ADAPT

Assistive Devices for empowering disAbled People through robotic Technologies
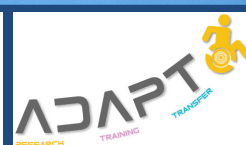
Axe 1 : Support Innovation in order to address economic and societal issues facing the FCE area

EUROPEAN UNION

Activity WP T3.5 REPORT:
Evaluation of
Training Packages
November 2022

FOREWORD

The Canterbury Christ Church University ('CCCU') ADAPT team were responsible for leading Work Package T3 of the Assistive Devices for empowering disAbled People through robotic Technologies ('ADAPT') project - the development, training and evaluation of healthcare professionals ('HCPs') in Assistive Technologies.

This report is in relation to the ADAPT project Work Package (WP) T3.5 - 'Evaluation of Training Packages', and reports on the evaluation of all Units of the ADAPT Assistive Technology (AT) training programme in both the UK and France. The key purpose of the evaluation was to explore the impact of learning to determine what works best for whom and in what circumstances, and to assist in the further improvement of the design and development of AT solutions, and further training materials and packages.

Report authors

- Prof Eleni Hatzidimitriadou, Project Lead
- Sharon Manship, Research Fellow
- Dr Julia Moore, Research Fellow
- Dr Maria Stein, Senior Academic and Occupational Therapy clinician

EXECUTIVE SUMMARY

A number of key points arose from the evaluation of the ADAPT Assistive Technology (AT) Training programme:

▶ There was a high number of completions of the e-learning in both countries (924 in the UK, 716 in France) which increases confidence in the conclusions drawn from the evaluation.

▶ The number of completions decreased by Unit, partly due to them being launched sequentially across the project timeframe, but also because they became more specialist in content. Furthermore, the the availability and capacity of healthcare students to engage with the training across the academic year were both very variable.

▶ The overall response rate of evaluation participants was 53% of those who undertook Units in the UK and 73% of learners in France. Potential reasons for the higher percentage include that fact that in France the training tended to be delivered in class/face to face, whereas in the UK it was left up to student participants to complete in their own time (students being well represented in the overall sample for each unit). Furthermore, the evaluation could not be made a mandatory element of the training in the UK, due to guidance from the university ethics committee, whereas in France it was embedded in each unit.

▶ Consistently positive evaluation feedback supports the importance and value of the ADAPT AT training programme in relation to experiences of the training across Units and countries, including:

- Improved knowledge, confidence and readiness to implement learning
- High relevance to work (practice settings) and studies
- Strong intention to apply learning in practice

▶ Similarly consistent positive feedback was received in relation to the content and level of training across Units and countries, which provides important learning for future training for health and social care professionals and students in AT and other areas. The vast majority of learners agreed or strongly agreed that:

- The training materials were easy to follow, clearly presented, interesting, engaging and professionally relevant
- The online training platform was accessible, easy to use and navigate and made good use of video materials
- The end of user assessment was useful to solidify learning
- They intended to engage in other training Units within the programme

CONTENTS

DEVELOPMENT OF ADAPT AT TRAINING

A transdisciplinary and international approach to AT training is critical, considering the complexity of robotic assistive technologies (Cowan et al, 2015), to ensure relevance of training in healthcare professional (HCP) practice. Development of the ADAPT Assistive Technology (AT) Training programme was led by CCCU and fostered dialogue amongst disability, education and robotic AT experts in both the UK and France – BREIZH PC, CHU Rouen, Cornwall Mobility, ESIGELEC, Pole St Helier, University College London, and University of Kent. Development took place via workshops and meetings, both in person and via video call.

Additionally, an Advisory Group was set up in both countries to provide additional service user and professional consultation as the training was developed. In the UK, the Advisory Group comprised of experts who had a good understanding of AT and training, including health and social care professionals, AT users, carers, manufacturers, educators and project partners. In France, the Advisory Group comprised expert healthcare professionals and project partners.

In both countries, during previous phases of the work, a scoping review was undertaken and an online survey of HCPs was used to explore their experiences, attitudes and training needs in relation to AT. Along with the review and the results of the survey, which elicited a large volume of responses, these activities helped to shape and inform the development of AT training materials for HCPs. In addition to newly developed content, existing teaching materials used by the wider ADAPT team were collated along with open access online materials, to determine what was already available.

E-learning technologists were employed in both countries and were responsible for transferring the training content developed to e-learning platforms which hosted the training Units and enabled data regarding participation to be captured. In each country, the platforms were selected based on availability and technical support in host organisations, as well as accessibility by learners. In the UK, the team originally used Blackboard CourseSites, but due to limited functionality and capacity, after Unit 1 was launched the content was migrated to Moodle (https://moodle.org/) which was used for all Units. In France, the platform used was Agora (https://www.agora.io/en/). For the UK training, the enrolment link sent to prospective learners was https://adaptcccu.moodle.school/login/index. php. Learners were required to register and set up an account for the training in both UK and France.

The final ADAPT AT Training programme comprised six Units. The first two Units introduced learners to general information including AT definitions and concepts, terminology, while subsequent Units were more specialist:

- Unit 1 – Foundations of AT
- Unit 2 – Understanding Disability
- Unit 3 – AT for Posture & Mobility
- Unit 4 – AT for Communication
- Unit 5 – Evidence-Based Practice for AT
- Unit 6 - ADAPT Train the Trainer

Numerous challenges were experienced in designing the training content. Firstly, the wide range of AT devices and systems available as well as their complexity are difficult to navigate and present to learners. Secondly, different healthcare professions tend to differ in their understanding and perspective on disability, and AT solutions and practical application. In addition, there are cultural differences to consider between UK and France regarding the AT education, AT provision and AT service delivery.

To mitigate these challenges, the training to be underpinned by a coherent, widely accepted model of disability - The International Classification of Functioning, Disability and Health model (ICF) (World Health Organization, 2001) which is robust, ecologically sound and comprehensive enough to underpin the content of the training programme.

EVALUATION OF TRAINING

As a newly developed training programme, evaluation was embedded to obtain participants' views and experiences. The objectives of the evaluation study were to:

- Obtain feedback and improve content and manner of delivery of the programme
- Facilitate transfer of learning from theory to practice
- Demonstrate the potential value of the training to service users and healthcare organisations

A post-intervention research design was adopted whereby learners (both professionals and students) were invited to complete an online brief questionnaire at the end of each Unit of training they undertook. The questionnaire was designed by the CCCU team in collaboration with other partners and it was hosted by CCCU using the Online Surveys platform (https://www.onlinesurveys.ac.uk/).

The development of the evaluation questionnaire was underpinned by the Kirkpatrick Four Levels of Training evaluation model (2006), which comprises four levels of evaluation:

- Level 1 - Reaction - satisfaction with training
- Level 2 - Learning - knowledge, skills and confidence gained via training
- Level 3 - Behaviour - application of training into practice
- Level 4 - Results - desired outcomes at an organisational level[1]

The questionnaire (see Appendix) included closed and open-ended questions with Likert scale answers, and covered common themes for all Units, organised as follows:

1. Background/demographics
2. Experience of training – knowledge, confidence and readiness to implement AT
3. Feedback content and online training platform
4. Likely engagement with further training and suggestions for improvement[1]

The wording of questionnaire items was adjusted as necessary to reflect the focus of each Unit. For example, for Unit 1 (in the UK) and Units 1 and 2 (in France), questions about confidence and readiness to implement were removed as they were not relevant to the Units/content. For the evaluation of ADAPT Train the Trainer, these questions were amended to refer to confidence 'to use knowledge' and readiness 'to act as a champion of AT', in line with the focus of this Unit.

The evaluation questionnaire incorporated questions in relation to the first three levels of the Kirkpatrick model, as demonstrated by the examples below;

Level 1: Reactions to training
Please rate (1-5) the extent to which you felt the material was easy to follow
Level 2: Learning from the training
With relevance to AT, please rate (1-5) the extent to which you felt the material was easy to follow
Level 3: Behaviour change following training
Please give 3 examples of how you have used the skills you have learned in practice

The ADAPT AT Training programme was offered to HCPs and students in addition to their usual training and continuing professional development (CPD) studies. To be eligible to take part in the evaluation, participants must have completed Unit(s) of the training. Learners were invited to participate in an evaluation questionnaire at the end of each Unit.

Evaluation results were statistically analysed using SPSS version 29 and open-ended questions were thematically analysed. In the UK, ethical approval was obtained from the university ethics committee and the Health Research Authority (REC Ref: 19/HRA/4890, IRAS ID: 262502) and was adopted onto the National Institute for Health and Care Research (NIHR) portfolio. Twelve NHS Trusts took part in the study. It was not necessary in France for ethics approval to be obtained for this type of study involving healthcare professionals.

---

1   This Level was not possible to demonstrate within the ADAPT evaluation design

FINDINGS FROM EVALUTION

EVALUATION PARTICIPANTS

There was a total of 1,640 completions of training Units across both countries, and 1,012 evaluation study participants (as at end of September 2022).

Table 1. UK completion and evaluation data

	Overall N of Completions	Learners - Professional	Learners - Student	Evaluation Participants	% Learners completing evaluation
Unit 1: Foundations of AT	347	101	246	247	71%
Unit 2: Understanding Disability	187	64	123	94	50%
Unit 3: AT for Posture & Mobility	154	53	101	74	48%
Unit 4: AT for Communication	90	41	49	37	41%
Unit 5: Evidence-based Practice for AT	67	28	39	24	36%
ADAPT Train the Trainer	79	64	15	10	37%
TOTAL	924	351	573	486	53%

Table 2. France completion and evaluation data

	Overall N of Completions	Learners - Professional	Learners - Student	Learners - Other*	Evaluation Participants	% Learners completing evaluation
Unit 1: Foundations of AT	262	30	229	3	245	94%
Unit 2: Understanding Disability	209	20	185	4	170	81%
Unit 3: AT for Posture & Mobility	82	45	34	3	63	77%
Unit 4: AT for Communication	23	8	0	15	15	65%
Unit 5: Evidence-based Practice for AT	21	14	1	6	7	33%
ADAPT Train the Trainer	119	39	42	38	26	22%
TOTAL	716	159	491	69	526	73%

*A number of learners did not complete whether they were professional or student, therefore their status is unknown

Foundations of Assistive Technology (UNIT 1)

Participants – Foundations of AT

As shown in Table 3, a total of 247 UK learners who undertook the Unit 'Foundations of AT' participated in the evaluation, which comprised 49 healthcare professionals and 189 healthcare students. Nine participants were classed as 'other' as they did not identify as healthcare professionals or students (e.g. clinical scientists, educators, etc.). In France, evaluation data was available for 212 learners, of which 59 were healthcare professionals and 153 were students.

Most professionals who participated in the evaluation in both countries were Occupational Therapists, although the largest proportion of professionals in France were categorised as 'other'. In both countries, the highest proportion of professionals had been in their role for less than five years, which was to be expected given the focus of the Unit as an introduction to AT.

Table 3: Breakdown of Unit 1 participants by profession

		UK	FRANCE
HEALTHCARE PROFESSIONALS		49	59
Profession	Occupational Therapist	14 (28.57%)	17 (28.81%)
	Speech & Language Therapist	11 (22.45%)	1 (1.69%)
	Nurse	9 (18.37%)	9 (15.25%)
	Physiotherapist	3 (6.12%)	1 (1.69%)
	Other	12 (24.49%)	31 (52.54%)
Years of Practice	← 5 years	20 (40.82%)	25 (42.37%)
	6-10 years	4 (8.16%)	18 (50.51%)
	11-15 years	8 (16.33%)	6 (10.17%
	16-20 years	6 (12.24%)	4 (6.78%)
	21+ years	11 (22.45%)	6 (10.17%)
HEALTHCARE STUDENTS		189	153
OTHER BACKGROUND		9	

Use of Assistive Technology

Unit 1 learners were asked about their experience of AT in practice. A significant proportion in both groups (students and professionals) and both countries reported that they used AT in practice either always or frequently, as shown in Figures 1 and 2. More professionals (70%) than students (43%) were using AT either always or often, while 19% of students reported they never used AT in practice.

UK users of AT also provided details about the type of AT used (this question was not asked in the evaluation in France). The most common devices used by Unit 1 learners were:

Communication-related (e.g. Augmentative and Alternative Communication (AAC), voice recognition software, eye gaze technology, hearing aids)

Posture and mobility aids (examples provided included wheelchairs, walking frames, hoists, pressure cushions)

Digital devices (e.g. iPads, smart phones)

Other, less frequently reported AT devices used in practice were related to assisting with daily living (personal care, home adaptations), feeding (e.g. adapted cutlery) and safety (personal alarms, telecare, etc.).
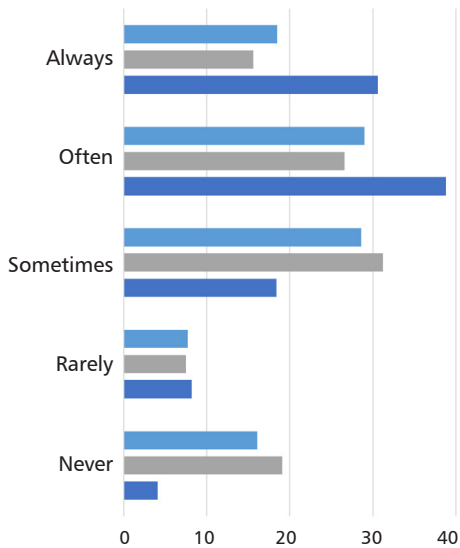
Do you use AT in your practice?

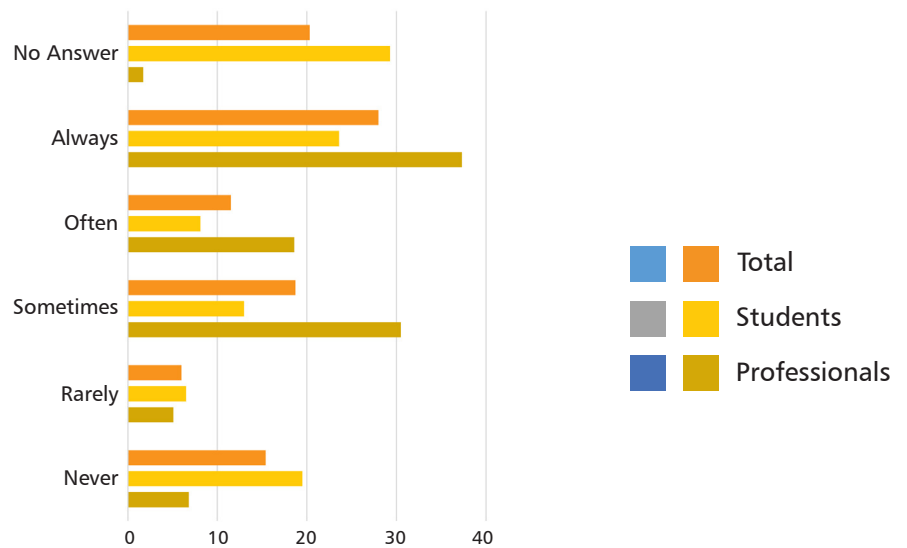Figure 1 Use of AT in practice by participant group in UK – Unit 1

Figure 2 Use of AT in practice by participant group in France – Unit 1

Experience of Foundations of AT (Unit 1)

Knowledge, Confidence and Readiness

UK respondents were asked to rate their knowledge on a scale of 1 (lowest) to 5 (highest), confidence and readiness to implement their learning before and after the training. In France, only knowledge was rated before and after training for this Unit. Feedback is shown in Figures 3 and 4 below.

In the UK, both learner groups reported increased levels in all aspects following training. Self-reported level of AT knowledge increased from 3.00 prior to training to 4.27 after training (out of 5). Similarly, confidence scores increased from 2.96 to 4.17, and readiness to implement increased from 3.03 to 4.22. In France, AT knowledge also increased post-training from 2.81 to 4.12. In both countries, professionals tended to rate higher their AT knowledge before the training compared to students.
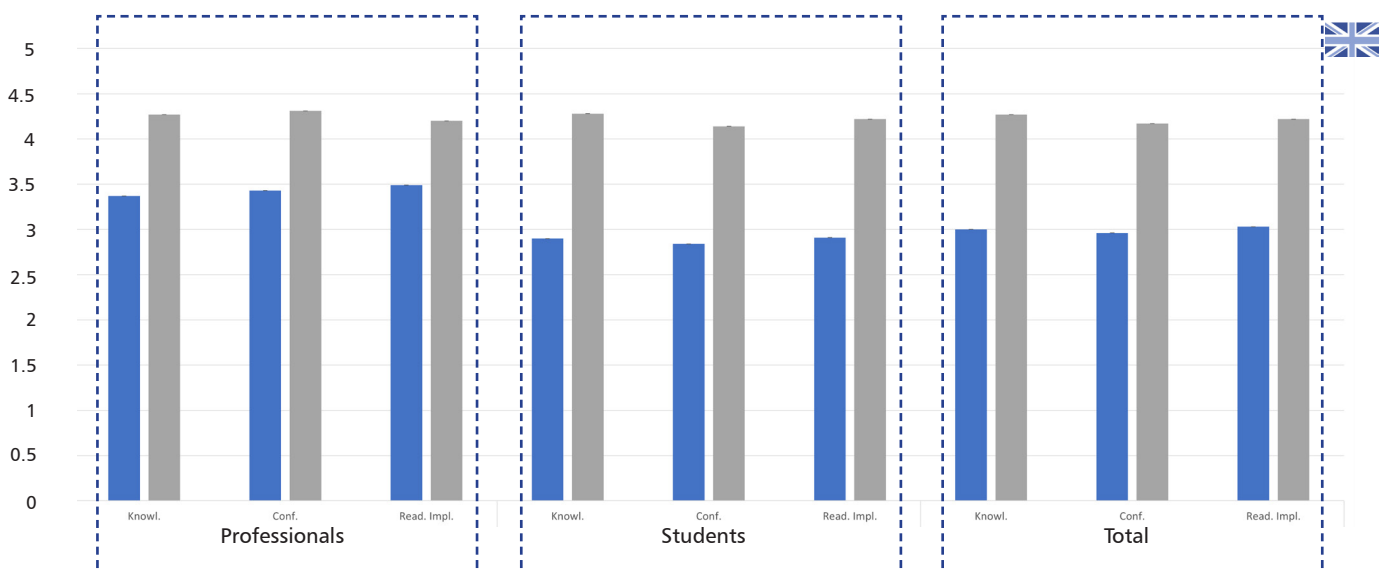

Figure 3 Self-reported levels of knowledge, confidence and readiness to implement before and after training in UK – Unit 1
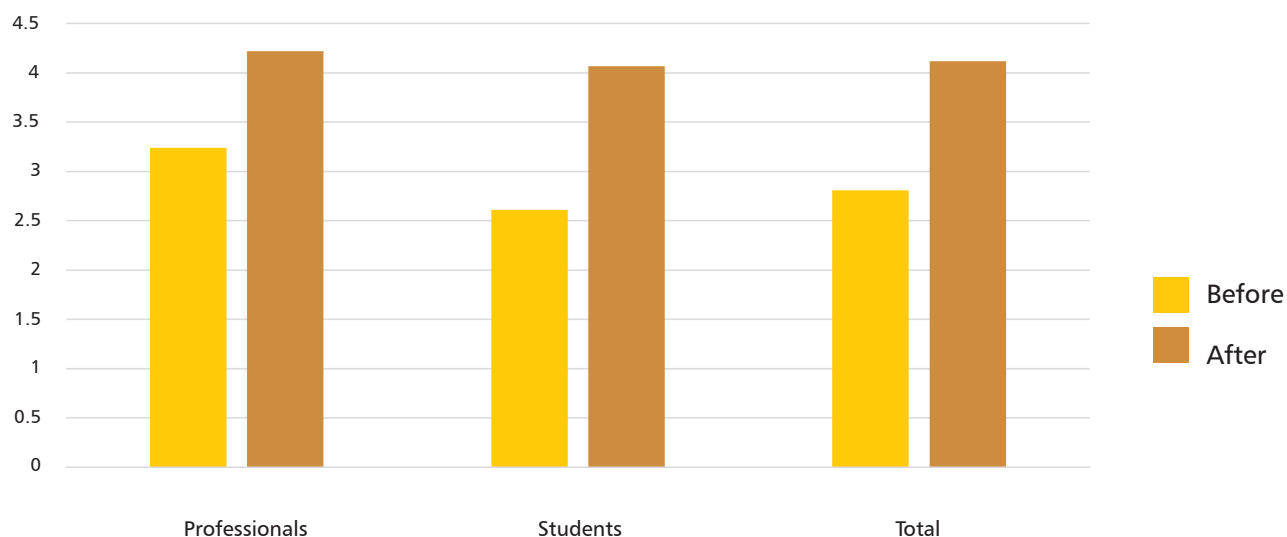
Figure 4 Self-reported levels of knowledge to implement before and after training in France – Unit 1

Learning from Foundations of AT

Learners in both countries were asked to state three important learnings from Unit 1. These were:

- Information regarding AT devices and their application
- Knowledge of the 'AT continuum', which participants learnt categorises AT devices as no/low, medium and high tech
- Information about AT legislation and regulation
- Impact of AT on users, such as enhancing independence, autonomy and empowerment

Respondents in France also reported learning in relation to funding of AT. Further themes that were less common (<20 respondents) across both countries were in relation to the development of AT and employment rates of people with disabilities compared to their counterparts.

Application of learning to workplace/studies

Learners were asked about their intention to apply learning to their workplace/studies. Figures 5 and 6 summarise responses by learner groups in UK and France. Both groups reported that they intended to apply the learning in their practice setting or study (UK - students 78%, professionals 69% and France (students 88.5%, professionals 86.2%).

UK respondents were further prompted to identify which elements of the Unit 1 learning they intended to use (this question was not included in the evaluation in France). Most mentioned areas in relation to application and recommendation of AT, for example better assessment of potential AT users and consideration of a wider range of options. Other areas were information about specific AT devices, their available and relevance for specific users; enhanced understanding in programmes of study; better appreciation of the impact of AT on users; and plans to share new knowledge with work/course colleagues.
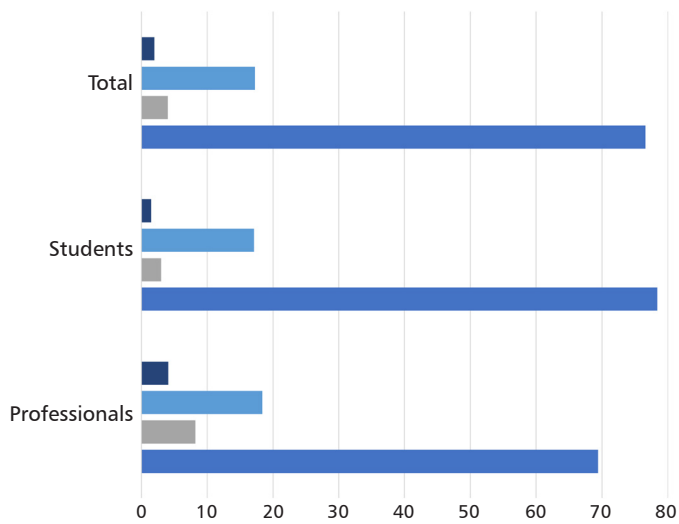
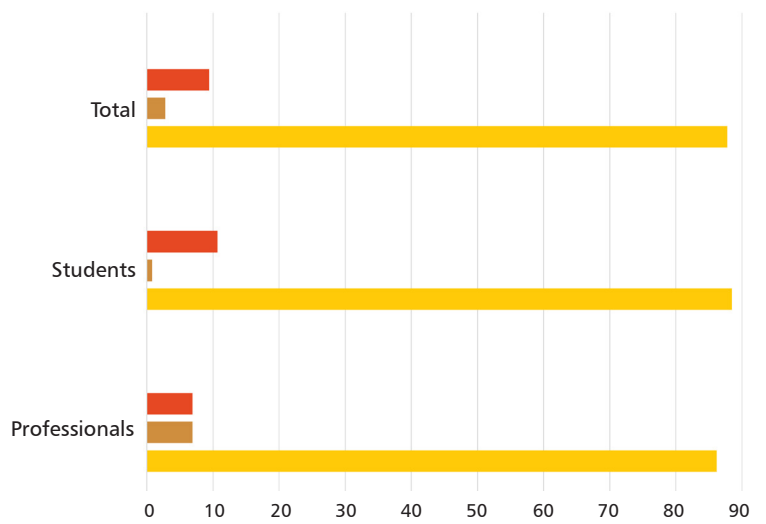*Figure 5 Intention to apply Unit 1 learning to workplace/studies by participant group in UK*

Figure 5 Intention to apply Unit 1 learning to workplace/studies by participant group in France

Confidence to apply learning

Participants were asked about their level of confidence in applying Unit 1 learning to their work settings. As illustrated in Figures 7 and 8, they felt very confident. The mean score was 4.17 and 3.92 in the UK and France respectively, with professionals scoring higher than students.
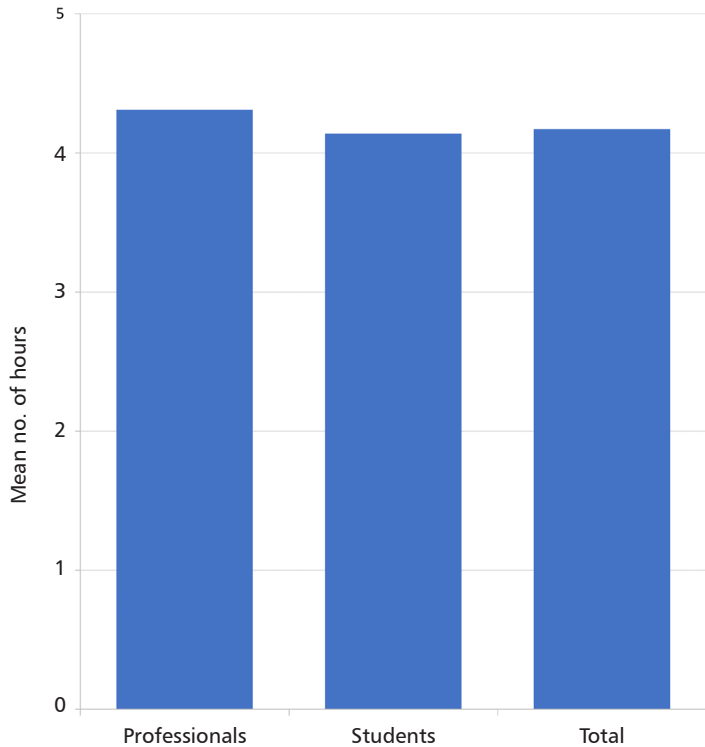

Figure 7 Confidence in applying Unit 1 learning by participant group in UK
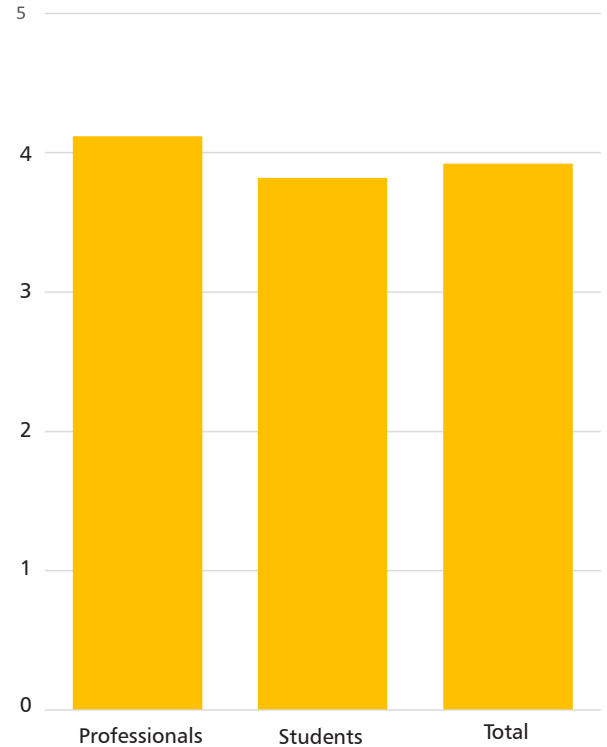

Figure 8 Confidence in applying Unit 1 learning by participant group in France

Understanding Disability (UNIT 2)

As shown in Table 4, a total of 96 UK learners who undertook the Unit 'Understanding Disability' participated in the evaluation, which comprised 28 healthcare professionals and 61 healthcare students. Seven participants were classed as 'other' as they did not self-identify. In France, evaluation data was available for 116 learners, of which 36 were healthcare professionals and 80 were students.

In the UK, the highest proportion of professionals participating in the evaluation was Occupational Therapists (35.71%), in France the highest proportion was Nurses (44.44%). In both countries respective professionals were less than five years in their role, which (as for Unit 1) was expected given the introductory nature of the content.

Table 4: Breakdown of Unit 2 participants by profession

		UK	FRANCE
HEALTHCARE PROFESSIONALS		28	36
Profession	Occupational Therapist	10 (35.71%)	11 (30.56%)
	Speech & Language Therapist	7 (25%)	1 (2.78%)
	Nurse	4 (14.29%)	16 (44.44%)
	Other	7 (25%)	8 (22.22%)
Years of Practice	← 5 years	10 (35.71%)	14 (38.89%)
	6-10 years	3 (10.71%)	7 (19.44%)
	11-15 years	3 (10.71%)	5 (13.89%)
	16-20 years	4 (14.29%)	5 (13.89%)
	21+ years	8 (28.57%)	5 (13.89%)
HEALTHCARE STUDENTS		61	80
OTHER BACKGROUND		7	

Use of Assistive Technology

A significant proportion of Unit 2 learner groups (students and professionals) in both countries reported that they used AT in practice either often or frequently, as illustrated in Figures 9 and 10. As anticipated, professionals reported more use of AT in practice than students.

Participants who answered that they did use AT in their practice were asked to provide details of the type of AT they used. As with Unit 1 responses, the most common devices used by Unit 2 learners were communication related (e.g. Augmentative and Alternative Communication (AAC), speech technology, eye gaze technology, symbol based software, hearing loops/aids, visual resources), followed by posture and mobility aids (e.g. wheelchairs, walking frames, hoists, switches). Next most frequently reported were devices in relation to assisting with daily living (personal care, home adaptations). There were a few mentions of computer/phone technology, feeding devices and safety related AT.
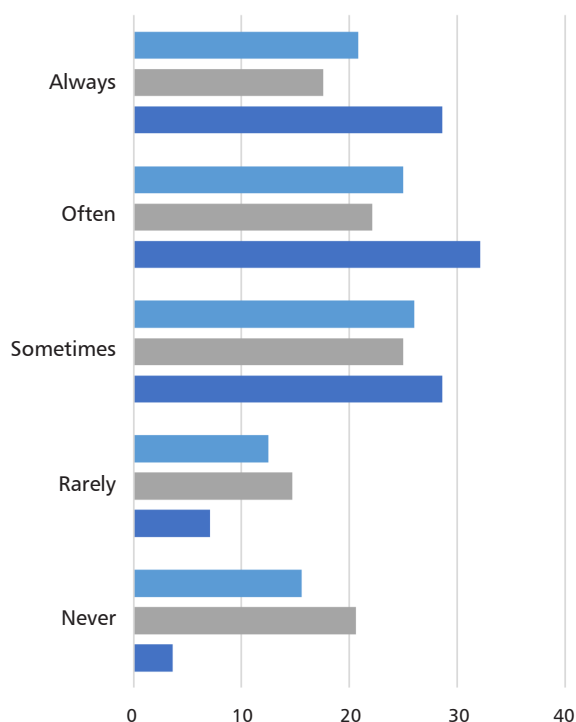
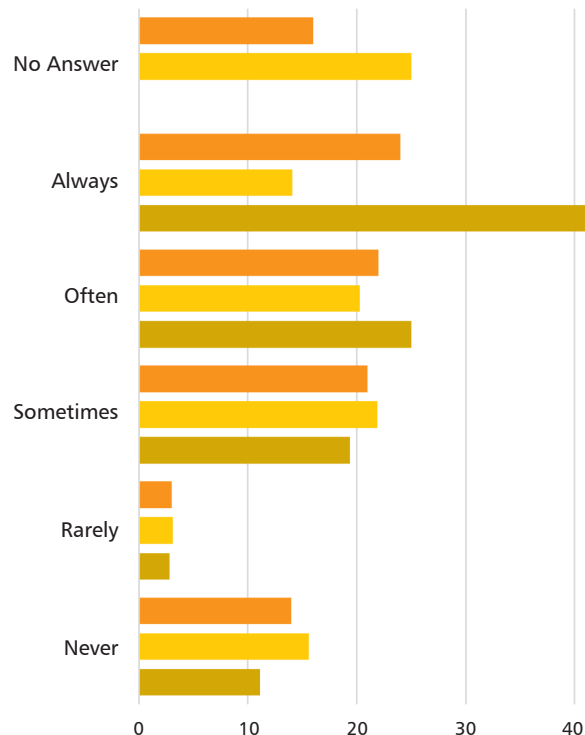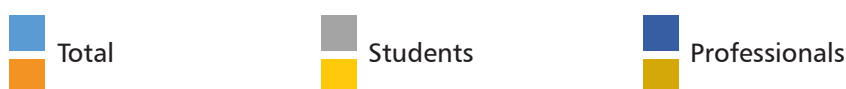*Figure 9 Use of AT in practice by participant group in UK – Unit 2*

Figure 10 Use of AT in practice by participant group in France – Unit 2

Total **Students** **Professionals**

Experience of Understanding Disability (Unit 2)

Respondents were asked to rate their AT knowledge before and after the training. Responses are illustrated in Figures 11 and 12. Overall, both learner groups reported increased levels of knowledge following training. In the UK, self-reported knowledge increased from 3.37 prior to 4.31 post training and in France the mean score increased from 3.17 to 4.24. As expected, professionals tended to rate their knowledge prior to training higher than students.
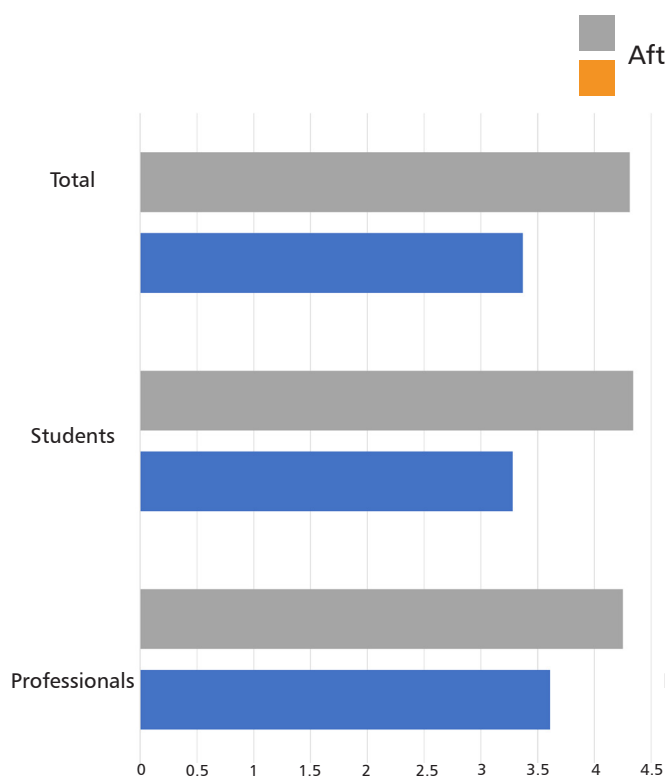
After **Before**

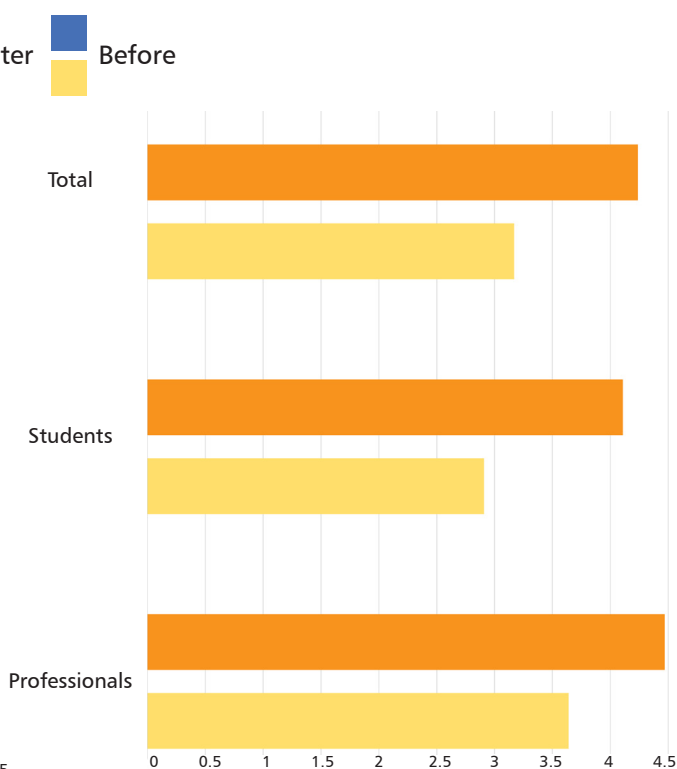*Figure 11 Self-reported levels of knowledge before and after training in UK – Unit 2*

Figure 12 Self-reported levels of knowledge before and after training in France – Unit 2

Learners were asked to state three important learnings from Unit 2. They indicated the following across both countries:

- Information regarding disability models, specifically medical, social, biopsychosocial and capabilities models and the ICF (International Classification of Functioning, Disability and Health) framework

- Increased awareness regarding disability, e.g. societal and environmental influences/impacts, barriers and restrictions for people with disabilities, discrimination

- Definitions of disability

- The importance of person-centred care in supporting the needs, independence and quality of life of individuals, rather than focussing on disabilities and what people cannot do

- Legislation and regulation of AT

Application of learning to workplace/studies

Respondents were asked about their intention to apply learning to their workplace/study settings. Figures 13 and 14 summarise feedback by learner group in each country. In the UK, 75% of students and 68% professionals reported that they intended to apply the learning, in France, 90.5% and 86% respectively.

UK learners were further prompted to identify which elements of Unit 2 learning they intended to use (this question was not included in the French evaluation). Most referred to, increased general awareness especially of different models of disability, which they felt would lead to greater consideration of users and devices and enhanced professional judgement in the future. UK learners also reported specific changes to working practices, including using different language and terminology when working with or discussing people with disabilities, applying theoretical frameworks to people accessing services to enhance assessment and optimise opportunities for AT use, addressing barriers to participation of AT users and challenging how knowledge can be better embedded into practice. Other areas were enhanced understanding of studies, information about specific AT devices and involving AT users in decision making.
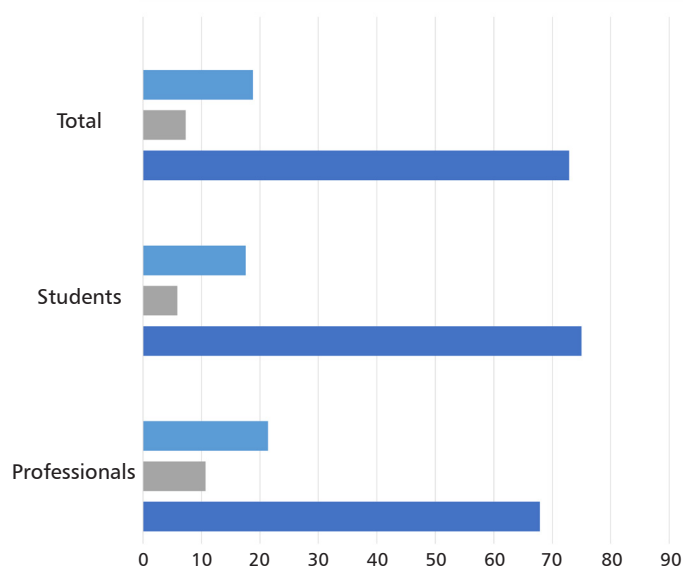

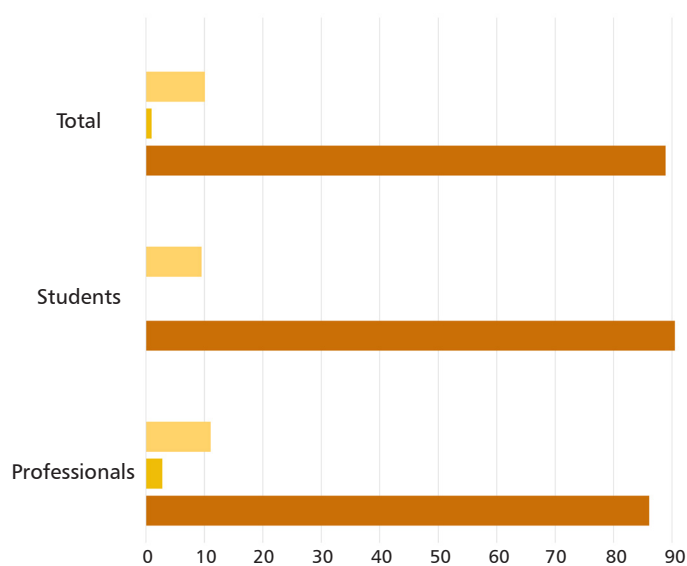*Figure 13 Intention to apply Unit 2 learning to workplace/studies by participant group in UK*

Figure 14 Intention to apply Unit 2 learning to workplace/studies by participant group in France

Don't Know   No   Yes

Confidence to apply learning

Learners were asked about their level of confidence in applying Unit 2 learning to workplace/study settings. As illustrated in Figures 15 and 16, respondents felt very confident.
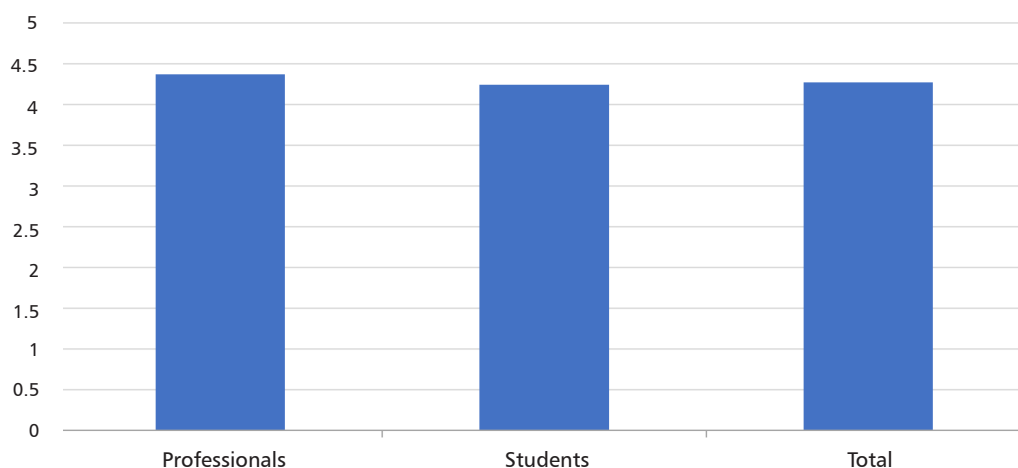

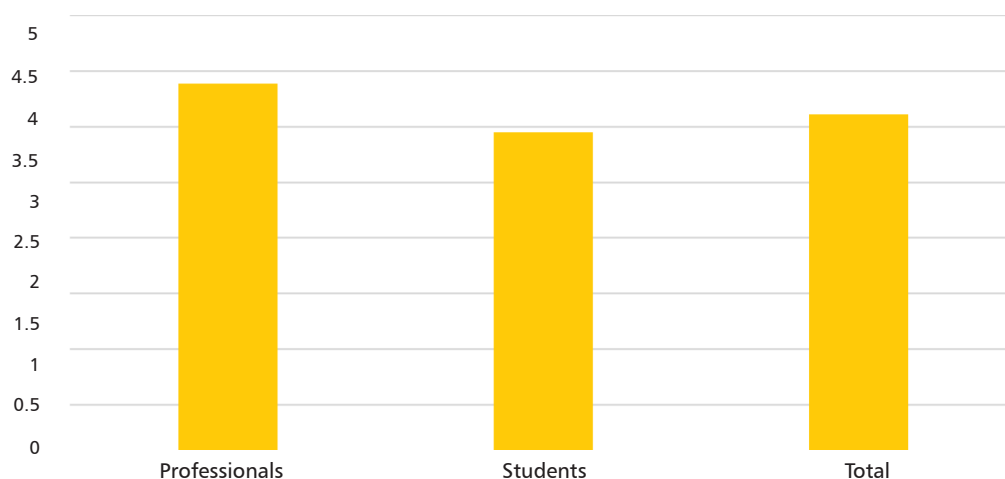*Figure 15 Confidence in applying Unit 2 learning by participant group in UK*

Figure 16 Confidence in applying Unit 2 learning by participant group in France

Assistive Technology for Posture and Mobility (UNIT

Participants – AT for Posture and Mobility

As shown in Table 5, a total of 76 UK learners who undertook the Unit 'AT for Posture and Mobility' participated in the evaluation, which comprised 22 healthcare professionals and 52 healthcare students. Two participants were classed as 'other' as they did not identify as healthcare professionals or students. In France, evaluation data was available for 61 learners, of which 35 were healthcare professionals and 26 were students.

In both countries, the highest proportion of professionals participating in the evaluation was Occupational Therapists. In the UK, the majority of professionals had been in their role for less than five years, whereas in France the majority had been in their role for 21 or more years.

Table 5: Breakdown of Unit 1 participants by profession

		UK	FRANCE
HEALTHCARE PROFESSIONALS		22	35
Profession	Occupational Therapist	9 (40.91%)	25 (71.43%)
	Speech & Language Therapist	4 (18.18%)	1 (2.86%)
	Nurse	3 (13.64%)	-
	Other	6 (27.27%)	9 (25.71%)
Years of Practice	← 5 years	11 (50.00%)	9 (25.71%)
	6-10 years	-	5 (14.29%)
	11-15 years	4 (18.18%)	6 (17.14%)
	16-20 years	2 (9.09%)	4 (11.43%)
	21+ years	5 (27.73%)	11 (31.43%)
HEALTHCARE STUDENTS		52	26
OTHER BACKGROUND		2	

Use of Assistive Technology

A significant proportion in both learner groups (students and professionals) reported that they used AT in practice either often or frequently, as illustrated in Figures 17 and 18.

Those who answered that they used AT in practice in the UK, provided details about type of AT used (this question was not included in the evaluation in France). As with Unit 1 and 2 responses, the most common devices used by Unit 3 learners were communication related (e.g. Augmentative and Alternative Communication (AAC), speech technology, eye gaze technology, symbol based software, hearing loops/aids, visual resources), followed by posture and mobility aids (examples provided included wheelchairs, walking frames, hoists, switches). Next most frequently reported were devices in relation to assisting with daily living (personal care, home adaptations). There were a few mentions of computer/phone technology, feeding devices and safety related AT.
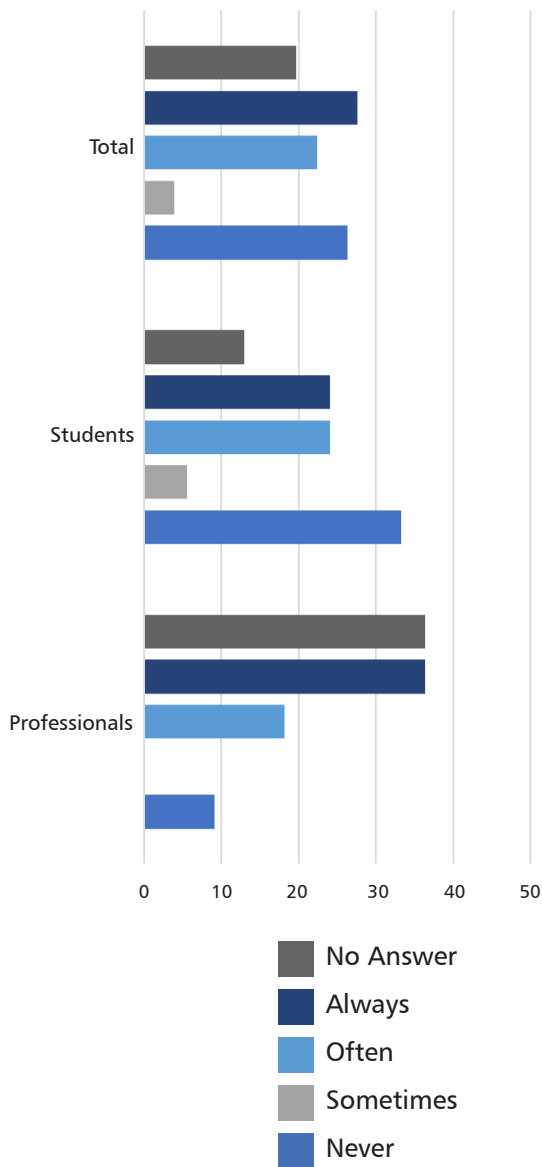
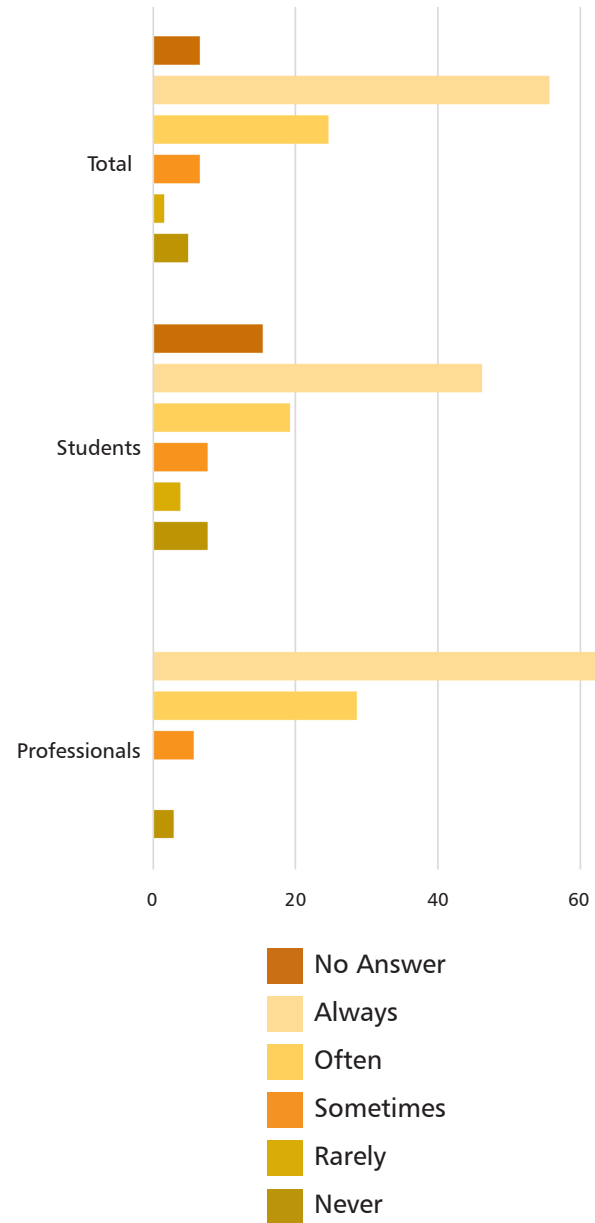*Figure 17 Use of AT in practice by participant group in UK – Unit 3*

Figure 18 Use of AT in practice by participant group in France – Unit 3

Experience of AT for Posture and Mobility (Unit 3)

Knowledge, Confidence and Readiness

Respondents were asked to rate knowledge, confidence and readiness to implement their learning before and after the training, their feedback is illustrated in Figures 19 and 20. In the UK, all respondents reported improvement across all aspects. Knowledge increased from 3.08 before to 4.26 post training. Similarly, confidence increased from 3.03 to 4.08, and readiness to implement from 2.97 to 4.08 prior to post training respectively. In France, only knowledge was rated, this increased from 3.17 before to 4.24 post-training. As expected, the gap between 'prior' and 'post' ratings for students (2.91 to 4.11) was greater than that for professionals (3.64 to 4.47).
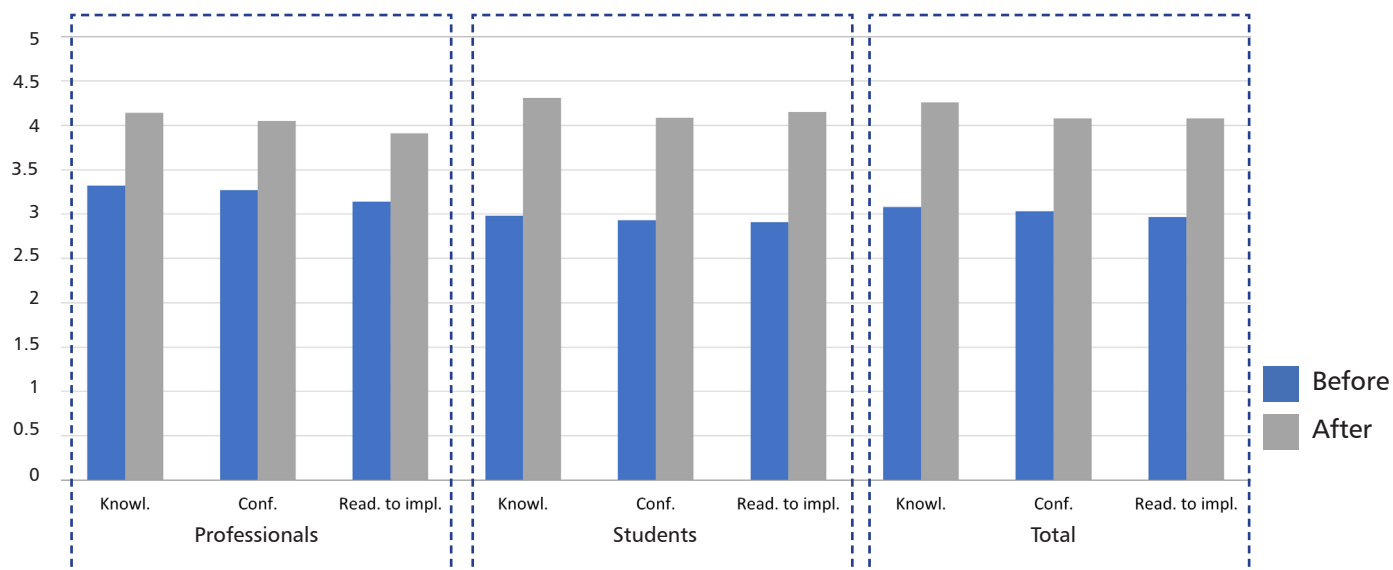
Figure 19 Self-reported levels of knowledge, confidence and readiness to implement before and after training in UK – Unit 3
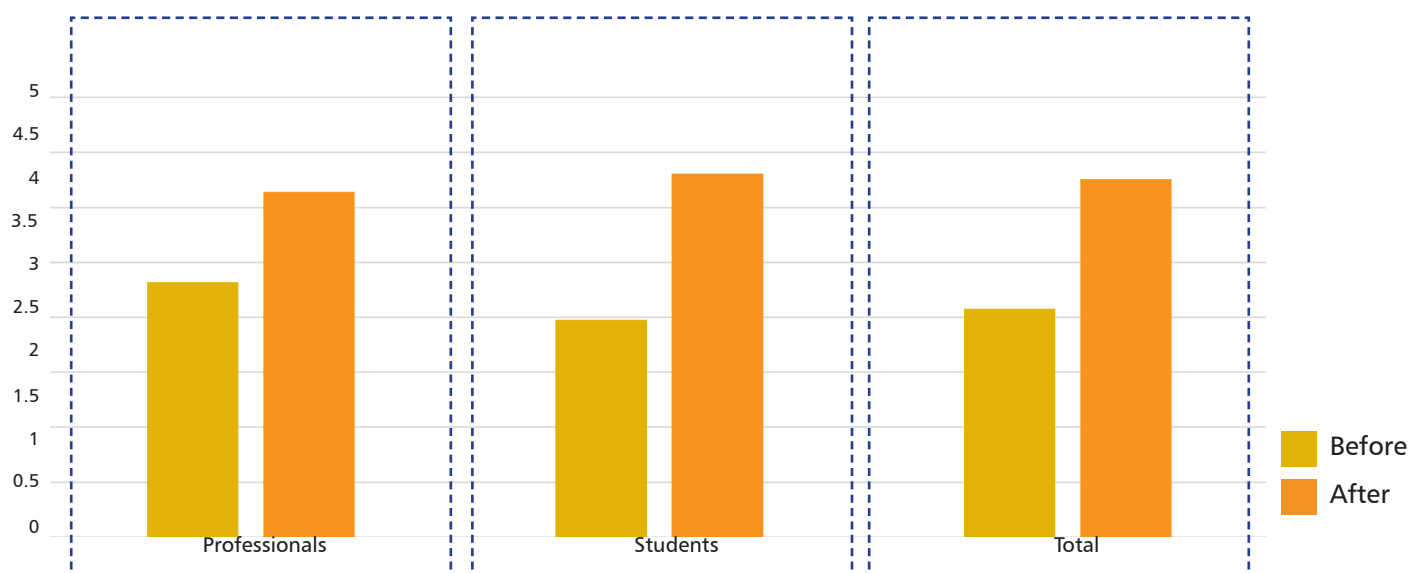

Figure 20 Self-reported levels of knowledge, confidence and readiness to implement before and after training in France – Unit 3

Learning from AT for Posture and Mobility

Participants in the UK and France were asked to state three important learnings from Unit 3, commonly stated were:

- AT acquisition, application and recommendation

- Greater awareness generally, but also specific areas, including the importance of posture and positioning, different postures and pressure relief to prevent sores and ulcers

- Theory and definitions of disability, for example in relation to balance, stability, centre of gravity (COG), line of gravity (LOG), base of support (BOS), friction and shear, fine and gross motor skills and scales/assessments

- Awareness of the psychological elements of using AT, e.g. acceptance, resilience, motivation

Less common learnings (<15 respondents) were in relation to specific AT devices and person-centred care.

Application of learning to workplace/studies

Respondents were asked about their intention to apply learning to their workplace/study settings. Figures 21 and 22 summarise responses. In the UK, 84.2% overall intended to apply the learning with a larger percentage (95.1%) in France.

UK respondents were prompted to identify which elements of the Unit 3 learning they intended use in professional practice (this question was not included in the evaluation in France). Most reported feeling better able to support people with posture and mobility issues through increased knowledge of different AT devices. The case studies incorporated in the Unit were mentioned as particularly valuable in terms of how to apply learning to real life, particularly in relation to assessment and recommendation of AT devices and reducing pressure sores and ulcers. Other less frequent intentions to applied learning (<5 respondents) were in relation to sharing knowledge with colleagues in practice/programmes and enhanced understanding of study placements.
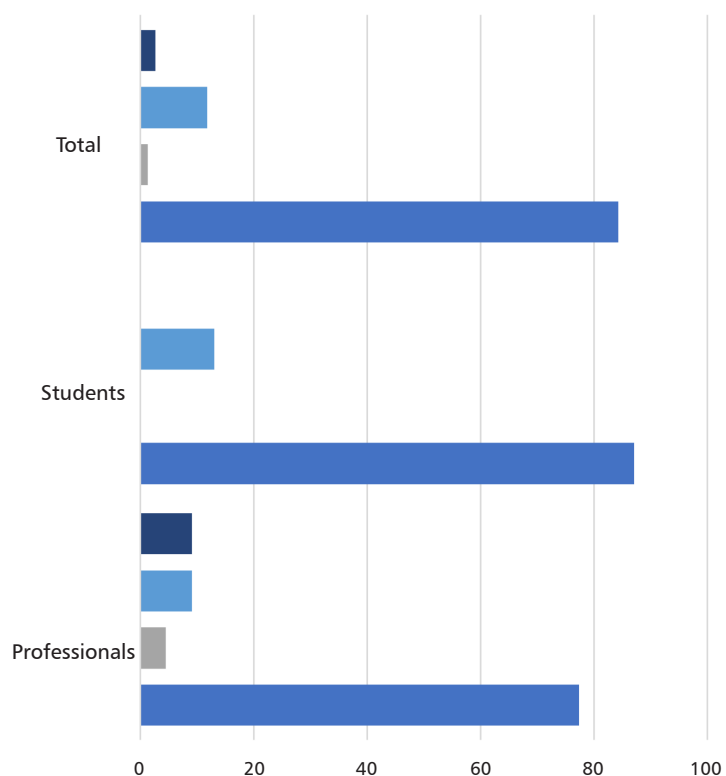

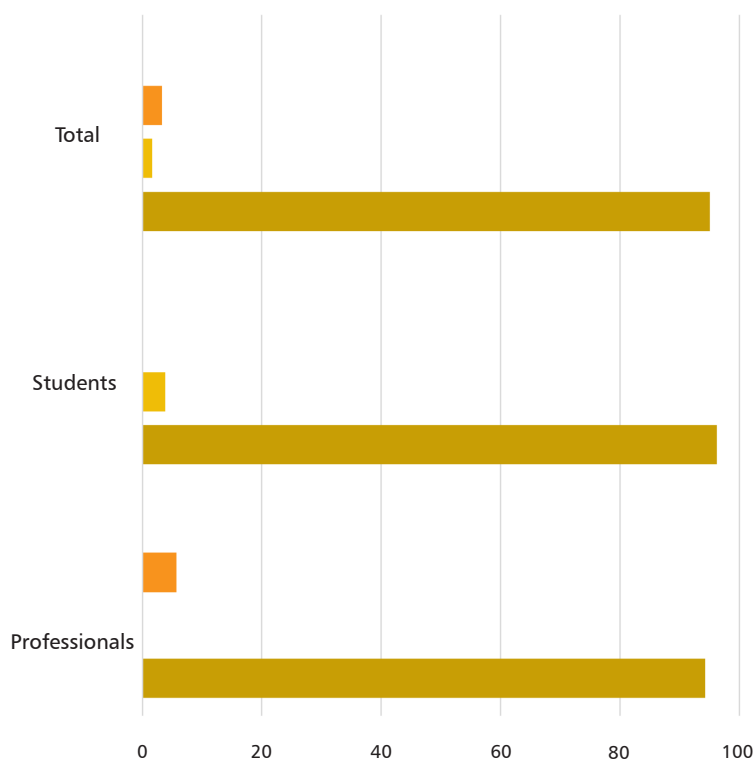*Figure 21 Intention to apply Unit 3 learning to workplace/studies by participant group in UK*

Figure 22 Intention to apply Unit 3 learning to workplace/studies by participant group in France

18

Confidence to apply learning

Most reported high levels of confidence in applying what they had learned in the training to their practice. In the UK, overall respondents had a mean score of 4.03, with virtually no difference between professionals and students. In France, the overall mean rating for confidence was 4.15, and there was a marked difference between professionals (4.37) and students (3.83).
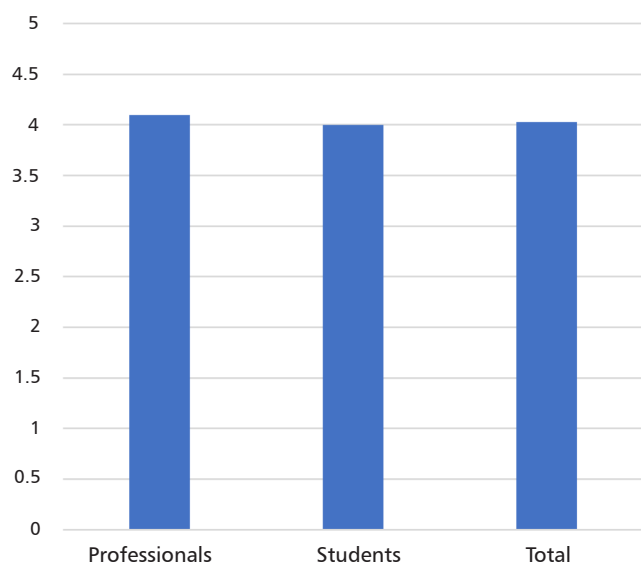

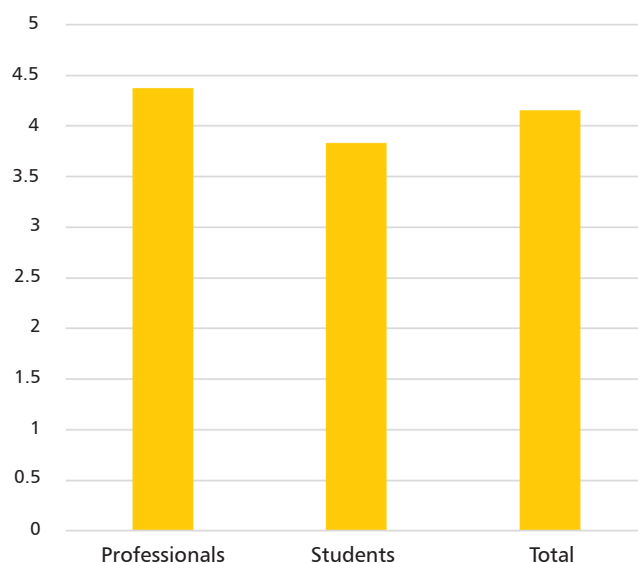Figure 23 Confidence in applying Unit 3 learning by participant group in UK

Figure 24 Confidence in applying Unit 3 learning by participant group in France

Assistive Technology for Communication (UNIT 4)

Participants – AT for Communication

As shown in the Table 6, a total of 38 UK learners who undertook the Unit 'AT for Communication' participated in the evaluation, which comprised 14 healthcare professionals and 22 healthcare students. Two participants were classed as 'other' as they did not self-identify. In France, evaluation data was available for five learners, of which three were healthcare professionals and two were students. In both countries, the highest proportion of professionals participating in the evaluation was Occupational Therapists. In the UK, the majority were in their role for less than five years.

Table 6: Breakdown of Unit 4 participants by profession

		UK	FRANCE
HEALTHCARE PROFESSIONALS		14	3
Profession	Occupational Therapist (Including Apprentices)	7 (50.00%)	2 (66.67%)
	Speech & Language Therapist	4 (28.57%)	-
	Nurse	2 (14.29%)	-
	Other	1 (7.14%)	1 (33.33%)
Years of Practice	← 5 years	7 (50.00%)	1 (33.33%)
	6-10 years	-	1 (33.33%)
	11-15 years	1 (7.14%)	-
	16-20 years	3 (21.43%)	-
	21+ years	3 (21.43%)	1 (33.33%)
HEALTHCARE STUDENTS		22	2
OTHER BACKGROUND		2	

Use of Assistive Technology

A significant proportion of respondents in both groups (students and professionals) in both countries reported that they used AT in practice either always or frequently, as shown in Figures 25 and 26. More UK professionals (71.4%) than students (45.8%) were using AT either always or often, while 25% of students reported they never used AT in practice. In France, 100% of students said they never use AT, while professionals answered either always (66.7%) or often (33.3%).

Those who answered that they used AT in practice in the UK, provided details about type of AT used (this question was not included in the evaluation in France). The most common devices used by Unit 4 learners were communication aids, including Voice Output Communication Aids (VOCAs), hearing aids, boards, computer and mobile devices. Other devices used were reported in lower frequencies (<4 respondents) were posture and mobility aids, computer and digital devices and aids to assist daily living.

Experience of AT for Communication (Unit 4)

Knowledge, Confidence and Readiness

Respondents were asked to rate their knowledge, confidence and readiness to implement AT pre and post training. The results are presented below in Figures 27 and 28. In the UK, ratings increased overall, with a mean score for knowledge of 3.37 prior and 4.37 post training. Confidence increased from 3.24 to 4.03, and readiness increased from 3.21 to 4.13. Professionals showed a smaller mean increase than students. In France, only knowledge was rated, this increased from 3.4 to 4.2.
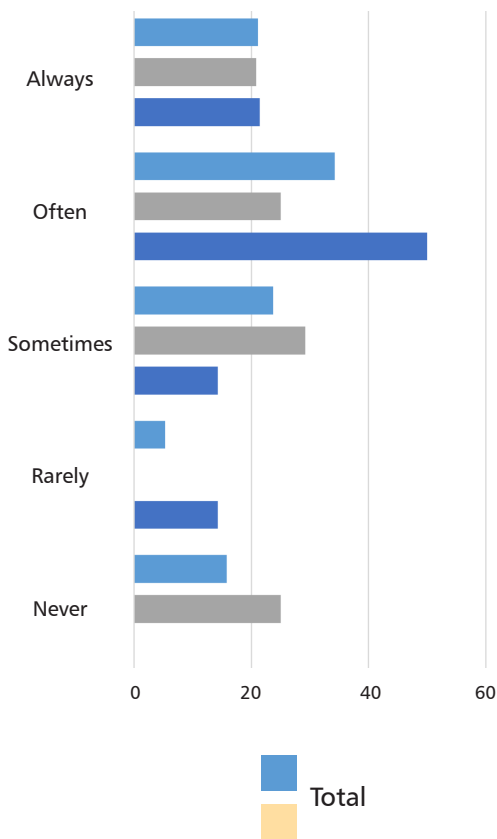
Do you use AT in your practice?

Total   Students   Professionals

Figure 25 Use of AT in practice by participant group in UK – Unit 4
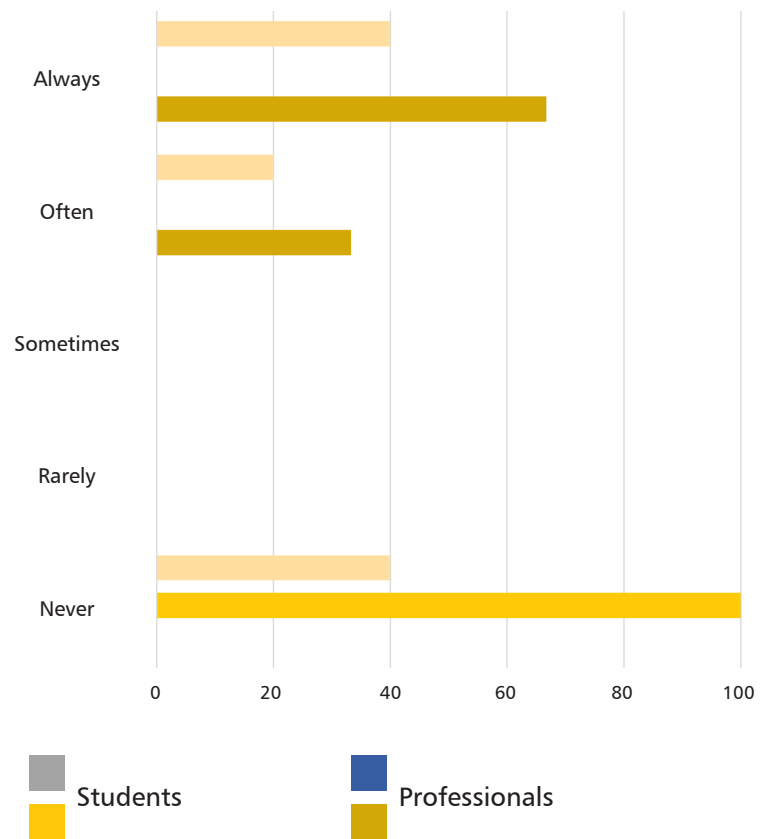
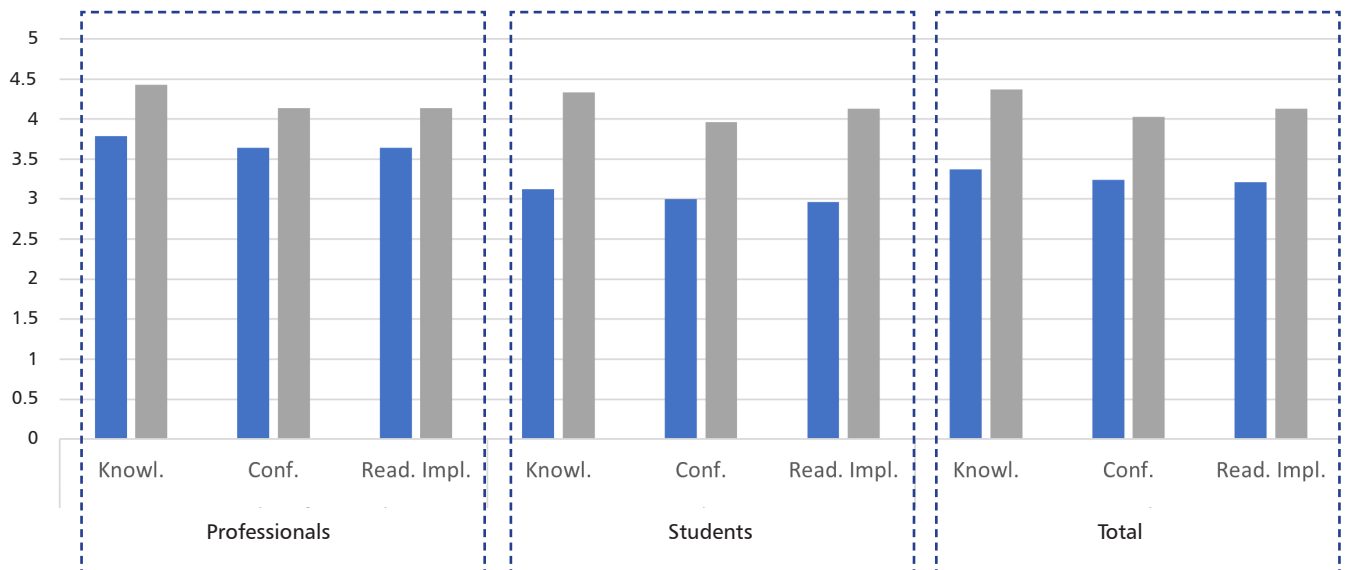*Figure 26 Use of AT in practice by participant group in France – Unit 4*

Figure 27 Self-reported levels of knowledge, confidence and readiness to implement before and after training in UK – Unit 4
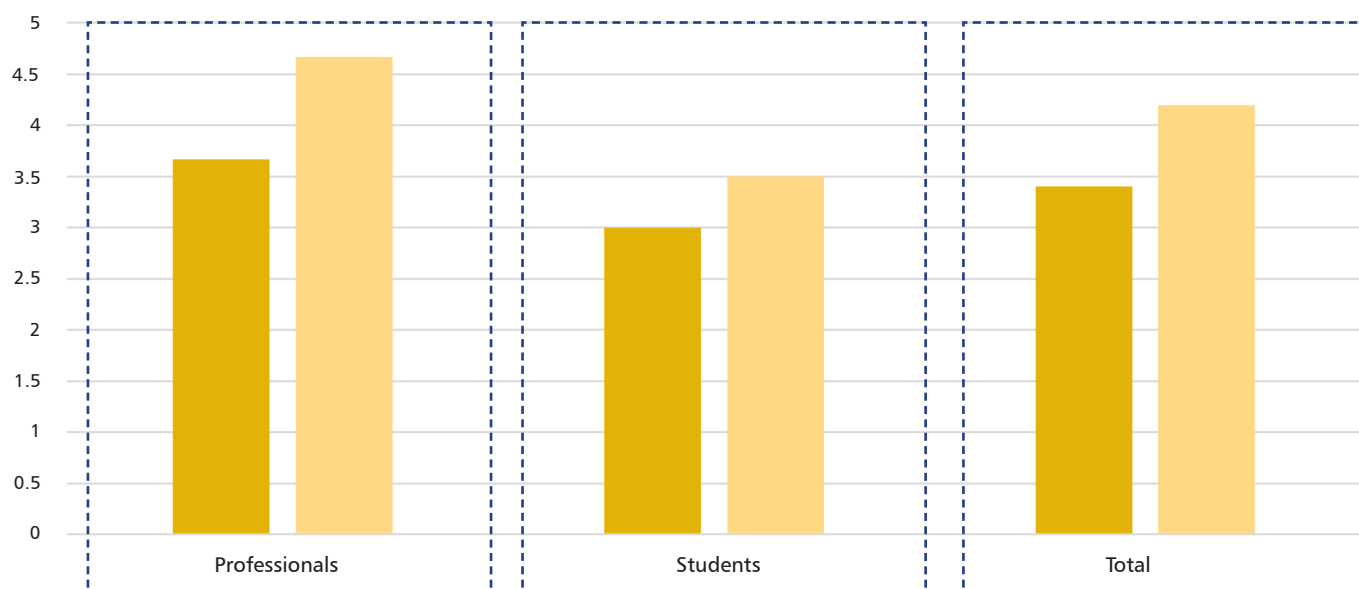
Before   After

Figure 28 Self-reported levels of knowledge, confidence and readiness to implement before and after training in France – Unit 4

Before   After

Learning from AT for Communication

Participants in the UK and France were asked to state three important learnings from Unit 4. Most commonly reported across both countries were:
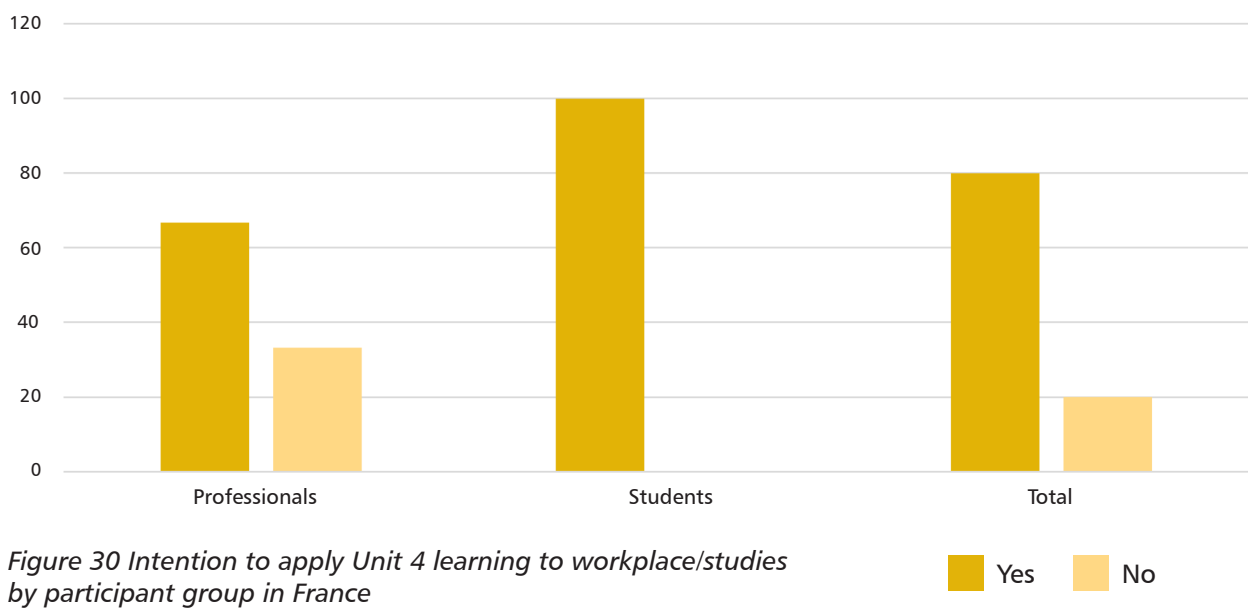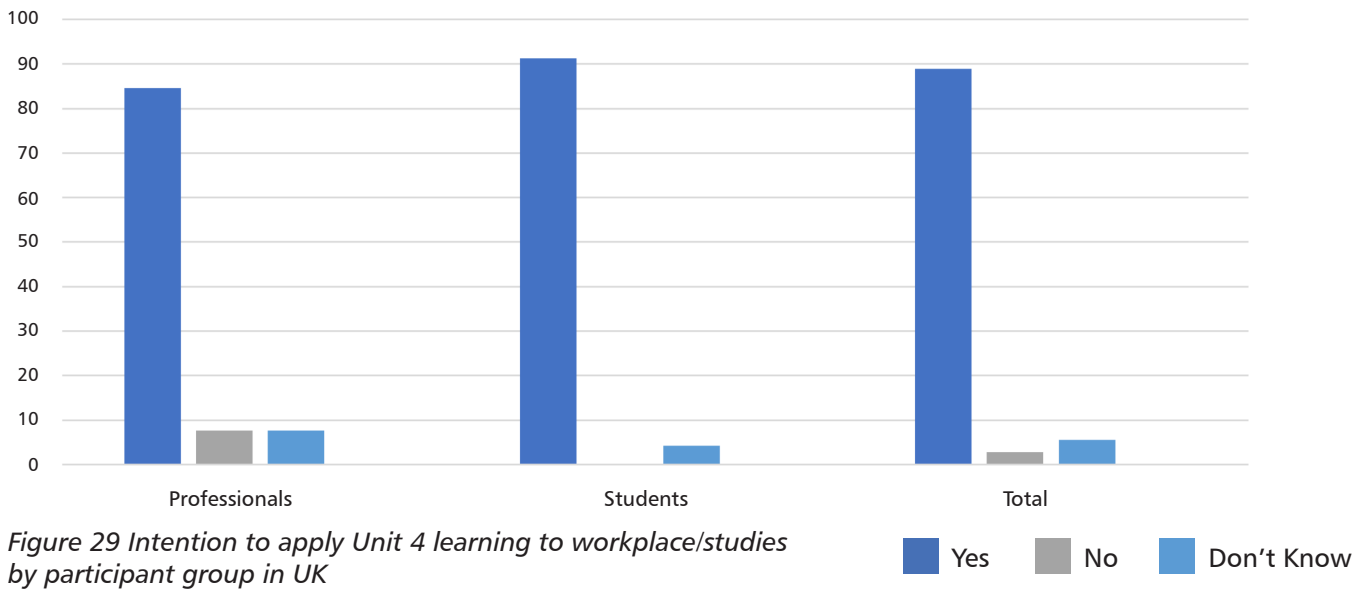
- Information regarding AT devices, both generally (e.g. the range available) and more specific, such as systems and communication equipment/aids

- Greater awareness, including how many people experience communication difficulties, the range of conditions that can benefit from AT and that it is not a 'one size fits all' approach.

- Assessment for AT – case studies were very valuable, as in this quote "The case studies really demonstrated how different factors need to be drawn together to complete a comprehensive assessment".

- The impact of AT on users – benefits and advantages, improved quality of life and independence, overcoming barriers in their everyday lives

Less than 5 respondents reported learning regarding AT legislation, person-centred care, theory and definitions of AT and useful services and resources.

Application of learning to workplace/studies

Respondents were asked about their plans to apply what they had learned in training in their workplace and study settings. The overwhelming majority responded affirmatively in the UK (95.1%) and in France 80%.

UK respondents were further prompted to identify which elements of the Unit 4 learning they intended to implement (this question was not included in the evaluation in France). A small number of participants answered this question and reported that the training would help them to make changes to their work practice, including review and assessment of referred patients, improved communication skills with patients who need support from AT, and reflection on their use of aspects of the ICF. Two participants reported that they intended to share their knowledge with others, with their patient/client groups or encouraging others to undertake the ADAPT training.

Figure 29 Intention to apply Unit 4 learning to workplace/studies by participant group in UK

Figure 30 Intention to apply Unit 4 learning to workplace/studies by participant group in France

Confidence to apply learning

Overall confidence in applying learning was high. In the UK, the overall mean rating was 4.03, professionals (4.14) students (3.96) ~~was 4.20, with professionals 4.33 and students 4.00~~
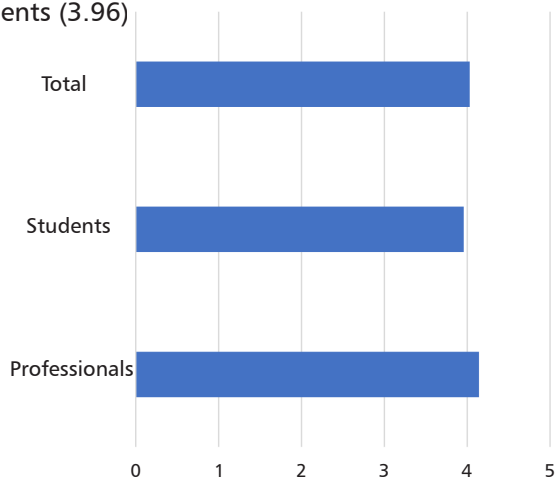

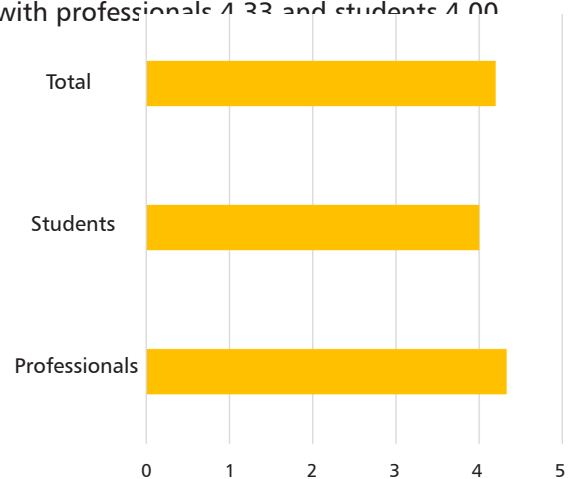Figure 31 Confidence in applying Unit 4 learning by participant group in UK

Figure 32 Confidence in applying Unit 4 learning by participant group in France

Evidence-based Practice for Assistive Technology (UNIT 5)

Participants – Evidence-Based Practice for AT

As shown in the Table 7, a total of 27 UK learners who undertook the Unit 'Evidence-Based Practice for AT' participated in the evaluation, which comprised 13 healthcare professionals and 14 healthcare students. In France, evaluation data was available for seven learners, of which six were healthcare professionals and one was a student. In both countries, the highest proportion of professionals participating in the evaluation was Occupational Therapists. In both countries, the majority of professionals had been in their role for less than five years.

Table 7: Breakdown of Unit 1 participants by profession		UK	FRANCE
HEALTHCARE PROFESSIONALS		13	6
Profession	Occupational Therapist (Including Apprentices)	7 (53.85%)	3 (50%)
	Speech & Language Therapist	2 (15.38%)	-
	Nurse	1 (7.69%)	-
	Other	3 (23.08%)	3 (50%)
Years of Practice	← 5 years	6 (46.15%)	3 (50%)
	6-10 years	1 (7.69%)	1 (16.67%)
	11-15 years	1 (7.69%)	1 (16.67%)
	16-20 years	2 (15.38%)	-
	21+ years	3 (23.08%)	1 (16.67%)
HEALTHCARE STUDENTS		14	1

Use of Assistive Technology

Respondents varied in terms of their use of AT in their practice, as shown in Figures 33 and 34.

Participants who answered that they did use AT in their practice were asked to provide details of the type of AT they used. The most common devices used by Unit 5 learners were communication devices, including Voice Output Communication Aids (VOCAs), eye gaze technology and hearing loops. Other devices mentioned less frequently (1-3 learners) were those which assist daily living (personal care, home adaptations) and posture and mobility aids.
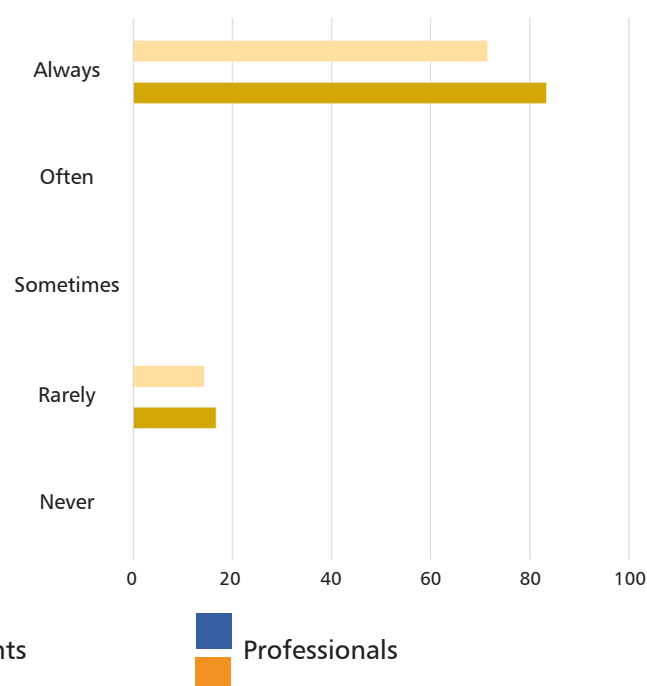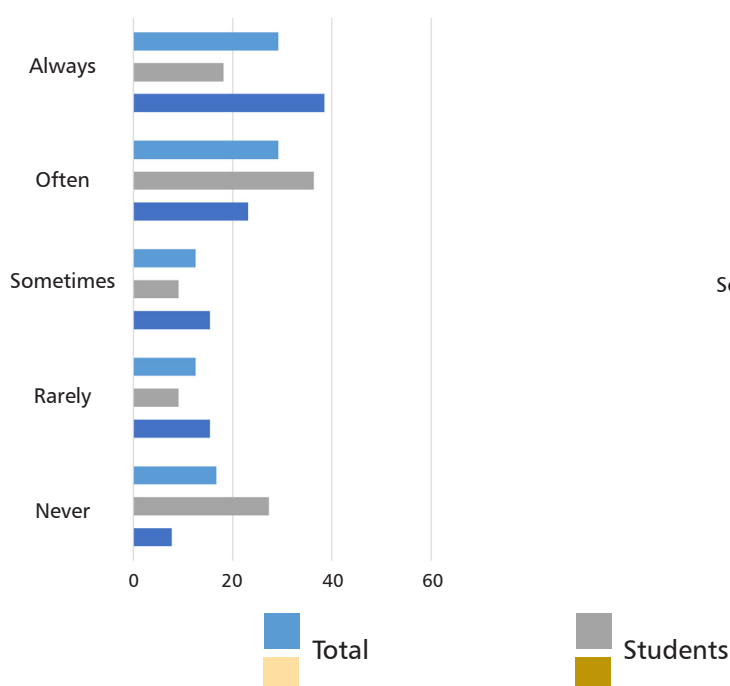
Do you use AT in your practice?

Figure 33 Use of AT in practice by participant group in UK – Unit 5

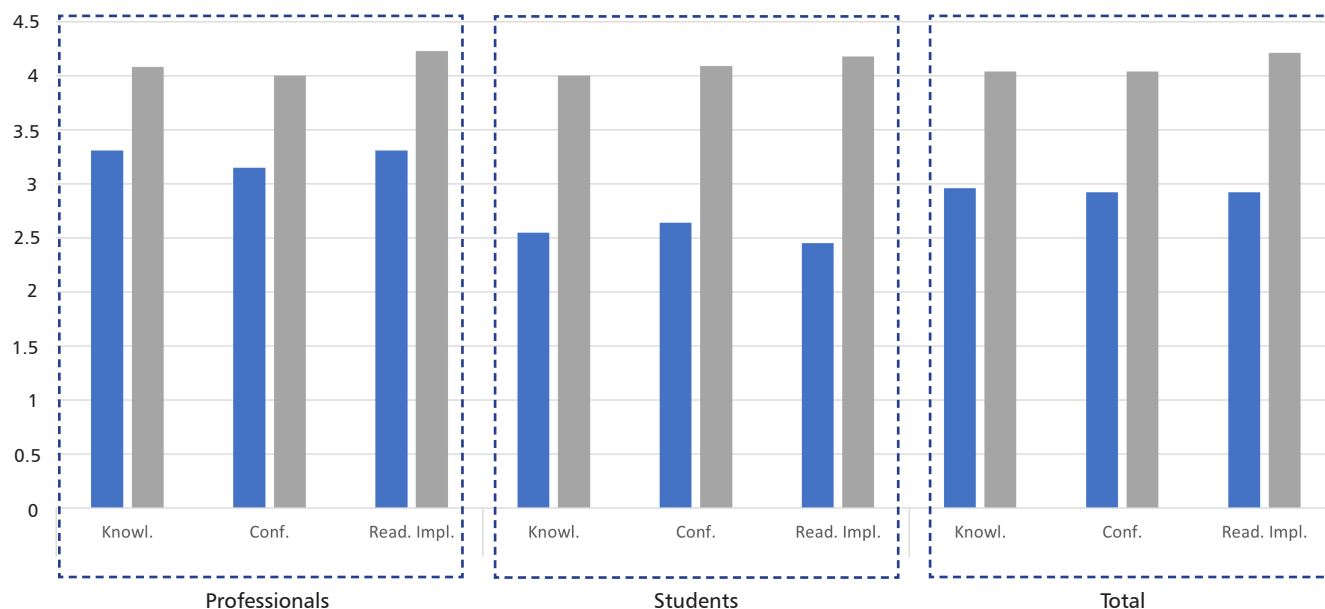*Figure 34 Use of AT in practice by participant group in France – Unit 5*

Figure 35 Self-reported levels of knowledge, confidence and readiness to implement before and after training in UK – Unit 5
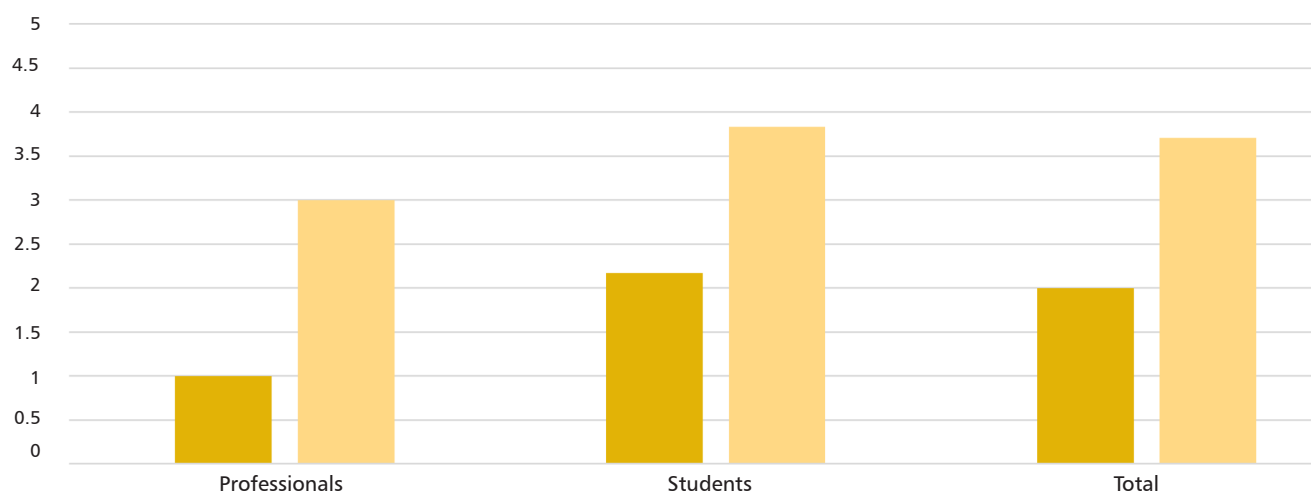
Figure 36 Self-reported levels of knowledge, confidence and readiness to implement before and after training in France – Unit 5

Experience of Evidence-Based Practice for AT (Unit 5)

Knowledge, Confidence and Readiness

In terms of ratings for knowledge, confidence and readiness to implement AT, overall ratings were higher after training compared with before. The mean rating for knowledge in the UK increased from 2.96 to 4.04 (out of 5). Confidence increased from 2.92 to 4.04, and readiness from 2.92 to 4.21. In France respondents were only asked to rate their knowledge of AT, this increased from 2.00 to 3.71.

Participants were asked to state three important learnings from Unit 5. The most common learning was regarding how to do a literature search, how to find reliable research, recommended databases and tips for searching such as using Boolean operators, truncation and key words.

Another area of learning was in relation to critical appraisal. Participants learnt how to evaluate evidence, including how to use the Critical Appraisal Skills Programme (CASP) tool for appraising research, and found the video material in relation to this very useful. Less than 5 participants reported learning about enhanced assessment skills, the hierarchy of evidence and competency frameworks.

Application of learning to workplace/studies

Respondents rated their intention to apply what they had learned in training to their workplace/study setting. In the UK, the majority (95.8%) did not intend to apply their learning because the question wasn't applicable to their current work (4.2%). In France, 71.4% intended to, 28.6% did not know.

An open-ended question in the evaluation questionnaire requested participants to provide further detail about their intention to use learning from Unit 5. There were just a small number of detailed responses, which included being much more aware of evidence-based practice themselves, as well as reiterating the importance of applying critical appraisal skills with students as they progress through programmes.

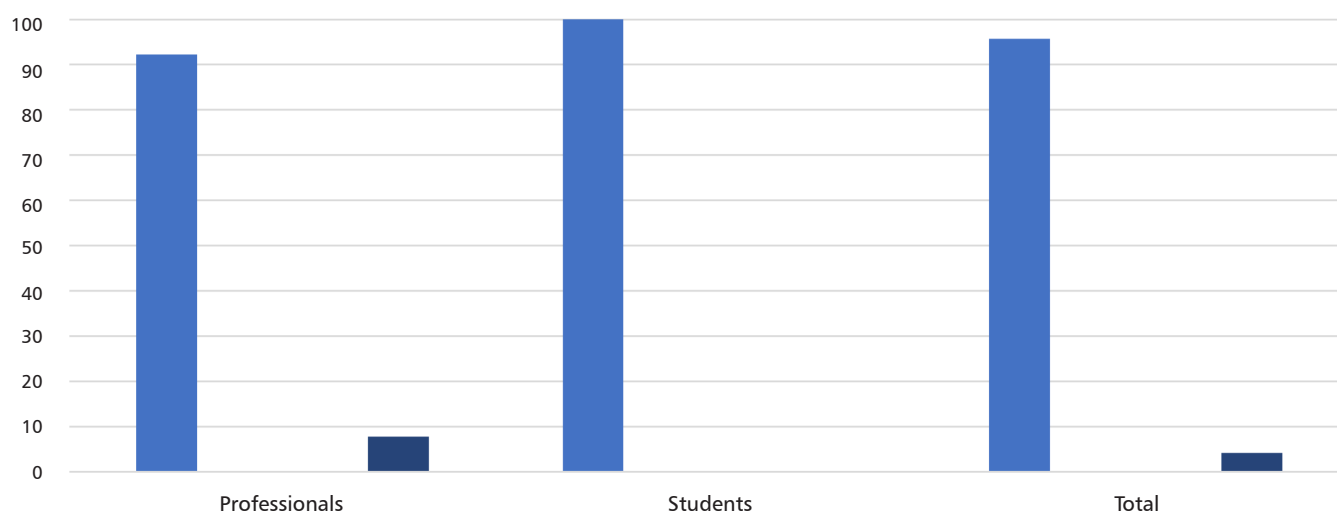*Figure 37 Intention to apply Unit 5 learning to workplace/studies by participant group in UK*

Yes   No   Don't Know   N/A
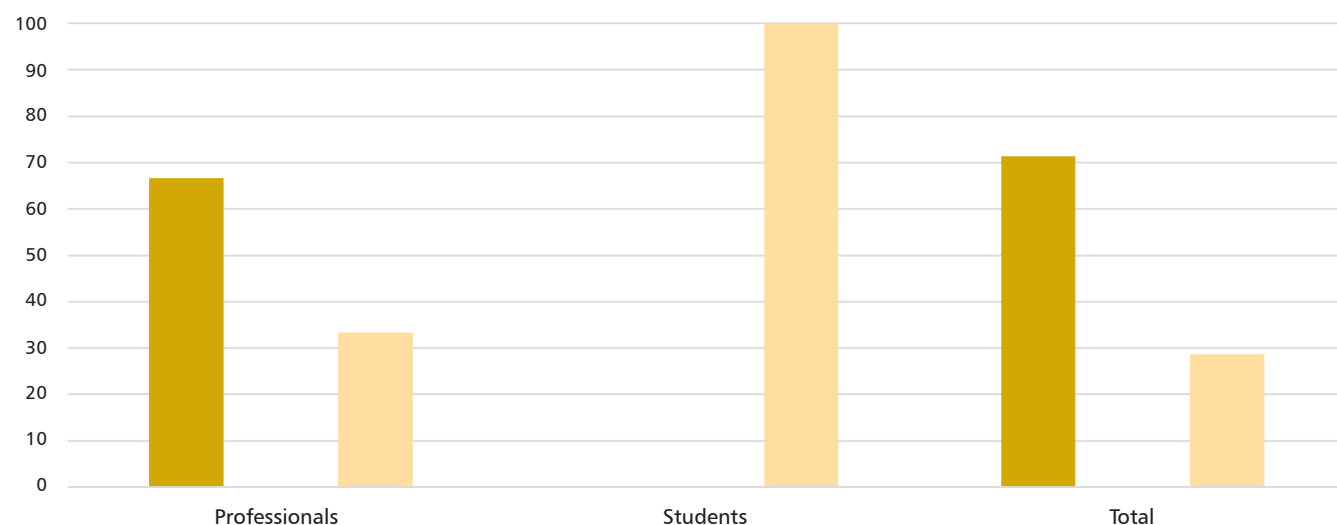
Figure 38 Intention to apply Unit 5 learning to workplace/studies by participant group in France

Yes   No   Don't Know

Confidence to apply learning

In terms of confidence to apply the learning from unit 5, the mean rating across both respondent groups was 4.30. UK professionals were slightly more confident (mean rating 4.33) than students (4.27). In France, the overall rating was 3.29, with professionals having a mean rating of 3.5 and students 2.0.

Figure 39 Confidence in applying Unit 5 learning by participant group in UK

Figure 40 Confidence in applying Unit 5 learning by participant group in France

ADAPT Train the Trainer (UNIT 6)

In the UK, learners who completed all five previous Units were invited to undertake the sixth and final e-learning Unit 'ADAPT Train the Trainer'. Twenty-seven had completed the unit by end of September 22.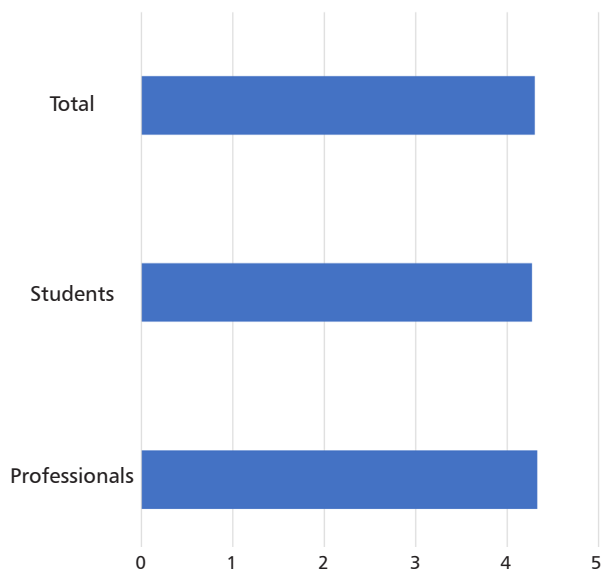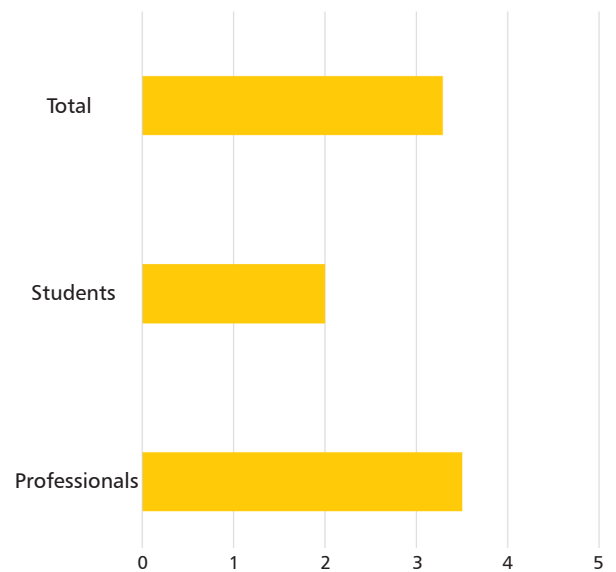 An e-learning Unit was not developed in France for Train the Trainer, but both countries developed and delivered webinars for healthcare professionals with specialist interest in AT. These webinars formed part of the ADAPT Train the Trainer offering.

ADAPT Train the Trainer e-learning feedback - UK

Twelve learners (7 professionals, 4 students) completed an evaluation of the ADAPT Train the Trainer e-learning in the UK. One participant was categorised as 'other'. Of the professionals, two were Occupational Therapists, one Nurse, one Speech and Language Therapist and three were from other professions. Three had been practicing for less than five years, one between 15 and 20 years, and three for 20 years or more.

Use of Assistive Technology

Six of the 12 participants said they always use AT in their practice, two often, two sometimes, one rarely and one never used AT.

Those who answered that they used AT in practice provided details about type of AT used. The most common devices used by learners were posture and mobility devices such as wheelchairs and scooters (n=3) and communication aids such as Voice Output Communication Aids (VOCAs) (n=3). Two learners reported using computer or digital devices, and one learner mentioned using home adaptations (environmental controls).

Experience of ADAPT Train the Trainer

Knowledge, Confidence and Readiness

For ADAPT Train the Trainer, rating of knowledge, confidence and readiness to act as a champion of AT was assessed in a slightly different way to other Units. Confidence and readiness to implement learning were changed to confidence 'to use knowledge' and readiness 'to act as a champion of AT'. Respondents were asked to assess their level of each attribute in terms of a 5-point Likert scale ranging from 'Very Poor' to 'Excellent'. Figures 41 to 43 clearly indicate that ratings improved after training.

Knowledge before and after
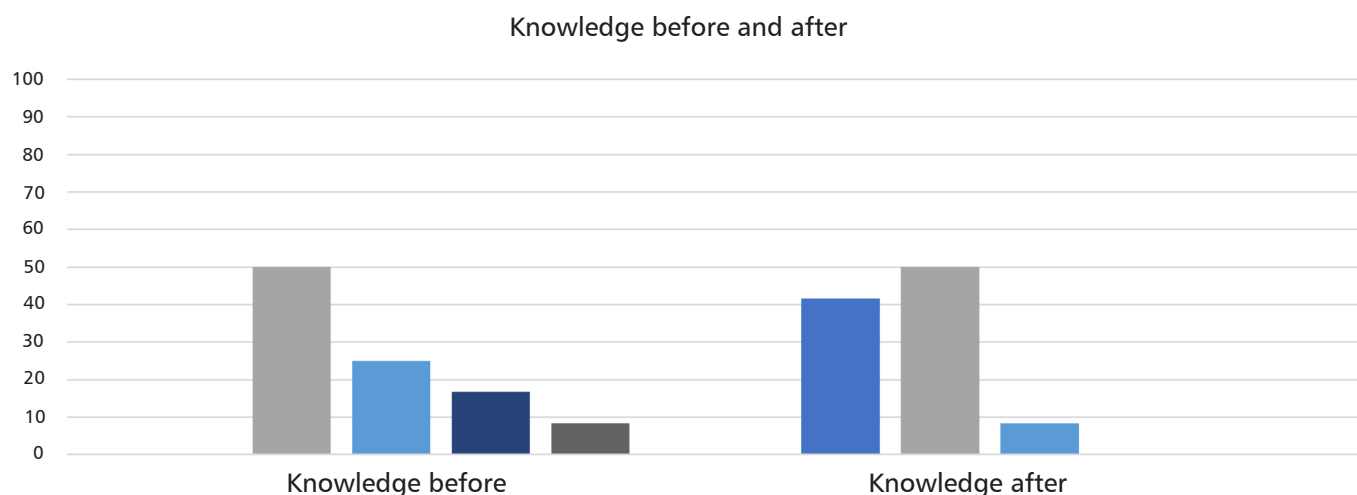
Figure 41 Knowledge before and after ADAPT Train the Trainer e-learning - UK

Confidence before and after
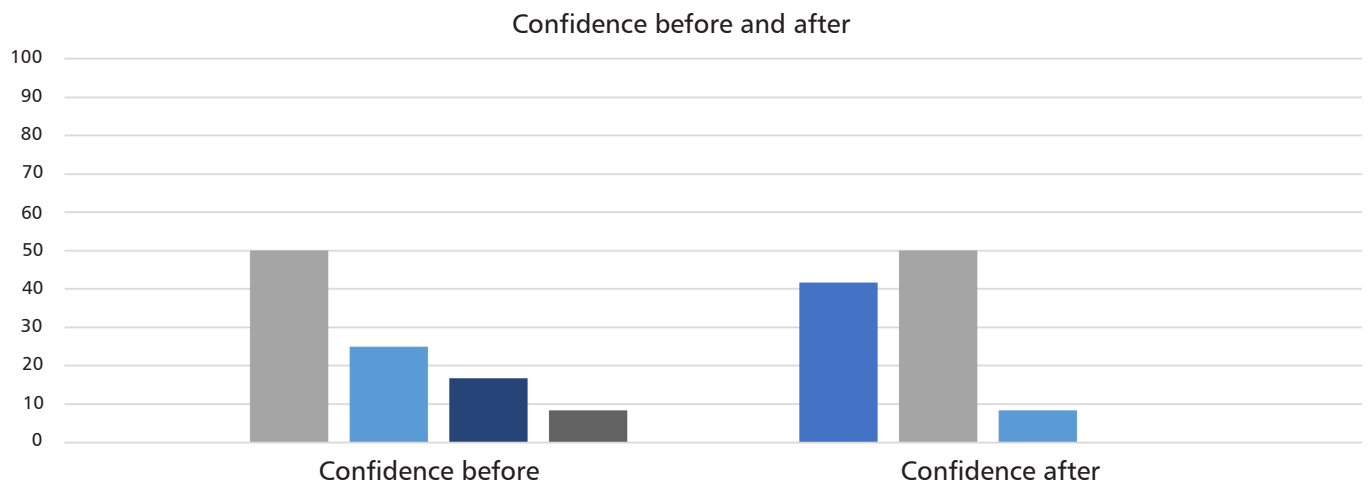
Figure 42 Confidence to use knowledge before and after ADAPT Train the Trainer e-learning - UK

Readiness to act as champion before and after
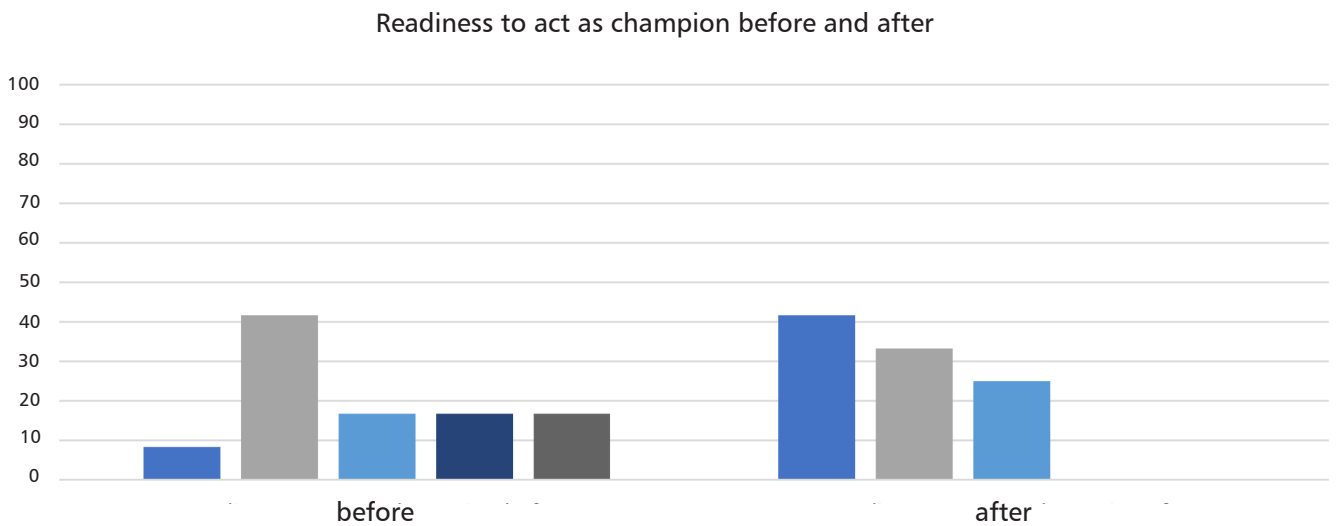
Figure 43 Readiness to act as a champion of AT before and after ADAPT Train the Trainer e-learning - UK

Learning from ADAPT Train the Trainer e-learning

Participants were asked to state three important learnings from the ADAPT Train the Trainer UK, the following were highlighted:

- Augmented reality (AR) and virtual reality (VR)

- Development of AT

- How to champion AT

- Links to further information and resources

Further themes that were less common (<3 respondents) were in relation to the importance of user involvement and specific AT devices (e.g. smart wheelchairs).

Application of Learning to workplace/studies

Ten of the 12 UK respondents reported in the evaluation for the ADAPT Train the Trainer UK that they intended to apply their learning in their workplace/study setting, two said 'don't know'.

Respondents were further prompted to identify which elements of ADAPT Train the Trainer they intended to implement. One learner planned to share their new knowledge with students to encourage them to champion and advocate for individuals requiring AT. Another learner planned to explore how augmented and virtual reality (AR and VR) could be used in their practice.

Confidence to apply learning

The mean score for confidence in applying learning to workplace or studies was 4.25 out of 5.

ADAPT Train the Trainer webinar feedback - UK

In the UK, a webinar was jointly hosted by the CCCU and University of Kent teams via the Posture and Mobility Group (PMG) (https://www.pmguk.co.uk/). The webinar formed part of the UK ADAPT Train the Trainer offering and comprised three presentations followed by a Q&A session:

- Development and evaluation of Assistive Technology training for healthcare professionals (the ADAPT AT Training Programme)
- Online training on 'Assistive Technology for Posture and Mobility' for healthcare professionals
- ADAPT Project: Virtual reality and robotic technologies for wheelchair users

52 professionals from a variety of organisations attended the live webinar, however 95 people pre-registered so may have watched the webinar recording later. Sixteen attendees provided brief feedback afterwards. As illustrated in Figure 45, respondents highly rated the overall webinar and Zoom platform with a mean score of 4.3 and 4.4 out of 5 respectively.
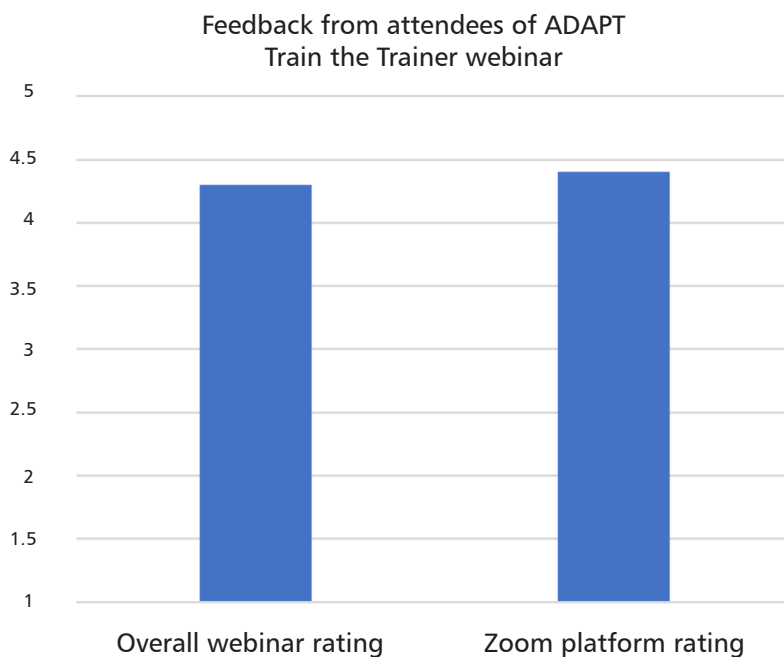
Figure 44 Feedback from attendees of ADAPT Train the Trainer webinar - UK

Participants were asked to provide any specific feedback in relation to the webinar. A few comments were received about the usefulness of the update and the relevance to the roles of attendees. In relation to the logistics, participants found both the Q&A and captions functions helpful.

In France, 119 participants attended webinars. They were asked whether they agreed or disagreed with three statements about the material. The majority of respondents agreed or strongly agreed that the material was clearly presented, interesting and professionally relevant.

Please rate the extent to which you felt the material was...
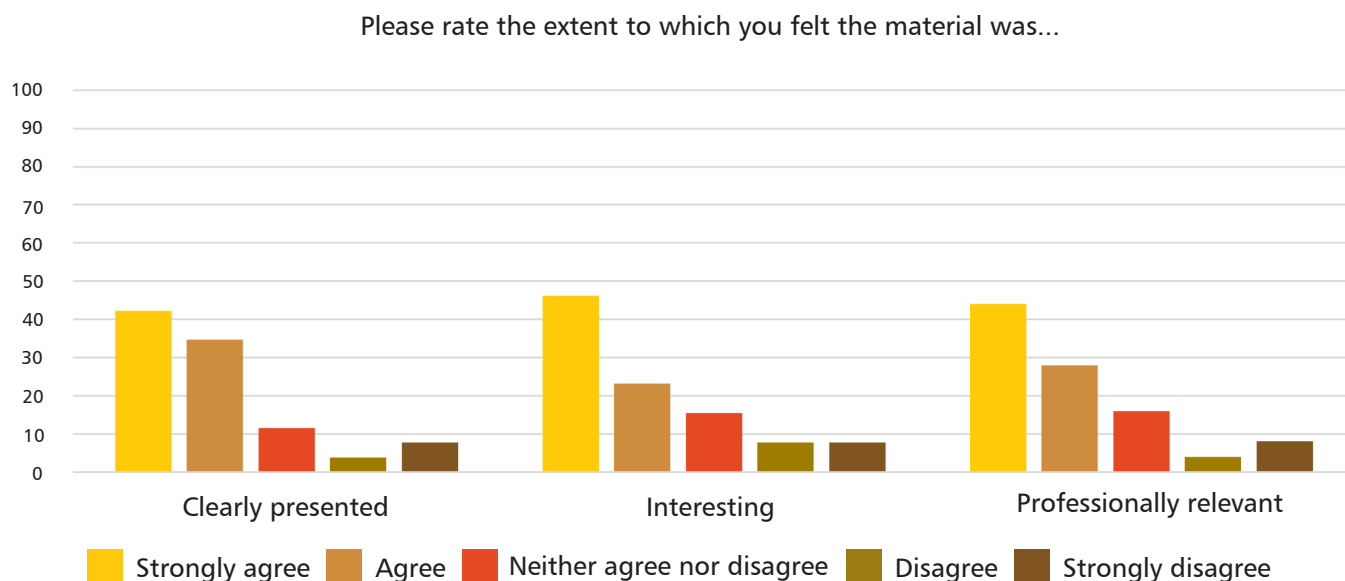
Figure 45 Ratings of ADAPT Train the Trainer webinar - France

The majority of respondents said that the ADAPT Train the Trainer webinars in France contained an adequate amount of content and were set at an appropriate level.

Do you think this unit contained an adequate amount of content?

Do you think this unit was set at an appropriate level?
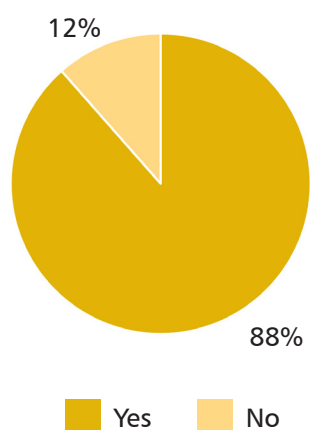
Figure 46 Whether ADAPT Train the Trainer contained adequate amount of content (France)
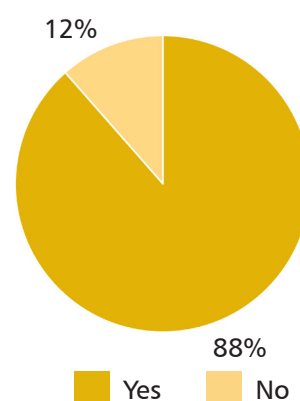
Figure 47 Whether ADAPT Train the Trainer set at appropriate level (France)

CONCLUSION

Positive feedback was received across the board in relation to learners' experience of the training, including their reaction, learning and behaviour, demonstrating Kirkpatrick's (2006) levels 1-3. The content and a centralised online mode of delivery were conducive to effective and flexible learning. Most learners in both countries felt confident in their intentions to apply their learning from the ADAPT training programme in their practice. Furthermore, the learning gap between professionals and students tended to become smaller post training when compared to prior knowledge and skills.

The findings highlight the importance and value of the ADAPT AT Training programme for both professionals and students in terms of enhancing knowledge and practical skills, improving confidence and readiness to implement AT. The experience of developing a transdisciplinary, international AT training programme has highlighted the significance of shared terminologies, definitions and best practices to design relevant education materials.

Training HCPs to be familiar with and use AT more effectively is an important issue for the promotion of assistive technology solutions in the health and social care sector. The strengths of the ADAPT AT Training programme are in its co-production with service users, extensive collaboration, and consultation with professionals in the UK and France to produce versions that were of a high standard, accessible, culturally sensitive and in line with functioning, health and disability as defined by the ICF. This multidisciplinary approach is vital in ensuring comprehensive and effective training provision in this and other areas going forward. Going forward, it should be considered how this training can be integrated into mainstream accredited professional programmes in the countries involved and beyond.

REFERENCES

Braun, V. and Clarke, V. (2006) *Using thematic analysis in psychology. Qualitative Research in Psychology*, 3(2), pp.77-101.

Cowan, D. Judge and S. Cudd, P. (2015) *Over a Decade of Developing the Assistive Technology Field in the UK. Technology and Disability*, 27, pp.1-3.

Kirkpatrick, D. L., & Kirkpatrick, J. D. (2006). *Evaluating Training Programs: The Four Levels (3rd ed.)*. San Francisco, CA: Berrett-Koehler Publishers, Inc.

World Health Organization (2001) *International classification of functioning, disability and health: ICF.* World Health Organization. https://apps.who.int/iris/handle/10665/42407

APPENDIX

Please answer the following questions as honestly as possible to enable us to compile a comprehensive picture of your experiences of undertaking this Unit. We value your feedback in shaping this training and therefore would appreciate it if you would leave free text comments as and where possible. If you have any queries regarding the completion of the evaluation, please contact the CCCU ADAPT Project team at adapt@canterbury.ac.uk.

BACKGROUND

1. Are you a registered/qualified professional? Yes/no
   If yes, what is your profession
   Number of years in practice
   If you work for the NHS, please give the name of your Trust

2. Are you currently a student? Yes/no
   If yes what is your course title
   Level of study

3. Do you use AT in your practice
   Never / rarely / sometimes / often / always

4. If you use AT in your practice, please provide further details of what AT you use

YOUR EXPERIENCE OF THE TRAINING

5. In relation to assistive technology, how would you rate your own knowledge, confidence, readiness to implement AT, BEFORE and AFTER undertaking the training.

A) Knowledge

	1	2	3	4	5
	Very poor	poor	fair	good	excellent
Before					
After					

B) Confidence

	1	2	3	4	5
	Very poor	poor	fair	good	excellent
Before					
After					

D) Readiness to implement AT

	1	2	3	4	5
	Very poor	poor	fair	good	excellent
Before					
After					

6. Do you feel that this unit met its learning objectives? [yes/no/explain answer]

7. What were three important things you learned from the training?

8. Were there any parts of the training that you found less useful?

9. Was there anything from your learning of this unit that you intend to apply back in your job/studies? [yes/no/don't know/please give details]

10. How confident do you feel in applying what you have learned in the training to your job/practice/studies? (where 1 is not at all confident, and 5 is totally confident, N/A)

11. Do you think this unit contained an adequate amount of content? [yes/no/explain answer]

12. Do you think this unit was set at an appropriate level? [yes/no/explain answer]

13. Please rate the extent to which you thought the material was:

		strongly disagree	disagree	neither agree nor disagree	agree	strongly agree
a	easy to follow					
b	clearly presented					
c	interesting					
d	engaging					
e	professionally relevant					

Please provide any further comments you have about any of these areas

14. In terms of the online training platform) and the mode of delivery of the content, what did you think of:

		Very poor	poor	neither good/bad	good	very good
a	Accessibility (i.e. login),					
b	Use of video material					
c	Navigation between sections					

Please provide any further comments you have about any of these areas

SUMMARY QUESTIONS
We are currently in the process of developing a series of more specific Units

15. How likely would you be to engage in further units with more specific AT?

		never	unlikely	possibly	quite likely		Extremely likely
a	Understanding Disability						
b	Posture & Mobility						
c	Communication						
d	Evidence Based Practice						
e	Train the Trainer						

16. Would you recommend this training to a colleague/friend? [yes/no]

17. Do you have any comments or suggestions to improve the content and/or features for this training in relation to your profession?

Thank you for taking time to complete this evaluation. Your feedback is very valuable and will be used to inform the development of future e-learning Units in the field of Assistive Technology.