessment services, scooters (shared with AT for mobility, posture and seating), moving and handling people in transit, design of private and public transportation (shares signage with AT for homes and the built environment), navigation aids

**Areas of related knowledge to be aware of:** car design, transport planning, data management systems such as GPS

Practitioners involved include:	<ul style="list-style-type: none"> <li>- Driving assessment practitioners – registration with Approved Driving Instructors with Driving Standards Agency (no apparent requirements in relation to assessment of impairment and driving)</li> <li>- Adaptation / conversion technicians – (Motability listing of approved vehicle adaptation and conversion supplier organisations)</li> <li>- Rehabilitation Engineers [NHS grades can include Clinical Engineers/ Scientists] *HPC registration</li> <li>- Rehabilitation Technicians [NHS grades can include as Clinical Technologists] *IPEM registration (voluntary)</li> <li>- Occupational Therapists and support workers (registered with HPC)</li> <li>- Urban planners (may be members of Royal Town Planners Institute)</li> <li>- Industry – no practitioner titles – some voluntary registration with *BHTA</li> <li>- Volunteers</li> </ul>
AT education and qualifications:	<ul style="list-style-type: none"> <li>- Disabled driving assessment practitioners – qualification in related practice such as Occupational Therapy plus qualification as Driving Instructor</li> <li>- Adaptation / conversion technicians – relevant industry qualifications (NVQs etc)</li> <li>- Rehabilitation/Clinical Engineering: Physics/ Engineering degree followed by a post-graduate MSc course, then by 2-4 years training. A broad-based education aimed at building technical and clinical skills across medical device management, but including several modules not related to AT.</li> <li>- Rehabilitation/Clinical Technicians: Vocational degree course in clinical technology (radiation or engineering based) or part time degree while working at in a hospital dept. A more narrowly based education focused on technical competence covering range of technical areas (one of which is AT)</li> <li>- Occupational therapy: broad based 3 year (usually) professional course, but not covering AT in much detail</li> <li>- Urban planners – professional qualifications followed by in-house and short course training</li> <li>- Industry - in-house and short course training</li> <li>- Volunteers: in-house and short course training</li> </ul>
Related qualifications:	<ul style="list-style-type: none"> <li>- None</li> </ul>
* HPC IPEM NAEP BHTA	<ul style="list-style-type: none"> <li>- Health Professions Councils</li> <li>- Institute of Physics and Engineering in Medicine</li> <li>- National Association of Equipment Providers</li> <li>- British Healthcare Trades Association</li> </ul>

### 2.15.2 AT for driving, transport and navigating the external environment: education and training available

Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Clinical Engineering	Cardiff University	No
7	MSc/ PgDip / PgCert / CPD	Rehabilitation Medicine	Joint Committee on Higher Medical Training (JCHMT), London	No
7	MSc	Rehabilitation	Oxford Brookes University (not available 2007)	No
7	Higher Diploma/ MSc	Rehabilitation Studies	University College Dublin	No
7	MSc / PgCert / PgDip	Rehabilitation Science	University of Brighton	No
7	MEng (Levels 1-4) BEng (Levels 1-3)	Medical Engineering	University of Surrey, Guildford	No
7	MSc / PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	No
6	PgDip	Rehabilitation Engineering	Centre of Rehabilitation Engineering (CORE) King's College London	No
2	Higher Education Level 1, 2, 3 (30 credits)	Course suspended - under review (Framework for Continuing Professional Development for Practitioners in the Field Enabling Function and Mobility)	The University of Greenwich, Mobility Advice & Vehicle Information Service (MAVIS)	Yes

### 2.15.3 AT for driving, transport and navigating the external environment: analysis

- **Stakeholders/ career development/ educational pathways**

There are a variety of practitioners involved in this area working in a range of services:

**Assessment and support for driving:** Driving assessment and advice on equipment and adaptations for cars and scooters is available from a number of mobility centres across the country. Most practitioners providing assessment are from therapy disciplines. Practitioners may choose to qualify separately as a driving instructor and then use joint skills to underpin a driving assessment or, alternatively carry out assessments jointly with a driving instructor.

The one course supporting learning in this area (University of Greenwich, Level 2) is in suspension due to lack of applicants and provides an indication of the lack of awareness of the requirement for the role, poor understanding of the competence required of practitioners and a lack of regulation.

GPs and other medical practitioners may provide opinion on whether a medical or health condition is likely to affect capability to drive but have no competence to assess capability of an individual to drive when provided with appropriate AT. On receipt of information on medical conditions, advisers at the DVLA decide whether or not to award or revoke a licence.

There is a considerable and urgent requirement for clarity in this area on industry standards and for strategies to build workforce competence and qualification in relation to assessment and support for driving.

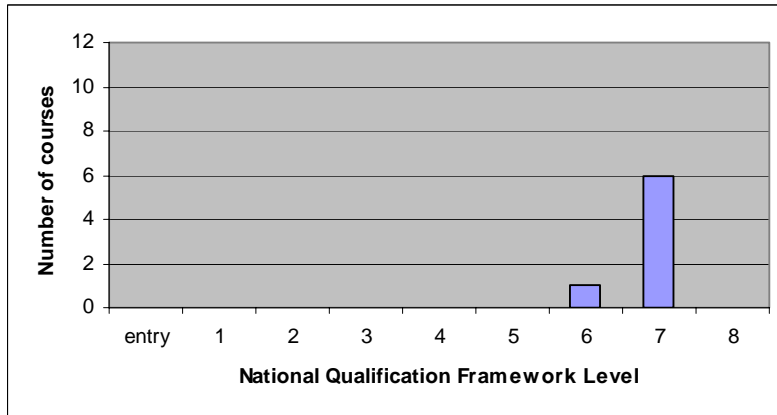
**Adaptation of cars and design of public transport:** Motability is a major charity facilitating the provision of adapted cars, with the related private company, route2mobility Ltd, operating a similar wheelchair and scooter scheme. Motability accredit dealers and providers of adapted cars according to a service level agreement. There appears to no information currently available relating to the qualifications required by the workforce to demonstrate competence in the adaptation of cars and design of related AT. There are no career pathways in this area that relate to other sectors of AT, though drawing on shared skills and competence.

**Delivery of transport services:** There is likely to be a training and workforce development requirement relating to the functions required for driving disabled passengers and for moving and handling disabled passengers during rail/ plane transit. There are problems reported<sup>i</sup> in relation to the use of ramps and potential health and safety risk management problems in relation to this equipment and an associated training need. There are some competences developed in this area for the health sector and further exploration is needed to establish their applicability to a range of transport systems/ environments.

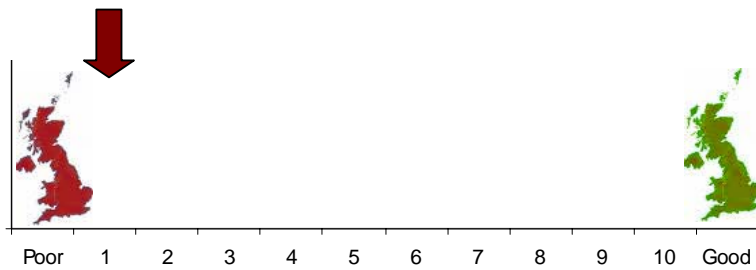
**Navigating external environment:** With an increasingly aging population supported to remain in their own homes, there will be a growing requirement to enable pedestrian location and navigation for disabled and older people. Current technologies used for navigating the external environment relate mainly to GPS information provision, and may be appropriate for supporting independent travel for wide range of disabled people with physical, cognitive and learning impairments. There is a related requirement to support a wide workforce to build competence in the design and maintenance of inclusive signage and design of transport systems and environments.

Future work is likely to include ambient technologies and intelligent interfaces for retail self-service. Current practitioners have a mixture of mainstream engineering and rehabilitation/ clinical engineering backgrounds at post graduate levels. There will be a requirement to support the workforce at a variety of levels to build competence in these areas.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in driving, transport and navigating the external environment:**



## 2.16 Broadly based AT courses: education and training available

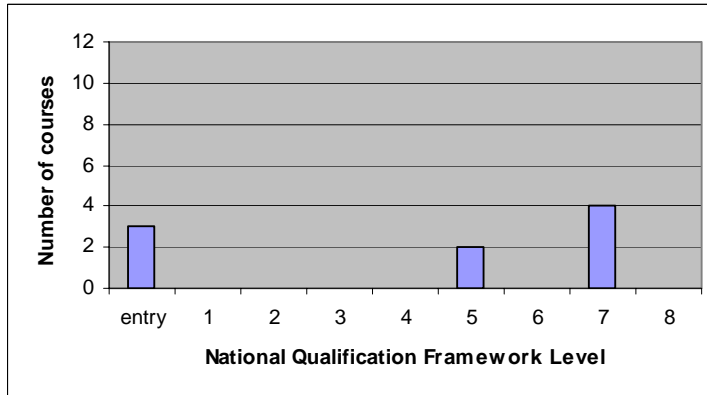
Degree, Diploma and Certificate Courses in AT				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	Subject focus 100%?
7	MSc	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	Yes
7	MA	Design Research for Disability	London Metropolitan University	Yes
7	Higher Diploma/ MSc	Developmental Disability Studies	University College Dublin	No
7	PgDip/ PgCert	Assistive Technology	Centre of Rehabilitation Engineering (CORE) King's College London	Yes
5	Certificate and Diploma	Assistive Technology	Central Remedial College/ University College Dublin	Yes
Short and Product-Specific Courses				
NQF Level	HE/FE Levels	Course Title / Subject Area	Course Provider	
0	Informal but required	Know Your Industry - Healthcare and Assistive Technology Training	British Healthcare Trades Association (BHTA)	Yes
0	Certificate of attendance	Trusted Assessor Training Risk Assessors and Key Trainers (Training the Trainer)	Disabled Living Foundation (DLF)	Yes

### 2.16.1 Broadly based AT courses: analysis

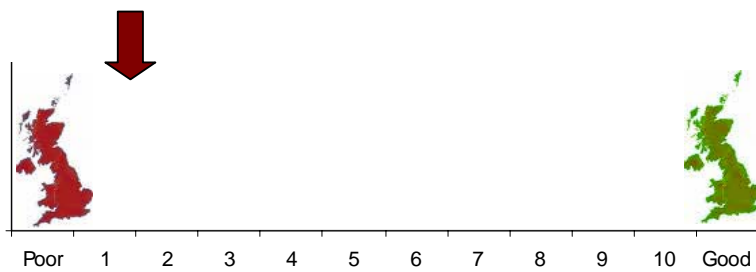
- **Stakeholders/ career development/ educational pathways**

There are indications of a growing recognition of the need to support a wide workforce to build competence across AT using a broad based approach. The development and wide welcome given to the Trusted Assessor training framework and to the Hereward/ City and Guilds VRQ2 confirm this. Both initiatives may be difficult to sustain without clear educational and career pathways leading into areas of AT practice at a variety of levels. The King's MSc course in Assistive Technology struggles to sustain adequate levels of applicants due to the lack of education pathways and career development opportunities in this area. The King's post graduate courses take applicants from a wide range of backgrounds, from health, social care, education, manufacturing, technical support and sales and from statutory, voluntary and industry backgrounds. The courses are designed to address deficits in experience and education and to support students to build the broad range of skills that are required.

- **Education and training available – quantity and spread:**



- **Visual analogue scale describing geographical availability of education and training in broadly based AT courses:**



## References:

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[http://www.dwp.gov.uk/resourcecentre/policy\\_strategy.asp](http://www.dwp.gov.uk/resourcecentre/policy_strategy.asp) (accessed March 2007)
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