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### Abstract

**Abstract:** This paper explores the extent to which existing accessibility metaphors can help to develop our conceptualizations of accessible e-learning practice in higher education and outlines a proposal for a new rainbow bridge metaphor for accessible e-learning practice. The need for a metaphor that reflects in more depth what we are beginning to understand about how to bring about that change, who should bring about that change, and what the result of such a change might be is identified. One such metaphor that could help us do this is the metaphor of a rainbow bridge. The stakeholders of accessible e-learning within higher education may understand the rainbow bridge as a useful metaphor in that the colours of the rainbow can represent all the main stakeholders in accessibility; the different views that different people can have of the same rainbow can represent different but related views of accessibility; and crossing the rainbow bridge to *higher awareness* can represent the *awareness* that is required in order to develop accessible e-learning practice.

**Résumé:** Le présent article examine dans quelle mesure des métaphores d'accessibilité existantes peuvent contribuer au perfectionnement de nos conceptualisations de la pratique d'apprentissage en ligne accessible dans le milieu de l'éducation supérieure et il souligne une proposition portant sur une nouvelle métaphore de pont de l'arc-en-ciel pour la pratique de l'apprentissage en ligne accessible. Les intervenants de l'apprentissage en ligne accessible du milieu de l'éducation supérieure peuvent comprendre que le pont de l'arc-en-ciel est une métaphore utile puisque les couleurs de l'arc-en-ciel peuvent représenter tous les principaux intervenants de l'accessibilité; les différentes opinions que chaque personne peut avoir du même arc-en-ciel peuvent représenter des opinions différentes mais connexes de l'accessibilité; le concept du pot d'or au bout de l'arc-en-ciel peut être utilisé pour lancer des discussions importantes sur les objectifs qui sont réalisables ou non; et la traversée du pont de l'arc-en-ciel vers une « sensibilisation accrue » peut

représenter la « sensibilisation » nécessaire pour élaborer une pratique d'apprentissage en ligne accessible.

## **Introduction**

Several powerful drivers for making e-learning accessible in higher education have emerged over the last five to six years including disability discrimination legislation, accessibility guidelines and accessibility standards. Despite these drivers, it is still possible to read a report that condemns the perceived *inaccessibility* of e-learning experiences that we are offering our students with disabilities (Alexander, 2003; Spindler, 2004; Witt & McDermott, 2004). A prime reason for this is that whilst practitioners know that they should be making e-learning material and resources accessible to students with disabilities, they often do not know *how* to make e-learning accessible (Pulichino, 2005; Sams & Yates-Mercer, 2000)

Seale (2006) argues that there are two main reasons for the current lack of knowledge about making e-learning accessible. Firstly, the research and practice literature has predominantly recorded arguments about why e-learning should be made accessible and failed to record detailed rich descriptions of how practitioners have interpreted and implemented accessibility legislation, guidelines, standards and tools in order to develop an accessible e-learning practice. Secondly, linked to this, the practitioner community within higher education has not developed its own conceptualisations of what best practice is and what factors influence that practice.

Conceptualisations of best practice often emerge through the use of metaphors, theories and models to analyse and reflect on current practice. This paper explores the extent to which existing accessibility metaphors can help to develop our conceptualisations of accessible e-learning practice and outlines a proposal to elaborate on an existing metaphor in order to extend and developing our thinking about accessibility.

## **Existing metaphors as conceptual tools for exploring the future of accessible e-learning**

The language of e-learning in relation to disability contains powerful metaphors that are used to emphasise how e-learning can overcome barriers (Coombs, 2000), break shackles (O'Connor, 2000) and open up opportunities to facilitate inclusive and equitable education. A review of the literature reveals three kinds of metaphor:

- Equality and the "level playing field" metaphor;
- Access and the "divide" or "gap" metaphor;
- Accessibility and the "bridge" metaphor.

### ***Equality and the "level playing field" metaphor***

In describing a text-based virtual reality environment called *GrassRoots*, Parsons (2000) writes that:

When students and adults access *GrassRoots* as well as all other aspects of their computers by using these advantages, it creates a rich environment where students compete on an equal footing. One might ask if computers continue to level the playing field for students and adults, whether today's "learning disabilities" might disappear? ... *GrassRoots* is one small aspect of the Internet, but it typifies this new exciting trend toward equalization and inclusion. (¶9)

Other writers also use the metaphor of the level playing field to emphasise the potentially equalizing effect of e-learning (Banks, Lazzaro & Noble, 2003; Burgstahler, Corrigan & McCarter, 2004; Evans, 2002). While it is suggested in the EASI (Equal Access to Software and Information) website that:

Accessible e-learning means courseware and content that is designed to be accessible to the widest possible variety of computer operating systems and specialized applications removing needless barriers for students with disabilities and providing a level playing field to let them work and learn like everyone else. (EASI, nd, ¶1)

### ***Access and the "divide" or "gap" metaphor***

Integral to the concept of accessibility, is the concept of access. In thinking about the concept of access different but related stakeholder communities have focused on: access to a space; access to a function or access to "the other side". Within the Internet and Online learning community conceptualisation of accessibility is frequently geographically framed in terms of access to *information space* where access is conceptualised in similar terms to access to a building, garden, street or town. This concept is frequently reflected in the design of e-learning resources. For example, Virtual Learning Environments (VLE's) use metaphors of physical spaces such as libraries, classrooms, and cafés to structure the way the material is accessed by students.

The assistive technology and Human Computer Interaction (HCI) communities have introduced the concept of assisting access to the different functions of a system (Wandke, 2005). The inability of a user to access the functions of system is frequently represented by the metaphor of a divide or a gap, suggesting a large physical distance between the user and the system. Within the accessibility community the physicality of access is repeated in conceptualisations of access that focus on closing the gap or the digital divide (Sanda, 2003; Snaprud & Aslaksen, 2004), enabling disabled people to get from one side to another.

### ***Accessibility and the bridge metaphor***

The bridge metaphor has been used by several researchers and practitioners to conceptualise the relationship between users, developers and technologies and how that relationship can be mediated or bridged. For example, in examining the relationship between users and technologies Cook and Gladhart (2002) argue that new design strategies are required in order to bridge the gap between print disabled students and text dominated online learning materials. Purcell and Grant (2004) describe how assistive technologies can bridge the gap between disabled students and the curriculum. In examining the relationship between developers and technologies Regan (2004) argues that design approaches need to change and develop in order to bridge the gap between accessibility and design. Draffan and Rainger (2004) identify the need to reduce the knowledge gap between those who assess students for their specific additional support needs and technology developers who design the assistive technologies.

The divide or gap metaphor is helpful in that it challenges us to acknowledge that there is a problem that needs to be solved or addressed. It does not however, suggest how the problem can be solved. The level playing field metaphor is helpful in that it suggests a goal or objective that needs to be achieved and suggests that a shift in power dynamics is

required in order to meet this objective, equalize opportunities and force or demand the creation of “playing fields” that disabled people can “play on”. It does not however, suggest how the shift in power can be achieved. The bridge metaphor is useful in that it addresses how the problem can be solved (by bridging the divide) but it does not suggest who should be involved in bridging the divide or who has the power or responsibility to build the bridge.

The three metaphors described here are useful in that they reflect what we understand about current accessibility practice in higher education in terms of not being acceptable and requiring change. But we also need a metaphor that reflects in more depth what we are beginning to understand about how to bring about that change, who should bring about that change, and what the result of such a change might be. One such metaphor that could help us do this is the metaphor of a rainbow bridge.

## **The rainbow bridge as a proposed metaphor for accessible e-learning**

In order to extend and develop our thinking about accessible e-learning an elaboration of the bridge metaphor is proposed: that of the rainbow bridge. Outside of the field of accessibility, the notion of a rainbow bridge is not new in that it is understood and embraced in several European, North American and Asian cultures. For example, in Norse mythology the rainbow bridge (Bifrost) is a bridge that connects heaven (Asgard) and earth (Midgard). The rainbow bridge is also known as *Antahkarana*, a Sanskrit term, which translated literally means “that which acts or works between”. It is like a spiritual filament of light that bridges the physical and the spiritual.

The notion of a rainbow bridge is new however, in the field of e-learning and accessibility. The strong attraction of the rainbow bridge as a metaphor for accessible e-learning is that it incorporates three elements that really challenge and develop our thinking about how to make e-learning accessible. The bridge element of the metaphor builds on what we know already and challenges us to accept that the current accessibility situation needs to be changed. The goal for accessible e-learning practice may therefore be to cross the bridge from Midgard to Asgard: from inaccessibility to accessibility. The rainbow element of the metaphor challenges us to address how, in striving to change the current accessibility situation, we may need to bring together diverse groups in order to work towards a common goal. The combination of both the rainbow and the bridge in the metaphor encourages us to consider what higher awareness or greater knowledge is required in order to develop and expand our conceptions what best accessibility practice could and should be.

Just as the rainbow bridge is understood by the many cultures of the world, the many stakeholders of the accessible e-learning community may also understand the rainbow bridge as a useful metaphor in that:

- The colours of the rainbow can represent all the main stakeholders in accessibility;
- The different views that different people can have of the same rainbow can represent different but related views of accessibility;
- Crossing the bridge to higher awareness can represent the awareness that is required in order to develop accessible e-learning practice.

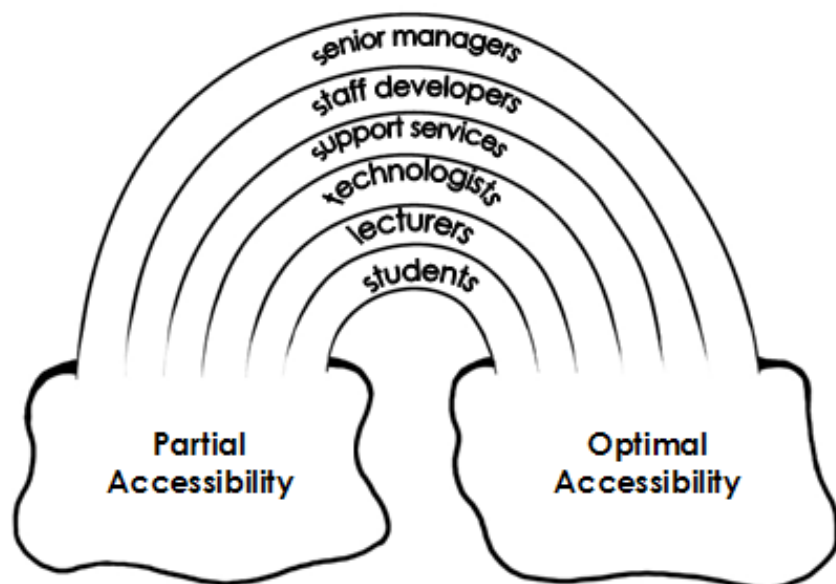
## ***The colours of the rainbow***

The seamless combination of the different colours in a rainbow is often used to symbolise co-operation and cohesion and represent diverse groups of people, united in working together for a common purpose. For Clement and Shade (2000) the rainbow metaphor is a useful tool for conceptualising universal access to information because it simultaneously suggests unity and diversity. Although the coloured layers can be distinguished from each other, there are no definitive boundaries between them. They are intrinsically related to one another and integral to the whole. No single strand is sufficient; all are necessary. In terms of e-learning accessibility this is appealing when thinking about the stakeholders and their role in promoting accessible e-learning.

Within higher education, there is growing recognition that responsibility for accessibility needs to be shared between all relevant stakeholders. In thinking in more detail about those stakeholders that exist within an institution (virtual or physical), many people (e.g., Sanda, 2003) recognize that key stakeholders are disabled students, lecturers, disability support services, Information Technology (IT) and computing departments, administrators and managers. Opinions vary however as to which stakeholder should take the brunt of the responsibility for ensuring accessibility and what the different roles of the stakeholders might be. For example, some people consider that accessibility is the sole responsibility of specialists such as disability service providers and assistive technology specialists (Anderson, 2004; Burgstahler & Cook, 2005) and that part of their role is to develop strategic partnerships with those who make technology and planning purchase decisions and those who provide services to students such as libraries, counselling and registration.

Seale (2006) argues that accessible e-learning practice will not develop through the actions of individual practitioners or stakeholders alone. Accessible e-learning practice will develop and progress when all the different stakeholders join to work together. She identifies the key stakeholders in the development of accessible e-learning within a higher education institution as: disabled students, lecturers (faculty), learning technologists (e.g., multimedia developers, web masters, IT services), student support services (e.g., disability advisors, librarians, assistive technologists), staff developers and senior managers. These stakeholders are incorporated into the rainbow bridge metaphor (See Figure 1) and are represented by the six universally accepted colours of the rainbow: red, orange, yellow, green, blue and purple. Examples of different accessibility stakeholders working together include:

- Staff developers, disability services and academics working together to respond to disability discrimination legislation (Middling & Bostock, 2002);
- Learning technologists, staff developers, disability advisors and librarians working together to develop a WebCT staff development module on accessibility (Peacock, Ross & Skelton, 2002);
- Students with disabilities, academics, representatives from disability services, web communications and information technology services and the campus computer services department contributing to a university wide "Assistive Technology Advisory Committee" (Kramer, 2004).



*Figure 1. The rainbow bridge of accessibility*

The metaphor of a rainbow bridge is therefore useful in that it helps us to conceptualise who needs to be involved in achieving the goals of accessible e-learning practice and to argue that the development of successful accessible e-learning practices will require these diverse stakeholders to unite towards a common goal. No one stakeholder can produce accessible e-learning on their own; it requires all six to work together as a unit, team or community.

## **Different views of the rainbow**

A rainbow is a set of physical drops of water that reflect the light in a certain way. However, no two people see exactly the same rainbow, because they each occupy different positions in space, select different rays of light and thus different drops of water to look at. In this sense a rainbow is a very personal phenomenon. Just as different people will see different rainbows depending on their standpoint, different people will view accessibility in different ways depending on their viewpoint. For example: stakeholders will hold different viewpoints regarding the rationale for making e-learning accessible. Brewer, Dardailier and Vanderheiden (1998) note that:

Often people become interested in Web accessibility for a specific reason, unaware that there are other reasons for accessible design. Some people come to the topic because of regulatory requirements for accessibility, others because they consider it the "right" thing to do. Few are initially aware of business reasons for accessibility. (¶7)

Stakeholders may also hold different viewpoints about the solutions to making e-learning accessible. For example, Nevile and Burmeister (2003) suggest that:

The same issue will attract different solutions, depending on the viewpoint of the actor. In a Web development community, a single issue such as whether all tables should be linearised, will be understood differently, depending on whether the actor is a policy maker, a developer, a commissioning agent or a community member with vision-impairment. (p3)

Whilst the different stakeholders may hold different views about accessibility rationales and solutions, they could be considered to have what Seale (2003a; 2004) called a "shared

enterprise” in that they are all working to the same or similar goals, they are all working in similar environments with similar conditions (drivers and mediators), they all have members in common (e.g., a disability officer can act in a staff development role) and they each share artefacts (e.g., Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines).

The strength of the rainbow bridge metaphor however, is that it encourages us to accept the value that different viewpoints bring. While different people may see different “rainbows”, they usually all believe they are seeing a thing of beauty and wonderment. Different stakeholders might have different viewpoints about rationales and solutions, but for the most part they believe that accessibility is a goal worth striving for. As long as there is agreement that a bridge needs to be built, it does not matter too much that there is disagreement about how the bridge should be built and what it should look like. If there is agreement about the goal (to build a bridge) then people will work together to resolve conflict and out of this conflict resolution new practices and knowledge (how to build a bridge) will emerge. Examples of conflicts that stakeholders in accessible e-learning stakeholders may need to work together to resolve are the conflicts surrounding the *design for all* approach and the goal of *optimal accessibility*.

### ***The Design for All conflict***

The difficulty of achieving perfect design solutions is illustrated by the arguments surrounding the value of *Design for All* as an approach to designing for accessibility. The Design for All approach is also known as Universal Design, Barrier Free Design or Inclusive Design. The underpinning principle of Design for All is that in designing with disability in mind a better product will be developed that also better serves the needs of all users, including those who are not disabled. Vanderheiden (1996) defines Universal Design as the:

Process of creating products (devices, environments, systems, and processes), which are usable by people with the widest possible range of abilities, operating within the widest possible range of situations (environments, conditions, and circumstances). ¶3

Central to the Universal Design approach is a commitment that products should not have to be modified or adapted. They should be accessible through easily imposed modifications that are “right out of the box” (Jacko & Hanson, 2002, p. 1). Products should also be compatible with users’ assistive technologies. The majority of proponents, however, agree that designing for the majority of people is a more realistic approach than trying to design for everyone (Bohman, 2003a; Witt & McDermott, 2004). For example, Vanderheiden (1996) argues that:

There are NO universal designs; there are NO universally designed products. Universal design is a process, which yields products (devices, environments, systems, and processes), which are usable by and useful to the widest possible range of people. It is not possible, however, to create a product, which is usable by everyone or under all circumstances. ¶5

Despite this, there are some who feel uncomfortable with the principles of design for all because they appear to relieve educators of the responsibility of addressing individual student needs. For example Kelly, Phipps and Swift (2004) propose a holistic approach to design and argue that since accessibility is primarily about people and not about technologies it is inappropriate to seek a universal solution and that rather than aiming to

provide an e-learning resource which is accessible to everyone there can be advantages in providing resources which are tailored for the student's particular needs. In this instance stakeholders' responses to accessibility are not only mediated by views of disability and accessibility but also views about the extent to which higher education should be student or learner-centred.

If, through the application of the rainbow bridge metaphor, practitioners can be encouraged to accept the value that different viewpoints bring then we may be encouraged to accept that crossing the rainbow bridge may not mean crossing from multiple design solutions to one design solution. It may mean crossing from fixed design solutions to adaptable design solutions.

### ***The "optimal accessibility" conflict***

Hull (2004) argues that trying to make a web site accessible to everyone is next to impossible. Using the rainbow bridge as metaphor may therefore encourage us to think about the "pot of gold" and the achievability and appropriateness of the goals we are striving for. For example, we may wish to question our quest for one hundred percent, full or complete accessibility. Sloan and Stratford (2004) suggest that:

The term 'fully accessible' is very ambitious and easily disproved in many cases. 'Optimally accessible' is a far more appropriate goal for which to aim ... accessibility to disabled people should extend beyond the minimum condition of being able to access information, it should be looking towards making the experience of accessing and using information worthwhile and beneficial. (p. 3)

If, through the application of the rainbow bridge metaphor, practitioners can be encouraged to accept the value that different viewpoints bring then we may be encouraged to accept that crossing the rainbow bridge may not mean crossing from inaccessibility to accessibility. It may mean crossing from partial accessibility to optimal accessibility.

## **Crossing the bridge**

For many, the journey over the rainbow bridge is a journey into higher awareness and understanding. The rainbow bridge is therefore a useful metaphor for accessible e-learning in that it encourages us to think about what higher awareness or understanding needs to be obtained in order for accessible e-learning practice in higher education to be developed. For example:

- An understanding of the disabled student's personal experiences of e-learning and impact of both barriers and facilitators on that experience (Asuncion, Fichten, Fossey & Barile, 2002; Craven 2003; Kim-Rupnow, Dowrick & Burke, 2001; Wimberley, Reed & Morris, 2004);
- An awareness that universal design can apply to the design of instruction as well as to design of accessible e-learning and that accessible e-learning might be one valuable outcome from universal instructional design (McEwan, Cairncross & MacLean, 2003; Pliner & Johnson, 2004; Scott, McGuire & Foley, 2003)
- An awareness that the way services to support disabled students in their use of e-learning are organised and staffed will highlight tensions between the mainstream and the specialist and be seen to reflect attitudes to and models of disability (Blankfield & Martin 2002; Fichten, Asuncion, Robillard, Fossey & Barile, 2003; Jones & Tedd, 2003);
- An understanding that the extent to which meaningful learning that changes practice is the outcome of staff development programmes and activities will depend on the strategies and partnerships that are adopted (Disability Rights Commission, 2003; Jeffels & Marston, 2003; Seale



2003b);

- An awareness that the development of institutional accessibility policies that have the potential to impact on practice requires leadership and strategic involvement of key stakeholders (Bohman, 2003b; Burgstahler, 2002; Smith & Lyman, 2005).

## **Application of the rainbow bridge metaphor**

In order to demonstrate the value of the rainbow bridge metaphor in developing and extending our thinking about accessible e-learning two examples will be highlighted and discussed: developing student support services and planning staff development activities.

### ***Developing student support services***

When those working in student support services are planning how to respond to disabled students' needs in relation to e-learning, the rainbow bridge metaphor could be a useful conceptual tool in that it could prompt them to identify which stakeholders need to be involved in the planning process and to collate the views and perspectives of all the identified stakeholders. Such a process may lead them to conclude that disabled students themselves are key stakeholders whose views need to be addressed. In addressing their views they may have found out important information about both the positive and negative experiences of e-learning. For example, a review of personal accounts of e-learning experiences and other research literature (see Seale, 2006) reveals that positive experiences of e-learning for students with disabilities fall into four categories:

- Use and availability of generic technology (Leung et al., 1999);
- Use and availability of specialist technology (Asuncion et al., 2002; Fichten et al., 1999; Wimberley et al., 2004);
- Provision of electronic or non-electronic "alternatives" (Blankfield & Martin, 2002; Rainger, 2003);
- Existence of individualized support and accommodation (Kim-Rupnow et al., 2001).

Two studies that were conducted in Canada are those conducted by Fichten et al. (1999) and Asuncion et al. (2002). Fichten et al. evaluated the views and opinions of both students with disabilities and of Disabled Student Services Officers concerning the use of computers in postsecondary education. While Asuncion et al. reported on findings on computer technology needs and concerns of 725 Canadian college and university students with a wide range of disabilities. Both studies reported what they perceived to be an important trend in cross-use or multiple uses of assistive technologies for two main reasons:

- Many students have more than one disability and therefore need technologies that can adapt to a range of needs;
- Students find that they can benefit from technologies that were not specifically designed for their own disabilities. For example, screen readers are not only used by those who are blind, but by those who a learning disability such as dyslexia.

The review also revealed that negative experiences of e-learning fall into three categories:

- Accessibility and availability of generic technology (Craven, 2003; Fuller, Healey, Bradley & Hall, 2004; Lewis, Bronstad, Barron & Hays, 2004);
- Accessibility and availability of specialist technology (Goodman, Tiene & Luft, 2002; Leung et al. 1999);
- Bureaucracy of systems for assessing and providing specialist technologies (Goodman et al., 2002).

Once the views and perspectives of all the identified stakeholders have been collated, the rainbow bridge metaphor could also be valuable in that it may prompt those responsible for developing student support services to re-evaluate their goals and consider that bridging the gap may involve:

- Facilitating access to both specialist technologies and generic technologies;
- Recognising that a specific specialist technology can meet more than one perceived need;
- Accepting that not all accommodations need to be electronic or online;
- Adopting an approach that can cater for the majority of needs as well offer individualized support where necessary.

Such considerations may result in challenges to accepted notions of how to organise support services (e.g., whether or not support for disabled students should be organised through a separate service or integrated into mainstream service provision) as well as challenges to assumptions about what stakeholder partnerships need to exist in order to deliver student support services (e.g., that there may be a role for disability officers working in partnership with central computing or IT services). The final contribution of the rainbow bridge metaphor may therefore be to prompt practitioners to reflect on current views of "best practice" in relation to organising student support services and consider what new knowledge or "higher awareness" they have gained in relation to flexibility and adaptability.

### ***Planning staff development activities***

When those working in staff development are planning how to help academic staff respond to disabled students' needs in relation to e-learning, the rainbow bridge metaphor could be a useful conceptual tool in that it could prompt them to identify which stakeholders need to be involved in the planning process and to collate the views and perspectives of all the identified stakeholders. Such a process may lead them to conclude that those working in disability services and academic staff are key stakeholders whose views need to be addressed. In addressing their views they may find out important information about the value of developing strategic partnerships. For example, a review of staff development activities in relation to accessibility in e-learning (see Seale 2003b, 2006) revealed that the advantage of involving disability services in the development of staff development programmes might include:

- The provision of specialist disability related knowledge (Parker, 2001);
- The adoption of a supporting and guiding role in promoting inclusion (Middling & Bostock, 2002).

Whilst the advantage of involving academic staff might include:

- The provision of a mechanism through which staff can identify and negotiate their needs (Disability Rights Commission, 2003);
- Enabling staff to be proactive rather than reactive in their responses to the requirements of accessible e-learning (Herrington, 2000).

Evidence from a survey by Parker (2001) would certainly suggest that staff developers would benefit from the specialist knowledge that disability officers have. Parker describes a small survey of staff developers in the UK higher education sector, aimed at exploring current awareness and knowledge of disability access in higher education amongst those

responsible for mainstream or non-specialist staff development. Although a majority of the respondents were familiar with the general difficulties encountered by students with disabilities and the strategies required to address these, awareness of disability-specific difficulties and strategies, was less widespread among respondents. Most respondents indicated that there were issues of access to learning and teaching for disabled students for which they needed staff development themselves and six of these mentioned contact or support from staff experienced in disability.

An example of staff developers working with the disability officer community is provided by Middling and Bostock, (2002) who describe how part of the response to the Special Educational Needs Discrimination legislation at Keele University has been to develop programmes jointly between disability services, staff development teams and departments themselves. They argue that by working with departments and disability services, staff developers have enabled them to develop their approach to inclusion with support, advice and guidance.

The Disability Rights Commission (2003) in the United Kingdom recommend that staff developers work with academic staff by using examples or facilitators from the relevant academic discipline so that it is more relevant and credible or involving staff in audits of provision or expertise, so that they become aware of their own development needs. Herrington (2000) proposes an organic model of staff development that involves working with staff to determine the change agenda, shape and make decisions and create ongoing paths of development. Herrington argues that much of the existing staff development provision in relation to disability does not really address how "hearts and minds" can be changed across an institution. Examples she gives include: awareness raising courses/events which are attended by staff on a voluntary basis; staff training sessions on policy and procedures regarding disability; disability slots in existing courses; training of designated departmental/faculty special needs staff and specialised accredited disability courses/modules.

Herrington argues that the organic model of staff development goes further in that it provides a mechanism through which groups of staff can identify their own required levels of awareness. The model includes key elements such as staff should not be told what to do to develop their own services and must *own* their own changes and staff have to feel free to develop their own resourcefulness instead of feeling that they must always do some "right thing" regarding disability, if only they knew what it was.

Once the views and perspectives of all the identified stakeholders in staff development have been collated, the rainbow bridge metaphor could also be valuable in that it may prompt those responsible for planning staff development to re-evaluate their goals and consider that bridging the gap may involve:

- "Joined up thinking" in relation to the collaboration of different university services;
- Adopting encouraging rather than coercive strategies for getting academic staff to engage in accessible e-learning related staff development activities.

Such considerations may result in challenges to accepted notions of how to approach staff

development (e.g., focusing on learning rather than training; Wray, 2002) as well as challenges to assumptions about the role of staff developers (e.g., that there may be a role for staff developers to act as catalysts in getting different stakeholders into a dialogue; Phipps, 2002) The final contribution of the rainbow bridge metaphor may therefore be to prompt practitioners to reflect on current views of best practice in relation to staff development and consider what new knowledge or higher awareness they have gained in relation to strategies and partnerships and how much responsibility and choice academic staff are given regarding making e-learning accessible.

## **Conclusions**

Nardi and Day (1999) argue that the purpose of a metaphor is to steer us to think about something in a particular way. The purpose of the rainbow bridge metaphor is therefore to steer our thinking about accessible e-learning away from trying to prove or argue that there is an accessibility problem in e-learning (because this is largely uncontested now) towards thinking in more depth about how to solve the problem. In doing so the rainbow bridge metaphor encourages researchers and practitioners to consider the different stakeholders in accessible e-learning and acknowledge their different viewpoints and perspectives. The rainbow bridge metaphor is therefore a valuable one to apply to accessibility and e-learning because it challenges and expands conceptions of *best practice* as being more than adopting a universal design approach where "improving accessibility of online learning for students with disabilities will promote best practices in online learning for all students" (Kinash, Crichton & Kim-Rupnow, 2004, p5). Whilst best practice might include some element of universal design, the rainbow bridge metaphor offers a broader conception that offers higher awareness or better understanding through the promotion of both universality (unity) and diversity.

The metaphor of a rainbow bridge helps us to conceptualise who needs to be involved in achieving the goals of accessible e-learning practice and to argue that the development of successful accessible e-learning practices will require these diverse stakeholders to confront and address their diverse views and perspectives and unite towards a common goal.

The bridge metaphor, with its emphasis on building and construction, positions accessibility (and inaccessibility) as a man-made phenomenon. Rainbows, on the other hand are a natural phenomenon. Therefore, by extending the bridge metaphor, the rainbow bridge metaphor positions accessibility as both a natural and man-made phenomenon. Natural in the sense that some of the solutions to making e-learning accessible are common-sense and may be taking place already (e.g., developing a learner-centred approach that addresses the needs and experiences of students with disabilities). Man-made in the sense that other solutions will take a greater amount of planning and consideration (e.g., reconciling the apparent conflicts between universal and holistic approaches to design).

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