

Pedagogical Perspective on Inclusive Design of Online Learning

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Abstract

This work focuses on the pedagogical perspective that teachers in Higher Education adopt when developing accessible online learning experiences. To date the research has reviewed various approaches toward implementing accessible online learning and guidance offered to Higher Education teachers. This was found to be mainly targeted toward technical accessibility for developing online resources with less on providing accessible pedagogy. Approaches that do consider the teaching context focus heavily upon learners' needs. A simpler model is proposed which places inclusive learning as the main aim and incorporates the support needs of teachers beside those of the learners. Indeed, initial research has shown that teaching staff require help in creating accessible learning experiences, not just resources.

1. Introduction

In Higher Education (HE) there has been a shift of emphasis from 'teacher' to 'learner-focused' approaches to educational practices. Similarly, in designing computer-based educational resources, the focus has shifted from technology and its potential to starting from the learners' individual needs to ensure accessibility. We argue in this paper that accessible design approaches should be underpinned by effective pedagogy, that 'learning' is therefore at the centre of the system that encompasses learner, technology and discipline learnt, and that the teacher has a key role to play in this system.

In fact, we advocate an approach to designing accessible computer-based learning and teaching resources that encourages *inclusive* learning, i.e. learning that does not discriminate against anybody in terms of educational strategies. For this to happen, HE teachers need to be supported to engage with

accessibility issues in a *systemic* manner and to integrate resources in a wider pedagogical framework.

2. Perspectives on Accessibility

There are two major theoretical perspectives for meeting the needs of learners with special needs: medical and social. The medical perspective is concerned with responding to the specific needs of people with disabilities through adapting the design of a product or service to accommodate for individual needs. These approaches mainly discuss 'accessibility'. The social perspective is linked to the ideal of the egalitarian society and involves planning to meet the needs of all people (including different cultures, ages as well as disabilities) in the design of products to be 'inclusive'.

Both perspectives are enabled with design paradigms that provide solutions to a design problem (such as responding to the needs of disabled people) through a model or approach.

The majority of guidance for teaching staff in delivering accessible online learning has been predominantly influenced by Web design paradigms with technical outcomes. We will now discuss how such accessible Web design perspectives emphasise technical access to resources in Higher Education.

3. Approaches to Web Accessibility in Education

Since the introduction of the Special Educational Needs and Disabilities Act [1] in the United Kingdom specific guidance on creating accessible learning resources has emerged within an educational setting that have incorporated Web standards described, for example in the Web Accessibility Initiative (WAI) [2] content guidelines. The WAI provides a technical concept of accessibility and emphasises access to the Web and interaction with content; as their definition

states, ‘Web accessibility means that people with disabilities can perceive, understand, navigate and interact with the Web’. The WAI guidelines and recommended techniques do not provide specific support for teachers working with learners, but guidance for Web developers working with Web content.

In our view we need to move beyond just considering Web standards and toward a *pedagogical* perspective of accessibility. Academics will require appropriate support to ensure that pedagogically sound activities and resources are not immediately discounted because they are potentially non compliant to standards. Approaches are emerging which seek to enable teaching staff to develop accessible solutions to prepare for the diversity of learners’ needs. Two such approaches are now discussed.

3.1 Holistic Framework

The ‘holistic framework for e-learning accessibility’ [3] incorporates a number of elements that impact on accessible learning. It considers the usability of resources, pedagogical aims and infrastructural and resources issues, with the aim of creating solutions that are appropriate to learners’ needs.



Figure 1: A holistic framework for e-learning accessibility

As can be seen from figure 1, the holistic approach places learners’ needs at the centre of the accessibility framework.

3.2 Accessibility Challenges to Blended Learning Model

In a blended learning environment the teacher combines electronic modes of delivery and traditional teaching methods in order to provide an effective learning environment in which the learners can meet the required learning outcomes. The model for ‘identification of challenges to blended learning’ [4] provides a starting point for identifying key issues or challenges to accessible learning, and instigates a

solution from a socio-cultural rather than a medical perspective.

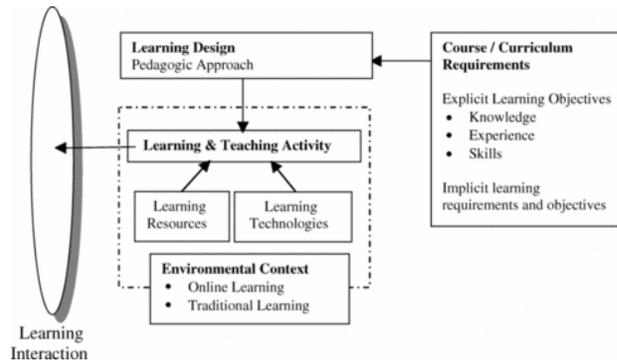


Figure 2: A model of the challenges to blended learning: from the teacher’s perspective

The model has consideration for the perspectives of both the learner and the teacher. Shown in figure 2 is the teacher’s perspective, the role of which ‘is to facilitate learning, through the facilitation of learning interactions’ [4]. From the teacher’s perspective, the model includes many essential aspects: the impact of the curriculum, learning designs, learning activities and the environmental context on the learning interaction.

4. Evaluation of Accessible Approaches

We suggest that the two models discussed above go some way to including learning into ‘accessible’ online teaching practices, but then still overemphasise learners’ needs and interaction with resources. Both the holistic and ‘blended-learning’ perspective for accessibility include the teacher as decision maker for developing activities that match the needs (or interaction requirements) of learners, but they do not include guidance for the teacher in the process.

The teacher in the constructivist role of facilitator requires support to make appropriate decisions that facilitate *effective* learning, especially as learners’ needs are diverse and often develop in unpredictable ways.

Approaches to accessibility are poorly supported by learning theory, being predominantly based upon learner-resources interaction, and focus on providing staff with the technical skills to develop more accessible resources rather than more inclusive learning. As there are many forms of online learning activities that require a wider range of interaction requirements [5], approaches need to consider more than access to resources.

In fact, the previous emphasis on Web standards has influenced responses to accessible online learning as a technical problem, to be solved via the implementation of technical adaptations to resources. We agree that all online resources should be developed to be as accessible as possible, however, the role of teachers is to provide inclusive and effective learning opportunities, and not necessarily to develop 'compliant' Web resources.

5. Accessibility Practices in Education

Previous studies on accessible teaching approaches have identified barriers for teachers and support issues. An earlier survey of accessibility practices found low awareness of WAI guidelines [6]. Furthermore, an evaluation of teachers practices' following on from staff development workshops (centred on awareness raising of disability issues and Web authoring skills) reported 'little evidence that teaching staff have taken the issues on-board in long-term practice' [7]. More recent research has found that 'the most significant among the barriers reported were the lack of an inclusive mindset, lack of knowledge about pedagogy, high teaching loads, and lack of time for instructional development' [8]. Our work follows on from such research and also identifies the range of practices across our institution. Furthermore, we have asked teaching staff about their concepts of accessibility and support issues in developing accessible online learning.

6. Study of Accessibility in a Higher Education Setting

To ascertain the required support that HE teaching staff need in implementing accessible pedagogy and to develop a model for such support, a survey tool was employed amongst teaching staff to establish current accessibility practices. This was followed by interviews to establish their support needs in developing inclusive learning experiences.

6.1 Accessibility Practices

A survey tool was distributed amongst an opportunity sample of teaching staff at the University of Teesside from across each of the six Schools encompassing a wide range of subject areas. The survey was distributed both on paper and through an online survey tool (StellarSurvey.com). The respondents (n=70) were skewed towards the School

of Health and Social Care, the largest School within our institution.

6.1.1 Definitions of Accessibility. Teachers were asked to define what 'accessibility' means to them. Their definitions are broadly categorised into two groups: those who regard accessibility as an important parameter in providing a learning experience and *opportunity* to learn and those who see it as the *provision* and *access* to learning resources. This suggests that many teachers see accessibility as a learning issue but that others are aware of problems with access to resources.

6.1.2 Awareness of Disability. Teachers' awareness of learners having a disability is very high in our survey (84%).

6.1.3 Roles and Responsibility. Most teachers see themselves as responsible for adapting their own learning resources for accessibility. However, they also see others as responsible, in particular colleagues with the role of coordinating the requirements of disabled learners in addition to software provision, the learners themselves and central support units. The range of those with 'responsibility' also indicates the wider community in which the teachers work and suggests both potential and actual support mechanisms currently available for providing accessible learning. As one respondent commented, 'everyone is involved, it is a team effort'.

6.1.4 Online Accessibility Practices. Teachers report that they have an awareness of online accessible practices. However, whilst most say that they regularly provide resources in advance, in multiple formats and with consideration of colour contrast, many do not implement techniques recommended in the WAI guidelines such as Alternative Text Descriptions (ALT), text summaries or captions to media. This suggests a lack of ownership of the more 'technical' aspects. For example not providing ALT tags on online images suggests that teaching staff have little awareness of its function or how to apply it to images, or they do not see the relevance of descriptions on image resources for educational purposes. The types of learning resources that teachers develop themselves mainly includes digital presentations and word-processed documents. Resources are more widespread than online activities supported through the institutional online environment. Discussion boards are identified as the most used communication activity.

The results overall indicate that actual practices are not as high as reported awareness in relation to accessibility.

6.2 Support Provision

Nearly all the respondents to the questionnaire say that they would be more likely to adjust learning resources for accessibility if they had further support to do so (84%). The attitudes for the suggested preferred support provision are very positive. Perceived as the most useful are 'expert advice', 'a technician' and 'online templates'. Guidelines and workshops are rated as slightly less useful and some teachers indicate that they do not understand the meaning of 'pedagogic planning tools'. Follow-up interviews were conducted to define further appropriate support options. They identified that the first source of support for most teachers is their peers or expert advice (for example from an E-Learning team), primarily due to the speed of response and high levels of individual support. Most felt that they would benefit from guidelines and workshops but only if timely and closely related to their own circumstances.

The majority of teaching staff did not initially plan for accessibility requirements. Some, especially those from more technically aware computing backgrounds, implemented 'basic' design considerations; for example using recommended fonts and text sizes. Some indicators of initial planning for accessibility via pedagogy were identified:

'I use a lot of different teaching methods so I hope that by providing a wide approach or a variety of learning materials this makes it more accessible.'

Another interviewee tended to realise that there was an access problem when responding to the specific need of a learner:

'I dynamically might produce something or change things there and then, or if I can't do that I'm thinking about next year, can I maybe do something differently.'

This suggests that responding to a particular need can lead to a more planned and *inclusive* approach.

The interviews also show a shift in educational practices from a traditional lecture and seminar approach to a more project- and activity-focused approach. This change brings its own challenges and teachers' expressed concerns about overloading learners and finding 'the right balance' when designing

learning activities and varied pedagogical approaches. This further confirms that staff need support in moving toward a more constructivist learning environment.

6.3 Summary of Results

This research suggests that, in our institution, practices such as providing alternative formats in advance and not on request are on the increase, in particular offering alternative audio resources and allowing learners to record work orally. There are early indicators of emerging inclusive practices amongst some teaching staff, mainly as a consequence of heightened awareness from responding to learners' specific needs. Such awareness raising results in a better planned approach for 'next time' and a consideration of 'how to do things differently', leading to the provision of alternative forms of resources. The results support previous studies in the lack of 'inclusive mindset' [8] being a barrier to inclusive practices amongst some teachers. This study also highlights the problem teachers have in implementing the WAI guidelines and specific techniques into their own educational practices. In addition we found a lack of planning for inclusive learning experiences at the module design stage across a wide range of subject areas. These findings support our proposal that there is a need for further staff support to develop such an approach.

7. Pedagogical Perspective

We propose that as well as the medical and social perspective discussed, in an HE context there is a need for a pedagogical perspective on accessibility for teaching staff to respond effectively to the diverse needs of learners. The pedagogical perspective emphasises learning and the design of an accessible curriculum. Technical accessibility of resources is also included but only as a meaningful aspect of a well designed curriculum that aims to meet the *learning* needs of learners.

7.1 Effective Curriculum Design

To achieve the aim of accessible pedagogy, a solid pedagogical framework is required. Biggs's, 'constructive alignment' model [9] describes effective pedagogical design as one which provides consistency between the curriculum, the teaching methods, the learning environment and assessment procedures, and how together they scaffold learning. The model emphasises the importance of defining the learning

outcomes and designing learning activities that give the learners the opportunity to learn. Biggs uses the term ‘constructive alignment’ to indicate an assumption that the alignment process or design decisions should be based upon a constructivist framework. This model emphasises the role of the teacher not only as a facilitator of learning, but, more importantly, as a designer and ‘scaffolder’ of learning opportunities. We suggest that a model of learning-centred accessible pedagogy needs to be based on such an approach to curriculum development.

7.2. Proposed Model

The research advocates a paradigm shift in relation to the way accessibility is conceptualized in HE. A simple model is proposed in figure 3 which emphasises effective learning as the primary objective of any design algorithm.

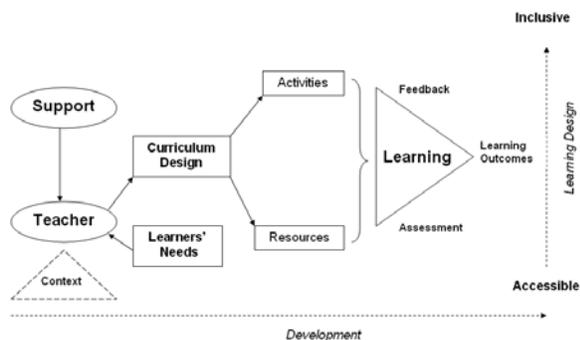


Figure 3: A pedagogical model of inclusive learning design

Underpinning this model is the need to promote acceptance of accessibility as integral to *any* design of *any* learning opportunity in *any* context for *any* learners. HE teachers should be helped to reframe their conceptions of ‘accessibility’ into a pedagogical perspective which emphasises design of an *inclusive* curriculum.

10. Conclusion

Staff development about accessibility in education is poorly supported by learning theory. Training tends to provide staff with technical skills to build increasing access into resources. Much accessibility advice is about learner-resources interactions and current approaches to educational development in e-learning are predominantly focused upon creating accessible *materials* and the support needs of the learner. This

research promotes the development of planned inclusive *teaching* practices that foster constructivist learning, which Papert and colleagues describe as ‘constructionist’ [10].

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