Peer-to-peer accessibility in social networks

This paper explores how web accessibility can be socially mediated by peers within social networks, using evidence from research with disabled students at UK Universities.

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This paper considers the influence of peers on disabled user's experiences of accessibility in the social network Facebook. It highlights the positive role that friends can play in mitigating inaccessible systems. It also highlights the importance of social dynamics for acquiring access to digital domains. This contrary observation - that disabled users with greater social resources will be better able to access and develop online social networks – suggests a digital divide that is, as yet, under researched. The paper uses findings from doctoral case study research with disabled students at UK universities to identify social aspects of accessibility and how these manifest in disabled students' experience [1].

Network Accessibility

Levels of accessibility and inaccessibility within social networks such as Facebook are now increasingly well documented. Social networks are umbrellas to a host of different social tools and, whilst some progress has made over recent years [2], these dynamic environments continue to present a host of barriers that exclude users with disabilities [3,4]. As networks become increasingly enmeshed in the fabric of the Web, inaccessibility and attendant restrictions of social functions mean there is a danger that disabled people may be limited in the interactions they are able to participate in, or even perceive. This can place disabled people at a significant social disadvantage as networks become ever more integrated with everyday life.

Social Accessibility

Many factors have a significant bearing on the accessibility of social interactions. Technical aspects of accessibility include the modality, perceptibility, operability, usability and robustness of an interface amongst supporting technologies. Users' capabilities and attitudes are also key, comprising aspects such as digital literacy and digital agility [5]. The user's immediate environment, their socio-economic and cultural context also represent the frame within which accessibility is experienced and understood [6]. All have a significant bearing on the social network interactions available to disabled users. However, whilst many commentators accept that the web is now a social platform, identifying the particular challenges that this represents to accessibility (for example, in terms of marshalling user generated content), the role of *peers* in this accessibility matrix has yet to be fully investigated.

Peer-Influence

Over the course of 34 internet-enabled interviews with 18 disabled students at University in the UK, peer influence was demonstrated to profoundly affect

experiences of disability and accessibility in social networks. Results demonstrated repeatedly how peer-influence both positively and negatively affected their network activity. Peers are not passive –interventions through invites, comments, posts, tags and so forth can knit a network together. The resulting interactions can have both positive and negative outcomes for both disabled identity and accessibility.

In negative terms, social networks establish socio-technical norms that evoke conditions of 'normalcy' leading to disability being commonly experienced as a deficit, stigmatised and discredited identity. This social effect leads to a pressure to behave and perform according to external, non-disabled norms by 'doing normal' [7]. As a result some of the disabled students interviewed decided to forgo the use of assistive technologies to promote a 'normal' identity amongst their non-disabled peers, (echoing research by [8]).

There are however, also positive aspects to the social mediation of social media, which demonstrate how the social web can mitigate disabling barriers within sometimes inaccessible systems. These fall into three broad spheres, social accessibility, proxy accessibility and peer-to-peer accessibility.

At the macro level *social accessibility* can describe online community-based approaches to accessibility that seek to harness the social web by crowd-sourcing skills, knowledge and expertise for accessible outcomes on demand [9]. Initiatives using this approach include Fix the Web [10] and the Social Accessibility Project [11]. Social accessibility flattens hierarchies of development to create, advocate and hack for accessibility.

Proxy accessibility describes a more local use of social resource that many disabled people utilise to access inaccessible web resources and services. The proxy is the friend, relative, carer or other mediator who can step-in in an otherwise inaccessible situation to achieve specific goals on the user's behalf.

Again at the local level, *peer-to-peer accessibility* relates to a disabled users' immediate social circle. Within accessibility research, peer-to-peer interventions are perhaps the hardest to evidence. Networked peers may spontaneously re-mediate experiences of inaccessibility and contribute to disabled users' digital resources, but may not understand their own actions within this conceptual frame. It is peer-to-peer accessibility to which this paper now turns, using a case study to ground discussion.

Case Study

'Claire' is a 3rd year full-time postgraduate. In her own words she has multiple impairments including visual and hearing impairments, mobility impairments and cognitive impairments including depression and anxiety. She uses Facebook and Twitter for social interaction with colleagues and friends. She says:

> "Well, it's [social web] so important to me, because it's much easier for me to communicate through the computer"

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Claire employs a mix of technologies when accessing the web for both work and socialising. These include a screen magnifier, screen reader, bespoke style sheets and hardware adaptations. Claire found Facebook difficult to access, perceive and negotiate using her assistive technologies, describing it as a 'blur'. To gain entry to Facebook, she had drawn upon proxy assistance to negotiate both the audio and visual CAPTCHA.

Onscreen, Claire's pages featured overlapping and incomplete labels and forms, missing functions and hidden content. As a result she could not perceive the 'Wall', a key location of public social interaction in Facebook. She demonstrated her first Wall-to-Wall conversation with her friend Jane, illustrating a key social intervention in accessibility and her resulting experience of Facebook.

> Jane Smith, wrote at 10.52 on 25 June:
>
> > Nothing on your wall!!! Outrageous!
> > How are you?
>
> Claire Williams, wrote at 12.43 on 25 June:
>
> > Thanks for writing on the wall I didn't even know I had! Can't wait to see your kitten. [...]

This exchange demonstrates several facets of Claire's experience and use of Facebook. Firstly, she was not aware of her Wall until an email notification alerted her to the fact a Friend had posted on it. Until this point the Wall was imperceptible. As a result, Claire was reactive rather than a protagonist within her own Profile. The lack of Wall activity is perceived and interpreted by Jane who acts. Jane's Comment achieves several ends; she scaffolds Claire into more 'usual' Facebook behaviours by humorously highlighting a Facebook convention (Wall activity) and eliciting a Wall-to-Wall conversation with a question. Jane's comment also evokes norms and deviance, but with comic overstatement that challenges such conventions. In this way she humorously subverts the interpretation of a silence that may be perceived by a wider public as deviant or anti-social. Jane also breaks this silence. This re-frames Claire's lack of Wall activity to a wider public, refuting any negative interpretation a visitor to Claire's profile might make by highlighting the ridiculousness of such judgements and offering evidence of connection. In this way, Jane's actions allow Claire to traverse a significant accessibility barrier and break into mainstream patterns of activity. Jane is not simply acting as a proxy by relaying information. She is actively scaffolding Claire across a disabling barrier and into the network.

This is one example of a way in which pro-social architecture supplies a new accessibility resource to a disabled user. It suggests that design can allow non-expert peers to intervene in user experience. Clearly, developing accessible services for disabled people is paramount; however, Claire's experience may gesture to ways in which accessibility may be enhanced as a distributed social function.

Simultaneously, however, it is clear that peer-to-peer and proxy accessibility are dependent on a pre-existing social circle, suggesting social capital is necessary for

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digital capital to be accrued. It is hoped that this paper and presentation will highlight this emergent vista in accessibility research.

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