P/REFERENCES OF DESIGN

THE CONCEPT OF 'EQUALITY, DIVERSITY, AND INCLUSION' IN DESIGN EDUCATION: OVERVIEW AND DIRECTIONS.

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ABSTRACT | The need to align teaching and learning practices to concepts that are conformed to the evolution of contemporary society, so that students can gain higher confidence in addressing the instances of future markets, requires Design universities to review their curricula. Equipping future designers with updated cultural and design frameworks is an imperative and strategic mission. Among innovative concepts that can advance Design Education and the development of soft skills in learners, 'Equality, Diversity, and Inclusion' (EDI) is today considered paramount to reorienting teaching and learning practices toward holistic educational patterns. This would allow students to gain more confidence in designing enabling products and services for all consumers, including vulnerable ones. However, EDI is an evolving and complex concept, sometimes hard to grasp. Moreover, potentially biased contents could limit its correct adoption. This work explores the concept of EDI in Design Education; it provides an overview of principal concepts and shows promising trajectories for Design studies. It follows a four-step process comprising a literature review, case study analysis, data synthesis and classification, and a discussion on promising research trajectories.

1. Introduction

The contribution of Design to the progression of global markets is today apparent (Boztepe, 2007). Only in the European territory, the Design industry significantly contributes to economic development by generating an annual turnover of circa 35 billion Euros (over 5,5% of the European business service sector) and the number of designers working in the creative industry exceeds 500.000 units (BEDA, 2018). Several authors (e.g., Cross, 2001; Lyon, 2011; Herrington et al., 2014; Noel, 2022) stated that the contribution of undergraduate and postgraduate Design programmes is paramount to empowering future generations of designers to gain novel soft skills needed to interpret present societal phenomena so that final consumers can adopt more sustainable and inclusive ways of living (Amrita & Aaron, 2021; Rieger & Rolfe, 2021). Accordingly, the Design discipline operates beyond styles and aesthetics interweaving strong ties between societal stakeholders, consumers, and economic actors (Meyer & Norman, 2020).

In recent years the raising of societal issues influenced the cultural and technical components of Design Education (Zimmerman et al., 2011). Along with sustainability, which contributed to improving the field since the '90s, issues related to the way people experience everyday life have become a grassroot from which to think about prosperity, fairness, and justice (UN, 2015; 2019). However, this culture was not only driven by theoretical speculations, but it mirrors clear market trends (e.g., Fondazione Symbola, 2023). Overall, the social dimension of the design practice is an aspect that all designers, including students, are asked to confront with because their actions determine some forms of social effects.

Among innovative social concepts that foster progressions in the body of knowledge used for skills development, 'Equality, Diversity, and Inclusion' (EDI) is today strategic to orient teaching and learning practices toward novel patterns enabling the design of products, services, and systems of solutions for all potential consumers, including vulnerable ones (Garay-Rondero et al., 2020; Amrita & Aaron, 2021). As the world becomes increasingly diverse and interconnected, the concept of EDI gains significant traction in various design fields, such as product design, service design, graphic and digital design. Accordingly, spreading the EDI concept in Design Education is vital to produce consistent and effective impacts on economies (Donovan, 2020), and this concept will be much more relevant in the future. Consistent with the vision of the Design Council in the UK (202-), to be inclusive, the Design discipline must reflect society's rich diversity and enable people from diverse backgrounds and worldviews to thrive, including people of various ages, disabilities, ethnic, social, life experiences, or cultural backgrounds.

In relation to Design Education, EDI is hinged around three relevant and clear concepts that are approached holistically regarding design practices. 'Equality' involves the conditions of fairness as well as the opportunity for groups of people to access enabling solutions that don't produce harmful conditions, or that such artifacts don't produce any disadvantageous conditions during and after their daily use (Garay-Rondero et al., 2020). Therefore, an imperative for any designer is the design of solutions that, regardless of their nature, are accessible in terms of purchasing power but also that individuals who may be disadvantaged have the resources they require to have the same, equitable possibilities as their peers. The concept of 'Diversity' strongly implies confronting with psychophysical, cultural, social, and economic differences of users that will access solutions to design (Lorentzen et al., 2018). This also accounts for the environment where actions are performed due to an 'inclusive' effect being experienced in a living context. In terms of designs, this requires designers to promote design processes by considering consumers' background, mindsets, and cultural habits to empower, even when liaising with manufacturing companies, an empowered culture of creativity and invention that recognized diversities as a value. Finally, 'Inclusion' entails setting up environments in which people feel fully appreciated, and therefore creating solutions that produce an engaging and inclusive atmosphere with solutions designed for them, regardless of their race, age, gender, psychophysical abilities, or disabilities (Holmes, 2018).

The value of promoting EDI in Design Education lies in its ability to foster inclusivity and celebrate diversity, which is an asset that expresses great potential in terms of curricula enhancement by enabling students to reduce market gaps and improve attainment. Universities can play a key role in training, facilitation, and

guidance. Hockings (2010) defines inclusive educational design as the design, planning and evaluation of programmes, courses, and modules in terms of learning outcomes, content, pedagogy, and assessment, and how they engage and include the needs, interests, and aspirations of all students. It becomes a pivotal concept through which future designers can shape prosperity for all by design (Garay-Rondero et al., 2020). By modeling inclusive behavior and instilling empathy values of EDI in students, design educators are asked to contribute to the creation of a more socially conscious society (Cho et al., 2013). This can be done at the product, service, and system level.

2. Aims and Methodology

In Design Education, EDI can produce significant progressions in terms of teaching practices and learning curves at all levels. This means that adequate programmes and contents on how to properly deal with EDI-related notions must enable learners to get higher confidence in a variety of subjects that the market is now demanding. Moreover, educational pathways on Design studies have the power to situate students into controlled experimentations that may produce first-hand experiences for learners (Hitch et al., 2016; Rieger & Rolfe, 2021); they can simulate real-life projects by working with first-hand data depicting societal outlooks. However, EDI involves complexity, due to its multidimensional nature that links technical, social, and economic spheres. Proper explorations on the ties between Design Education and the concept of EDI would help design practitioners in getting higher confidence in this complex cultural context.

This work aims at describing the main features of the concept of EDI in Design Education, to provide a disciplinary overview of concepts and to trace promising cultural directions to invest on.

In terms of methodology, this work is structured into four phases:

1. Literature review of topics linking EDI concept and Design Education, to provide a framework for phenomenological discussion within Design studies.
2. Case study analysis on examples developed within educational environments, to discuss how the inclusion of EDI into Design curricula enhances the attainment of students' soft skills.
3. Data synthesis and empirical classifications, to articulate taxonomies and to describe how the concept of EDI is holistically merged in Design Education.
4. Discussions and recommendations for promising educational models suggesting ways to correctly include EDI into Design curricula.

3. Literature Review

A literature review process (Cardoso Ermel et al., 2021) was used to develop the analysis of contributions matching EDI and Design Education. The analysis led toward the creation of three discussions: a) EDI culture in Design, b) Teamwork practices, and c) Empowerment of soft skills. Overall, these indicate that EDI is considered as necessary not only to promote a fair and more inclusive cultural environment, but also to create original projects whilst improving learners' relational skills.

3.1 EDI Culture in Design

In Design Education, several authors debated on the value that a design culture is fundamental to inspire students in shaping a better world. Indirectly, these echoed EDI. For example, cultural intersections between design, human ecology, and social change are proposed by Victor Papanek (1971) when he challenges that conventional design practices need to foster responsible approaches and impacts into society; Victor Margolin (2005) argues on how an effective design culture can trigger strategic forces needed to produce an opening toward the ethical sides, as a reaction to consumerism and exclusivity; in terms of enabling scenarios, Ezio Manzini (2016) discusses the concept of 'emerging design' as a design-led cultural

reaction that leads toward responsive designs; finally, an approach for "doing design otherwise" is offered by Carl DiSalvo (2022) who recommends that designers must supply novel contributions to local democracy by drawing together theories and practices.

Examples developed in academic contexts provide a better phenomenological understanding of how the EDI culture can enrich the teaching and learning practices. For example, Asojo (2001) discusses the need to introduce students and educators to different cultural settings to promote transformational approaches to EDI that raise awareness and strengthen abilities. Sohoni (2009) advocates the need to enhance the EDI culture by drawing on the experience of diverse cultures as part of the learning processes. On the other hand, O'Sullivan & Hakaraia (2018) prioritize the need to develop a culture of diversity as a pedagogical component that invites students to overcome cultural barriers, so that an enrichment is made through the appreciation of student cultural acumen. About educational settings, Lee et al. (2021) argue for the need to improve teaching and learning environments in terms of cultural perception, so that diverse student cohorts can be included. Finally, Albert et al. (2023) reflect on the need to generate an EDI culture by linking design practices to emotions, skills, and intercultural intelligence to engage students in active learning experiences related to a variety of issues.

3.2 Teamwork Practices

In an educational environment like the one promoted by Design studies, the term 'teamwork' immediately depicts the studio environments where both students and teaching staff are involved in developing projects and real-life simulations. However, several studies have discussed the value that a cooperation environment shows in terms of improvement of effective pedagogies on EDI (e.g., teaching and learning curves). Working in a group is an essential practice and provides momentum for the simulation of a professional environment. Within an EDI framework, this practice is essential and defines the daily basis around which to ask learners to confront, negotiate design decisions, and generate new knowledge.

Friis (2015a) describes how to impart the value of variety in innovative teamwork practices; given the rising prevalence of diverse teams in professional design work, diversity is a critical component of Design Education. In another work (2015b), she also provides an interesting analysis of dichotomous aspects of diversity in Design Education that evokes both creativity and conflicts among peers; the author finally states that despite inherent contradictions, diversity is capable of producing transformation at three levels: individual reflection and practice, the relationships and ways of working in the team. Mateus-Berr et al. (2020) provides an interesting analysis of dominant models of ability and (dis)ability, made with international teams of scholars and students; they claim that education for the future is made when professionals and people with disabilities work together. Fathallah (2021) reflects on the students' inherent competitiveness within Design studies, which often lend toward individualism and lack of collaboration; she advocates that projects must be organized by design educators to encourage inclusive group dynamics and democratic team engagement. Finally, Nae and Smith (2023) affirm that an inclusive foundation in Design Education is essential to engage mixed cohorts of students, and this can trigger modalities for social and professional cohesion among peers that ultimately instill cohesion and will to achieve outstanding results.

3.3 Empowerment of Soft Skills

Studies reveal that the EDI produces significant impacts on Design Education. Therefore, the empowerment of soft skills such as decision-making, higher awareness of EDI-related topics, confidence in the use of digital skills, and improved knowledge of methods and tools is a direct consequence of exposure to complex topics. Often, synergies between sustainability and inclusivity are seen as powerful drivers to expand the value of design practices toward holistic teaching and learning models that provide momentum to reflective creative practices.

Studies included in the literature review depict a multifaceted set of topics that are considered relevant to better reinforce the understanding of the contribution of EDI to Design Education and the empowerment of skills. For example, Tan (2019) affirms that creative investigations increase designers' skills to deal with interdisciplinary projects. The contribution of external bodies and people, as well as the direct exposure to on-site experiences, is discussed by Mensing-De Jong et al. (2021) as critical elements to promote inclusivity. Amaral et al. (2023) affirms that the ability to think beyond barriers is an essential quality of future designers in order to tackle difficult problems and have an influence. Different authors (Dias et al., 2015; Mateus-Berr et al., 2020; Oleson et al., 2023) encourage the combination of different disciplinary and interdisciplinary approaches to produce consistent progressions in skills development. Overall, there is consensus that the use of participatory design and research approach as well as collaborative design practices enables learners to get higher confidence with novel skills (Thieme & Van Boeijen, 2011); and this later produces progressions in the creation of a multidisciplinary inclusive educational framework (Kee & Lai, 2022).

4. Case Study Analysis

In the landscape of Design Education, the principles guiding EDI have emerged. This case study analysis (Yin, 2009) delves into the intersection of EDI and Design Education and explores challenges, strategies, and transformative potential inherent in the creation of inclusive learning environments. The aim is to unpack the multifaceted dimensions of topics to provide a synthetic examination of experiences found in the literature. Specifically, the case study analysis is developed around four domains: a) Cultural diversity, b) Empathic design, c) Authentic learning, and d) Human Factors and Ergonomics (HFE). The following sections contain an analysis of an emblematic case study representing each pre-identified domain.

4.1 Cultural Diversity

The relevance of cultural diversity in Design Education, as a fundamental aspect inherently driving EDI, is discussed in several studies (e.g., Sohoni, 2009; Lee et al., 2021; Georgiadou, 2021). However, the one presented by Hassin (2013) provides interesting discussions. The study aims to explore various perspectives on how Design Education can provide enriching experiences to cultivate designers capable of navigating the dynamic interplays between social change and human-environment interaction.

Design Education is claimed to demand inventive talents, social responsibility, and an awareness of human behaviors in both two- and three-dimensional contexts. The emphasis is on blending formal design components with socio-behavioral issues, as well as developing students' cognitive capacities to do successful design research. However, traditional Design Education, based on historical models, is mostly concentrated on formal characteristics that show little regard for cultural and social factors. The growth of cultural variety and socio-physical changes in modern cities needs a paradigm shift in Design Education that incorporates cultural components into teaching. Innovative design pedagogy methods, such as participatory design, have been put forth to solve these challenges. In the design process, this method places a strong emphasis on user involvement, cultural sensitivity, and cooperative problem-solving. This study finally concludes that Design Education must evolve to meet the demands of a rapidly changing society by embracing participatory approaches that promote social and ethical responsibility. Designers may successfully respond to social objectives and human needs by incorporating consumers in the design process and interacting with a variety of cultural views.

4.2 Empathic Design

Empathy is commonly recognized as one of the driving forces to empower dynamic connections with a culture on EDI and it can be found in different works (e.g., Joyce et al., 2011, Altay et al., 2016; Altay, 2017; Cordan et al., 2020). Enabling designers in shaping environments for diverse user groups is crucial for enhancing the quality of life and social participation, and this can properly be done by using empathy, though constraints often limit participatory practices. However, the work of Altay & Demirkan (2014)

provides a fundamental example on the use of empathy in Design Education. Specifically, the study analyzes activities conducted in an academic course focusing on inclusive design and highlights the importance of empathic understanding in Design Education through empathic modeling.

The project intends to provide relevant analyses on improving students' cognitive abilities, from simple to complex creation, as well as the hierarchical development of emotional behaviors and values. Thus, students engaged in a variety of activities, such as evaluating how accessible their homes were, acting out users with varying abilities, and creating posters to reflect on their experiences. Posters were intended as tools for critical reflection on technical and design issues; these later were evaluated in relation to changing attitudes toward inclusive design. Discussions included in the study are useful to highlight the need for empathetic modeling in advancing inclusive Design Education. Inclusive Design is discussed to improve students' understanding of strategic challenges faced by diverse users and to foster empathy.

4.3 Authentic Learning

Authentic learning is an educational practice often used in design modules due to the opportunity to experiment with real-life situations in a studio environment (Rossi, 2021). It emphasizes real-world relevance, complex problems, collaboration, and student reflection, which are key elements to promote active student engagement. Accordingly, early works demonstrate that authentic learning can promote deeper explorations and empathic understanding of issues related to EDI. In terms of case studies, two works are interesting for the aim of this paper.

The work of Rieger & Rolfe (2021) investigates the efficacy of authentic learning in Design Education, particularly in fostering inclusive design practices by engaging students with real clients with varying abilities. Traditional design education often relies on stereotypes or fabricated personas in studio projects, hindering students' understanding of inclusive design principles. Therefore, the authors employ authentic learning frameworks with a cohort of second-year architecture and interior design students in Australia, over a year-long period. The work concludes that integrating authentic learning frameworks into design education can empower students to become empathic and socially conscious designers, contributing to a more inclusive and equitable built environment.

The work Miceli & Zeeng (2017) propose IAES, a four-stage engagement process for students (Investigate, Apply, Explain, and Share) to overcome inherent biases found in design practices, such as lack of research, academic rigor, and stylistic imitation. The authors also remark the need to shift from a product-centric design culture to a process-led one.

4.4. Human Factors and Ergonomics

Several authors (i.e., Tosi, 2020; Attaianese et al., 2021) are considering Human Factors and Ergonomics (HFE) as a strategic research field to progress the value of EDI as well as the development of teaching and learning and design methodologies useful to design enabling solutions for all. However, the novelty and the complexity of this research angle produces a fragmented knowledge framework that results in an extremely little number of case studies. Among these, the work proposed by Dias et al. (2015) seems to be relevant for the aim of this paper.

The study examines the integration of HFE into Design Education, and emphasizes its significance in creating inclusive and usable products and spaces, particularly on shifting towards a new industrial model focused on social and ecological restoration. The work highlights the role of Design Education in imparting knowledge about human limitations and capacities in design practice, and the need to optimize human well-being and system performance through accessibility principles. Specifically, authors discuss the contribution of HFE in a Portuguese higher education institution. Discussion and results provide recommendations to integrate HFE modules earlier in the academic curriculum, or to teach concurrently with design studio courses to enhance students' application of HFE principles to produce socially

sustainable solutions. Authors ultimately recommend to include HFE principles into Design Education to enhance the inclusivity of products.

5. Data Synthesis and Classification

Sections 3 and 4 provide a description of main available sources discussing thematic foci of EDI in Design Education and examples made in a university context in relation to four knowledge areas. However, a holistic overview of what these sources suggest can provide better understanding to explore inherent dynamics within teaching and learning practices, and generally to evaluate students' skills development.

A process of data synthesis is operated to develop knowledge clusters depicting main influences of EDI in Design Education (Table 1). Conceptually, this classification follows and interprets the structure proposed by the Winterhouse Institute's Social Design Pathways (2015) that puts in place ranges of expertise, cultures, skills needed to address complex problems at various levels and scales, design methods, etc.

Table 1. Influence of EDI in Design Education: Knowledge clusters.

EDI	Design Education		
	Design Culture	Design Methods and Approaches	Teaching and Learning Practices
Equality	Commitment to breaking down systemic barriers. Improved ethics and awareness. Higher knowledge on sociological conditions of users. Focus on accessibility and rights. Ability to assess users (design, and T&L practices). Better use of open philosophies. Improved skills on social research. Autonomy in decision making.	Better use of social Design Methods to understand contextual features and users. Improved skills in translating sociological aspects into design practices. Improved skills in translating market data into design practices.	Introduction of new design topics from society. Compliance with emerging trends in Design studies. Consistent learning curves. Involvement of real users and/or stakeholders in T&L practices. Better adherence to real life situations.
Diversity	Commitment to breaking down systemic barriers (user level). Improved ethics and awareness. Use of unbiased contents in Design. Higher knowledge on psychophysical conditions of users. Focus on the quality of human-artifact interactions. Ability to engage with different user groups (design, and T&L practices). Ability to deal with multiculturalism and internationalization. Improved leadership for product and service innovation.	Higher use of goal-oriented design strategies. Better use of HFE methods to assess the quality and performance of products and services. Confidence in the use of tests with final users. Improved skills in opening toward diversity-oriented markets. Use of specific research methods for social investigations. (required) One-to-one design approach. Improved skills for design and innovation (product level).	Introduction of new core knowledge and design topics from society. Compliance with emerging trends in Design studies. Consistent learning curves. Involvement of real users and/or stakeholders in T&L practices. Better adherence to real life situations. Professionalization and improved marker readiness. Improved autonomy (i.e., students as knowledge producers).

Inclusion	Commitment to breaking down systemic barriers (group and society levels). Improved ethics and awareness. Use of unbiased contents in Design. Higher knowledge on the economic, social, and relational conditions of users. Focus on the social impacts. Ability to involve different groups (design and T&L practices). Higher awareness about nondeterministic design processes. Improved leadership for system innovation for social change.	Higher use of goal-oriented design strategies. Better use of Co-Design to involve final users into processes. Improved analytical methods for inquiry. Confidence in the use of tests with relevant stakeholders. Use of a goal-oriented mindset (from product-centric to EDI-driven approach). (desired) One-to-many design approach. Improved skills for design and innovation (system level).	Introduction of new core knowledge and design topics from society. Compliance with emerging trends in Design studies. Consistent learning curves. Involvement of real users and/or stakeholders in T&L practices. Better adherence to real life situations. Professionalization and improved marker readiness. Improved autonomy (i.e., students as knowledge producers). Research-through-design, or other immersive practices.

Previous studies discussed in sections 3 (literature review) and 4 (case study analysis) provide a phenomenological representation of the EDI concept in Design Education, and articulate the different aspects composing it in different teaching and learning areas. However, in these sections, only factual discussions have been reported, and most of them were presented at the phenomenological level due to sources used for the analysis; accordingly, these provide consistent descriptions of thematic analytical lenses used but do not show a qualitative emphasis on relevant aspects like impacts into teaching and learning.

Essentially, impacts are considered as qualitative or quantitative metrics to assess the results of an action within a setting. In the cases considered, impacts produced by EDI concept in Design Education can only be evinced at the level of cultural speculations. However, the quantification, or the qualification, of impacts produced by novel teaching and learning practices is strongly recommended by standard frameworks – see for example Advance HE (2023; 202-a); particularly, see Advance HE (202-b) for EDI-related topics. Therefore, to provide a contribution to the debate around the impact of EDI in Design Education, Table 2 proposes a detailed list of elements that are considered as promising in terms of impacts into teaching and learning practices. This contribution is provided at the learner, staff, and module and programme level.

Table 2. Impacts of EDI in Design Education.

Learner Level	Teaching Staff Level	Module and Programme Level
Develop reflective creative practices.	Improving the effectiveness and the consistency of T&L strategies.	Opportunity to develop new modules and programmes.
Develop critical thinking, autonomy, and decision-making skills.	Use of new design methodologies.	Modernization of T&L practices.
Improved marker readiness.	Opportunity to deliver updated contents.	Better reputation and promotion.
Better engagement and understanding of real-world problems.	Opportunity to adopt holistic and interdisciplinary contents and topics.	Active involvement of companies and organizations in T&L activities.
Opportunity to develop student-led projects.	Opportunity to move from content-based to goal-oriented and opportunity-driven T&L practices.	Introduction of a transformation culture (e.g., system design).
Better confidence in dealing with complex data/situations.	Fostered cooperation with other modules and disciplines.	Enabling teaching and learning environments (physical, digital, blended).
Better individual and teamwork skills.	Improved innovation-based culture (e.g., product and service design).	Increased enrollment and mitigation of drop out (long-term goal).

6. Discussion

Previous sections portrayed the complexity of the EDI concept in relation to the Design Education domain. The variety of data extracted from different sources provided relevant information in terms of cultural theories, themed discussions, and examples developed within educational contexts. This part of the work introduces discussions and recommendations for promising educational models and suggests ways to include EDI into Design curricula. It also tries to propose future trajectories to progress the debate in the area of Design studies. Accordingly, four discussion topics are proposed: a) Improving current educational models; b) Connecting student's soft skills with relational attitudes; c) Introducing inclusive criteria in curricula development; and d) Holistic trajectories for future studies. Brief notes on converging bodies of knowledge and the revaluation of values are discussed at the end.

6.1 Improving Current Educational Models

It has been said that higher education institutions can significantly benefit from the introduction of EDI concepts into undergraduate and postgraduate modules. In Design Education, wide improvements can be made in various aspects, such as novel contents, design challenges, studio practices, and live activities with real users. The use of immersive and empathic modalities to engage with students and stakeholders can benefit the overall learning curves so that a higher awareness on EDI-related topics can be produced (Rossi, 2021). The introduction of novel tools is also crucial to overcome biased notions (Rossi, 2023). However, EDI also triggers students' cultural progressions and enhancement of confidence about social components, which ultimately can reduce gaps in training while increasing students' readiness to enter in professional markets.

The improvement of current educational models can be promoted and supported by:

- Exposing students to real-world challenges and engaging with diverse communities. Real-life problems stimulate students' empathy and inclusivity in design practices. Authentic learning modalities are therefore favored.

- Encouraging collaborative projects that reflect the diversity of society. Teams of students from varied backgrounds can lead to innovative solutions and foster a deeper understanding of different perspectives.
- Developing curriculum components that aim at enhancing students' empathy towards diverse user groups. Empathic modeling and participatory design practices are favored.
- Consistent use of HCD principles and practices ensure that students are more capable to design accessible, usable, and inclusive solutions that emphasize the well-being of all potential users.

6.2 Connecting Student's Soft Skills with Relational Attitudes

Students' soft skills are at the core of educational models and require institutions to comply accordingly. In Design Education, soft skills are defined as the set of interpersonal, social, and emotional skills used in a design practice (De Freitas & Almendra, 2021). However, it has been shown that the EDI concept stimulates students to overcome traditional teaching and learning models based on the development of hierarchical soft skills (i.e., full confidence with problem solving, systematic thinking, teamwork, etc.) (Dong, 2010) by embracing longitudinal patterns more tied with relational attitudes.

The connection of student's soft skills with relational attitudes can be supported and promoted by:

- Engaging with diverse communities of users, even marginalized ones, and focusing on inclusive design practices to cultivate empathy and a deeper cultural sensitivity.
- Fostering team-based projects so that diverse cohorts of students can benefit from enhanced communication, negotiation, and collaboration skills. This ultimately can prepare learners to address multifaceted dynamics of the professional world.
- Addressing real-world challenges through reflective creative practices. This eventually encourages critical thinking and complex problem-solving skills when considering various factors and stakeholders.

6.3 Introducing Inclusive Criteria in Curricula Development

EDI stimulates significant shifts in the design and delivery of modules (Dong, 2010), and improvements can involve a wide range of topics such as contents, topics to discuss in seminars and tutorials, groups of users to involve, design methods, etc. This means that EDI directly impacts the inclusion aspects of curricula since the beginning of their conception. Eventually, this may produce reflections on different aspects that entail daily

routines with students. Interesting dynamics can be observed when incorporating inclusive criteria into teaching and learning practices, and these can produce benefits to actors, instructional components, and studio settings. Improvements in branding and the design of themed programmes can also be the result of a systemic change when properly supported by a shared culture on EDI.

The introduction of inclusive criteria in curricula development can be supported and promoted by:

- Embedding EDI principles across all aspects of Design curricula, including the creation of theoretical modules delivering unbiased notions on EDI and the creation of studio projects hinged around EDI-led authentic learning. Ensuring a holistic approach to inclusivity reflects inadequate training of staff.

- Ensuring that Design curricula reflect a wide range of cultures, identities, and perspectives. This can prepare students to design for a global audience and instill confidence into positive perspectives and actors.
- Prioritizing accessibility and usability in all aspects of Design Education. This promotes flourish environments where students are enabled to create products and services that are inclusive for all users.

6.4 Holistic Trajectories for Future Studies

Alongside educational features of EDI in Design Education, studies considered in this work provided rooms for considerations on the value of research in the field. It is essential to recall that research experimentations are essential to advance Design Education and its body of knowledge. Therefore, investing in holistic research and novel studies on EDI is paramount to advance the whole sector of Design Education. Constant sharing of knowledge flows is the basis for a consistent improvement.

Holistic trajectories for future studies are essential in Design Education, particularly when it comes to EDI. These can lead toward:

- Longitudinal studies on outcomes produced by informed EDI teaching and research practices. The attention is on the investigation of long-term impacts of EDI-centered curricula on students' outcomes, their professional practices, and potential societal contributions in the long run.
- Cross-disciplinary approaches to Design and EDI. The attention is on the exploration and the integration of EDI principles with other disciplines, such as technological, digital, and engineering ones, but also economic and social, that ultimately foster innovation in design solutions as a whole.
- Global perspectives on Design and EDI. Conducting comparative studies on the implementation and outcomes of EDI-based issues in Design Education across different cultural and educational contexts is essential to identify best practices and areas for improvement. Therefore, sharing of knowledge can be the consequence of a collective learning process involving both students and institutions.

6.5 Brief Notes on Converging Bodies of Knowledge and the Revaluation of Values

In Design studies, EDI calls for an in-depth examination and revising of established references, challenging the body of traditional cultural standards that are frequently associated with reflective creative practices – Who do designers design for? How can teaching staff equip future generations of designers in addressing present and future challenges? How can designers enable people to live sustainably and inclusively? etc. It is well established that Design, as a profession firmly rooted in societal structures and cultural settings, has the ability to impact perceptions, behaviors, and interactions. Thus, reevaluating design ideals becomes critical in resolving issues of inequity, lack of diversity, and exclusion. At the same time, notions like those mentioned by EDI-wider conception allow creative thinkers to consider good possibilities that are fully inclusive of all individuals. This indeed stipulates critical reflections on the values commonly passed on by staff to learners and promotes stronger convergences among knowledge areas.

At the level of design ethic of scholars involved in the progression of the body of knowledge, EDI can trigger reflections on the following aspects:

- On the concept of 'Equality', design researchers can shed light on gaps in representation, recognition, and access to resources within design education, practice, and discourse. By questioning established conventions and pushing for more inclusive design practices, researchers help to revalue values in the area of Design studies, resulting in more fair and just design ecosystems.
- On the concept of 'Diversity', design researchers can emphasize the contributions of marginalized groups, question monocultural design norms, and push for greater inclusion in design education and practice. By challenging prevailing design narratives, prejudices, and exclusionary practices, researchers pave the path for a more varied and culturally rich design environment, furthering the revaluation of values in Design studies.
- On the concept of 'Inclusion', design researchers can emphasize the importance of creating with, rather than for, marginalized or underrepresented populations, allowing people to construct their own settings and narratives. By questioning conventional concepts of authorship, competence, and authority in Design studies, researchers contribute to more inclusive and democratic design processes, supporting a revaluation of values that prioritize equality, diversity, and inclusion in design research.

7. Conclusions

This work discussed the complex explicit and hidden dynamics that subtended the integration of EDI in Design Education. Studies and examples discussed, as well as novel classifications inferred via qualitative interpretations of findings highlight the need for a significant change in academic methods and cultures to fulfill the progression of teaching and learning apparatus needed to address the issues of present society.

The literature review provides important insights about the symbiotic relationships between EDI and Design Education. From this, three critical conversations can be proposed: the growing of an EDI culture in design; the value of teamwork modalities; and the empowerment of novel sets of soft skills into learners. Altogether these dialogues highlight the need to incorporate EDI at a higher level; these do not only foster equitable and inclusive cultural environments, but also the improvement of students' ability to put creativity whilst enhancing their abilities to address social issues.

The value of a culture on EDI imposes the need of accepting different viewpoints that reflect into multimodal design processes. Various scholars advocate that infusing design culture with a sense of responsibility when addressing societal issues is a strong plus. They suggest that direct exposure to various social contexts elevates students' awareness while reinforcing their capabilities to meaningfully navigate into different subjects and environments. About teamwork, Design Education acts as a microcosm within which cooperation is extremely important. Studies highlight the transformative power of varied groups to cultivate creative thinking and social and collective development. Teaching staff are advised to develop inclusive dynamics by promoting equitable participation and democratic engagement. The empowerment of soft abilities arises from direct exposure to EDI-related subjects. Improved decision-making, digital literacy, as well as a deeper understanding of interdisciplinary approaches are mentioned as a result of such immersive pedagogical environments. Additionally, synergies between sustainability and inclusivity fuel holistic teaching and learning models, moving into innovative reflective creative practices.

On the other hand, the analysis of case studies portrays an interesting set of topics dealing with both rhetorical and operative levels. Scholars rely on participatory design methods and interdisciplinary cooperation to nurture students' self-confidence, skills, and abilities. Educators use multidisciplinary frameworks as grassroots to produce inclusive academic settings that promote innovation, enable to address modern challenges, and increase confidence with design practices.

The inclusion of EDI principles in Design Education at the teaching and learning levels generates a sense of inclusive culture across many fields. Growing with an inclusive culture, cultivating cooperative skills, and encouraging students in taking controlled risks while getting confidence with novel soft skills, are longitudinal assets that produce benefits at the module, course, and programme level. These also improve students' market readiness and inherent social aspirations. Accordingly, educators can prepare future designers to navigate the complexities of a varied and rapidly evolving world. This holistic approach not only enhances the academic experience, but also equips students with the right operative and cultural attitude required to establish favorable modifications within their communities and beyond. The value of cultural diversity, empathic design, authentic learning, and the use of HFE in shaping inclusive design practices are widely recognized as a plus to shape designers with a social consciousness. Synthetically, inclusive cultural components promote combinations of formal design aspects with socio-behavioral factors that ultimately reinforce students' cognitive abilities in addressing social complexities; empathy stimulates alternative viewpoints and social engagement, whilst enabling the design of inclusive solutions; experiential discovers operated by promoting empathic understanding of topics provide consistency to authentic learning methodologies and drives into the enhancement of intrinsic predispositions to be later translated into engaging design practices; finally, HFE enhances holistic understanding of human well-being, system efficiency, and diversity.

Overall, EDI produces arrays of benefits in Design Education, and this can be found at different levels such as the progression in the design culture, the improvement of design methods and approaches, and the consistency of teaching and learning practices. This leads to discussing beneficial impacts, which are clearly observable at the learner, staff and organizational level. Around impacts, some relevant research lines can be proposed to reinforce the convergence of initial topics found within studies that can be considered as promising working lines for future explorations.

In a strategic sense, EDI concept also aligns with sustainability; and this aspect is directly evinced from both the literature review and the case study analysis. Particularly, strong links can be found when comparing EDI to the Sustainable Development Goal (SDG) No 4 – 'Quality Education' – since it states the commitment to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UN, 2015). Therefore, it can be affirmed that EDI is a foundational concept for any educational framework, the studio culture related to it is a key successful driver to generate long-lasting sustainable behaviors into learners (Dong, 2010; UN, 2015). To conclude, this work depicts the complexity of a fast-growing cultural driver capable of generating cascade impacts into many educational fields. EDI nurtures curiosity while promoting the advancement of novel theoretical and procedural apparatus that are considered relevant today in Design Education.

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