



Guidelines for Lifelong Learning in Assistive Technology

communication, computer access and environmental control



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and environmental control



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Foreword

1. See <http://www.un.org/disabilities/convention/>

— These Guidelines have been written within the framework of the Keeping Pace with Assistive Technology (KPT) Project, a European project for the development of assistive technology (AT) training and education. [↗]

Engagement in lifelong learning is essential for all professionals, and this is especially so in fields where change occurs rapidly. Professionals serving the needs of people with disabilities should be aware of the opportunities offered by technology for supporting and developing their clients' autonomy, effective participation and inclusion in society. The UN Convention on the Rights of Persons with Disabilities¹, launched in December 2006, highlights the fact that autonomy, effective participation and inclusion in society are not only issues of social conscience, but are also issues of human rights. UN Member States signing the convention have an obligation to support the active promotion of AT and consequently the provision of high quality training for professionals.

Appropriate and well-supported technologies can change a person's life beyond recognition. Professionals require ongoing education and training to be able to offer the best support for people with disabilities who might develop their potential by using technology. Ongoing training and education is also required to sensitively supporting the delicate processes of change that the use of technology brings about in all contexts of life.

These Guidelines find themselves at the juncture of progressive thinking in learning, AT and the development of an inclusive society. The authors (representatives of universities, AT centres, professional bodies and organisations of clients) hope that these Guidelines will contribute and augment the quantity and quality of AT training and education in Europe. They will be another step forward towards an inclusive Europe where people with disabilities enjoy their rights and participate fully in society.

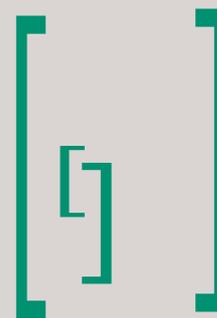


— The authors



Focus on three areas of AT

The KPT project focuses on three areas of AT: communication, computer access and environmental control. These are rapidly-developing areas with a high potential impact for people with disabilities in differing environments.



Summary

These Guidelines for lifelong learning in assistive technology (AT) have been developed within the framework of the KPT Project and are written for those who are delivering learning programmes in the areas of communication, computer access and environmental control. These Guidelines embrace social and cultural definitions of AT which emphasise the importance of recognising contextual and environmental variables in the life of the person using AT. Such definitions contrast with descriptions of AT purely as a technological field of knowledge. They are designed to be used flexibly to support learners with continuing professional development and lifelong learning.

An introduction to the International Classification of Functioning, Disability and Health (ICF)² is included, as it impacts on education and training in the field of AT. Key issues including consultation with relevant stakeholders, multi-professional working and a person-centred approach in designing AT learning programmes are emphasised. The authors propose that a set of core principles including, for example, emphasising the importance of the client, the people significant to the client, and the diverse environmental factors, should be at the centre of all assessment, support and training with the ultimate aim of maximising the autonomy and participation of the client in society. These core principles should therefore form the basis of any learning programme.

The Guidelines refer to three levels of training: Foundation, Intermediate and Advanced, and these have been related to the European Qualifications Framework (EQF)³ levels: Foundation (EQF 2/3/4), Intermediate (EQF 5) and Advanced (EQF 6/7). As a reference guide, AT competency in the areas of knowledge, skills, personal and professional outcomes relating to the EQF levels are defined. A template is provided to aid in the design of learning programmes.

A variety of methods of delivering learning outcomes are discussed and there is a section describing generic lifelong learning programmes which covers planning, preparation, delivery, assessment, accreditation and evaluation. [☒]

2. For further details see the ICF *Beginner's Guide*, available at <http://www3.who.int/icf>
3. Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005).



Organisation of Guidelines

These Guidelines are divided into six sections:

- Section 1* is an introduction, including a definition of AT.
- Section 2* introduces lifelong learning in AT.
- Section 3* outlines fundamental principles in AT which need to be considered when designing learning programmes.
- Section 4* considers the importance of a training needs analysis and of consultation of the clients.
- Section 5* sets out guidance on structuring a learning programme.
- Section 6* sets out a checklist for planning a learning event which can be helpful when organising a course.



1. Introduction

A definition of learning programme

'An inventory of activities, learning content and/or methods implemented to achieve education or training objectives (acquiring knowledge, skills or competencies), organised in a logical sequence over a specified period of time.'

Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005), p. 46.

1.1 Who these Guidelines are for

These Guidelines have been developed for trainers involved in delivering AT **learning programmes** in communication, computer access and environmental control. This could be at undergraduate or postgraduate level, or outside formal education and training.

It is assumed that these trainers would have expertise in AT and will be involved in delivering learning programmes for those working (or who will be working) in this field serving the needs of people with disabilities. [☒] Training providers would also have the appropriate knowledge and competence in basic training procedures, interaction with learners and methods of supporting learners throughout the learning process.

The learning programmes might take place in a variety of settings including for example an AT Centre, a university (or other types of educational establishment), a workplace specialising in one or more AT fields, or a client's home, and embraces a wide variety of different ways of learning.

Although primarily written for those who are delivering learning programmes, these Guidelines could be useful to professional organisations, national accreditation bodies and industrial federations. Such organisations could adopt these Guidelines and ensure that their members make use of them. The Guidelines could also be used to influence the writing of policy documents, including government policy documents which highlight the need for AT Training.



An audience for lifelong learning

A large variety of professionals and others are involved in supporting clients who are using or could be using AT, and the learning programme offered must consider the needs of those for whom the programme is designed. It could include lifelong learning for the following:

- occupational therapists
- speech and language therapists
- clinical and rehabilitation engineers
- architects
- nurses
- software engineers
- users of AT and their families
- physiotherapists
- teachers and educationalists
- psychologists
- doctors
- social workers
- support assistants
- etc

1.2 Definition of Assistive Technology (AT)

Technology is advancing rapidly and, as with the rest of society, its impact on people with disabilities has been considerable.⁴ For most people, technology can make life easier, expanding life's choices and opportunities. For people with disabilities, however, technology can change

the most ordinary of daily activities from the impossible to the possible.⁵

Assistive Technology has been defined in a variety of ways. In the context of these Guidelines the following definition has been adopted:

*'...a broad range of devices, services, strategies, and practices that are conceived and applied to ameliorate the problems faced by individuals who have disabilities.'*⁶

AT devices are tools for enhancing the independent functioning of people who have impairments or disabilities. They range from low-tech aids, such as built-up handles on eating utensils, to high tech devices such as computerised communication systems, alternative access systems or powered wheelchairs. The technology in these devices has also become smarter, smaller, lighter in weight, and more affordable.

A European TIDE/HEART⁷ study looked at AT from the perspective of its outcomes. It concluded that:

*'The ultimate objective of AT is to contribute to the effective enhancement of the lives of people with disabilities and elderly people by helping to overcome and solve their functional problems, reducing dependence on others and contributing to the integration into their families and society.'*⁸

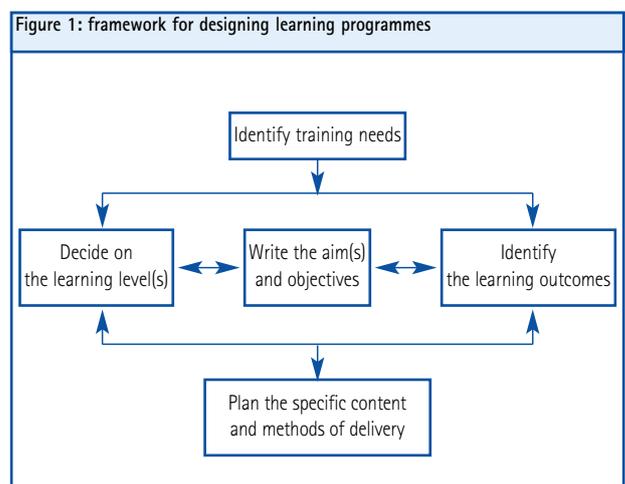
This definition has several important elements. It emphasises the functional capabilities of individuals with disabilities as a result of the successful use of AT and takes a strong perspective on the outcomes in terms of quality of life. It underscores the importance of assessing and supporting the unique needs of each individual and the context in which they will be applying the AT.

AT does not just involve designing and matching devices to the needs and skills of a client. It requires careful consideration of all factors impacting on successful AT use, including implementation strategies, the provision of training and how AT fits into and matches the needs of the client. Such factors are now known to be essential if the optimal use of any AT device or system is to be achieved.

4. In line with international acts and the latest UN declarations the term 'persons with disabilities' is used in these Guidelines. However, it is realised that different countries may use a different terminology.
5. See the multilingual deliverable of the BRIDGE project (2002) for a general introduction to the role of AT in reducing the social exclusion of people with disabilities and the cornerstones for successful AT policies. Hoogerwerf E. J., Lysley A., Clarke M. *Assistive technology against social exclusion*, (AIAS, Bologna, 2002). www.at4inclusion.org
6. Cook, A. M. and Hussey, S. M. *Assistive Technologies. Principles and Practice*, Second Edition (Mosby, St. Louis, USA 2002), p. 5.
7. Technology for the Integration of the Disabled and Elderly/Horizontal European Activities in Rehabilitation Technology, EC, DG XIII, 1993-94.
8. Azevedo, L., Féria, H., Nunes Da Ponte, M., Wänn, I., Recellado, J. G. Z., in *Assistive Technology Training in Europe*, Azevedo L. (ed.), (HEART, Brussels, 1994), p. 4.

1.3 A flexible framework for designing learning programmes

These Guidelines aim to provide a flexible framework for designing learning programmes. The framework is based around a number of processes which programme designers consider throughout planning and delivery (see Figure 1). The framework Guidelines begin with an analysis of training needs. They then move on to consideration of the learning level (foundation, intermediate, advanced and mixed levels), aim, objectives and the learning outcomes. Development of content detail and the choice of method or methods of delivery are then considered. Finally, the learning programme can be matched against the original findings from the analysis of training needs. It is expected that readers are likely to move flexibly between elements of the Guidelines as the learning programme is developed and refined. Flexibility and adaptability is important in programme design, as the past experience and current needs of those involved in the learning programme may be very variable.





2. Lifelong learning in AT

A definition of lifelong learning

'All learning activity undertaken throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective.'

What Is Lifelong Learning?, EUROPA - Gateway to the European Union, 02 October 2003, http://europa.eu.int/comm/education/policies/lifelong/learning/what_islll_en.html (retrieved 24 April 2006).

Lifelong learning for those working in the field of AT is vital if they are to bring a greater expertise to support the rehabilitation, independent living and social inclusion of their clients.

A KPT survey⁹ into the training needs of professionals serving the needs of people with disabilities showed that 80% of respondents had no experience of AT-related training as part of their formal education. A vast majority also reported training needs relating to new developments in technology and to an increased demand for AT.

2.1 The lifelong learning perspective

The education and training policies of EU Member States, in general terms, increasingly reflect a concern for **lifelong learning** and interpret it in a broad context that covers all types of learning, in all types of places, with all types of instruments and all types of pedagogical approaches.

The European Union itself is promoting lifelong learning and stresses its importance:

*'Lifelong learning has become a necessity in a Europe characterised by rapid social, technological and economic change. An ageing population accentuates these challenges - underlining the need for a continuous updating and renewal of knowledge, skills and wider competencies'*¹⁰

2.2 Categories of learning

The EU agency Eurostat has classified education and learning into four broad categories¹¹:

- Formal education
- Non-formal education
- Informal learning
- Random/incidental learning.

The relationships between these categories are presented conceptually in Figure 2.

9. For further details of the KPT Project see <http://www.at4inclusion.org/kpt/>

10. Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005), p. 8.

11. Classification of learning activities, Manual, EC/Eurostat, 2006.

Formal education is defined as '...education provided in the system of schools, colleges, universities and other formal educational institutions that normally constitutes a continuous "ladder" of full-time education'. **Non-formal education** is defined as 'any organised and sustained educational activities that do not correspond exactly to the above definition of formal education. Non-formal education may therefore take place both within and outside educational institutions, and cater to persons of all ages'. **Informal learning** is defined as '...intentional, but it is less organised and less structured ... and may include for example learning events (activities) that occur in the work place, and in the daily life of every person, on a self-directed, family-directed or socially directed basis'.

For the scope of these Guidelines all three categories of learning are relevant, while **random learning** is excluded, as this is a non-intentional form of learning.

Formal education in AT will typically take place in a university, both at undergraduate or postgraduate level. Aspects of AT can be included in undergraduate courses for speech and language therapists, occupational therapists, teachers and educators, engineers, architects, etc. Postgraduate courses might be more AT specific, although there are examples of master courses in related subjects where AT is just a limited part of the programme. Often external experts, service delivery organisations or AT centres are called in to deliver part of the programme, or the courses are developed in collaboration between Higher Education institutes and service delivery organisations in the field. A period of follow-up work-experience in an external organisation might be part of a programme in formal education.

Non-formal education in AT is more widespread. AT centres, suppliers of AT equipment, employers in health and AT user organisations might arrange courses, seminars, and in-house training for professionals working with people with disabilities. From a lifelong learning perspective this is an important form of learning, as it tends to be flexible and provided on an 'as-needed' basis.¹²

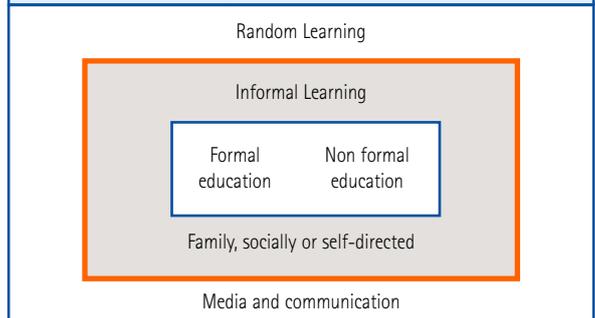
Informal learning in AT normally takes place in everyday practice. Professionals might learn from each other, or from an expert that intervenes in specific situations. Informal learning might also take place during visits to AT centres, through involvement in assessments, by attendance at conferences, exhibitions and fairs, or through research in books, magazines, catalogues, websites, etc. It is a very common way of learning that is hard to quantify but one that might direct professionals to assess their own knowledge gaps and to seek more structured forms of learning.

Different types of learning are also important when developing qualifications. The EC working document *Towards a European Qualifications Framework for Lifelong Learning* states that:

*'Most European countries are in the process of developing and implementing methods and systems for validations of non-formal and informal learning. This makes it possible for an individual to acquire a qualification on the basis of learning taking place outside formal education and training - contributing in an important way to the objective of lifelong learning.'*¹³

Figure 2: Classification of education and learning

(taken from 'Classification of Learning Activities Manual', Eurostat 2005).



12. A survey has been carried out within the framework of the KPT project into AT training and education provision in four European regions. The results can be seen on the KPT website: <http://www.at4inclusion.org/kpt>

13. Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005), p. 27.



2.3 Prior learning and the outcomes of learning

The recognition of **prior learning** involves taking into account the knowledge, skills and competencies that an individual learner already possesses. Existing competencies can be accredited or at least identified and further learning can then become much more efficient. As a concept, prior learning fits very well into lifelong learning. The EU has called upon all national authorities and other stakeholders to improve the recognition of prior learning in non-formal and informal education by developing coherent lifelong learning strategies.¹⁴

The **outcomes of learning** should ideally match with what learners need to know, or do, with their new competencies. Learning should not only impact on the development of knowledge and skills, but also on the professional outcomes of the learners. It is important that strategies are developed to ensure this impact is reached.

For the present, AT is not an independent discipline in Europe. Most learning in AT builds on knowledge and skills developed by professionals during training and work experience in their particular field. Such professions include for example, speech and language therapy, physiotherapy, occupational therapy, education and teaching, engineering.

AT service delivery is undertaken for the benefit of the client by teams of professionals, with members bringing their own professional backgrounds and expertise in AT. Learning in AT should therefore enhance the knowledge, skills and professional outcomes of learners, but at the same time make them aware of their own competencies and limits, and the importance of collaborating with other professionals when needed.

AT service delivery systems and practices across Europe are disparate, therefore learning programmes should be structured to incorporate local differences.

2.4 Developing competency in AT

The competence levels described within the KPT project and included as Appendix 1 to these Guidelines, relate to the qualifications framework presented in the working document *Towards a European Qualifications Framework for Lifelong Learning (EQF)*¹⁵. The EQF identifies a systematic development of knowledge, skills and personal and professional outcomes and its adoption across Europe is recommended by the European Commission, opening the way for European-wide accreditation standards. [©]

The core element of the EQF is a set of eight reference levels describing what a learner knows, understands and is able to do, regardless of how or where these 'learning outcomes' were acquired. When adapted to the field of AT, such a framework is a flexible and useful tool. It enables users of these Guidelines to see clearly competence levels in AT and how they relate to one another.



During the course of the KPT project there have been concurrent developments in the establishment of the EQF. The authors are aware that in the EQF proposed by the European Commission to be recommended by the European Parliament and the European Council for adaptation across the EU, the number of levels has not changed although the number of descriptors has been reduced. As the KPT project is focussed on expanding the descriptors of competency in AT, the choice has been made to utilise the wider set of descriptors in the working documents underlying the EQF. For more information on the development of the EQF consult:

http://ec.europa.eu/education/policies/educ/eqf/index_en.html
(retrieved 11 March 2007)

14. Some tools, for example *Europass*, have been developed to facilitate the documentation of prior learning. It is a new initiative which aims to help people make their skills and qualifications clearly and easily understood in Europe, thus facilitating the mobility of both learners and workers. The *Europass* facilitates accreditation both at individual and institutional level and has been designed in such a way as to help people record their skills and competencies whether they are planning to enrol in an education or training programme, looking for a job, or getting experience abroad. At an institutional level the *Europass Certificate Supplement* is issued to people who hold a vocational education and training award. The *Europass Diploma Supplement* is issued to graduates of higher education institutions along with their degree or diploma and was developed jointly by UNESCO and the Council of Europe. It is supported by a network of National *Europass* Centres. It was established by the Decision No 2241/2004/EC of the European Parliament and the Council of 15 December 2004.

15. Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005). The EQF is considered a meta framework, linking national qualifications and determining equivalency to facilitate workforce migration. The European Commission is promoting its establishment in the EU.

An important feature of the framework proposed in these Guidelines is that competence is described by way of learning outcomes under different categories: **knowledge, skills and wider personal and professional competence**. This facilitates an approach to lifelong learning in AT as a modular process where 'gaps' in professional preparation can be precisely located and addressed through specific learning programmes.

The framework in these Guidelines draws upon the experience of the KPT consortium members but is not intended to be exhaustive. It is not a definitive reference tool for approaching learning in AT, and not every learning programme, especially those outside formal education, will neatly match one of the competence levels. For each learning programme, detailed learning outcomes should be defined that might address different competence levels, depending on the prior learning and training needs of the learners. (For details of learning outcomes, see section 5.4)

Progression is defined in the framework (Appendix 1) according to different dimensions:

- From general AT knowledge to highly specific AT knowledge;
- From low responsibility in AT support to high responsibility in AT intervention;
- From AT use in well-defined and stable contexts to AT introduction and use in complex and changing contexts;
- From situations where AT is a small part of a professional's work to situations where a professional's work is entirely AT-intervention focused;
- From a specific situation of AT use to a wide range of needs and situations.

As such it includes the range of AT competencies from those needed by a professional assisting an individual client using AT, to those needed to lead a multidisciplinary team in assessing clients with very complex needs. [☒]

The framework in these Guidelines is principally designed for the professional development of those with a direct contact with the potential users of AT. This might be professionals working with people with disabilities, or students who intend to work in the field of AT. The KPT framework provides a description of a progression of competencies that might match professional needs as their involvement in the field of AT increases.¹⁶

Others, such as researchers, policy developers, and administrators, might only need knowledge in AT and no skills or professional outcomes in working with clients. In these cases, AT knowledge issues have to be identified in order to enable them to reach professional outcomes in their non-AT focused field of expertise. For them, this framework is only of interest where it talks about the area of 'knowledge'.

How competence in AT can be reached will be described in the following sections of these Guidelines.



National differences

Competence levels in AT might be perceived differently in different national contexts. AT is a new field of knowledge and the reading of the framework might be influenced by the readers' knowledge of AT and their experiences with multidisciplinary and/or transdisciplinary models in AT service delivery.

16. The exploration of the relationship between the progressive competence levels and national qualification systems is beyond the scope of this project.

The framework provides a common methodological and conceptual approach to competence in AT. As such, it might support reform and development at national and sector level, although this is not the aim of this publication.



3. Fundamental principles in AT and their impact on learning programmes

3.1 The International Classification of Functioning, Disability and Health (ICF)

The International Classification of Functioning, Disability and Health (ICF)¹⁷ is the most recent official classification of the World Health Organisation (2001) relevant to the field of disability.

'ICF is a multipurpose classification intended for a wide range of uses in different sectors. It is a classification of health and health-related domains - domains that help us to describe changes in body function and structure, what a person with a health condition can do in a standard environment (their level of capacity), as well as what they actually do in their usual environment (their level of performance).

*These domains are classified from body, individual and societal perspectives by means of two lists: a list of body functions and structure, and a list of domains of activity and participation. In ICF, the term functioning refers to all body functions, activities and participation, while disability is similarly an umbrella term for impairments, activity limitations and participation restrictions. ICF also lists environmental factors that interact with all these components.'*¹⁸

The ICF impacts on education and training in AT as it represents an innovative view on disability that is based on different perspectives and a multi-dimensional framework, embracing both the medical and social models of disability (see Figure 3).

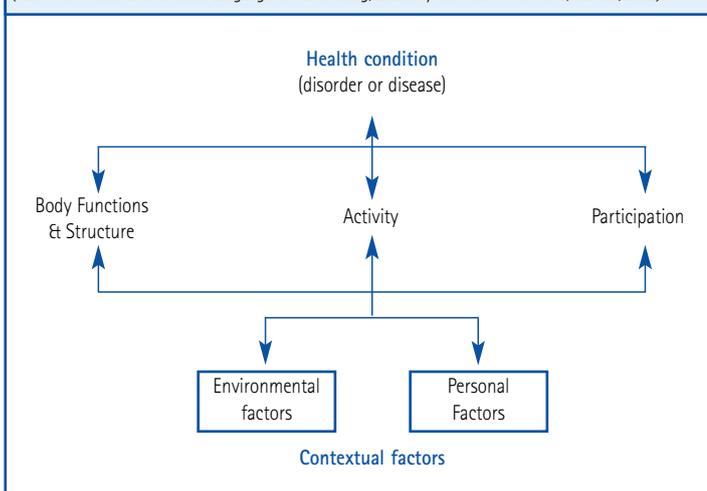
The *medical model* views disability principally as a fea-

17. For further details see the ICF Beginner's Guide, available at <http://www3.who.int/icf/>.

18. Towards a Common Language for Functioning, Disability and Health, ICF, page 2. (WHO, Geneva, 2002).

Figure 3: In ICF disability and functioning are viewed as outcomes of interactions between health conditions (diseases, disorders and injuries) and contextual factors.

(taken from 'Towards a Common Language for Functioning, Disability and Health' ICF. WHO, Geneva, 2002).



ture of the person. This disability is directly caused by disease, trauma or other health conditions and requires medical care provided in the form of individual treatment by professionals to 'correct' the problem within the individual.

The *social model* of disability, on the other hand, sees disability as a socially created problem and not an attribute of an individual.

On its own, neither the medical or social model captures the comprehensive needs of individuals, although both are partially valid. The ICF sees disability as a complex phenomenon that is both at the level of a person's body and as a complex and primarily social phenomenon. Disability is always an interaction between features of the person and features of the overall context in which the person lives. This more complete model of disability is called the *biopsychosocial model*. The ICF is based on this model and provides a coherent view that includes different perspectives: a biological, individual and social perspective. It therefore enlarges the range of issues to be considered in thinking about disability and when considering the role of technology in reducing the impact of health conditions in different environments. Education and training in AT should reflect this biopsychosocial model.

3.2 Person-centred approach

Professionals working in the field of AT should be prepared to adopt a person-centred approach in assessing and supporting people with disabilities. Learning programmes should reflect this complexity.

As noted above, AT is not just about products designed to solve technical problems, but rather about the needs and issues of people with disabilities, who use or may wish to use AT tools that are associated with particular activities or occupations. As a HEART study states:

*'... the ultimate objective of AT is to contribute to the effective enhancement of the lives of people with disabilities and elderly people, helping to overcome and solve their functional problems, reducing dependence on others, and contributing to the integration into their families and society ...'*¹⁹

The context and environments in which these activities take place need to be considered carefully as social circumstances and ongoing changes affect them. Factors that should be considered include, for example, expectations, quality of life, family factors (such as caregiving practices, routines and economic resources) educational or work needs and the physical layout of all the clients' environments. Attention to these factors is important because an AT device can affect the quality of life of the family as well as the client. It must also be remembered that an appropriate AT solution for one setting must not lead to difficulties in other settings. If professionals fail to examine the many elements that make up a person's life²⁰ the effectiveness and cost-effectiveness of their work will be undermined and the desired outcome for the client will not be achieved.²¹

19. A. Azevedo, L. Féria, H. Nunes Da Ponte, M., Wänn, I., Recellado, J. G. Z., in *Assistive Technology Training in Europe*, Azevedo, L. (ed.), (HEART: Brussels, 1994) p. 4.
20. Mendelsohn, S. B., *Assistive Technology: Public Policy and Financing*. *Technology and Disability*, 6 (1997) p. 29-48.
21. Spencer, J. C., *Tools or Baggage? Alternative Meanings of Assistive Technology* in Gray, D. B., Quatrano, L. A., Lieberman, M. L. (eds). *Designing and Using Assistive Technology: The Human Perspective*. (Paul H Brookes Publishing Co, Baltimore, USA 1998) pp. 89-97.

3.3 Multi-professional working

Work in the field of AT should be multi-professional wherever possible. Learning programmes may therefore need to be designed to support the needs and preferences of established teams as well as the needs of students who will work in multi-professional environments.



Working together

The terms 'multi-professional', 'interdisciplinary' and 'transdisciplinary' are used by different professionals in different countries to mean different things. In these Guidelines the term 'multi-professional' will be used, as in the rapidly developing field of AT it will often be the case that a group of professionals will work together sharing skills and knowledge but each professional will be the most informed about new developments in their specific field.

Learning programmes also need to reflect multi-professional working. Consideration should be given to planning and delivering the learning programme by a multi-professional team. Not only does this mean greater expertise when planning courseware but it also demonstrates good practice.

3.4 AT core principles

There are a number of core principles relating to AT which need to be considered to ensure that AT achieves its optimum potential. All trainers should be aware of these principles when designing and delivering any learning programme. Consideration should be given as to whether there will be a specific learning outcome, or learning outcomes, written for one or more of the principles. Alternatively, the core principles may underpin the course content without a specific learning outcome relating to them. This will depend upon the learning needs of the participants and the specific course being designed. (For details of learning outcomes see section 5.4)

The following principles should form the basis of any learning programme related to AT:

- The client and people significant to the client (family, friends, carers and supporting professionals) should be at the centre of all assessments, support and training with the aim of maximising autonomy and participation for the client.
- A range of people (including the client and people significant to the client) should be involved in finding an appropriate solution. This range will be dependent on the needs of the client.
- The needs of the client, the context, and the client's environments within which technology will be used should be taken into account (ie. the adoption of a holistic approach).
- The attitudes and expectations of the client and people significant to the client should be taken into account during assessment and support.
- Assessments, support and training for clients with complex needs should be carried out by a multi-professional team (see section 3.3).
- AT should be seen as a tool, not an end in itself. How the technology is used is more important than the technology itself. In some situations AT may not be the solution.
- Learners should be aware of the importance of lifelong learning for themselves and for the users of AT and people significant to them.
- The AT assessor/support worker has a clear responsibility in managing the expectations of the client and in promoting independence, not the development of dependency.



- Learners should be made aware of the importance of health, education, technical and social issues relevant in the use of AT and consideration should be given to the ICF classification which outlines these factors (see section 3.1).
- Ethical issues are of extreme importance in any service-related profession and reference should be made to these issues in all learning programmes. *Towards a European Qualifications Framework for Lifelong Learning* states that these ethical competencies involve 'the possession of certain personal and professional values.'²² Examples of relevant ethical issues are: maintaining the confidentiality of privileged information and not using photographs or videos of clients in learning programmes without their permission. RESNA²³ gives a comprehensive list of ethical issues in its Code of Ethics²⁴.

22. Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005) p. 11.
23. Rehabilitation Engineering and AT Society of North America.
24. These can be found at <http://www.resna.org/AboutRESNA/CodeEthics/Ethics.html>.





4. Identification of training needs

4.1 Training needs analysis

A clear understanding of the learning needs of the target audience is a priority for trainers aiming to design valuable learning experiences. Responding effectively to the training needs of an individual, team or organisation is likely to involve:

- identifying the aims of the individual, team or organisation;
- analysing training needs, including priority needs;
- designing a programme of learning to address some or all of the identified needs;
- conducting the training;
- evaluating the impact of the training.

An understanding of the potential and actual needs in terms of knowledge, skills and attitudes, and how those needs might best be met, will support the provision of relevant and valued training.

A central element in the process of training needs analysis involves seeking the views of the potential learners. Typically, this is carried out using methods such as questionnaires, group interviews and focus groups. Consulting employers of possible participants of a learning programme may also be useful in planning the content of a learning programme, as well as seeking the opinions of the clients, that is the final beneficiaries of the training.

A training needs analysis is likely to benefit from examining some or all of the following issues:

- The prior learning experiences and professional roles of the learners
- The amount and type of involvement in AT
- The areas of intervention that correspond most closely to the main focus of the work of the learners, such as:
 - working directly on body structures and functions (eg. voice and speech, hand function and manipulation)



- working directly on practical activities with clients (eg. learning to use email, producing written work, accessibility of the built environment)
- working directly on supporting participation (eg. accessing, education, employment, leisure opportunities, independent living)
- The settings in which the learners work with clients (eg. home, workplace, vocational training and education establishments, community, leisure and medical settings)
- The characteristics of the client group that the learners are working with (e.g. the age of the clients, their learning needs, types of disability, home and work factors).



4.2 Areas of training need

When thinking about a particular area of need, the ICF framework (see section 3.1) can prove useful in structuring questions. In the KPT Project's training needs analysis, participants were asked to consider areas of training need based on the ICF model, the level of need (eg. high, moderate or low) and their perceived level of existing knowledge and skills (eg. basic, intermediate or high).

Areas of training need might include:

Body structure & function

- For example: medical conditions, movement & posture, posture & seating, cognitive functions e.g., memory, perception, etc.

Activity

- For example: supporting operational skills (e.g. how to operate a particular system), personalisation of equipment, assessment of the built environment, assessment of AT options, recommendation of AT equipment

Participation

- For example: Supporting functional use of AT, understanding AT users' motivations and the motivations of their communication partners, developing individuals' sense of control

Using ICF domains to map possible training needs reflects the fact that professionals involved in AT intervention often have differing disciplinary backgrounds and participate with different roles and competencies in AT intervention. Factors such as prior learning, professional role, AT intervention models, etc. should impact on the training needs analysis and trainers must ensure that appropriate training areas, issues and levels are selected for different learner groups (see section 5.5).

It is further recommended to check the AT competence levels framework in Appendix 1 to identify possible areas of training need. It is possible that professionals have different competency levels in different areas of competencies (eg. a good knowledge base but limited skills or professional outcomes related to this knowledge), and subsequent additional training needs might therefore be identified.

It is also helpful to explore which learning opportunities the learners believe provide the most effective training experience and whether there are expectations concerning the outcomes (diploma, certificate, accreditation). For more information see section 5.6.

As a final stage it may be helpful to summarise the findings collected and feed them back to

the participants in the training needs analysis along with an outline study programme. This feedback provides an opportunity for participants to suggest changes or additions as necessary. This is, in effect, a validation process for your training programme and it aims to ensure that the expectations of the trainers and learners will be matched as closely as possible.

The points raised here are not intended as a definitive set of factors. Rather, they are intended as a guide for training providers in beginning to understand the needs of their potential learners. In exploring these needs and preferences, training providers may be supported in developing effective (and cost-effective) learning experiences.

4.3 Consultation of clients

Valuable insights into learning needs can be gained from the clients, who are or will be users of AT. They will benefit from the services of well-trained professionals and many of their viewpoints are based on their lived experience in working with services and technology.

Particular methodological difficulties exist in seeking the views of people with limited expressive communication abilities, some of whom may also have learning difficulties. Many people, particularly younger people, may not have been asked to express their views previously and may not have access to appropriate vocabulary to express certain views. It is possible that when interviewing people with communication and learning needs that professionals may distort or misinterpret behaviours and opinions.²⁵ In developing an interview strategy it will be important to consider the particular communication style of the interviewee, their relationship to the interviewer, and where possible incorporate some checks and balances to ensure authenticity and credibility of the views expressed. Despite the apparent difficulties in seeking the views of 'hard to reach' or vulnerable populations, it is not an insurmountable challenge, and learning programmes can be significantly enhanced through the thoughtful and patient orientation to the needs and preferences of people using AT.

25. Antaki, C., and Rapley, M. *Questions and Answers to Psychological Assessment Schedules: Hidden Troubles in 'Quality of Life' Interviews*, *Journal of Intellectual Disability Research*, 40(5), (1996), pp. 421-437.





5. Structuring a learning programme

What follows is a step-by-step guide to structuring learning programmes in AT, and a template (included as Appendix 2) has been designed as a tool to support this process. It corresponds to the main issues highlighted in this section and in section 6. An example of a learning programme is also included (Appendix 3).²⁶

5.1 Target audience and training needs

As mentioned in section 4, the first step of any learning event is a solid training needs analysis and a clear definition of the target audience. Learning programmes (dependent on the training needs analysis) might focus on specific areas of AT (eg. communication, computer access, environmental control), on the use of AT in specific settings, or on a mix of these (for example communication in educational settings). Learning programmes might address a small or a large number of issues, depending not only on the training needs but also on the time and the resources available.

26. More examples can be found at
<http://www.at4inclusion.org/kpt>





5.2 Learning levels

Learning can take place at different levels. In these Guidelines learning in AT relates to three levels: Foundation, Intermediate and Advanced.²⁷ These levels can refer to entire learning programmes or to single learning outcomes.

Learning programmes delivered at a **foundation level** will prepare learners to work with specific client groups in specific areas of AT, normally in well-defined contexts such as home, school, workplace, hospital, rehabilitation, leisure, etc. Typically the learners' roles and responsibilities are related to supporting the clients in the functional use of AT and to the monitoring of the effectiveness of its application and use. They will normally work under supervision during the AT related aspects of their work.

Foundation level courses might also aim to prepare students or professionals with:

- a general interest in AT but no expectations about direct involvement in 'hands on' service delivery to people with disabilities;
- a possible future involvement in AT, but with no definite plans or roles yet;
- an interest in AT at this level, though in their professional field they would be working at a higher professional level, for example a consultant paediatrician who wishes to know about AT, so he can refer clients to the relevant service.

Learning programmes delivered at an **intermediate level** will prepare learners to support clients with more complex needs and to be a reference point for other professionals working in a specific context, eg: home, school, workplace, hospital, rehabilitation, leisure etc. Learners will typically have expertise in more than one area of AT and expertise in working with people with disabilities with different needs. Learning programmes at this level will prepare the learners to work in teams and to act as case managers in AT intervention.

Learning programmes delivered at an **advanced level** will prepare learners in guiding complex AT intervention, including multidisciplinary assessments, the promotion of research and innovation, and in supporting clients with complex or very complex needs. Learners would typically have expertise in more than one area of AT and in the design and management of integrated AT intervention. They have the technical and methodological skills to serve client groups with very different needs.

Foundation Level

This level is intended for those new to the field of AT. Learning programmes at this level would typically introduce general and basic concepts related to AT and/or provide an overview of an area of AT. Learning at this level corresponds to EQF levels 2, 3 or 4.

Intermediate Level

This level is intended for those who already have some basic knowledge and experience in a relevant field. Learning programmes at this level would typically provide a comprehensive study of an area of AT. This level corresponds to EQF level 5.

Advanced Level

This level is intended for those with a good working knowledge of and a variety of experiences in a relevant professional field. Learning programmes at this level would typically provide an in-depth study of one or more areas of AT. This level corresponds to EQF level 6 or 7.

When designing learning programmes it is useful to consider the AT competence levels discussed in section 2.4 and published in Appendix 1 of these Guidelines, as these

provide a comprehensive overview of AT knowledge, skills and professional outcomes at different EQF levels. It will be dependent on the time and resources available as to what depth these competence levels can be targeted.

In any one learning programme, not all the learning outcomes may be at the same level. If the majority of the learning outcomes relate to one particular level then the learning programme could be said to represent that level. However, some learning programmes will not fit necessarily into one of the three levels.

5.3 Aim and objectives

An aim of a learning programme will:

- state the overall purpose of the learning programme;
- give an overview of what the learning programme hopes to achieve;
- convey the level of the programme;
- be a summation of the objectives.

27. Those using the Guidelines may wish to choose different terminology for the levels than those used in these Guidelines, so that it equates with terminology being used in their own country.

At the root of any aim is the vision, or mission of the learning programme.

Example: The aim of this advanced level course is to enable participants to acquire an in-depth knowledge of core principles when assessing and supporting a client using AT for communication, accessing computers and for environmental control.

The objectives of a learning programme define how the aim is to be met and should show the specific steps to be taken to achieve this. Collectively they should be comprehensive and capable of delivering the aim.

Example: To reach this aim the learning programme will evaluate:

- core principles relating to the assessment and support of clients in the control of assistive technology for communication, accessing computers and for environmental control;
- the assessment of clients for control of assistive technology for communication, accessing computers and for environmental control.

A definition of learning outcomes

'The set of knowledge, skills and/or competencies an individual has acquired and/or is able to demonstrate after completion of a learning process. Learning outcomes are statements of what a learner is expected to know, understand and/or be able to do at the end of a period of learning.'

Commission of the European Communities, *Towards a European Qualifications Framework for Lifelong Learning* [Commission Staff Working Document] (SEC (2005) 957, July 2005) p. 11.

5.4 Learning outcomes

Learning outcomes are what learners will or should be able to understand or do following completion of a learning programme. Learning outcomes should be assessable.²⁸

The wording of learning outcomes is normally preceded by a statement such as 'By the end of this learning programme, participants will be able to demonstrate that they can ...'

As previously mentioned, specific learning outcomes might be addressed at different levels. For example, a learning outcome concerning the core principles (see section 3.4) can be addressed at all three levels:

Foundation Level	Acknowledge the core principles when working with a client and AT.
Intermediate Level	Explain and discuss the importance of the core principles when working with a client and AT.
Advanced Level	Critically evaluate the issues involved in the core principles when working with a client and with multidisciplinary teams of professionals.

A learning outcome concerning the possible long-term effects of the use of AT can be similarly addressed:

Foundation Level	Describe some of the possible long-term effects of the use of AT in particular situations.
Intermediate Level	Explain and discuss some of the possible long and short-term effects of the use of AT including those for clients with deteriorating conditions.
Advanced Level	Analyse the long-term effects of use of AT.

A third example concerns strategies for AT use:

Foundation Level	Identify specific strategies to support and promote functional use of AT.
Intermediate Level	Explain and discuss how AT solutions relate to disability, activity and participation.
Advanced Level	Assess a client for appropriate AT use, taking into account any effect on activity and participation.

28. (i) An actual assessment may not be part of the learning programme. (ii) For assessed learning programmes assessment of every outcome may not be necessary.



Other examples of learning outcomes are:

Foundation Level	Intermediate Level	Advanced Level
Outline the differences between the medical model and the social model of disability.	Explain and discuss the differences between the medical model and the social model of disability.	Analyse the medical model and the social model of disability.
Discuss the importance of seating and positioning of a client and equipment and its effects on the accurate control of technology.	Identify the importance of seating and positioning of a client and equipment and its effects on the accurate control of technology.	Identify problems related to the seating and positioning of a client and equipment and work with the appropriate services to make any changes to improve the control of technology and be able to justify these changes.
Identify and use a range of relevant equipment.	Consider the strengths and limitations of a range of equipment in more than one area of AT and use these appropriately when assessing or working with a client.	Appraise and monitor a range of equipment and its use when assessing or working with a client. Customise hardware and software solutions to meet a client's needs.
Recognise where to go for assessments and for support for clients who need access to AT.	Explain and discuss a range of strategies used in assessments, to find successful solutions for individuals.	Critically evaluate the different models of AT assessments and service provision.
Identify some of the effects of impairment that may need to be considered when assessing for appropriate AT.	Explain and discuss how to assess a client for appropriate AT taking into account any effects of the impairment, including dual impairment, that might need to be considered.	Assess a client for appropriate AT taking into account any effects of the impairment, including dual impairment, that might need to be considered.
	Explain and discuss the importance of relevant information gathered for carrying out an AT intervention.	Recommend what information is required prior to an assessment and how to obtain this information.
	Explain and discuss the role of non-statutory service providers, suppliers and specialist agencies.	Compare the role of statutory and non-statutory service providers, suppliers and specialist agencies.
	Demonstrate the ability to access a wide range of resources to find up-to-date information on access equipment and strategies.	Critically evaluate the wide range of resources available to find up-to-date information on AT equipment and strategies.
		Apply appropriate strategies in designing AT intervention, including assessments of individuals and environments, to find successful solutions.
		Design appropriate learning programmes in AT.
		Identify relevant and innovative research areas in AT and describe basic research strategies.
		Identify quality management and monitoring procedures for service provision in AT.



As noted above, not all learning outcomes in a learning programme should necessarily address the same level. Specific learning outcomes have to be formulated that match the different training needs of the learners, especially if training is on an 'as-needed' basis. So, for example, the trainees' prior learning, their professional roles and the AT intervention model will impact on this. For example, a learning programme for social assistants might wish to address intermediate or advanced level learning outcomes regarding issues on activities and participation, and foundation level learning outcomes in the field of body structure and functioning.

Listed below is a general guide to verbs commonly used in writing learning outcomes.²⁹ Being examples, verbs are not restricted to specific levels. The verbs in the foundation and intermediate levels may also be applicable to the level(s) above and so are not repeated.

29. For further reading refer to Bloom's Taxonomy at <http://www.schoolnet.ca/grassroots/e/project.centre/shared/taxonomy.asp?mode=print>

Foundation Level	Intermediate Level	Advanced Level
Outline	Convey	Manage
Demonstrate	Solve	Develop
Recognise	Enable	Respond
Explain	Motivate	Assess
Identify	Promote	Analyse
Discuss	Evaluate	Appraise
Describe	Formulate	Recommend
Acknowledge	Communicate	Justify
Quote	Predict	Support
Recall	Differentiate	Convince
List	Summarise	Plan
Tabulate	Compare	Design
	Contrast	Generalise
	Illustrate	Modify
		Hypothesise
		Invent



5.5 Content issues

AT training can be very diverse and any learning event is unique. Therefore these Guidelines will not present core curricula or standard packages. The following interrelated elements discussed in these Guidelines are likely to impact on decisions concerning content issues and might therefore be reconsidered at this stage of designing a learning programme:

- prior learning (section 2.3);
- the ICF (section 3.1);
- the AT core principles (section 3.4);
- training needs (section 4.1);
- AT competency levels (section 2.4 and Appendix 1).

5.6 Methods of achieving learning outcomes

Lifelong AT learning outcomes can be achieved in a variety of ways including³⁰:

- attendance at stand-alone courses, workshops or continuous professional development (CPD) programmes;
- working and discussing with a colleague and/or client;
- secondment to another setting to gain relevant experience;
- visits to examples of good practice;
- distance learning and web-based courses;
- individual research and reading;
- experiential learning and associated reflection.



Active participation

This can be achieved by incorporating opportunities for:

- Brainstorming;
- Whole group discussion;
- Paired and/or smaller group discussion;
- Questioning;
- Problem-solving;
- Examination of real-life examples;
- Contributing current work-related issues or problems (eg. by anonymous note submission).



Using case studies – a scenario

Photographs and video clips of a client before his or her introduction to AT can be presented; a discussion then takes place with a variety of solutions suggested by the learners. Following this, the actual solution that was implemented for the client can be discussed and illustrated with a video.

Attendance at stand-alone courses, workshops or lifelong learning programmes has been a traditional approach.

There are a range of strategies for supporting learning in face-to-face contexts. These include lectures, small group work, role-play and experiential learning. Active participation is seen as important. [☒]

The following suggestions may also be helpful in achieving successful learning:

- where appropriate a range of relevant equipment should be available and set up so that it can be used by course participants;
- there should be plenty of time for 'hands-on' practice (eg. using equipment, using software, connecting up hardware);
- case studies, especially with the use of photographs and video clips, can help highlight issues and can also be used for interactive problem-solving sessions. [☒☒]

Working with a colleague or colleagues with specialist knowledge can be a powerful method of learning and time needs to be

set aside after a training session to discuss issues that have arisen. Planning together before a session with a client can also be a useful learning experience. The use of video-conferencing can be valuable for remote working with colleagues in this way.³¹

Secondment to another work setting to gain relevant experience and visiting centres or organisations offering examples of good practice can be an effective way of learning. As in the example above, time needs to be allowed for planning and discussion.

With the advance of e-learning, distance learning and web-based courses are becoming a popular alternative way of learning. However, as the assessment and support of clients

30. Points 1–6 taken from ICAN *Joint Professional Development Framework Report* (2001) p. 17.
31. Gresswell, A., Lysley, A. and Druce, S. *Alternatives to Formal Education/Training for Continuing Professional Development in the Field of Assistive Technology*. In: Pruski, A. and Knops, H. (eds.) *Assistive Technology: From Virtuality to Reality* (IOS Press, Amsterdam, 2005) pp. 369–373.



using AT is often very 'hands-on', especially regarding access issues, distance learning will in most cases need to be supplemented by face-to-face sessions, with the possibility of handling and using equipment. For distance learning, video of clients will be helpful to illustrate issues. [☒☒☒☒]

Individual research and reading. For the intermediate and advanced level learning programmes, this will be an important component. However, as with distance learning, some additional face-to-face sessions will probably be required.

Experiential learning and associated reflection. Deep learning and the maximising of reflective practice (as opposed to surface learning through the delivery of presentation materials) is seen as important for learners working in the field of AT. This approach is upheld by current adult learning theory³² which strongly supports the benefits of experiential learning and associated reflection, with opportunities to examine and experiment with ongoing support.

In all of the different methods of achieving learning outcomes, active participation (as described above) is seen as important.

As well as thinking of the different methods of enabling learners to achieve the learning outcomes, the ways in which different people learn best needs to be considered and catered for. In inclusive learning settings, the environment is created and determined by the needs of the learners. Successful learners are those who control and direct their thinking processes to facilitate learning. With differentiated instruction, a learning situation is created where different types of learners are facilitated, and there is a demand to move towards more sensory learning perspectives such as:

- Visual** This preference includes the depiction of information in charts, graphs, flow charts, and all the symbolic arrows, circles, hierarchies and other devices that instructors use to represent what could have been presented in words.
- Aural** This perceptual mode describes a preference for information that is 'heard'. Learners with this modality report that they learn best from lectures, tutorials, and talking to other learners.
- Kinaesthetic** This mode refers to the perceptual preference related to the use of experience and practices (simulated or real). The key is that the learner is connected to reality, 'either through experience, example, practice or simulation'.³³

Flexible modes of delivery, with an emphasis on face-to-face learning.

If learners are to gain the desired outcomes in a reasonably effective manner, then the trainer's fundamental task is to enable learners to engage in learning activities that are likely to result in achieving those outcomes. It is likely that providing a variety of learning experiences is likely to promote participants' learning. It is helpful to remember that what the



Making a connection

Point-to-point computer linking software can be used to demonstrate a particular piece of software for a learner at a distance. Using such a link a learner and a trainer can be remotely connected and simultaneously operate the same piece of software. With a telephone or a video-conferencing link the learner and trainer can converse as well. These remote alternatives enable the trainer to discuss and demonstrate the features of the software, and the learner can then take control to try out what he or she has learnt. This type of support is very useful in becoming familiar with a particular software product, including vocabulary packages for communication aids.*

* For further information on remote support systems, contact the ACE Centre (<http://www.ace-centre.org.uk>)



32. Fry, H., Ketteridge, S. and Marshall, S. *Understanding Student Learning*. In: Fry, H., Ketteridge, S. and Marshall, S. (eds.) *A Handbook for Teaching and Learning in Higher Education 2nd Ed.* (Routledge Falmer, London, 2003).

33. Gardner, H. *Frames of Mind: The theory of multiple intelligences*. (Basic Books, New York, 1993).

learner does is actually more important in determining what is learned than what the trainer does.³⁴

The total amount of time required to achieve the learning outcomes and the relative proportion of time that learners spend in activities such as face-to-face sessions, home study, work-based learning etc. has resource implications and will need to be carefully planned.

5.7 Planning for follow-up after the learning programme has been delivered

After delivery of the learning programme it is helpful to allow time for reflection and for learners to put new skills into practice, in order to consider how their training has affected their work. This process can be greatly enhanced by organising or facilitating a follow-up session(s) after the training. The way in which a follow-up is designed is likely to be influenced by the type of learning programme that was initially delivered. It is possible that remote methods of communication such as web-based forums, telephone conference calls or video-conferencing may provide useful and cost-effective ways of supporting ongoing learning.

5.8 Methods of assessment and examination

If learners are to be assessed or examined, the method of assessment and examination needs to be planned for. The learning outcomes should have been written in such a way that they demonstrate what should be assessed and what method will be used. The assessment should be commensurate with the level of the learning outcome. For example, if the learning outcome says 'critically appraise' the assessment should include verbs such as 'judge' or 'predict'.

There are a variety of assessment tools that can be used. In each case the mode of data collection that best captures intended knowledge and skills, in their context of use, should be chosen. The purpose of assessment should be to extend a learner's current learning level, not to rank learners.

Formal and informal assessment methods include:³⁵

- written examination;
- oral examination;
- practical work;
- case studies;
- group problem solving;
- applying knowledge in real-life contexts;
- portfolios;
- projects;
- presentations;
- production of a resource.

34. Shuell, T. J. *Cognitive Conceptions of Learning*, Review of Educational Research, 56, (1986) pp. 411-436.

35. Lorrie, A. and Shepard, L. A. *The Role of Assessment in a Learning Culture*, Educational Researcher, Vol. 29, No. 7 (Oct. 2000), pp. 4-14.



5.9 Accreditation

If accreditation with a recognised national body is anticipated, time needs to be allowed for liaising with different educational bodies, eg. universities and national awarding bodies. These institutions tend to have differing frameworks for accreditation. For more details see section 6.6

5.10 Evaluation

Formal programme evaluation is an important part of the quality assurance process and should not be overlooked. It is extremely helpful to ask learners to reflect on the learning programme some time after the training – after six weeks, for example. A key question at this stage concerns how the training might have influenced their professional practice, and as part of their own ongoing professional development the trainers should also evaluate the learning programme. The same types of questions outlined for learners can apply equally well to the trainers' self-evaluation. Section 6.7 contains examples of questions that both learners and trainers might be asked in order to evaluate a learning programme.





B. Checklists for planning a learning event

36. The following publications have been consulted in writing this section:

- *AT Education for End-User Guidelines for Trainers*, EUSTAT, 1999.
- *Developing CPD/Lifelong Learning Programmes for Chartered Physiotherapists* Chartered Society of Physiotherapy (CSP) document, 1999.
- *Joint Professional Development Framework*, ICAN document for all teachers and speech and language therapists working with children with speech, language and communication needs. 2001.

This section sets out checklists which can be helpful for developing and delivering learning programmes³⁶ and will be of most use to those who are new to organising a learning programme. It outlines aspects of good practice guidelines but is not specific to AT. The issues raised in this section are not intended as a definitive list - they are intended to act as a set of prompts to guide training providers in developing and delivering effective and enjoyable learning experiences.

The practical aspects of organisation

A number of factors will need to be considered in organising the practical aspects of the delivery of the learning programme. The types of questions you might ask yourself include those in the checklist below:

	Check
How is the learning programme to be structured? (eg. residential, day course/training, duration, distance or e-learning)	
What venue will be used? Are there any difficulties related to the accessibility of the site?	
Are the venue's facilities suitable for teaching and learning?	
Does the learning programme offer equal opportunities at all stages? (eg. enrolment, access to buildings, the lecture/training session, training materials, assessment)	
Do refreshments and meals etc need to be organised? How will this be organised if needed?	
Is a social component needed? If 'yes', how will this be organised?	
Who are the trainers?	
How is the learning programme to be advertised?	
Has due consideration been given to income and expenditure? Will the learning programme be financially viable?	

The role of the trainer and strategies to promote learning

Organisations providing training are likely to benefit from considering the following issues:

	Check
Who really has the most appropriate knowledge and skills to deliver the training programme?	
What is the most appropriate style(s) of delivery for this programme?	
What strategies will be used for facilitating learning? (eg. facilitating group discussion, running problem-solving activities)	
Will the trainers need time and resources to make sure they are up-to-date with the subject area?	

Materials to develop

In addition to careful planning, the practical organisation for the delivery of the learning programme is essential. The following checklist provides an outline of the type of materials used for supporting learning and other issues that need to be considered.

	Check
Materials to support your learning strategies might include:	
• Presentational media such as slides or overheads	
• Case study information	
• Problem-solving scenarios	
• Quick-reference notes	
• Handbooks and/or handouts	
• CDs	
• Software	
More general materials might include:	
• Writing and producing evaluation forms (see section 5.10)	
• Writing and producing certificates of attendance/completion	
• Organising equipment needs of trainers and learner	
• Other...	

Planning for follow-up after the learning programme has been delivered

Consideration needs to be given on to how to follow-up and consolidate the original learning. The following checklist provides ideas that might be useful to consider.

	Check
Period of time between the original learning programme and the follow-up	
Consideration of the most efficient way of follow-up in order to consolidate learning (eg. face-to-face, web based-forums, telephone conference calls or video-conferencing)	

Assessment and examination

Planning for assessment (if this is a requirement of the learning programme) needs to be considered in the early stages of planning a course. The following checklist provides ideas that might be useful.

	Check
Is the assessment commensurate with the level of the learning outcome?	
How will the learning outcome be assessed?	
Have you considered different ways of assessing?	

Accreditation

Different bodies tend to have different frameworks for accreditation. The following checklist provides areas that need consideration.

	Check
Which educational body should you work with?	
What level of accreditation is required? Will more than one level be wanted?	
Will the learning programme be a part of a larger learning programme towards a certificate, diploma or degree?	
How much support will be given by the accrediting body in order to set up a learning programme? (eg. help in setting learning outcomes and assessment criteria)	
What are the costs for course participants and for the centre applying for accreditation?	

Evaluation

Both learners and trainers should be asked to evaluate learning programmes. The following checklist provides questions that might be asked of both.

	Check
Was the aim met?	
Were the objectives met?	
Were the learning outcomes met?	
What was the value of the course to them?	
What new material was presented?	
How well was the learning programme presented?	
Was the venue suitable?	
What new knowledge and/or skills will they put into practice?	
What current working practices will they change?	



The following tables relate competence in AT and AT service delivery to specific EQF levels. For an introduction see section 2.4.

EQF level: 2

AT competence at this level will permit professionals to carry out simple AT tasks on a basic level. AT represents a small part of their work. Typically the professional's roles and responsibilities are related to selecting and applying basic information, methods, tools and material in relation to AT in situations where action is governed by rules defining routines and strategies.

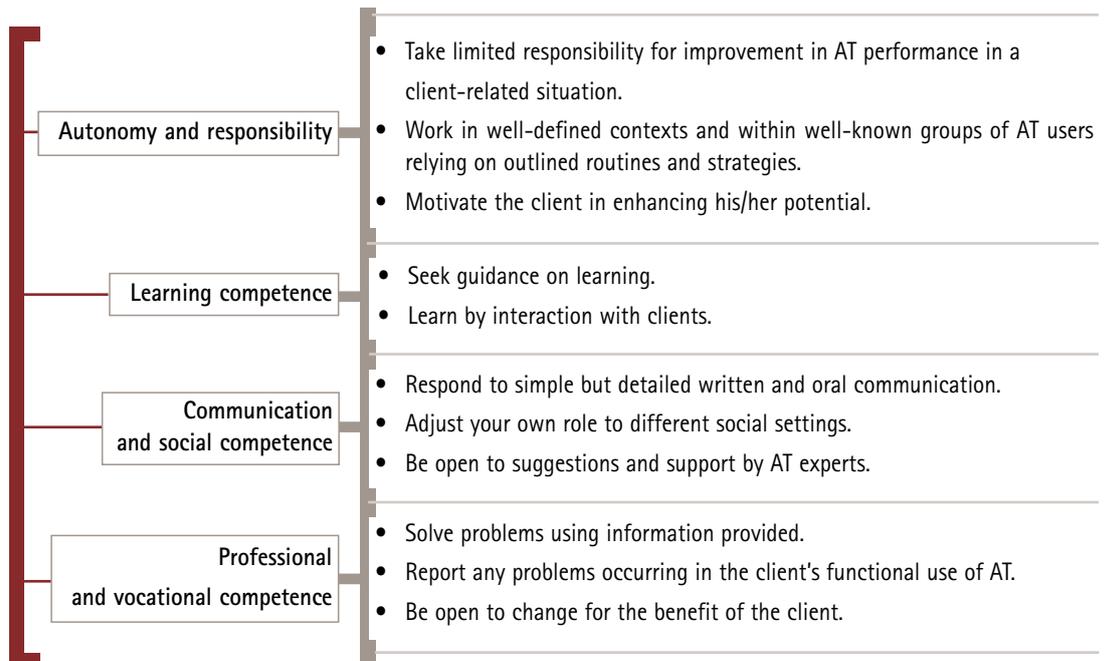
Core competence at this level

- Basic technical and functional knowledge about the specific equipment used by their client or clients.
- Awareness of the importance of AT for their client(s).
- Awareness of the benefits that can be gained from AT and some of the limits of AT.
- Awareness of problems in their clients' AT use and the need to discuss and report these.
- Appropriate communication skills.

- Knowledge**
- Recall and comprehend some basic knowledge (facts and main ideas) in the field of AT.
 - Be aware of the need to seek advice and guidance if required.

- Skills**
- Use well-defined skills and key competencies to facilitate the use of AT by the clients.
 - Select and apply basic methods, tools and materials for functional AT use for specific clients in specific situations.

Wider personal and professional competence





EQF level: 3/4

AT competence at this level will permit professionals to work with specific client user groups in specific areas of AT, normally in well-defined contexts, eg. home, school, workplace, hospital, rehabilitation, leisure. Typically the professional's roles and responsibilities are related to supporting the people they serve in the functional use of AT and to the monitoring of the effectiveness of its application/use.

Core competence at this level

- Appropriate technical and functional knowledge about the specific equipment used by their clients or client groups.
- The knowledge and skills to obtain improvements in their client's situation by the correct use of AT.
- Appropriate understanding of how to facilitate the use of AT by their clients.
- Appropriate communication and reporting skills.
- The awareness of procedures for solving problems.

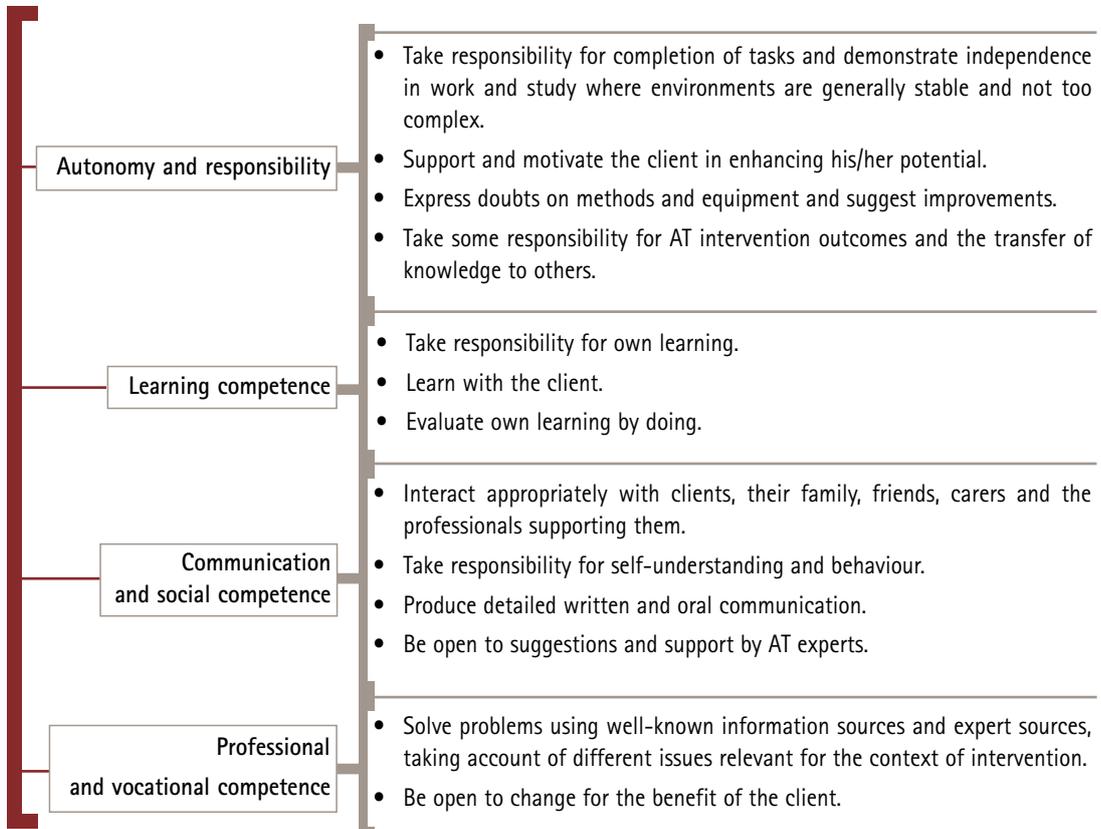
Knowledge

- Apply knowledge in the field of AT that includes basic principles, techniques and particular equipment.
- Use experience, terminology and theoretical ideas about the rationale behind the use of AT.
- Know where to seek advice and guidance if required.

Skills

- Use a range of specific skills to facilitate the client's use of AT.
- Develop strategic approaches to functional AT use for specific clients in specific situations.
- Adapt the approach on the basis of the changing needs of the client and/or the context.
- Evaluate the appropriateness of interpretations and actions.

Wider personal and professional competence





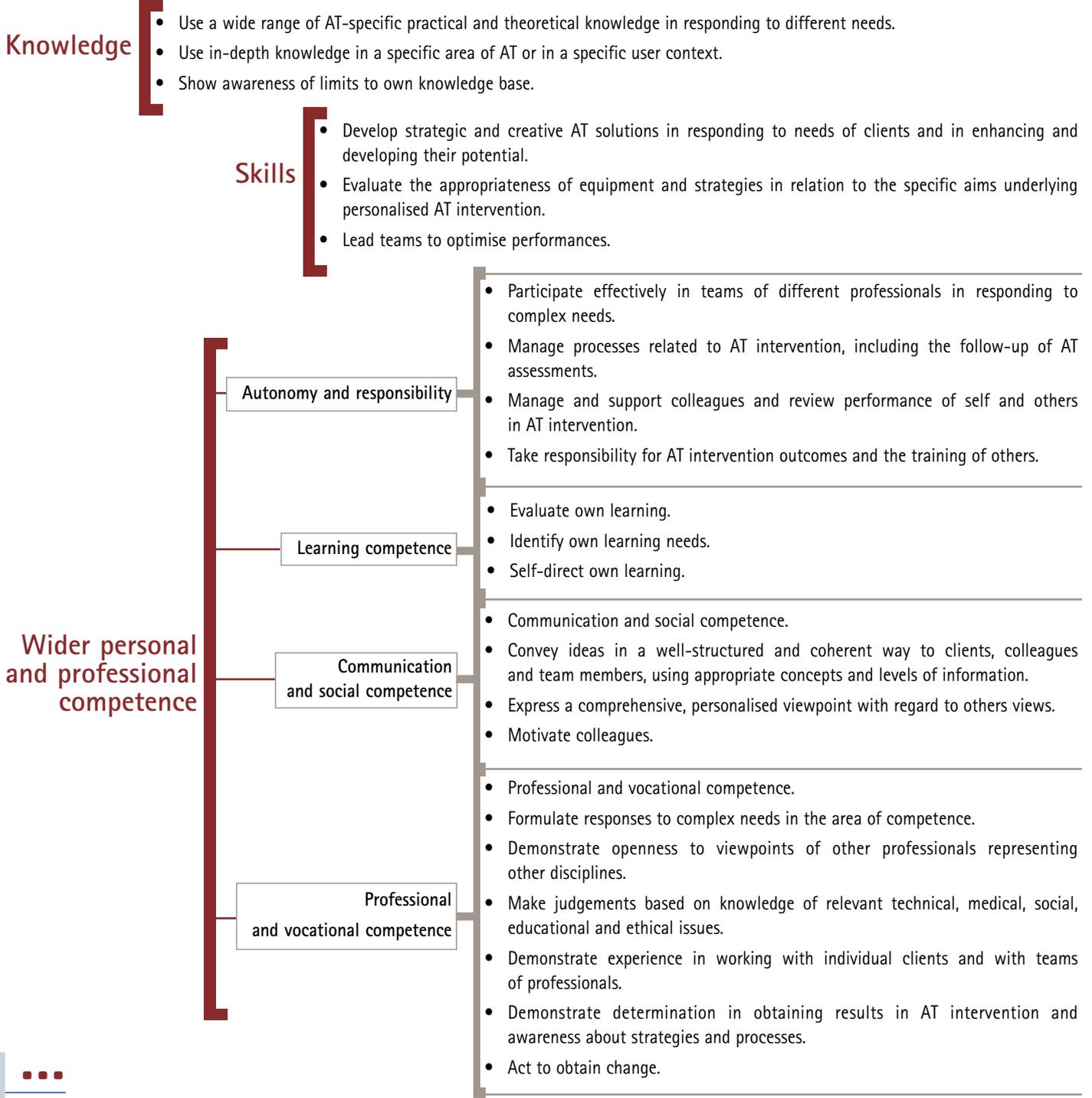
The following tables relate competence in AT and AT service delivery to specific EQF levels. For an introduction see section 2.4.

EQF level: 5

AT competence at this level will permit professionals to support AT users with more complex needs and to be a reference point for other professionals working in a specific context, eg. home, school, work place, hospital, rehabilitation, leisure. Professionals will typically have expertise in more than one area of AT (communication, computer access, environmental control, domotics, mobility) and in working with clients with different needs. Learning programmes at this level will prepare the learners to work in teams and to act as case managers in AT interven

Core competence at this level

- Awareness of the wide range of equipment and strategies that will benefit their clients.
- The knowledge and skills to carry out routine assessments and support clients with fairly complex needs.
- The knowledge and skills to obtain improvements in their clients' situations by the correct proposal of AT.
- The knowledge and the skills to support colleagues in the same field of intervention.
- The knowledge/awareness of how to keep up-to-date in this rapidly evolving field.
- Some knowledge about legislation and funding opportunities in this field.
- Appropriate management and communication skills.





EQF level: 6/7

AT competence at this level will permit professionals to guide complex AT intervention, including multidisciplinary assessments, to promote research and innovation and to support clients with complex or very complex needs. Professionals would typically have expertise in more than one area of AT and in the design and management of integrated AT intervention. They have the technical and methodological skills to serve user groups with very different needs.

Core competence at this level

- Appropriate awareness of the wide range of equipment and strategies that will benefit their clients.
- The knowledge, skills, and confidence to co-ordinate and deliver assessments, and support clients with complex needs.
- An up-to-date knowledge of this rapidly evolving field.
- A critically evaluative perspective of equipment and strategies.
- The confidence and ability to lead teams and to support professionals.
- Appropriate knowledge about legislation and funding opportunities and a critical evaluation of services and agencies.
- The confidence and ability to develop and deliver training.

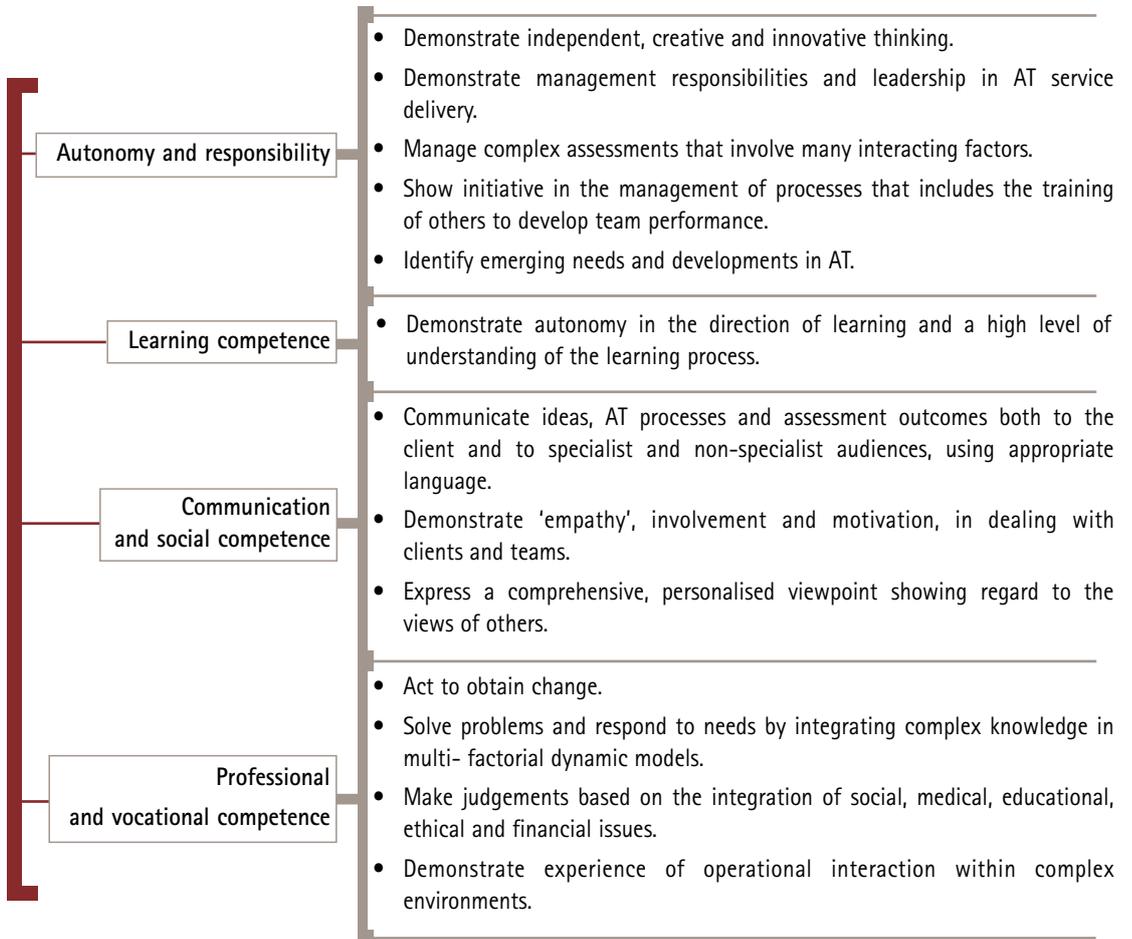
Knowledge

- Use broad and in-depth theoretical and practical knowledge, some of which is at the forefront of knowledge in the AT field.
- Demonstrate critical awareness of knowledge issues in the AT field and at the interface between different disciplines.

Skills

- Demonstrate mastery of methods and tools in many areas of AT.
- Find solutions and possible responses to needs by integrating multidisciplinary knowledge elements.
- Demonstrate innovation of methods used in AT intervention.
- Develop new skills in responding to changes in technology, service delivery and needs.

Wider personal and professional competence





APPENDIX 2 - Template for designing a learning programme

This template has been designed as a framework for planning learning programmes and for putting the Guidelines into practice. The key features of the template represent generic issues in learning and teaching that are normally relevant to all programme planning. Time invested in considering each element of the template is likely to support the planning of effective and enjoyable training for the learners and the trainers. In particular, thinking carefully about the programme aim, objectives and learning outcomes, assessment strategies and participants' learning styles will support effective programme planning. A *Word* version of this framework is downloadable from www.at4inclusion.org/kpt.

Section A: Description of learning programme

Title of learning programme																									
Details learning programme designer																									
Target audience <i>(Please consider prior learning, work experience, present and future role in AT intervention)</i>																									
Identified training needs for target audience																									
User environments involved		<input type="checkbox"/> Education	<input type="checkbox"/> Work	<input type="checkbox"/> Medical/Rehabilitation																					
		<input type="checkbox"/> Leisure/Community	<input type="checkbox"/> Home	<input type="checkbox"/> All	<input type="checkbox"/> Other																				
Area(s) of AT involved		<input type="checkbox"/> Communication		<input type="checkbox"/> Control and use of computers																					
		<input type="checkbox"/> Environmental control																							
Learning level(s) <i>(Please consult the Guidelines)</i>		Overall level of the learning programme		<input type="checkbox"/> Foundation	<input type="checkbox"/> Intermediate																				
		Level of the learning outcome		<input type="checkbox"/> Advanced																					
				<input type="checkbox"/> Addressing a single level → Reference to any European Qualifications Framework level: ____																					
				<input type="checkbox"/> Mixed levels																					
Aim of the learning programme																									
Objectives of the learning programme																									
Specific learning outcomes																									
Summary of the issues and the content of the learning programme <i>(Please include a brief summary. In section B the issues and the content need to be expanded)</i>																									
ICF profile of the learning programmes <i>(Please make the focus of your learning programme clear)</i>		<table border="1"> <thead> <tr> <th><i>Training issues associated to the ICF Categories</i></th> <th>None</th> <th>Few basic concepts</th> <th>Limited number of issues</th> <th>Significant number of issues</th> </tr> </thead> <tbody> <tr> <td>Body structure and functioning</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Activity</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Participation</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>				<i>Training issues associated to the ICF Categories</i>	None	Few basic concepts	Limited number of issues	Significant number of issues	Body structure and functioning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Participation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Participation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Estimated study load in hours																									
Suggested method of course examination/assessment (if applicable)																									
Suggested method of evaluation																									
Involvement of users and/or target audience in the design of the learning programme																									

Section B: Learning programme layout

Learning programme breakdown according to learning outcomes

Learning outcome <i>(Please repeat name or number)</i>					
Learning level		<input type="checkbox"/> Foundation	<input type="checkbox"/> Intermediate	<input type="checkbox"/> Advanced	
Method of achieving this learning outcome (key content and strategy)					
<i>Please repeat for each learning outcome.</i>					

Learning programme breakdown according to modules

Unit/Module/Session (name or number)	Issue(s)	Content description	Method of delivery	Reference materials (literature, laws, cases)	Suggested didactic support (video, slides, etc.)	Profile of trainer delivering Unit/Module/Session	Learning outcomes served (indicate number)	Hours

Please compile for each unit/module/session.



What follows is an example of a learning programme. More examples can be found at www.at4inclusion.org/kpt

Section A: Description of learning programme																					
Title of learning programme	An Introduction to the role and use of Communication Aids in Early Communication																				
Learning programme designer	Brunella Stefanelli (Ausilioteca, AIAS Bologna onlus)																				
Target audience	Professionals working for public and private care agencies supporting people with disabilities in different settings.																				
Identified training needs for target audience	The training needs have been identified and assessed during the routine service practice of the AT Centre. The target audience's lack of basic knowledge concerning the opportunities offered by assistive technology decreases the effectiveness of the assessments.																				
User environments involved	Education / Medical / Rehabilitation / Leisure / Home																				
Areas of AT involved	Communication																				
Learning Level	Overall level of the learning programme: Foundation Level of the learning outcomes: Single level (Foundation) Reference to European Qualifications Framework level: 3																				
Aim of the learning programme	The aim of this foundation level course is to enable professionals to recognise and describe methods and equipment that facilitate the communication of very young children and adults with severe disabilities, to identify possible needs and to activate professional support. As such it is an attempt to raise the quality of the referral of clients to the centre.																				
Objectives of the learning programme	<ul style="list-style-type: none"> • Present and discuss situations in which alternative communication methods and equipment might facilitate the development of communication and other skills. • Present and discuss relevant low and high-tech equipment related to these situations. • Discuss in general terms the potential of each piece of equipment, its characteristics, also in relation to the characteristics of other devices and general criteria for its choice and use. • Present and analyse cases and methods of intervention related to the various user environments and core principles. • Promote the participant's correct use of terminology and clear reporting skills. • Present and introduce AT resource centres and professional service teams in this field and explain how they can be activated to support users and local teams. 																				
Specific learning outcomes	<ol style="list-style-type: none"> 1. Recognise situations in which the presented methods and equipment might be of use 2. Discuss the relevant core principles related to AT intervention. 3. Recognise and name relevant low and high-tech equipment related to these situations. 4. Explain the difference between aided and non-aided communication and between low tech and high tech devices and describe in general terms the potential use and limitations of the equipment. 5. Describe some factors that might influence the successful introduction of AT in given situations 6. List relevant information resources and reachable professional services and associate them with possible needs 																				
Summary of the issues and the content of the learning programme	<p>The following issues form the backbone of the learning programme</p> <ul style="list-style-type: none"> • Rationale: early communication/language in the developing age and alternative communication for adults in community environments • Technology/devices/equipment: Low tech and high tech aids for communication • Methodology: Strategies to facilitate the communication, introduction to vocabulary packages, personal passports • Service delivery: AT resource centres and independent AT service teams, experts, training opportunities 																				
ICF profile of the learning programme	<table border="1"> <thead> <tr> <th><i>Training issues associated to the ICF Categories</i></th> <th>None</th> <th>Few basic concepts</th> <th>Limited number of issues</th> <th>Significant number of issues</th> </tr> </thead> <tbody> <tr> <td>Body structure and functioning</td> <td></td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>Activity</td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>Participation</td> <td></td> <td></td> <td></td> <td>X</td> </tr> </tbody> </table>	<i>Training issues associated to the ICF Categories</i>	None	Few basic concepts	Limited number of issues	Significant number of issues	Body structure and functioning		X			Activity				X	Participation				X
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Body structure and functioning		X																			
Activity				X																	
Participation				X																	
Estimated study load in hours	Two days of six hours (12 hours)																				
Suggested way of course examination/assessment (if applicable)	<p>The presentation of a case (video and basic information) with the request to the participants to compile a question list.</p> <p>Key questions:</p> <ul style="list-style-type: none"> • Which high or low tech solution could be of use in this situation and please explain? • Which activities could be proposed to the client? • Which other information would you like to acquire, to decide what action, if any, might be appropriate. • Which professional support would be needed? Who would you refer to? 																				
Suggested way of evaluation	A question list to collect feedback on teaching methodology, teacher's competence, content, unmet expectations, associated learning needs.																				
Involvement of users and/or target audience in the design of the learning programme	Contact 6 potential participants belonging to different professional groups and 2 users of AAC for feedback on the designed learning programme. E-mail and phone interview.																				

Section B: Learning programme layout

Learning programme break down according to learning outcomes

Learning Outcome	Level	Method of achieving this learning outcome (key content and strategy)
1. Recognise situations in which the presented methods and equipment might be of use.	Foundation	<p>This learning outcome will be achieved by showing and commenting on videos of potential users of alternative communication in various contexts.</p> <p>The participants will be trained to observe the individual in a context and his/her communication modality/strategies and to catch minimal signs of communication potential that can be further developed.</p>
2. Discuss the relevant core principles related to AT intervention.	Foundation	<p>The following core principles will be presented separately and will be embedded in the discussion of cases:</p> <ul style="list-style-type: none"> • The rationale: maximising autonomy and participation. • The central position of the client and the people significant to the client. • The importance of the user environment/setting. • The importance of a "vision" and ideas about the future, to avoid that AT is an end in itself. • The management of the expectations of the client and the people significant to the client. • The trainer will have a check list and will have to assure himself/herself during the course that these core principles are sufficiently well understood. A copy could be handed out to the participants.
3. Recognise and name relevant low and high-tech equipment related to these situations. 4. Explain the difference between aided and non-aided communication and between low tech and high tech devices and describe in general terms the potential use and limitations of the equipment.	Foundation	<p>Different high tech and low tech devices will be shown and demonstrated, explaining for each device its potential and its limits related to user abilities, user aims and expectations, contexts of use, etc. There won't be time for each single participant to try out the devices during the course, but they will be on display to be touched and manipulated before and after the course and during intervals, in presence of an expert available to respond to questions. Further the concepts, vocabulary packages and personal passports will be introduced and explained.</p> <p>It could be an idea to invite the aids selling and producing companies to be present and introduce their products, but in that case more time will have to be foreseen for this learning outcome.</p>
5. Describe some factors that might influence the successful introduction of AT in given situations.	Foundation	<p>This learning outcome will be reached after having shown and analysed cases.</p> <p>Key concepts to be transmitted during the presentation of cases include:</p> <ul style="list-style-type: none"> - the complexity of factors interacting in deciding AT intervention (body structure and functions, abilities, seating, expectations, cognitive development, long term perspective, context related factors, availability of supportive context, etc.) - other factors for success or failure in AT intervention - the importance of respecting the communication speed of clients <p>The trainer will have a check list and will have to assure himself during the course that these factors are sufficiently well understood.</p>
6. List relevant information resources and reachable professional services and associate them with possible needs.	Foundation	<p>A list of resources/services within reach (provincial territory) will be prepared, handed out and discussed. For each service (team) the following data will be made available: mission/objective, target, activities, referral policy, contact details. If available flyers and brochures will be distributed.</p> <p>Alternatively, representatives of the service delivering teams can be invited to present their services, but in that case the course manager should make sure that appropriate time is available in the programme.</p>



Learning programme break down according to modules						
Unit/Module/Session (name or number)	1.	2.	3.	4.	5.	6.
Issue(s)	AT, AT intervention and core principles	Early communication in the developing age and alternative communication for adults in community environments	AAC equipment and devices	Resources to direct and support AT intervention	Learning outcomes assessment	Course evaluation
Content description	<ul style="list-style-type: none"> - General introduction to AT - AT core principles - General introduction to AAC 	<p>After a brief theoretical introduction on the rational of AAC intervention, several cases will be introduced of children and adults with disabilities before AAC intervention. The importance of observation will be highlighted. Following this, other cases will be presented to demonstrate intervention methodologies and equipment. The key concepts mentioned under learning outcome 5 will be highlighted.</p>	<p>Different high tech and low tech devices will be shown and their use will be demonstrated, explaining for each device its potential and its limits related to user abilities, user aims and expectations, contexts of use, etc. It will be highlighted that these are a rather random selection aiming at introducing general features of AAC devices, rather than providing a complete overview of existing solutions. The following features will be taken in consideration:</p> <ul style="list-style-type: none"> - Low and high tech - Mode and timing of registration of messages - Different levels of registration - Single message devices and multiple/sequence message devices - Direct access and scanning - Mode and timing of scanning <p>The concepts, vocabulary packages and personal passports will be explained. Further short comments on:</p> <ul style="list-style-type: none"> - positioning and access issues - the integration with equipment for environmental control - prescription and funding 	<p>Presentation of professional service teams and other AT resources in relation to principle needs of support a professional might come across.</p>	Prepared case with question list	Feedback questionnaire
Method of delivery	Face-to-face	Face-to-face and group discussion on the basis of observation guidelines	<p>Face-to-face Hands-on and in small groups</p> <p>During the second part of this session participants will have the possibility to touch and use the demonstrated devices. Both for high tech and low tech devices simple tasks will be assigned to the participants working in small groups. (For example: "Register a message", or "Add a symbol-object").</p>	Presentation of printed matter and overview main area of competence of each team	Case presentation Individual response to question list Group discussion	
Reference materials (literature, laws, cases)	Articles from different authors. www.isaacitaly.it			List and description to be produced. Web sites.		
Suggested didactic support (video, slides, etc.)	PP slides	Video and PP slides		Information sheet, brochures, flyers	Video, slide and fact sheet	
Profile teacher	One AT expert with an educational background, experience in teaching and at least 5 years of experience "in the field".	One AT expert with an educational background, experience in teaching and at least 5 years of experience "in the field". Preferably part of a multi-disciplinary team.	Same as above, assisted by an AT technician.	AT expert part of service delivery team with good personal knowledge of other professional teams within reach.	AT expert, specialised in communication and with at least 5 year of experience in an interdisciplinary AT team.	
Learning outcomes served	2	1 + 5	1 + 3 + 4	6		
Hours	2.00	4.00	4.00	0.45	1.00	0.15



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