

Evaluating inclusion in distance learning: a survey of university staff attitudes, practices and training needs

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Abstract

An inclusive approach to teaching in distance learning is essential to ensure students with disabilities have equitable chances of success. However, embedding inclusive practice is challenging when considering institutional complexities, the distance nature of learning and support, and the varied roles, responsibilities and experiences of staff. To understand this better and to identify an action plan for tangible interventions, a staff survey measuring inclusion practices and perceptions was conducted in a large UK distance learning university. The survey measured knowledge, skills, attitudes and support context (in terms of training, guidance, human support and organisational commitment) in teaching staff, support staff and learning technologists. The findings ($N = 466$) revealed strong positive attitudes towards inclusive practice, but also identified clearly actionably training needs in relation to specific staff groups, and knowledge and skills gaps. The staff survey represents a valuable model for measuring training and intervention needs around inclusion in distance learning.

Keywords

Disability, training and development, survey, inclusion, higher education, university staff

Introduction

Evidence indicates that completion, progression and attainment gaps exist in higher education (HE) between students that disclose a disability (i.e. formally declare a disability to the institution) and those that do not (Eurostat, 2014; Eurostat, 2019; ECU, 2017). These differences persist even when other background characteristics and prior attainment are considered (HEFCE, 2015) and continue into further study and employment (HEFCE, 2014; HEFCE, 2015; HEFCE, 2017). Addressing degree outcome gaps is a priority for universities (Adefila et al, 2020); in the UK this has been both catalysed and complicated by the government's reforms to the Disabled Students Allowance (DSA), that have moved funding away from individual students and increased the expectations on universities to make appropriate changes to teaching, learning and support (Hubble and Bolton, 2016). In addition, since 2010 there has been a 56% increase in the number of UK full-time, first-degree students declaring a disability (HEFCE 2017). The Equality Act (2010) requires institutions to anticipate and meet the needs of students disclosing disabilities through a combination of anticipatory and responsive adjustments. However, in practice, making these 'reasonable adjustments' (Equality Act, 2010) is often time-consuming and costly (Felsing and Byford, 2010), and can result in delays to learning and suboptimal student experience. To reduce this need, universities are increasingly looking to integrate inclusive and holistic approaches to teaching, learning and support, considering all aspects of a student's journey (May and Bridger, 2010; Adefila, 2020).

Inclusive approaches to education should "eliminate social exclusion that is a consequence of attitudes and responses to diversity" (Vitello and Mithaug, 2013). It involves seeing education as a fundamental right and the foundation of a just society, where diversity is a concept rather than a set of categories of differences (Fisher, 2007; Moriña, 2020). The move towards inclusivity is aided by the application of the principles of universal design for learning (UDL) to course delivery, where approaches that reduce barriers for students with disabilities benefit the learning experiences of all students (Burgstahler and Cory, 2010). However, many university staff lack knowledge and confidence in how to make their teaching practice inclusive, and this can result in inequitable and unfair educational experiences for students with disabilities (Lopez-Gavira et al., 2019; Kendall, 2016). This has been explored in several studies; for example, Kendall (2016) interviewed 13 students in a UK university to explore their experiences of faculty approaches to inclusive practice. The study found that staff were frequently unaware of students' needs and how to adjust their teaching accordingly. In Lopez-Gavira et al. (2019) interviewed staff from seven Spanish universities, along with students from one university, to explore faculty attitudes towards inclusive practice and the way that reasonable adjustments and technology are adopted. They found that both students and staff considered that "faculty was frequently insufficiently prepared or trained to make the adequate adjustments and thereby offer a more inclusive education" (Lopez-Gavira et al., 2019). Both studies identified attitudinal barriers from faculty staff and opined that staff training may mitigate these barriers.

Quantitative approaches to measuring inclusivity have found similar results. A survey instrument developed and used in the USA to measure attitudes towards inclusive education in a school context (Mahat, 2008) has been used in several contexts (e.g., MacFarlane and Woolfson, 2013; Yan and Sin, 2014) and identified attitudinal barriers and training needs in certain groups of practitioners. Various factors relating to these attitudinal barriers have been explored; Macfarlane and Woolfson found a relationship between attitude and training and experience, while Yan and Sin explored the role of social pressure. In other contexts, Abdella (2018) found a correlation with instructors' backgrounds in universities in Ethiopia, while Lombardi et al (2011) found gender and employment status also played a role in a university in the USA (Lombardi et al, 2011).

Research suggests a link between knowledge and attitudes. An example of this is the survey that Gulliver et al. (2019) developed for a university in Australia to measure staff knowledge of, and attitudes to, student mental health ($N = 224$). They identified that knowledge and awareness were key; staff with higher levels of awareness about mental health were more likely to feel confident helping students who were experiencing mental health issues, despite whether their attitude was positive or negative (Gulliver et al., 2019). Studies by Black et al ($N = 73$) and Carballo et al ($N = 20$) suggest that targeted training programmes for staff have a positive impact on their attitudes and practices (Black et al, 2014; Carballo et al, 2019), and Ahmad and

Ahmad's study of local government staff ($N = 31$) in Pakistan identified a correlation between lack of awareness and lack of commitment to support for people with disabilities (Ahmad and Ahmad, 2011).

Building on these studies in face-to-face institutions, there is a need for data that measures higher education staff practices, perceptions and training needs in a distance learning environment. Support models for students with disabilities are very different in a distance learning context; distance learning students may have different demographics (Lister et al, 2020a) and educational backgrounds (Pearson et al, 2019b); different relationships with tutors and lecturers (Lister et al, 2020b), and different study needs (Pearson et al, 2019a), many of which are also less visible to lecturers and university staff in a distance context. Furthermore, staff roles may be different in a distance learning environment, with playing more of a key role in module development. There is a lack of data on learning technologists' knowledge and attitudes towards inclusion, as studies in this area tend to focus on faculty perspectives, despite recognition that learning technologists play an important role in this area (e.g. Phillips et al, 2012). As higher education moves increasingly online, this data is essential to identify evidence-informed training needs and areas for intervention or investigation.

Furthermore, there is the need to measure changes over time (Leyser et al, 2011), using data on practices and perceptions to inform an 'action agenda' (Cook et al, 2000). Quantitative data from a survey can be used as a baseline, and can be re-run regularly in order to measure change attributed to interventions, or change in staff perceptions, practice, or student experience.

In response to these needs, our institution developed the Measuring Accessibility Practices and Perceptions (MAPP) survey to capture, in a distance learning context:

- Staff knowledge and awareness of disability, accessibility and inclusion
- Staff confidence in their skills and capabilities, and those of their peers, relating to accessibility and inclusion
- Staff attitudes towards, and perceptions of, accessibility and inclusion
- Staff perceptions of their support context, in terms of accessibility and inclusion training, guidance and human support

This survey was run in the first instance to identify training needs and areas for intervention or investigation. It is to be run every two years thereafter in order to measure change from the baseline survey data, as well as identify further needs. The survey was also used to provide baseline data for an Office for Students-funded project on Embedding and sustaining inclusive STEM practices (IncSTEM) (Pearson et al., 2019a; McPherson et al., 2019). This project was created to evaluate, scale up and promote inclusive practice within STEM disciplines and the wider higher education sector. Capturing effective baseline data was an essential part of the project and this ongoing survey mechanism is part of the project's legacy. For this project, data on academic staff and Associate Lecturers (ALs) in the STEM faculty was separated and analysed in comparison with responses from those in other faculties. This paper focuses on the combined staff data from all disciplines but draws comparison between STEM-specific responses and others where differences were identified.

Institutional context

The Open University UK has over 150 000 undergraduate and taught postgraduate students studying part time and at a distance. Most students are in employment and are mature students. The University operates an open-entry policy, not requiring students to have any academic prerequisite qualifications. Over 20 000 students have declared disabilities. Courses are delivered fully or partly online, with some also providing printed content, and students work their way through material and activities independently. Production of online courses draws heavily on the expertise of media developers, digital media specialists and experts in technology-enhanced learning. Students are supported in their studies by ALs, who deliver either online or face-to-face tutorials, mark and provide feedback on assessment and provide academic support to students within a 'tutor group' format.

As a distance learning institution, the terminology used to describe staff roles at the Open University tends to differ from that of other universities. Academic staff fall into two categories, of which both were surveyed for

this study and their results conflated, although they have distinct but overlapping roles. Central academics carry out teaching, administration and research, but their teaching role is different from that of a traditional lecturer. Rather than directly teaching students in a classroom environment, central academics develop teaching materials and manage the delivery and assessment of the courses they have written. Regional academics also carry out teaching, administration and research but contractually have a higher administrative load to appoint and manage ALs. Both central and regional academics have shared responsibility for the accessibility of course materials and inclusive practice in activities designed for courses. Although not mandatory, most will have taken part in academic professional development training around accessibility and inclusion, and all have access to an accessibility coordinator if they have questions (Pearson et al., 2019b; Slater et al., 2015).

Conflated with the academics for our survey are the Curriculum Managers. These staff project manage and administer courses as they are being planned, produced and delivered to students. They are an integral part of the academic course team, and in many instances are subject specialists able to contribute directly to the content of teaching materials. Like central and regional academics, they have shared responsibility for accessibility and inclusive practice, and often take the administrative responsibility for ensuring accessibility standards have been met. Their standard training is primarily in the processes involved in accessibility and inclusion, such as creating blueprints for alternative formats of materials. However, development opportunities exist for Curriculum Managers who take a deeper interest in inclusion, with some acting as accessibility coordinators for their unit (Pearson et al., 2019b; Slater et al., 2015).

Direct teaching of undergraduate and postgraduate students is the responsibility of ALs, who are located across the UK. Many ALs have substantive posts elsewhere but are employed by the Open University on short-term, part-time contracts, and on a course-by-course basis. Their contracts with the institution are teaching only, but do not generally include production of course materials. They are responsible for inclusive practice in the tutorials they deliver and in the academic support they offer students. They constitute a separate category in our survey as their training needs and experiences are quite different to those of staff working to produce courses. In terms of training, inclusive tuition is a topic in their induction training, and there are regular development opportunities in this area for those who choose to take part in them, but these are not mandated.

The production and delivery of courses is supported by staff (collectively here termed ‘learning technology’ staff) that include editors, media developers, digital media specialists and experts in technology-enhanced learning. These staff rarely directly interact with students but are responsible for ensuring that teaching materials are fit for purpose. This requires them to have knowledge of accessibility and inclusive practice befitting their roles. However, at the time of the survey, relatively few formal training opportunities existed. Most staff will have taken part in a 2-hour introductory session on accessibility, but it was left to individual staff to seek out further development opportunities in this area.

The survey was also distributed to student support staff that have direct or indirect contact with students with disabilities. These included: the disability support team staff that support students to develop their disability profiles and identify their individual needs; educational advisors that support students when they are making study choices and if they encounter course-related disability challenges, and staff that create and provide alternative formats to students. All these staff have received extensive training on supporting students with disabilities as part of an eight-week induction training programme.

Methodology

The survey was designed to measure staff perceptions of their knowledge, skills, attitudes and support context, in terms of accessibility and inclusive practice in their roles. ‘Skills, knowledge and attitudes’ are commonly perceived to be representative of the abilities and characteristics that enable a job holder to accomplish the activities within their role (Quinones and Ehrenstein, 1997). As accessible practice involves “integrated approaches to inclusion, which consider the roles of all members of campus communities in working towards this goal” (Lawrie et al., 2017), it was important to measure staff perceptions of their support context, in terms of the training, guidance and human support they receive, as well as the sense they have of the institutional commitment to accessibility and inclusive practice.

The staff surveys were divided into four parts. Part 1 requested demographic information, including unit, role and longevity of service, given in ranges as a multiple-choice question. Part 2 consisted of 26 general statements about accessibility and inclusive practice, to which participants were invited to respond using a five-point Likert scale ('strongly disagree' to 'strongly agree'), with an option to state if they felt the question was not applicable to their role. Part 3 consisted of a further 5-8 statements that were specific to the staff groups shown in Table 1. Part 4 was framed as a matrix that aimed to capture levels of confidence in supporting students with different disability types. The survey concluded with an open question inviting further comments regarding inclusion and supporting students with disabilities.

Ethical approval was obtained from the Human Research and Ethics Committee at the Open University and by the internal panel that validates research involving staff. This process ensured a robust check on the approach, methodology, survey instrument, language and sample, ensuring validity and reliability.

A pilot was carried out with a sample of staff in the Technology Enhanced Learning team ($N = 42$). No changes to the survey were required and the responses from the pilot were therefore included in the overall analysis under the learning technology staff category. The final surveys were hosted on JISC Online Surveys and were distributed between July and November 2017.

Data sample

A random sample of each staff group was selected and was invited to survey by email. The exception to this was the AL group, who were invited to participate via a news item on their intranet home page (Tutor Home). The reason for this was partly that a sample of ALs was problematic to obtain, and partly because it was felt ALs would respond better to a news item, as they were receiving a high volume of emails at the time the survey was conducted.

All groups were given four weeks to respond, with a reminder sent (or posted on Tutor Home) two weeks into the survey period. The numbers invited to participate, the responses received, and the calculated response rate are shown in Table 1.

Table 1: Participant response rates

Participants	Sent to	Responses received	Response rate
Academics and curriculum management staff (who write teaching materials and manage the delivery of courses)	871	261	29.97%
Learning technology staff (who design, edit and build courses, i.e. media designers, editors, graphic artists)	248	57	23%
Student support staff, including the disability support team	251	82	32.67%
Associate lecturers	(Open invitation)	66	NA

Survey results were analysed in Microsoft Excel using inferential statistics (Chi Squared) to test independence of responses between groups, e.g., comparing different units or roles. Responses of 'not applicable' were considered a non-response and were discarded.

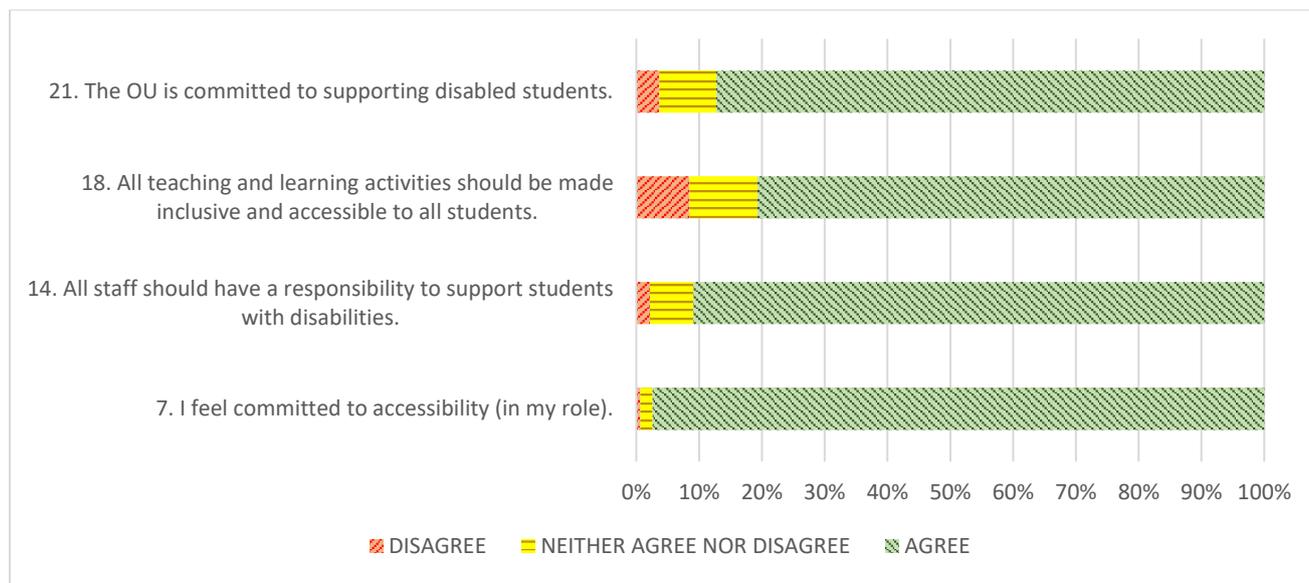
Results

Based on the results of the survey, the most striking results stemmed from questions regarding attitudes, and so we discuss those first to provide context for other results.

Attitudes

Attitudes to accessibility, inclusive teaching and learning, and supporting students with disabilities were overwhelmingly positive (Figure 1). For example, 97% (252/262) of staff felt committed to accessibility within their roles. This was the case for all staff, regardless of job role or unit, and is indicative of the strength of the institutional brand, mission and values, and commitment to inclusivity in the institution.

Figure 1: staff attitudes



Despite this, only 44% (115/263) believed that the support the institution provides to students with disabilities will equip them for the world of work. This could be indicative of staff attitudes towards societal inclusion and accessibility, or a commentary on the nature of support offered by the institution, but could also relate to greater awareness by staff of practices in the world of work through the increased emphasis around employability, particularly in the UK (e.g., Knight and Yorke, 2004).

Knowledge

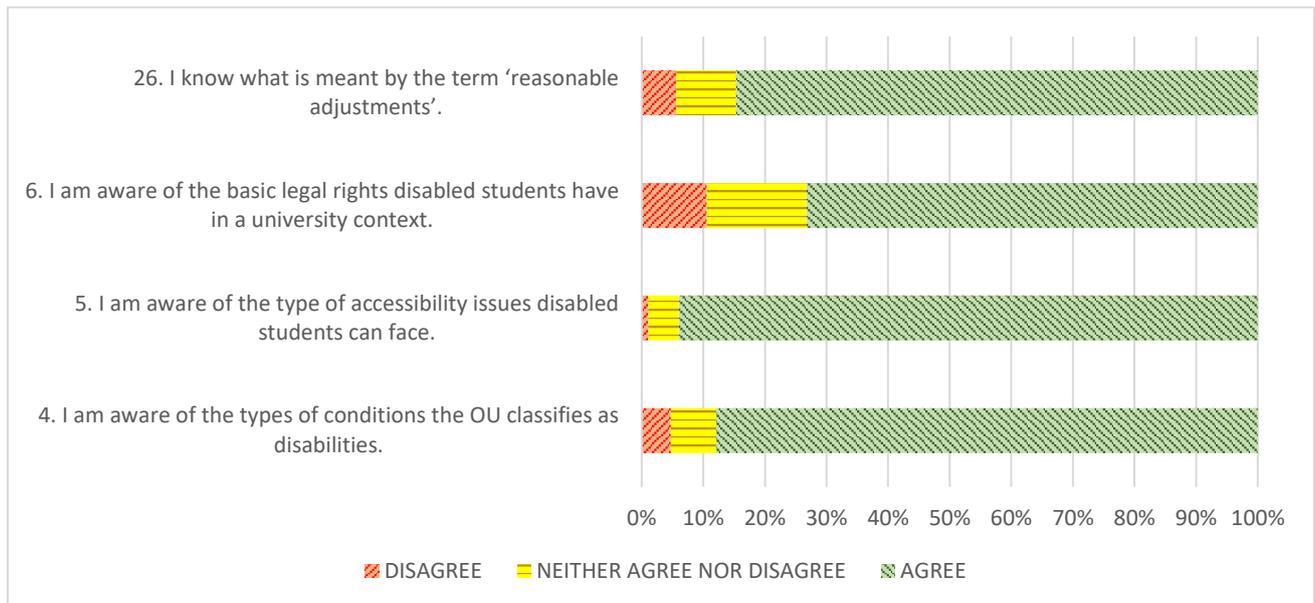
In the survey, staff knowledge about accessibility and inclusive practice was evaluated in two ways: we asked staff about their perceptions of their knowledge, and we tested their knowledge with questions that had correct or incorrect answers.

Perceptions of knowledge.

When asked if they were aware of the types of conditions the institution classes as ‘disability’, 75% (193/259) agreed or strongly agreed that they were aware. Similarly, when asked about their awareness of the types of accessibility issues students with disabilities might face, 94% (435/463) agreed or strongly agreed that they were aware. This indicates that all staff perceive they have a high awareness of disabilities and the challenges these might present. Further, 85% (393/464) of staff agreed or strongly agreed that they knew what was meant by the term ‘reasonable adjustment’, essential for ensuring students get the support they need within the context of teaching and learning.

However, in comparison, fewer staff 73% (339/463) felt they were aware of the basic legal rights that students with disabilities have in a university context, despite students with disabilities having a legal right to ‘reasonable adjustments’. This was particularly the case for STEM teaching staff (i.e. academics, Curriculum Managers and ALs), with only 68% (85/127) saying they were aware of these rights (X^2 (df = 4, $N = 324$) = 12.2, $p = .0160$). This may be partially explained because legal knowledge is outside of the scope of most staff roles; staff appear to feel more aware of aspects of accessibility that are within the scope of their roles.

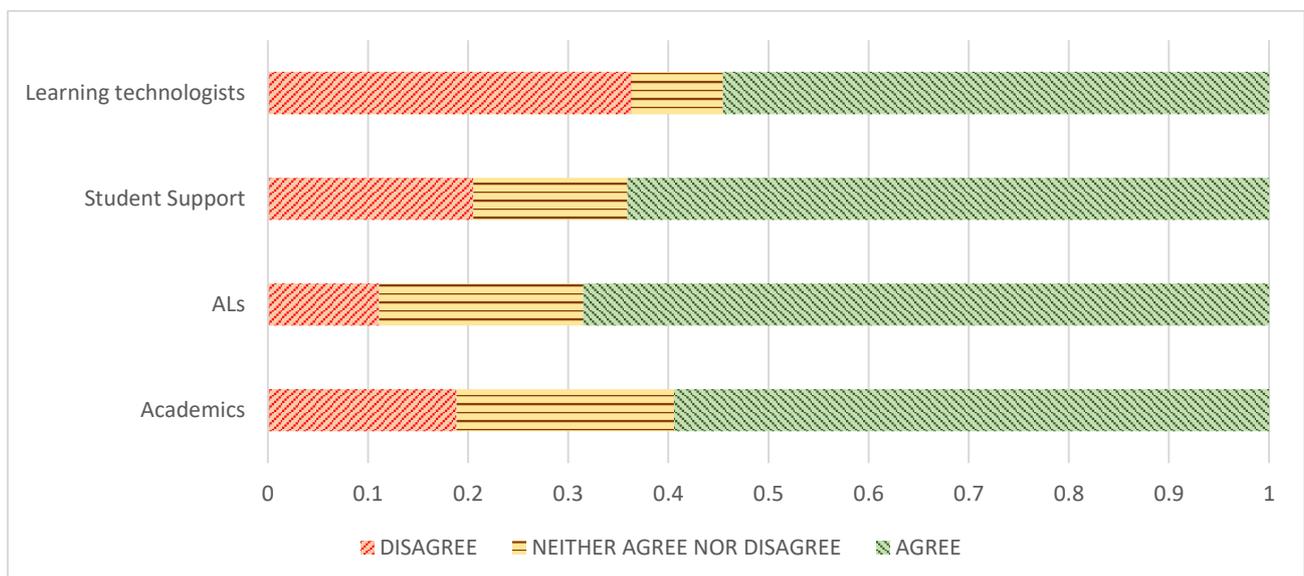
Figure 2: staff perceptions of knowledge



However, when looking at staff knowledge of the broader context of disability and accessibility in the institution, staff were less knowledgeable. For example, only 52% (242/462) of staff were aware of the nature and extent of the role of the institution’s Disability Support Team, although this may be partially explained by the fact that this team was restructured and renamed a year prior to the survey. More concerning is the fact that only 62% (284/455) of staff overall were aware of where to find information and guidance about inclusive and accessible teaching and learning, contrasting sharply with the high levels of confidence in their practice shown in Figure 2.

When investigating this by respondents’ job roles (Figure 3), it became clear that learning technology staff were the least confident in knowing where to find information and guidance, with only 56% (24/43) agreeing or strongly agreeing, and ALs were the most confident (72%, 46/64). Comparing the responses from each of the four groups of staff identified a statistically significant difference (only) between the responses from the learning technology staff and ALs (X^2 (df = 4, N = 121) = 11.9, p = .0177). This may reflect the nature of the roles, in that ALs are in constant, direct contact with students while learning technology staff rarely have direct contact with students.

Figure 3 - Q11 ('I know where to find information and guidance about inclusive teaching and learning and accessible practice') by staff group

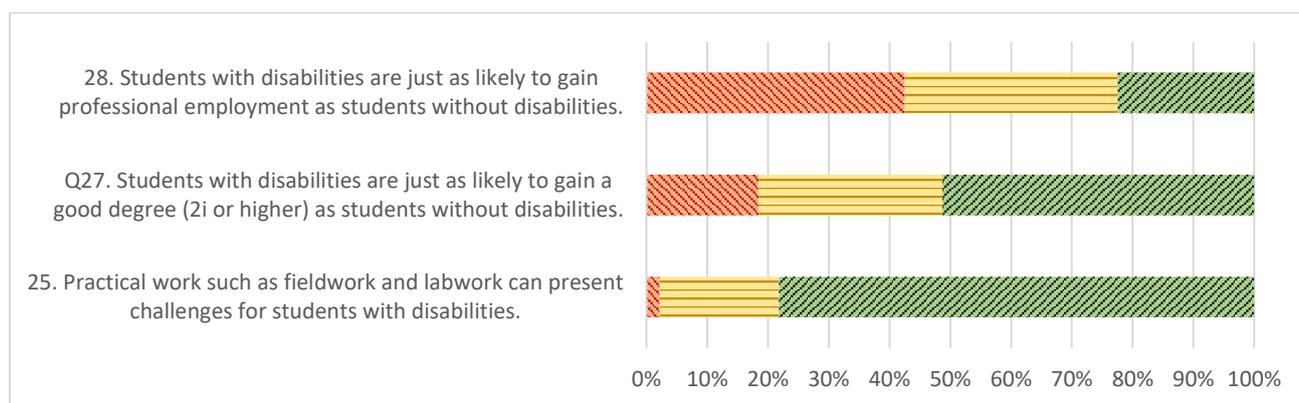


There is a tension when asking staff to state their perceptions of how much they know, in that they are unlikely to know what they do not know. This means that high levels of confidence in their perceived knowledge are not indicative of actual levels of knowledge. For this reason, we also included three questions with correct and incorrect answers to test their actual knowledge on broad disability issues.

Tested knowledge

When staff were asked if students with disabilities were just as likely to gain a ‘good’ degree (2i or higher) as students without disabilities (Q27), only 18% (85/460) of staff answered correctly; 30% (139/460) neither agreed nor disagreed, and 51% (236/460) agreed with the statement, erroneously. Similarly, when asked whether students with disabilities were just as likely to gain professional employment as students without disabilities, only 42% (195/459) answered correctly; 35% (161/459) neither agreed nor disagreed, and 22% (103/459) agreed with the statement, erroneously. This shows a concerning lack of awareness of the reality of the success of students with disabilities (Figure 4).

Figure 4: Tested knowledge



When analysing Q27 by respondent’s job role (Figure 4), it became clear that learning technology staff and ALs were the least aware of the degree attainment gap, with only 4% (2/54) and 14% (9/65) giving the correct answer (i.e., disagreeing with the statement). Academics and Curriculum Managers were the most aware of the degree attainment gap, with 23% (59/259) giving the correct answer. A comparison between the responses of the staff groups indicated a statistically significant difference between the academics and Curriculum Managers, and the learning technologists (X^2 (df = 3, N = 119) = 8.3, p = .0394); and the associate lecturers (X^2 (df = 4, N = 324) = 16.8, p = .0021); and the Student Support staff (X^2 (df = 4, N = 341) = 16.5, p = .0024).

Academics and ALs were more aware of the employment outcome gap than the degree attainment gap, with 44% (114/258) and 49% (32/65) respectively answering correctly (i.e., disagreeing with the statement). A pairwise comparison identified a statistically significant difference in the distribution of responses between the ALs and the learning technologists (X^2 (df = 4, N = 313) = 9.6, p = .0481).

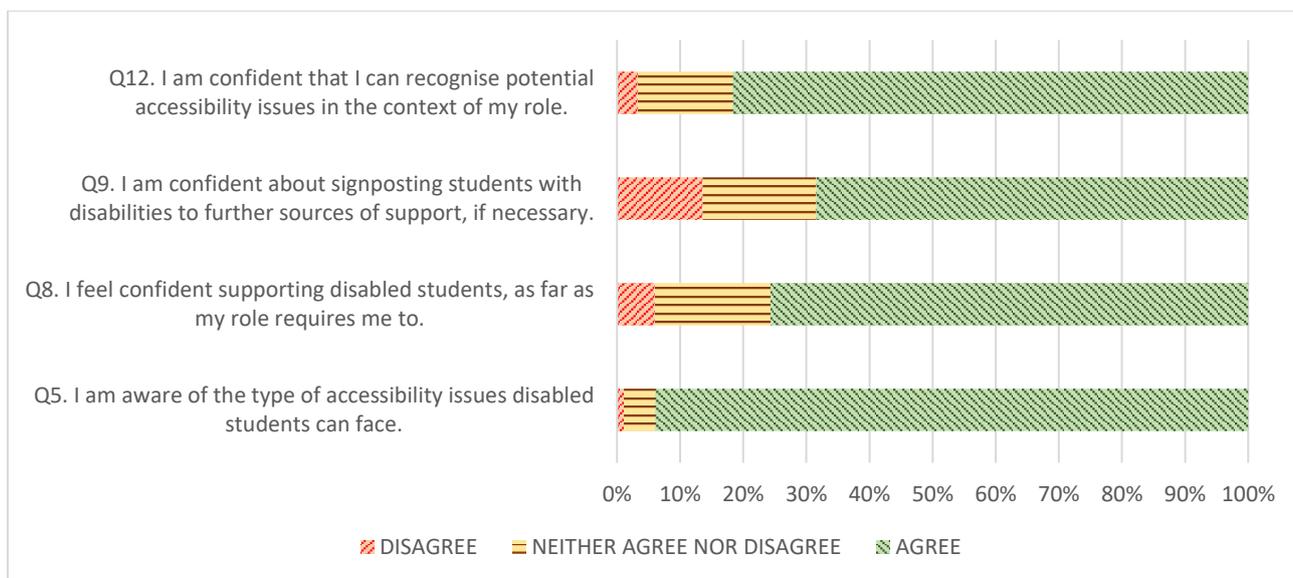
Interestingly, STEM teaching staff (i.e. academics and Curriculum Managers, and ALs) were less aware (i.e. erroneously optimistic) about the degree attainment gap and employment outcomes gap for students with disabilities (i.e., strongly agree or agree for degree attainment gap 62% (78/126) and for employment outcomes gap 22% (28/125) respectively) than teaching staff from other faculties (strongly agree or agree for degree attainment gap 40% (79/198) and for employment outcomes gap 17% (33/198)). This result was statistically significant for the degree attainment gap (X^2 (df = 4, N = 324) = 19.7, p = 0.0006) but not for the employment outcomes gap (X^2 (df = 4, N = 323) = 5.9, p = 0.2054). In both cases, ALs influenced the overall staff picture, with responses from academics and Curriculum Managers in line with the overall university picture.

Finally, when asked whether practical work (such as fieldwork and labwork) presented challenges for students with disabilities, 86% (99/115) of STEM teaching staff and 73% (122/168) of teaching staff in other faculties, answered in the affirmative, which was the correct answer (X^2 (df = 4, N = 283) = 13.6, p = .0085). STEM staff were marginally better informed about the challenges presented by lab and fieldwork, which is understandable given the context of their work.

Skills

Although staff were, overall, very confident in their skills in the context of their roles, more staff (82%, 375/479) felt confident recognising potential accessibility issues than actually supporting students (76%, 342/452). Fewer staff felt confident signposting students with disabilities to further sources of support (68%, 308/450). This makes an interesting point of comparison with Q5, which asked about awareness of accessibility issues and confidence recognising accessibility issues (Q12); 94% (435/463) of staff felt they were aware of accessibility issues, but only 82% (375/459) felt confident recognising them (Figure 5). These trends were similar for both STEM staff and other staff (Q12: (X^2 (df = 4, N = 612) = 1.7, p = .07865); Q5: (X^2 (df = 4, N = 617) = 1.2, p = 0.871)).

Figure : Staff skills

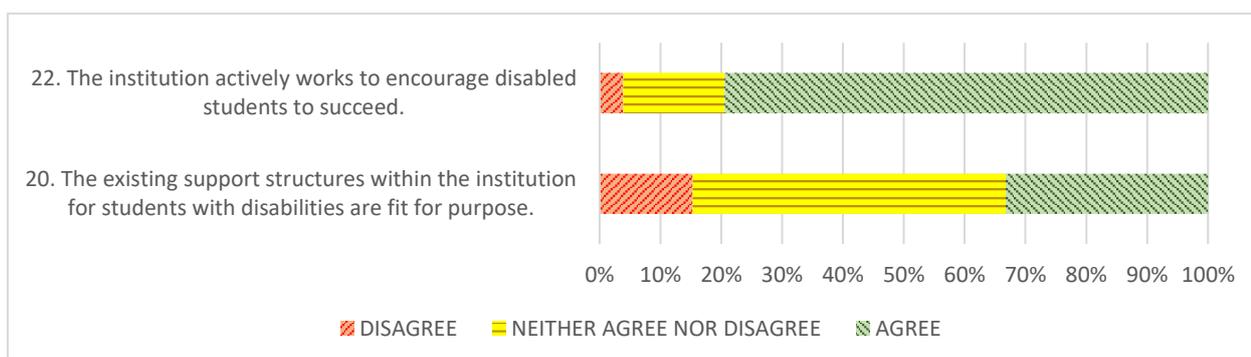


There were differences in levels of confidence in skills both between units and between staff roles. For example, staff who were not in student-facing roles (learning technology staff) were less confident than student support staff, which is not unexpected. Interestingly, 17% (42/254) of academics disagreed or strongly disagreed that they felt confident signposting students with disabilities to further sources of support, but this reflects the different nature of an academic role in a distance learning environment, with less pastoral care than in a face-to-face environment.

Support context

Staff were asked to reflect on their support context. Staff were confident in the level of institutional activity to support students with disabilities to succeed (79%, 367/462), which could also be indicative in the strength of brand identity. However, fewer staff felt confident that the support structures within the institution were fit for purpose. The majority of staff did not feel they could make a judgement on this (51%, 235/457) (Figure 8).

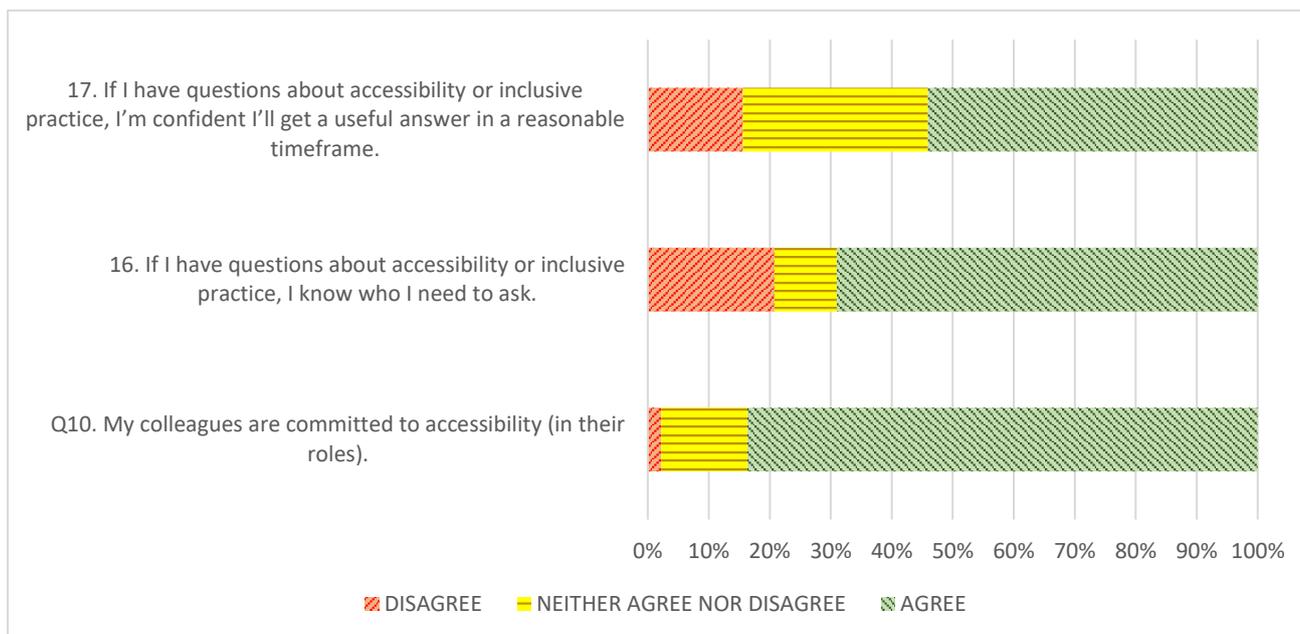
Figure 8: Institutional commitment



Human support

Staff believed that their colleagues were committed to accessibility (84%, 379/453), which may be indicative of the strength of the institution’s mission among staff. However, they had less confidence in practical support, in terms of knowing who to ask if they had questions (69%, 316/458) and whether they would receive a useful answer in a reasonable time frame (54%, 246/455) (Figure 6). Indeed, 21% (95/458) of all staff disagreed or strongly disagreed that they knew who to ask if they had questions about accessibility or inclusive practice, although STEM teaching staff were slightly more positive; only 20% (25/126) of STEM staff disagreed or strongly disagreed that they knew who to ask, compared with 24% (47/194) of teaching staff from other faculties.

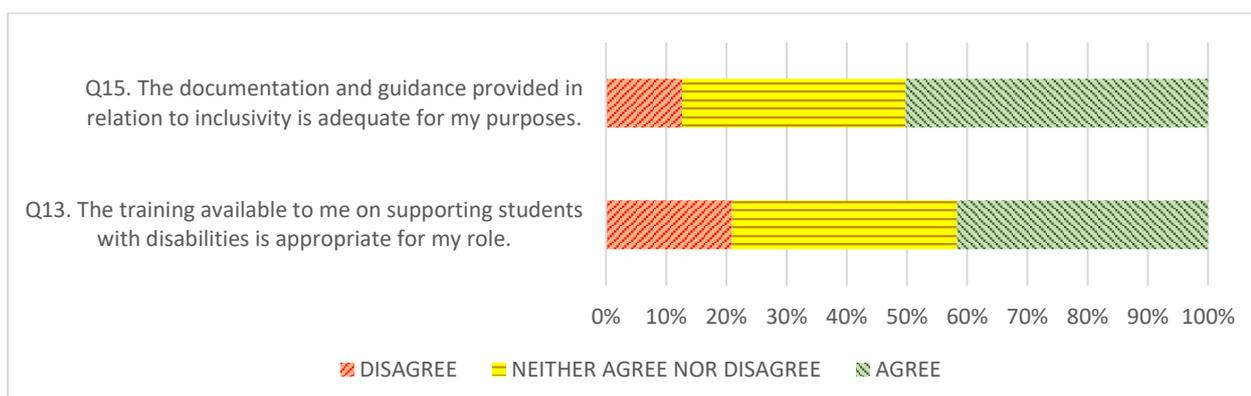
Figure 6: Human support



Training and guidance

Staff were not confident that their training was appropriate (Q13) or guidance was or adequate (Q15) for their roles and needs. Only 42% (187/449) agreed or strongly agreed that the training available was appropriate for their role and 50% (227/452) felt the documentation and guidance on inclusivity was adequate for their purposes (37% 168/449 and 37% 168/452 neither agreed nor disagreed, respectively). This presents an interesting contrast to their confidence in their knowledge, skills and practice, and may indicate a demand for additional training and professional development rather than a statement that the current support is not fit for purpose. The responses from teaching staff were similar between STEM and the other faculties regarding appropriate training (X^2 (df = 4, N = 315) = 0.5, p=.9741), and adequate documentation and guidance (X^2 = (df = 4, N = 318) = 1.2, p = .8822).

Figure 7: Training and guidance



When looking at different staff groups, each with potentially different training (Q13) and guidance needs (Q15), satisfaction was higher in student support staff (for training: 63%, 51/81, for guidance: 61%, 49/80) compared to academics and curriculum managers (for training: 35%, 88/250, for guidance: 47%, 118/253), and learning technology staff (for training: 36%, 19/53, for guidance: 46%, 25/54). Learning technology staff also had the lowest confidence in knowing where to find information and guidance.

Internal and external barriers

Staff were asked whether they felt barriers to inclusivity in their discipline or subject area were externally driven (e.g., accrediting bodies, technical constraints, etc.) or internal to the University (i.e. internal systems, attitudes and practices). The majority of staff responded as neither agreeing nor disagreeing with these statements (for external: 50%, 120/426, for internal: 41%, 147/438) of all staff. More STEM teaching staff (40%, 48/120) felt there were external barriers, compared to 20% (37/183) of other teaching staff; and fewer STEM teaching staff (26%, 33/125) felt there were internal barriers, compared to 31% (58/186) of teaching staff in the other faculties. However, the question asked about a range of barriers including technical constraints, and accrediting body requirements, which may be more prevalent in STEM subjects.

Confidence supporting disability types

Staff were asked if they felt confident supporting people with the following disabilities in their role:

- Autism spectrum disorder
- Fatigue/pain conditions
- Hearing impairment or d/Deaf
- Mental health conditions
- Mobility or manual dexterity issues
- Specific learning difficulty, such as dyslexia or dyspraxia
- Speech impairment
- Unseen disability, such as asthma or epilepsy
- Visual impairment or sight issues

These disability categories align to the categories used by the Higher Education Statistics Agency, which regulate reporting in UK Higher Education.

In keeping with the nature of their roles, a higher proportion of student support staff (average 80%) felt confident in supporting students across each of the disability categories compared to other staff roles, and the learning technology staff (who are not student-facing) had the lowest proportion 43% (see Table 2).

Table 2: The percentage of respondents agreeing or strongly agreeing that they felt confident in support students within each category of disability.

Disability category	Proportion % (n/N) agreeing or strongly agreeing (highest: bold)			
	Academics and Curriculum Managers	Associate Lecturers	Student Support Staff	Learning Technology Staff
Autism spectrum disorder	44% (98/221)	55% (36/66)	64% (49/76)	22% (11/49)
Fatigue/pain conditions	69% (156/225)	91% (60/66)	89% (68/76)	37% (19/52)
Hearing impairment or d/Deaf	73% (164/226)	77% (51/66)	75% (57/76)	81% (43/53)
Mental health conditions	42% (94/224)	56% (37/66)	80% (61/76)	20% (10/49)
Mobility or manual dexterity issues	68% (152/225)	91% (59/65)	87% (66/76)	50% (25/50)
Spec. learning difficulty (dyslexia, dyspraxia)	60% (137/227)	83% (55/66)	87% (66/76)	42% (22/53)
Speech impairment	62% (137/222)	79% (52/66)	76% (58/76)	33% (16/49)
Unseen disability, such as asthma or epilepsy	54% (120/224)	83% (55/66)	87% (65/75)	26% (12/46)
Visual impairment or sight issues	69% (156/226)	76% (50/66)	76% (58/76)	80% (43/54)
<i>Average percentage (range)</i>	<i>60% (42% to 73%)</i>	<i>77% (55% to 91%)</i>	<i>80% (64% to 89%)</i>	<i>43% (20% to 81%)</i>

Teaching staff were most confident supporting staff with fatigue/pain conditions, hearing impairment or d/Deaf, mobility or manual dexterity issues, with 74% (216/291), 74% (215/292) and 73% (211/290) agreeing

or strongly agreeing they were confident supporting these student groups. There were no statistically significant differences between STEM and other teaching staff (fatigue/pain: $X^2 = (df = 4, N = 291) = 0.9, p = .9212$; hearing impairment: $X^2 = (df = 4, N = 291) = 0.9, p = .9212$; manual dexterity: $X^2 = (df = 4, N = 290) = 7.1, p = .1328$).

Teaching staff were least confident in supporting students with autism spectrum disorders and mental health issues, with 47% (134/287) and 45% (131/290) respectively stating they were confident. There was no statistically significant difference between STEM and other teaching staff (Autism: $X^2 = (df = 4, N = 287) = 1.1, p = .8961$; Mental health: $X^2 = (df = 4, N = 292) = 5.5, p = .2357$).

Discussion

The intention of the MAPP survey was to create a baseline of staff perceptions of knowledge, skills, attitudes and support context, in order to inform an action plan for interventions. The survey will then be run every two years to measure the impact of action and interventions and continue to inform an ongoing action plan.

In terms of attitudes, the results of the MAPP survey overwhelmingly demonstrate a positive institutional culture in which individuals feel personally committed to accessibility, are willing to take responsibility for accessibility in their area, and believe that all staff have a responsibility to support students with disabilities. The vast majority of staff showed high levels of belief in their peers' commitment to accessibility, and in the institution's commitment to supporting students with disabilities, agreeing that all were actively working to support students with disabilities to succeed. This may be indicative of the strength of the institutional brand, mission and values and the embedded culture of inclusivity in the institution. However, many studies reveal positive staff attitudes towards inclusion (e.g. Abdella, 2018; Leyser, 2011; Sweeney et al, 2002; Vogel et al., 2006; Houck et al., 1992), and this should be taken into account in line with findings from Lopez-Gavira et al (2019), who found that high levels of perceived commitment in staff were not always borne out in students' experiences.

The responses returned a different picture in terms of knowledge, skills and support context. Low knowledge of institutional structures around supporting students with disabilities, the degree attainment gap, and employment outcomes gap indicate that interventions are required around communication, training and guidance. This aligns with findings from Carballo et al (2018), Cook et al (2009) and Gelbar et al (2015), suggesting staff knowledge of practical matters relating to accessibility and inclusion remains low, despite positive attitudes. Learning technology staff in particular expressed lower levels of confidence in their knowledge around where to find guidance and support. This may manifest as perceived internal barriers to accessibility, and was particularly interesting given the critical role learning technologists play in developing modules in a distance learning context and their lack of visibility in studies of attitudes to inclusivity in online learning (e.g. Phillips et al, 2012.)

External barriers were perceived to be a barrier to inclusivity, particularly in STEM. This supports Love et al's and Pearson et al's contention that there are STEM-specific barriers (or perceived barriers) to inclusivity (Love et al, 2015; Pearson et al, 2019a), and suggests that training is needed for STEM staff in how these can be overcome.

Disability-specific questions revealed that staff felt least confident supporting students with autism spectrum conditions and mental health difficulties. This is comparable to findings by Brock et al (2014), who also found low levels of staff confidence supporting autistic students in the school sector. Learning technology staff expressed lower levels of confidence with the majority of disability categories, but since their role does not involve direct interaction with students (unlike in Phillips et al, 2012), this is perhaps not surprising. However, to be effective in ensuring learning materials are accessible for all and are designed with empathy and understanding of student needs, specific opportunities for their development are necessary.

The survey results revealed a clear need for training, human support and guidance, especially for learning technologists. To meet this need, since the MAPP survey was undertaken, role-specific training and guidance has been created for learning technology staff, and a network of 22 embedded accessibility champions has been implemented. The methodology and model for the network of accessibility champions was taken from that of an existing network of accessibility coordinators in academic faculties in the institution (Pearson et al.,

2019b; Slater et al., 2015). At the time of writing, this network has been in place for over one year and staff are reporting positive outcomes, although the success of this intervention will be evaluated more fully in the next iteration of the survey.

In response to the need for specific training around mental health and autism spectrum conditions, a project has been initiated to identify barriers to inclusion and study success for this group, and interventions that can be embedded to support inclusive practice. The outputs of this project will be training and guidance for teaching staff and learning technologists. At the time of writing, this project has been running for one year and will be evaluated through subsequent MAPP surveys and project-specific evaluation.

The survey revealed specific training needs in STEM teaching staff, specifically around knowledge of attainment and employment outcome gaps, and skills in how to overcome external barriers to inclusion, particularly fieldwork, labwork and understanding of accrediting body requirements (Pearson et al, 2019a; Love et al. 2015). These are being addressed through the implementation of an accessibility and inclusion strand within the faculty-wide academic professional development programme, with awareness raising seminars and practical workshops to support sharing of good practice and direct training. The impact of these will be evaluated in subsequent MAPP surveys.

Finally, to help build a support context for all staff, a new website has been developed where training, guidance and community engagement (through forums) are hosted. There have also been structured communications at an institutional level regarding degree outcome gaps, and a series of institution-level training events around promoting inclusive practice. The impact of these will be evaluated in subsequent MAPP surveys.

Although the findings from this study are specific to the institution, they give rise to several broader implications for practice. Firstly, the finding that positive attitudes towards inclusivity were not necessarily accompanied by high levels of knowledge about supporting students with disabilities is borne out by the literature (Carballo et al, 2018; Cook et al, 2009; Gelbar et al, 2015), and a recommendation for practice is therefore that institutions focus on evaluating knowledge, skills and confidence in addition to attitudes. Secondly, the finding that learning technology staff displayed the lowest levels of confidence in their skills and knowledge relating to inclusion was of particular interest when combined with the focus on faculty and student support staff in the literature (e.g. Lopez-Gavira et al., 2019; Black et al, 2014; Carballo et al, 2019). A recommendation for practice, therefore, is that institutions should take a holistic approach to staff training and evaluation around inclusivity, ensuring staff with diverse roles relating to learning are included in this. Thirdly, the finding that staff felt least confident supporting students with autism spectrum conditions and mental health difficulties aligns with the literature (e.g. Brock et al 2014) and is of particular interest given rising numbers of students disclosing autism and mental health-related needs. A recommendation for practice, therefore, is for institutions to evaluate staff knowledge, skills and confidence in this area of inclusive practice.

Limitations

There were several limitations to the study. As is typical when using a survey, the participants were self-selecting and therefore subject to non-response bias, i.e., those who are motivated to complete the survey may be more interested and engaged in the subject, and therefore more knowledgeable about it. Furthermore, although the survey questions were developed to be relevant to different staff groups in order to enable comparison, there is a risk that these may be interpreted in different ways in different contexts or may have less relevance to specific roles within the groups. This was mitigated by the deployment of a pilot survey with a mixed group of staff and by the use of the 'not applicable' option within the Likert scales. Finally, as the survey data comes from a single institution, further research would be necessary to establish whether the findings are relevant or applicable to other institutions.

Conclusion

The MAPP survey instrument has been shown to be an effective way of measuring staff perceptions of knowledge, skills, attitudes and support context, in that it has successfully identified actionable training needs and areas for intervention for staff. Whether it is an effective instrument for measuring longitudinal change will be investigated in subsequent iterations of the survey.

The survey data has led to an action plan for interventions that will take place over two years. These include a strand on inclusivity in the STEM academic professional development programme, a website for all staff hosting training and guidance on inclusive practice, a project to investigate and create guidance and training on inclusion for students with mental health issues or autism, and a network of accessibility champions, equipped with guidance and training, specifically for learning technology staff. At the time of writing, these interventions are all in progress and will be evaluated in subsequent iterations of the MAPP survey.

The survey has been welcomed by senior management within the institution and is now used as a measure in several areas of institutional strategy. Approval has been granted for it to be run every two years henceforth and for it to be used to evaluate interventions, identify new training needs and evaluate change in staff practices and perceptions about accessibility and inclusive practice in distance learning.

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