The User Paradigm

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Abstract. Universal Design is challenged by accessibility experts for not delivering accessible outcomes. Returning to why Ronald Mace introduced Universal Design, we argue that this critique misreads its purpose, and that the starting point of a design process largely shapes what the design can deliver. Building on a harmonised model of accessibility, usability and universal design, we read the model in two directions and ask two questions: what is the role of the starting point of a design process, and what do accessible, inclusive and universal design share? We find that a compliance-driven starting point adds complexity and risks designing for disability rather than for equitable use, while usability is the concern the three approaches share. Starting from usability and equitable use keeps accessibility within reach for everyone.

Keywords. Universal Design, Inclusive Design, Accessible Design, Usability, Disability

1. Introduction

Returning to the beginnings of Universal Design's (UD) [1] development closely connects us to the present, where accessibility compliance revolves around standards. We notice increased criticism of Universal Design making a serious point: designing 'for all' can, in practice, negatively impact specific requirements that make an environment usable for particular people with specific disabilities, so that a single solution risks serving no one well. What this critique overlooks is one of the main reasons Ronald Mace introduced UD in the first place: that accessibility standards themselves created barriers to designing buildings that are attractive and usable for everyone, including people with disabilities [2].

The paper is based on the model introduced by Hedvall et al. in 2025 [3]. This model will be discussed, highlighting two key components currently impacting accessibility and disability advocacy: Compliance and User-Driven development. We aim to contribute to the debate between the different design communities and bring the User Paradigm back to the centre again by answering two questions:

1. What is the role of the starting point of a design process?
2. What do the three design approaches accessible-, inclusive- and universal design share?

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2. What is the role of the starting point of a design process? What do the three design approaches accessible, inclusive and universal design share, Three Concepts: Accessibility, Usability, and Universal Design

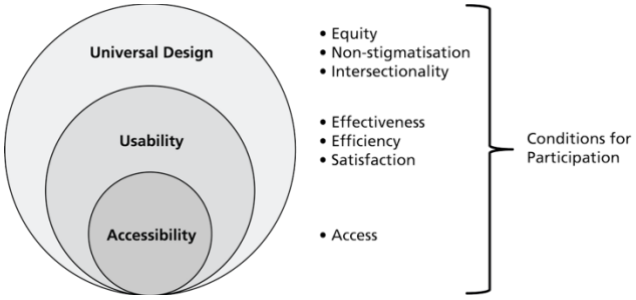


Figure 1. The three concepts – accessibility, usability, and universal design – with their focus areas and how they relate to the conditions for participation. [3].

The model above by Hedvall et al. [3] describes the scopes and relationships between the three concepts Accessibility, Usability and Universal Design. The outer layer is Universal Design, a design embracing equity, non-stigmatisation, and intersectionality. The second layer concerns usability with a focus on effectiveness, efficiency, and satisfaction. The third layer is about accessibility, focusing on access. Together, these 3 influence the conditions for participation (Figure 1). One of the main points of the article is that all three concepts are needed, since they have different scopes and focus areas:

> "The participation of all is the ultimate goal of society. Universal Design is the value-based vision and approach to design grounded in human rights that, through intersectionality and involvement, should permeate all aspects of society to create the best possible conditions for participation for all citizens. Accessibility and usability are tools for operationalising and translating universal design into practice, applicable at the individual, group, and societal levels." [3]

This knowledge base is important for assessing how accessibility is incorporated in UD, emphasising the importance of equitable use, without stigma – using a different entrance because you're a wheelchair user, for example, can be experienced as stigmatising. Respecting intersectionality and thus all differences in humanity. Where usability focuses on effectiveness – does it do the job, and efficiency – does it work as intended, and finally satisfaction – does it work in a way that the user is experiencing the use as satisfactory. Accessibility deals with to what extent something can be accessed and used. When working with Universal Design, one key factor to be considered is including persons with all kinds of disabilities, and persons without disabilities throughout the design phases to reach a usable design for persons with and without disabilities.

3. What is the role of the starting point of the design process?

Two "threes" run through this paper and need to be kept apart: the three concepts in the model above (accessibility, usability and universal design) name nested scopes, whereas the three design approaches discussed next (Accessible, Inclusive and Universal Design) are distinct ways of working that prioritise those concepts differently.

With this UD synergetic approach above in mind, we are moving to the compliance-driven environment and how this has evolved over the last years. The starting point in the design approach impacts the outcomes for usability and design-for-all consequences. The stronger the focus on standards and compliance, the more a design becomes disability specific instead of being centred on equitable use.

3.1. Accessible Design

In the slipstream of increased accessibility regulation such as the European Accessibility Act (EAA) [4], standardisation has become a tool for assessing compliance with these regulatory requirements. Where standardisation is a great tool for assessing if your design is compliant with legislation, standards can be challenging when aiming for design-for-all from a user perspective. Because a standard sets a specific criterion for accessibility, for example, the height of a seat, which is based on average length and is not comfortable for people who are shorter or longer. In this case, the compliance-driven approach prevails over the users' potential differences – differences in length of individuals using the seat. The approach for this design approach is captured in Accessible Design, setting the standards, creating the possibility of assessing and measuring if a design is compliant with the guidelines, standards, and thus legislative requirements in today's society [3].

The result of these recent compliance-driven approaches accelerated the dominance of the Accessible Design paradigm. Without realising that when starting to design from the standards, the outcome often does not serve all. This seems to be an approach fed by the interpretation of accessibility legislation that standards are leading in deciding if a product, service, etc. is compliant or not – which is crucial for the legislative compliance-driven approach. This relates, for example, to discussions about the scope of the EAA, set out in Article 2: a defined list of products and services, from computers and self-service terminals to banking and e-commerce, rather than the built environment as such. Realising that physical products like the seat in the example above fall outside this scope, the built environment is only conditionally covered, at the member states' discretion, under Article 4. It does support our reading that this approach is resulting in a strong focus on compliance with standards and compliance checks, while user experiences move to a secondary role.

3.2. Inclusive Design

Next to Accessible Design, there is Inclusive Design as complementary to UD. This design approach is based on three dimensions: 1) recognising diversity and uniqueness, 2) inclusive process and tools, and 3) broader beneficial impact [5]. Where accessible design starts with standards, inclusive design starts with respecting diversity, the "one-size-fits-one configuration or consideration within an integrated system" [5], emphasising individualisation and flexibility in a design. This is done by bringing together the right group of representatives. The aim of the design is to be as accessible and usable as possible, and should become more usable by adding more perspectives in the design process. The outcome should be designing in the margins with the long-term impact in mind. Where this design process – when recorded properly – does show the proof of compliance, and in cases where standards fall short, the need to deviate from the standards.

This design approach pushes diversity to the frontline of the design process. The process of designing with a wider variety of users and using tools to create the one-size-

fits-one configuration brings the standards into the design process. This should result in an outcome in line with accessibility legislation compliance, too. Like Accessible Design, Inclusive Design can be connected to Section 1 in the EAA on the general accessibility requirements, maximising foreseeable use by persons with disabilities. Because the compliance requirements are put at the centre of design. Concluding that, where in Inclusive Design the starting point is personal fit in design, compliance with standards is the intended result of a well-evidenced design process.

3.2.1. Risk of exclusion by inclusion

We notice that both Accessible and Inclusive design approaches often result in an exhausting design process, creating the risks of servicing one user group at the cost of other users, e.g., the ramp which blocks the tactile guideline or creating an accessible product for people with disabilities, which is unusable for people without a specific disability. In both cases, equitable use is seldom the outcome of the design process.

3.3. Universal Design

Where Accessible Design starts from compliance with standards, and Inclusive Design starts from the people in their variety of users and uniqueness, connecting evidence-based design to standards and compliance, Universal Design starts from the perspective of intended equitable use of the design.

Putting equitable use and, with it, flexible use of the design at the centre, with the question: what is its intended use? Pushing the User Paradigm to the centre, aiming for an equitable experience, flexibility for different users, and, where needed, supported by accessibility tooling without excluding other users from an equitable experience.

3.3.1. The Impact of Reading The Three Concepts Differently

This brings us back to “The Three Concepts”, we started with. We read the model in two directions (Figure 2): The standard UD approach (arrow pointing down), referencing equitable use as the starting point and closing with accessibility as an evidence-based outcome of a complete UD process. Bringing in a new perspective on reading the different scope levels of this concept. Reading the scope levels in the opposite direction, inside out (upward arrow), reveals a compliance-driven environment, ensuring that Universal Design complies with legislation.

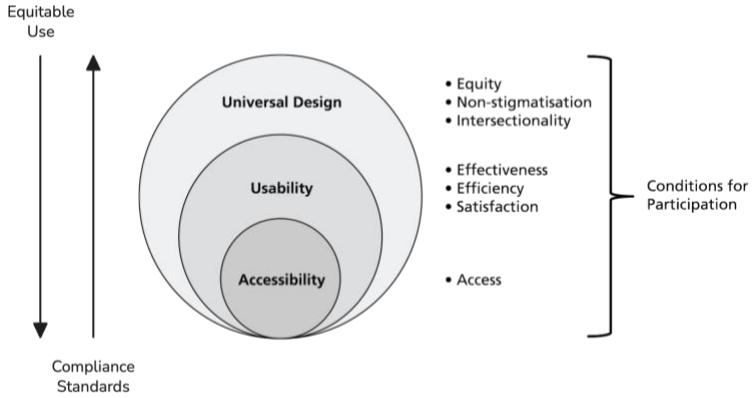


Figure 2. Reading the model in two directions — equitable-use-first (down) and compliance-first (up).

3.4. Designing from a compliance perspective adds to complexity

Reading the model in these two directions shows the complexity of a compliance and standard-driven approach in the design process. Starting with standards narrows the potential of wider use than the subjects of the standard. While starting with equity in mind, accessibility should be part of the thought process assuring equity is granted for persons with disabilities. By emphasising the importance of the User Paradigm, starting a design process, equitable use must include access for persons with disabilities and increase the chance of innovative solutions improving accessibility of the design outcome. This, in turn, can result in future updates in standardisation, ensuring the 'design for all' approach as intended by the EAA [4].

4. What do the three design approaches share?

Next to increased complexity, the compliance-driven approach based on standards and regulatory requirements could result in increasing disappointment of the disability community, for the simple reason that meeting an accessibility standard does not equal optimal usability. For example, while the WCAG standard sets a framework for what is required to pass a measurement, it does not grant usability [6].

This is one reason this paper looks at accessibility compliance from a different angle, with equitable use at the centre. The EAA itself can be read this way. Recital 50 does not mention usability, but it frames Universal Design as a way of removing barriers and "ensuring access for persons with disabilities on an equal basis with others." [4], setting equitable experience as the starting point. The functional Performance criteria in Annex 1; Section VII of the EAA are likewise concerned with usable outcomes for persons with disabilities, in contrast to the product-compliance requirements of Annex I, Section I, which ask only that products "maximize their foreseeable use by persons with disabilities." [4]. Applying Universal Design as Ronald Mace intended means that this foreseeable use by persons with disabilities should be part of the Universal Design Process, and where needed, supported by accessibility tooling such as braille devices, screen readers, speech devices, or services like sign language, respecting the individual requirements of persons with disabilities where universal design fails to serve usability in an equitable manner.

4.1. When usability meets compliance

Centring on usability connects to the aim set by Inclusive Design – designing with human diversity in mind. This design approach is focused on the persons using the design instead of the intended purpose of the design, which is one reason why the design process can become exhausting. Because new uses can be introduced and become part of the design process in an endless cycle, diversity also brings in new perspectives on what use a design can result in.

Turning to Accessible Design, meeting the standard and legislative requirements is crucial, and this in turn puts the standards above the user and the intended use of a design. It is possible that this approach can result in designing a product within the standards and reduce usability because it cannot meet the standards.

Looking at design from a UD process approach, the usability of the product lies at the heart of the design. Applying The Three Concepts, equity is the starting point of a design process. Equity is also at the heart of the UN CPRD's goal, on which accessibility legislation is based, and ensuring that no stigma is created and that equity is granted across the intersectionality of the diverse disability community.

For those concerned that accessibility is not included in Universal Design because it focuses on one design for as many users as possible with as limited accessibility tooling as possible, the importance of the 'Access' layer in 'The Three Concepts' model [3] comes into play. When a design process – of course, including all relevant user types – starts from equity for all users, moving to an effective and efficient design from a usability perspective, it is the final step to accessibility. If you have the right representation in your design/testing team, accessibility should be included in the usability of the design within the intended use. In this case, it is a final check to see if the design is compliant with the standards, and if it is not, you have the recorded design process to prove that your design outweighs the standard because it is usable in an equitable manner for everyone. In some cases, it might result in assuring accessibility is met by connecting to specific tools used by persons with disabilities, such as text-to-speech software, reading out text for people experiencing text as inaccessible, or providing text in braille for people who are blind.

4.2. Equitable use at the heart of the design

Viewing the three design approaches: Universal-, Inclusive- and Accessible Design as distinct and possibly complementary approaches, instead of mutually exclusive approaches, it is clear that these approaches have the commonality of usability as a shared concern. Usability is shared as a common criterion rather than a common starting point: Universal Design starts from a design's intended use, Accessible Design from the standard, and Inclusive Design from the diversity of users. The huge difference in the approaches lies in the starting point, the complexity of the design process, and the fact that they can result in totally different outcomes. Instead of the claim that only one of the design approaches is the perfect solution for accessibility by design.

The effectiveness of a design highly depends on the user's intent, and this is what equitable use should be about. Universal Design must extend the usability of products and services to persons with and without disabilities alike, so that everyone's experience of using them is equitable.

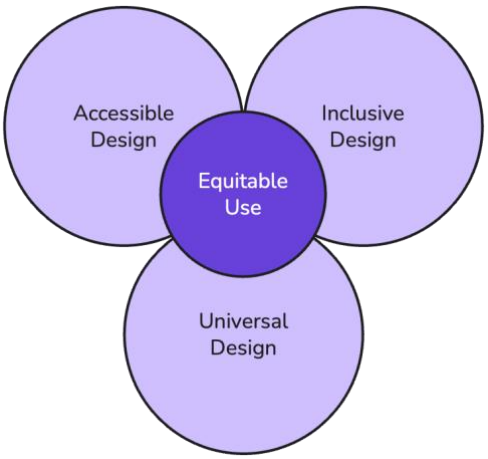


Figure 3. Equitable use as the shared concern across accessible, inclusive and universal design.

Where standards contribute to measurable compliance, usability and especially equitable use contribute to feelings of being included by design, as intended by the UN CRPD. Adding to that, equity highly benefits the important rights of persons with disabilities:

- Equitable use reduces the risk of bringing integrity at risk, reducing the need for persons to ask for accommodations and declare their disability.
- Equitable use also promotes the privacy of users, because they do not need to declare their disability, explaining why they cannot use a product.

5. Concluding Discussion

We started this paper by initiating a discussion exploring two key components currently impacting accessibility and disability advocacy: Compliance and User-Driven, respectively, aiming to answer two questions: 1) What is the role of the starting point of a design process? 2) What do the three design approaches Universal-, Inclusive- and Accessible Design share? Contributing to the debate between the different design communities.

Answering these, this paper shortly dove into the origins of UD in relation to accessibility by moving the use and users back into the dominant paradigm of the question why Ronald Mace introduced UD in the first place: "Universal design is simply a way of designing a building or facility, at little or no extra cost, so it is both attractive and functional for all people, disabled or not." [1]. Thus, designing for equitable use must be accessible too.

We found that the impact of compliance-driven design approaches adds to the complexity of the design process and increases the risks of designing for disability

instead of equitable use. Where the approaches differ in starting point, the commonality lies in Usability: Bringing the user and equitable use back to the heart of the design calls for thinking about access from the start of any design process. Here, the 'Three Concepts' model by Hedvall et al. [3] offers a welcome scope overview, describing how UD results in accessible and usable design, targeting equitable use for users with and without disabilities.

When designing with the intent of including persons with disabilities, we argue that starting with equitable use, as intended by UD, is still the least complex starting point in any design process. Aiming for equitable use for persons with disabilities from the start is also a way to manage the risks of non-compliance with accessibility legislation, and supports documentation explaining how the approach improves usability and equitable experiences for persons with disabilities if standards are not met.

Concluding that equitable use and thus accessibility is not about the design process chosen, it is about applying UD – and Inclusive Design alike – as intended, assuring that all perspectives are included from the start of the design process.

References

[1] Mace R. Universal design: barrier free environments for everyone. Designers West. 1985.

[2] Erdtman E. Universell utformning i praktiken – förståelse, genomförande och samskapande [doctoral dissertation]. Lund: Certec, Lund University; 2024.

[3] Hedvall P-O, Ståhl A, Iwarsson S. Accessibility, usability and universal design – still confusing? Harmonisation of key concepts describing person-environment interaction to create conditions for participation. Disabil Rehabil. 2025;47(25):6750–9. doi:10.1080/09638288.2025.2491831.

[4] European Union. Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (European Accessibility Act). Off J Eur Union. 2019;L 151:70–115.

[5] Inclusive Design Research Centre. Philosophy [Internet]. Toronto: OCAD University; [cited 2026 Jun 17]. Available from: https://idrc.ocadu.ca/about/philosophy/

[6] WCAG compliance does not mean usable [Internet]. Andy Scott Digital; [cited 2026 Jun 17]. Available from: https://www.andyscott.digital/thinking/wcag-compliance-does-not-mean-usable