

Review

Social Role Narrative of Disabled Artists and Both Their Work in General and in Relation to Science and Technology

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Abstract: Artists and the arts have many different roles in society. Artists also have various roles in relation to science and technology, ranging from being users of science and technology products to being educators for science and technologies, such as in museums. Artists are also involved in science and technology governance and ethics discussions. Disabled people are also artists and produce art, and disabled people in general and disabled artists are impacted by science and technology advancements. As such, disabled artists should also engage with science and technology, as well as contribute and influence science and technology governance, ethics discussions, and science and technology education with their work. We performed a scoping study of academic literature using the 70 databases of EBSCO-HOST and the database SCOPUS (includes Medline) to investigate the social role narrative of disabled artists and both their work in general and in relation to science and technology. Our findings suggest that disabled artists are mostly engaged in the context of becoming and being a disabled artist. Beyond the work itself, the identity issue of ‘being disabled’ was a focus of the coverage of being a disabled artist. The literature covered did not provide in-depth engagement with the social role of disabled artists, their work, and the barriers encountered, and best practices needed to fulfil the social roles found in the literature for non-disabled artists and the arts. Finally, the literature covered contained little content on the relationship of disabled artists and advancements of science and technology, such as in their role of using advancements of science and technologies for making art. No content at all was found that would link disabled artists and their work to the science and technology governance and ethics discussions, and no content linking disabled artists to being educators on science and technology issues, for example, in museums was found.



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1. Introduction

Artists and the arts have many different roles in society including change agents. Artists give their views on many societal topics under discussion such as climate change [1–17] and artists are also educators [18]. Disabled artists are part of society and disabled artists and their work could and should fill the same roles as artists and the arts in general. Artists also have various roles in relation to science and technology, ranging from being users of science and technology products to being educators for science and technology, such as in museums, as well as being involved in governance and ethics discussions around science and technology [19–31]. Disabled artists and disabled people in general are impacted by science and technology advancements. As such, disabled artists and their work have a role in the discussions around science and technology advancements including governance of and education on science and technology.

We performed a scoping study of academic literature using the 70 databases of EBSCO-HOST and the database SCOPUS (includes Medline) asking two research questions: (a) how and to what extent are disabled artists and their work mentioned in relation to science

and technology, and (b) what social role narrative is evident concerning the coverage of disabled artists and their work?

1.1. Role and Impact of Artists

Artists play many different roles in society according to the literature, such as to create socially engaging and conscious art [1]. Artists also have a role in social justice [2]; social change [3]; social advocacy [4]; and the implementation of social movements [5]. Artists play a role in modern diplomacy [32], responding to conflicts [6], political change [7], and addressing issues of inequality [8]. Artists have a large role in urban regeneration [9,10], gentrification [11,12] as well as the rebuilding of civic areas [13] and the development of the perception of cities [10]. It is seen by some that one of the roles of artists is to contribute to a sustainable future [14] and address environmental issues [15]. Artists are mentioned in the context of producing culture [12] as well as in renewing, authenticating, and transmitting indigenous heritage [16]. Post-war reconstruction is also mentioned as a role of artists [17], as are roles to “work as entrepreneurs, civically-minded problem-solvers, and agents for social change” [33] (p. 5). The discourse suggests that artists have a responsibility to create connections and sincerity in representing the confusion that everyone has about the world [18].

The role of arts is revealed in the literature in terms of its political stance and is discussed in terms of challenging politics [34], policy making [35,36], political reform and accountability [37], international relations [38], and collective action [39]. Many other roles are mentioned, such as bringing about social change [40,41], justice [2,42,43], liberation [44], public influence [45,46], role in gentrification [47,48], local development [49], geographics [50,51], addressing environmental issues [52], and being involved in the governance of cultural sustainability [53]. Art in history is revealed as having contributed to reconstructing communities [54,55] and post-war reconstruction [17,56]. Art is described as being a social activity, the purpose of which is to capture important aspects of the social experience including curiosity of the unknown, preserving that which is known, as well as anticipating the future [57]. There is a demand for political awareness and social responsibility of artists, as well as for art as a tool of knowledge and learning [58]. Artists have the potential to be active agents who create a socio-political level of reality [58]. Artists and art education are impacted by social and political change [59–61]. Art projects have emotional and ideological impacts [62], an impact on public behavior [63], and have positive impacts on social problems [43,64,65], social change [41,66], and social justice [2,67], enabling a more integrated society [68], identities of people [69], stimulating ideas and the connecting of people [70], healthcare [71], health [72], and innovation and economic development [73]. Impact is also attributed to art/science collaborations [74,75]. Art can be a form of resistance [76] and can have a positive impact in addressing environmental and humanitarian challenges [52]. Artists are responsive in the sense that they attempt to make contributions to society using different approaches so as not to ignore certain issues [77].

Disabled artists and their work fulfill the same roles as artists generally but given that disabled people are the experts of their current social situation [78], disabled artists can also bring specific knowledge linked to their lived experience to these roles, which makes them suitable to also address issues that are linked to disabled people. The United Nations Convention on the Rights of Persons with Disabilities [79] and the United Nations 2018 Flagship Report on Disability and Development: Realization of the Sustainable Development Goals by, for, and with Persons with Disabilities [80] are just two documents that outline the systemic societal disablism disabled people face, all of which could be targets of engagement for disabled artists and their work. Although it is recognized that disabled people have had a long history as activists within society [81–83], it is also recognized that disabled people face many unique barriers to their role as activists [84–89]. One of the unique barriers for disabled people of being activists is that the perception of disabled people follows a medical imagery, meaning that they are engaged within the context of medical narratives and medical problems, and therefore are often not seen as being im-

pacted or as having a vested interest in a given societal topic or social problem [88,90]. For example, in two consultations covering sustainability issues, many participants stated that the medical imagery of disabled people was one reason why disabled people are left out of policy discussions [91–93]. In general, many of the activism barriers disabled people face might also apply to disabled artists and their work and therefore need to be addressed.

1.2. Science and Technology: One Area of Engagement for Artists

There is a long history of art's involvement in science and technology [19,20], including through programs such as artists in residence [21–26]. There is STEAM [27], which adds arts to STEM [28,29]. Artists and the arts raise awareness, trigger action [30], and represent interpreters of science [31]. The description of the journal *Leonardo*, which was founded in 1968, states: “*Leonardo* is the leading international peer-reviewed journal on the use of contemporary science and technology in the arts and music and, increasingly, the application and influence of the arts and humanities on science and technology” [94]. Examples in the journal include the role of artists during war to climate change [95]; the role of an artist's intuition in science [96]; the role of artists and scientists in times of war [97]; the collaborative spirit of art and science through the process of creation [98]; the role of art as a catalyst at the intersection of science and technology [99]; the sociopolitical implication of an artist's work [100,101]; the critical reflection as an aspect of environmental art [102]; and creative practice being complementary to scientific discourses in engaging the public with environmental issues [103]. There are numerous science linkages to art such as neurosciences to art (neuroart) [104–106] and neurotechnology film festivals [107]. Artists are linked to citizen sciences (citizens performing sciences) [108–111]. Artists are also involved in science and technology education as well as governance discussions [24,112–129] and ethics [130–134], which fits in with a long history of literature that engaged with the topic of the social responsibility of artists [135–142] and artists as activists [143–149]. Artists are also involved in the increasing role of museums in science and technology education and discussions [150–162].

Disabled people's current situation and futures are impacted in different ways by science and technology governance and activism regarding their roles as being non-therapeutic users (consumer angle), therapeutic users (patient angle), diagnostic targets (diagnostics to prevent ‘impairment’ or to judge one's ability), potential arguments (preventing impairment) for science and technology governance and activism, and being impacted by changing societal parameters caused by science and technology's product vision, governance and activism (e.g., changes in ability expectations), and the negative use of science and technology (war). Disabled people also face many barriers in being involved in science and technology governance discussions [81] and are often not seen as being negatively impacted by advancements of science and technology [163–165].

Given the role of artists and the arts, the linkage between artists and science and technology, given that science and technology governance discussions ask for the involvement of stakeholders which includes artists, and the many linkages between disabled people and science and technology, we investigated in our scoping review (a) how and to what extent are disabled artists and their work mentioned in relation to science and technology, and (b) what social role narrative is evident concerning the coverage of disabled artists and their work?

2. Materials and Methods

2.1. Study Design and Identification of Research Questions

Scoping studies are useful in identifying the extent of research that has been conducted on a given topic [166,167] and the current understanding of a given topic. Our scoping study focuses on the extent of research that has been conducted on (a) role expectations of disabled artists and their work and (b) the linkage between science and technology and disabled artists and their work. Our study employed a modified version of the stages for a scoping review outlined by [168], namely identifying the research questions of the

review, identifying applicable databases to search, generating inclusion/exclusion criteria, recording the descriptive quantitative results, selecting literature based on descriptive quantitative results for content coding of qualitative data, and reporting findings of qualitative analysis. We answered the following two research questions: (a) how and to what extent are disabled artists and their work mentioned in relation to science and technology and (b) what social role narrative is evident concerning the coverage of disabled artists and their work?

2.2. Data Sources and Data Collection

To maintain a clear and feasible scope [169], on 23 April 2020 and a second time on 21 April 2021, the academic databases EBSCO-HOST (an umbrella database that includes over 70 other databases), including art-focused databases such as Art abstracts, Art Index Retrospective, Anthropology Plus, Avery Index to Architectural Periodicals, International Bibliography of Theatre & Dance with Full Text, and SCOPUS (which incorporates the full Medline database collection) were searched with no time restrictions. These databases contain journals that cover a wide range of topics from areas of relevance to answer the research questions. Searching EBSCO-HOST for “art” or “arts” in the journal title revealed over 100 journals including “art(s) education” journals classified as scholarly and peer reviewed with over 188,190 articles. In Scopus, the list of journals with “art” or “arts” in the journal title include over 160 with over 63,853 articles also including art(s) education focused journals. Scopus and EBSCO-HOST also include various arts journals covering arts and technology such as the *International Journal of Arts and Technology*, *Technoetic Arts*, *Leonardo*, *Journal of Science and Technology of The Arts*. EBSCO-HOST and SCOPUS also contain many disability-related journals including disability studies journals such as *Disability and Society*, *Review in Disability Studies*, *Disability Studies Quarterly*, and *Journal of Disability Policy Studies*. SCOPUS also contains the *Journal of Literary & Cultural Disability Studies* and many ethics journals including *Nanoethics*, *Neuroethics*, and *Science and Engineering Ethics*.

An explicit search strategy was employed to obtain the data [167]. We searched for scholarly peer reviewed journals in EBSCO-HOST, and we searched for reviews, peer reviewed articles, conference papers, and editorials in SCOPUS. We performed the following search strategies (Table 1). We employed two search strategies to obtain relevant content that answers the research questions. In search strategy 1, we used phrases that linked the terms art* and artist* (* meaning any character can fill the *) to different terms describing disabled people, allowing us to find, for example, abstracts containing “deaf artist”, “deaf artists”, “deaf arts”, and “deaf art”. Due to how the EBSCO-HOST search engine works, we split the search in EBSCO-HOST into “art*” and “artist*”. In SCOPUS, both are found by the SCOPUS search engine using “art*”. In search strategy 2, we specifically searched for the phrases “disability art” and “disability arts” (we will use “disability art(s)” from now on to indicate that one of them or both could be covered in the literature as many use the two terms interchangeable) separately from the other terms because disability as a term does not depict a disabled person but relevant content covering the work of disabled artists could be labelled as “disability art(s)”. We also looked at “disability art(s)” because there are many discussions concerning the meaning and scope of “disability art(s)” and who can be classified as producing “disability art(s)” only listing non-academic sources here as academic literature is the focus of the result section [170–175].

Table 1. Search strategies used.

Strategy	Sources Used	Search Terms Used
Strategy 1a	SCOPUS	("disabled art*" OR "art* with a disability" OR "deaf art*" OR "blind art*" OR "art* with disabilities" OR "art* with a learning disability" OR "art* with a physical disability" OR "art* with a hearing impairment" OR "art* with a visual impairment" OR "art* with a mental disability" OR "art* with a mental health" OR "learning disability art*" OR "learning disabled art*" OR "physical disability art*" OR "physically disabled art*" OR "hearing impaired art*" OR "visually impaired art*" OR "mental health art*" OR "autism art*" OR "autistic art*" OR "art* with autism" OR "ADHD art*" OR "art* with ADHD" OR "art* with mental disabilities" OR "art* with a mental disability" OR "mental disability art*" OR "mentally disabled art*" OR "neurodiverse art*" OR neurodiversity art*)
Strategy 1b	EBSCO-HOST	("disabled art*" OR "art* with a disability" OR "deaf art*" OR "blind art*" OR "art* with disabilities" OR "art* with a learning disability" OR "art* with a physical disability" OR "art* with a hearing impairment" OR "art* with a visual impairment" OR "art* with a mental disability" OR "art* with a mental health" OR "learning disability art*" OR "physical disability art*" OR "physically disabled art*" OR "hearing impaired art*" OR "visually impaired art*" OR "mental health art*" OR "autism art*" OR "autistic art*" OR "art* with autism" OR "ADHD art*" OR "art* with ADHD" OR "art* with a mental health" OR "art* with mental disabilities" OR "mentally disabled art*" OR "neurodiverse art*" OR "neurodiversity art*")
Strategy 1c	EBSCO-HOST	("disabled artist*" OR "artist* with a disability" OR "deaf artist*" OR "blind artist*" OR "artist* with disabilities" OR "artist* with a learning disability" OR "artist* with a physical disability" OR "artist* with a hearing impairment" OR "artist* with a visual impairment" OR "artist* with a mental disability" OR "artist* with a mental health" OR "learning disability artist*" OR "learning disabled artist*" OR "physical disability artist*" OR "physical disabled artist*" OR "physically disabled artist*" OR "hearing impaired artist*" OR "visually impaired artist*" OR "autism artist*" OR "autistic artist*" OR "artist* with autism" OR "ADHD artist*" OR "artist* with ADHD" OR "artist* with mental disabilities" OR "mental health artist*" OR "mental disability artist*" OR "mentally disabled artist*" OR "neurodiverse artist*")
Strategy 2a	SCOPUS	"disability art*"
Strategy 2b	EBSCO-HOST	"disability art" OR "disability arts"

2.3. Data Analysis

To answer the research questions, we first obtained hit counts for our search term combinations (Figure 1), employing a descriptive quantitative analysis approach [176,177]. We then uploaded the abstracts from the academic articles into the qualitative analysis software ATLAS.Ti 8™ for a directed qualitative content analysis [176–179]. We used a directed content analysis to add knowledge about the phenomenon of the social role of disabled artists and the linkage between disabled artists and science and technology that "would benefit from further description" [176] (p. 1281). As for the coding procedure, we familiarized ourselves with the content of all articles and abstracts and identified relevant data [179]. We then independently identified and clustered the themes based on meaning, repetition, and the research questions [176,180]. After reading the abstracts, we downloaded and analyzed the full text of the articles in which the abstracts suggested that the full articles might have content relevant for answering the research questions.

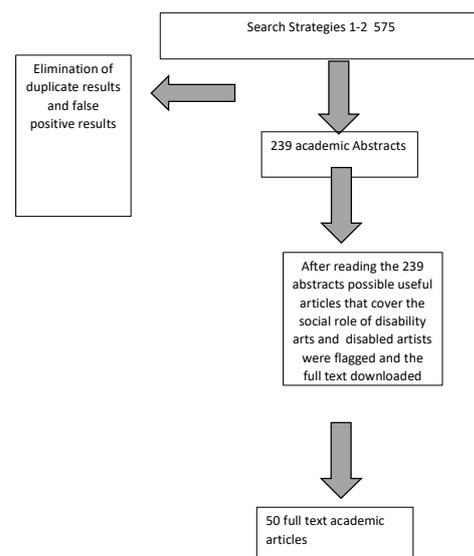


Figure 1. The flow chart of the selection of academic abstracts and full text articles for qualitative analysis.

2.4. Trustworthiness Measures

Trustworthiness measures include confirmability, credibility, dependability, and transferability [181–183]. Regarding credibility, we see the authors as the participants who interpret the data of the scoping review and we used peer debriefing between the authors to identify whether differences in codes and theme suggestions of the qualitative data existed between the coders. There were few differences and these differences were discussed between the authors (peer debriefing) and revised as needed [182]. Regarding dependability, we provided the exact parameters for the search strategies and provided an extensive introduction section to ground the analysis of our study. Confirmability is evident in the audit trail made possible by using the Memo and coding functions within ATLAS.Ti 8™ software. As for transferability, our methods description gives all required information for others to decide whether they want to apply our keyword searches on other data sources such as grey literature, or other academic literature or other languages, or whether they want to perform more in-depth studies.

2.5. Limitations

The search was limited to the 70 academic databases accessible through EBSCO-HOST and the database SCOPUS, as well as to English language peer reviewed academic literature. As such, the findings are not to be generalized to the whole academic literature, non-academic literature, or non-English literature. Furthermore, we used only words linked to artists or arts and not terms such as “poet”, “actor”, or other terms depicting artists, and we did not search for forms of arts. These findings, however, allow for conclusions to be made within the parameters of the searches.

3. Results

The result section provides the findings of the scoping review. In the results section, we first describe the procedure that led to the downloaded data and then provide a table (Table 2) with all the themes and subthemes reported in the results section. The thematic results of the 50 downloaded articles are then reported in more detail in four sections: one reporting on the theme of “Disabled artists and their work: The social role of “disability art(s)” (Section 3.1); the second on “Disabled artists and their work: The social role of disabled artists” (Section 3.2); the third on “Disabled artists and technologies” (Section 3.3); and the fourth on “Disabled artists and museums” (Section 3.4.).

Table 2. Role-related themes and subthemes in the 50 articles downloaded.

Themes	Subthemes Mentioned More than Once	Frequency
Social role of disability art(s)	Informed by disabled people	7
	For disabled people	4
	Make life of disabled people better	8
	Enable disabled people	3
	Disability arts is intersectional	2
	Disability arts is useful in school education	8
	Disability arts is political	11
	Disability arts movement	6
	Barriers to social role of disability arts	4
Social role of disabled artists	Questioning and rectifying stereotype of disabled people	20
	Disabled artists as political activists	3
	Fighting for rights and justice	3
	Disabled artists engage with intersectionality	2
	Barrier for social role of disabled artists	5
Disabled artists and technology	Role of user and developer of technology for use in arts	5
Disabled artists and museums	All six have different sub-themes	6

Of the 575 abstracts found through the search strategies, 239 remained after duplicates between databases and false positives were removed. False positives were mostly in EBSCO-HOST due to the problem with the EBSCO-HOST search engine that does not search phrases such as “art* with a disability”, as it does not recognize “with” or “a” in a phrase. Thus, one obtains the terms “art*” and “with” and “a” and “disability” in an abstract whereby in some abstracts, the actual phrase might be present, but others might simply contain all the words with no correlation to each other. Within these 239 abstracts, the main theme was linked to disabled artists and their work as artists (i.e., how the work is done, interpretation of the work, promotion of work, and the creation process), and as such were not eligible for the downloading of full articles as the focus was not on the social role of disabled artists and their work and did not cover a linkage between disabled artists, their work, and science and technology. We downloaded 50 full-text articles that, based on the abstracts, could have more details on the societal role of disabled artists and their work and could cover a linkage between disabled artists, their work, and science and technology.

3.1. Disabled Artists and Their Work: The Social Role of “Disability Art(s)”

Disability art(s) are created and informed by [111,184–190] and for disabled people [184–187]. Sandahl defines disability art as “Disability art is created by and for disabled people, not merely about disabled people, and is accessible. (e.g., portraits of disabled people would not be exhibited on the second floor of a no-elevator building)” [184] (p. 86). It is argued that there is a distinction between “disability arts and disabled people doing art” [191] (p. 52) and that “disabled people doing art is any kind of art created by disabled people that is not overtly political” [191] (p. 52). As to the social role of disability art(s), it is argued that disability art(s) has a social role “in the lives of PwD [people with disabilities], the organizations involved, other stakeholders, and the social impact across these groups and the wider community” [111] (p. 2).

According to the findings, disability art(s) should positively affect the lives of disabled people by “ [confronting] the domination and oppression experienced by disabled people” [192] (p. 392), engaging with social justice [186], critiquing disablism [191], rep-

resenting disability as a socio-political experience [186], exposing exclusionary barriers within society [193], supporting a positive identity of disabled people [189,193–195], fighting oppression and discrimination [195], and by being agents for social change [187]. Disability arts is seen to enable or should enable the building of a disability culture [184], described as “casual leisure, serious leisure, and professional artistic engagement” [111] (p. 1), and the analysis of “the lives of disabled people but also universal humanity” [195] (p. 545). Disability art(s) are intersectional [186] and takes into account other identities [184]. Disabled art(s) are seen as useful in school education [191,196–202].

Eleven articles made the claim that disability art(s) are inherently political. Hadley argued that “terms such as disability arts, disability-led arts, inclusive arts, integrated arts, mixed abilities arts, and all-abilities arts” have political meanings [203] (p. 183). Hadley quoted the disabled artist Liz Crow as saying “the term disability arts may include explicitly politicized work about disability” [204] (p. 126). It is argued that the existence of disability politics made disability art(s) possible [187] and that “disability arts has the potential to succeed where other forms of ideological critique fail” [193] (p. 31). Kelly and Orsini stated: “Disability, mad, and d/Deaf art is thus inherently political and seeks to transform representations and material responses to non-normative bodies” [188] (p. 289) and “Being disability-identified means to embrace and advance the political, artistic, and cultural objectives of disability arts” [187] (p. 43).

Six articles engaged specifically with the disability art(s) movement. It is argued that arts has gained an important position in the identity politics of the disability movement [205]. Many highlighted the political role of the disability art(s) movement [185,186,192,194,206]. Darke quoted Oliver for example:

“The disability arts movement is increasingly becoming the focus of the mounting of these challenges (against dominant disablist imagery), but it has, itself, had to struggle to free itself from the domination of able-bodied professionals who tended to stress art as therapy (Lord 1981) rather than art as cultural imagery. That, too, is changing as disabled people struggle to take control of their lives” [206] (p. 133).

Four articles specifically mentioned barriers to the social role of disability art(s). One argued that the social role of disability art(s) is hindered by the negative social attitude toward disabled people [195]. Another argued that disability art(s) was adopted by the mainstream to “neutralise its potential for socio-cultural disruption” [206] (p. 134). A third article stated that established arts institutions and charitable organizations engaging with disability art(s) “dismiss its political base” [187] (pp. 45–46) and “that disability equity has decreased in the disability arts domain” [187] (p. 43) and in terms of the lack of accessible venues [187]. The fourth article identified a lack of uptake of disability art(s) in policy and practice as a barrier [207].

3.2. Disabled Artists and Their Work: The Social Role of Disabled Artists

Twenty-five articles described social roles of disabled artists. Three articles covered disabled artists as political activists. One stated “how we see ourselves as poets is as important as how we see ourselves as political activists” [208] (p. 390) and a second stated “The analysis of all the profiles and the body of work of disabled artists suggests that all those involved in the study produced art that can be characterised as both political in relation to disability, and apolitical, in the sense that all of them were concerned with issues other than disability” [191] (p. 62).

It is argued that disabled artists’ work are concerned “about the societies they live in” [191] (p. 52). The main social roles evident in the articles downloaded were related to the image of disabled people, such as fighting stereotypes experienced by disabled artists and disabled people [191,209–213], questioning the supercrip/superhero stereotype [214,215], questioning inspirational porn (defined as “ways in which disabled bodies are often represented as being objects of inspiration for the benefit of the nondisabled”) [216] (p. 201), changing the views and representation of disability and disabled

people [189,191,203,204,211,214–221], rethinking sex and disability [190], and boosting confidence and managing stigma [194].

Disabled artists engage with intersectionality aspects [222,223], fight for one's rights [191,215], and achieve social justice [224].

Other social roles mentioned were to be involved in the relationship between blind and non-blind people [225]; celebrate difference and reject normality [194]; commenting on contemporary culture [217]; influencing disability policies [226]; triggering constructive conversations [226]; informing others on disability issues [191]; engaging with disability pride [191]; engaging with the significance of assistive technologies [191]; advocating for non-discriminatory casting [227]; giving to culture and society [191]; conveying their life experiences [191]; serving a curriculum that seeks to promote disability equality education and challenging ableism [191]; and contributing to contemporary architectural feminisms [228]. Sins Invalid, Littlelobe Disability Justice Collective, Dismantling Oppressive Patterns for Empowerment (D.O.P.E.), and Collective4 are examples of leadership in the arts by people with disabilities who center justice and reframe access, ethics, and equity [200].

Five articles mentioned barriers. Disabled artists are hindered by ideological problems that include a negative imagery and narrative linked to disabled people [203,215], biased attitudes [187], lack of rights as a disabled person [215], lack of accommodations [203,215], lack of respect for their work [203,215], and the presence of the superhero imagery [215]. One disabled artist stated that “the disabled artist is expected to always be sorry” [229] (p. 519). Another disabled artist argued that many more prominent disabled artists “completely deny any relevance to disability art or even the notion of a social model of disability [206] (p. 139).

3.3. Disabled Artists and Technologies

Technologies were mentioned in six articles in which in five, the sub-theme was of being developers and users of technologies such as the eye gaze, haptics, assistive technologies, and computer technology to perform arts to advance their artistic ability [186,230–233]. In one article, it is stated that Lennard Davis points out in his concept of dismodernism “that we are all dependent, that all subjects are incomplete without technology, and that taking care of the body is obligatory in both consumer and governmental health discourse. These social relations make the grounding of the dismodernist ethic; we are all non-standard. This heterogeneity among people calls for a more prominent position for disability in contemporary culture. One such involvement could be making disability aesthetically interesting to the art scene” [189] (p. 185).

3.4. Disabled Artists and Museums

Of the 50 articles, six had content related to museums. One simply stated that a consortium of organizations, which includes museums and individual artists, contribute to the growth of disability art(s) and culture [184]. One article [194] made the case that young disabled artists need networking opportunities with arts stakeholders such as museums, suggesting internships for young disabled artists in museums, and argued for the need of disabled artists to be introduced to career opportunities for in museums beyond creating art. One mentioned that the literature around disabled artists and museums did not engage with the concept of allyship, yet that the topic of museums as allies was covered in relation to other groups. For example, museum workers are encouraged to be potential allies for people of colour [203]. One article covered disabled artists and museums as part of an interview and stated:

“Ann: Can you each tell me a bit about what you are working on these days, especially as regards disability art and culture? Joan: I'm working on many things with respect to performance and civic engagement. Climate change. Immigration. Racial justice. Gun violence. And all this also has implications around disability because we live in an intersectional world. But as regards

disability more specifically, our DisAbility Project continues to perform and advocate. We are one of the oldest projects in the U.S. with over two decades under our collective belt, and are included in the collection of the Missouri History Museum. Somewhat incredibly to me, we have performed for over 100,000 people, many of whom are students, thus influencing generations of potential change agents. As writer Kenny Fries says, “Cultural access is as essential as physical access to an inclusive society” (“Access for All”) [190] (p. 232).

One article argued that “if the function of culture (specifically that part of culture called art) is to encourage the cultural museums (galleries, art schools, venues and the like) to legitimise the hegemony of normality (Bourdieu 1993) and reinforce the otherness of disabled people, then a re-evaluation of Disability Art is overdue” [206] (p. 133).

Another article performing a literature review engaged in detail with the topic of visitor experience and disabled artists and their work [188]. They argued that “Disability, mad and d/Deaf arts are motivated to transform the arts sector and beyond in ways that foreground differing embodiments” [188] (p. 288). The study sought to ascertain whether disabled artists and their work have an effect on how people experience and consume art, and whether it led to “social change related to non-normative bodies” [188] (p. 288). They argued that the measure used to ascertain visitors’ reactions to politicized art is not good enough and that they must also be informed by the field of critical disability studies as well as include reactions by disabled visitors. They argued that “emerging tools and concepts from visitor studies” should be integrated with “the field of disability, mad, and d/Deaf art” and that “evaluations of events through the lens of disability, mad, and d/Deaf art” are needed [188] (p. 302).

4. Discussion

Our findings suggest that disabled artists are mostly engaged within the context of becoming and being a disabled artist. Beyond the work itself, the identity issue of “being disabled” was a main focus of the coverage of being a disabled artist. Some articles suggested a social role of disabled artists as change agents and this social role included engaging with the identity and living situation discussions of disabled people. However, the literature covered did not provide in-depth engagement with the barriers and best practices to fulfill this role. Finally, the literature covering content on the relationship of disabled artists and advancements of science and technology only focused on disabled artists as users of advancements of science and technologies for making arts. No content at all was found that would link disabled artists to the governance or ethics discussions around science and technology, and no content linking disabled artists to being educators with their work on science and technology issues that could be used, for example, in museums was found.

In the remainder of the section, we discuss opportunities for academic work concerning disabled artists and their work first through the lens of existing literature on the role narratives of artists and the arts; then through the lens of discourses concerning artists and science and technology; and finally through the lens of existing literature concerning the role of museums.

4.1. Opportunities Based on Existing Role Narratives Concerning Artists and the Arts

Based on many of the role expectations of arts and artists present in the academic literature, such as bringing about social change [40,41], justice [2,42,43], liberation [44], challenging politics [34], policy making [35,36], political reform and accountability [37], and public influence [45,46], all of which can also apply to disabled artists, and that disabled artists have a role in engaging with all aspects of the UN Convention on the rights of persons with disabilities [79], more could have been and can be done to engage with the social role of disabled artists and their work, including the barriers and impact of their engagement with general societal issues. More studies covering the social role of

disabled artists and their work are also warranted given that there are many disabled artists that engage with broader societal issues. Many webpages suggest a broad social role for disabled artists, for example [234,235] and on *Disability Arts Online* [236]. Disabled artist Liz Crow has described: “Roaring Girl Productions (RGP) is a creative arts company working in film, audio, text and performance. We combine high quality creative work with practical activism” [237]. The Sins Invalid [238] project is described as “Sins Invalid is a disability justice based performance project that incubates and celebrates artists with disabilities, centralizing artists of color and LGBTQ/gender-variant artists as communities who have been historically marginalized. Led by disabled people of color, Sins Invalid’s performance work explores the themes of sexuality, embodiment and the disabled body, developing provocative work where paradigms of “normal” and “sexy” are challenged, offering instead a vision of beauty and sexuality inclusive of all bodies and communities” and is stated further that it can “Provide a supportive and politically engaged space for both emerging and established artists with disabilities to develop and present compelling works to a broad audience” [238]. It is stated that the world is better because of black disabled artists, in reference to “‘black crip magic’: the power and beauty of black disabled activists and artists making change, creating space, innovating, producing challenging and brave new works and articulating potential futures and ways forward together” [239]. Disabled artists are involved in the discussions around various social issues beyond the topic of identity such as sustainability [234] and bioethics [240]. The disabled artist Sunaura Taylor engages with the topic of animal rights [241]. It is demanded that disabled artists “are involved in national planning about life in art and culture after #Covid19” [242]. Funding exists that attempts “to reposition the role of the disabled artist in a wider social and political context” [243]. A 2021 news item regarding grants given to disabled artists by “Unlimited”, an arts commissioning program for new works by disabled artists in the UK, ref. [244] showed that many of these projects by disabled artists covered social issues such as climate change.

The expectation of collective action by artists [39] suggests that there should be collective action between non-disabled artists and disabled artists as change agents. However, in the literature analyzed, this was not a topic discussed. Many studies are needed on the topic because collective action on activism and social change is not simple given that the many barriers faced by disabled people [81] are also faced by disabled artists. Artists are to have a social responsibility [135–142] and artists are expected to advocate, make significant contributions to society, and be socially accountable to society [77]. However, when it comes to the social responsibility of disabled artists, the phrase “social responsibility” did not appear once in the literature covered. If one agrees with the social responsibility concept in relation to artists and their work, disabled artists and their work must be covered in relation to social responsibility and disabled artists must be supported in this endeavor by others, an aspect we did not find anything on in the literature covered.

Although we found some content with the search terms “disability art” and “disability arts” in our scoping review, the content we found suggests the need for much more engagement with the very concepts of disability art(s) and the social role of disability art(s) in academic articles and not only in books [245–247] and at conferences on disability art(s) [248,249].

4.2. Opportunity to Expand the Role of Disabled Artists and Arts in Science and Technology Governance

Disabled artists are involved in the discussions concerning various technologies; for example, artificial intelligence [250] and the disabled writer and performance artist Jillian Weise has critiqued Haraway’s “Cyborg manifesto” [251], stating:

“When I tell people I am a cyborg, they often ask if I have read Donna Haraway’s ‘A Cyborg Manifesto’. Of course, I have read it. And I disagree with it” and “The manifesto coopts cyborg identity while eliminating reference to disabled people on which the notion of the cyborg is premised. Disabled people who

use tech to live are cyborgs. Our lives are not metaphors” and “It can be a bit intimidating to claim cyborg identity. I feel like it is an impossible task to define myself against the cyborg wreckage of the last century while placing myself in the present and projecting forward. I worry that the cyborg is sometimes just a sexy way to say, ‘Please care about the disabled,’ and why should I have to say that? I worry that the cyborg is too much an institution, an illusion of the nondisabled, the superhero in the movie, the mixed martial artist, the bots who either make life easy or ruin everything. Yet I recognize the disabled who double as cyborgs” [251] (see also Young on cyborgism [252]).

There is also the recent “Recoding Cripteck” exhibition that involved the following disabled artists: Jillian Crochet, Pete Eckert, M Eifler also known as BlinkPopShift, Sara Hendren, Todd Edward Herman, Allison Leigh Holt, Jennifer Justice, Kinetic Light, Darrin Martin, Sonia Soberats, Tony “TEMPT” Quan, and Chun-Shan (Sandie) Yi [253].

However, this engagement of disabled artists with technologies is not reflected in the literature we covered and as such, our findings suggest that disabled artists and their work in relation to science and technology needs to be discussed in much more depth in the academic literature. There is a long history of arts involvement in science and technology including STEAM. STEAM is an educational approach that includes science, technology, engineering, arts, and math [19,20,27–29,94], and operate through programs such as ‘artists in residence’ in science-based settings [21–26]. Our findings suggest that there are valuable opportunities to push for disabled artists in residence in relation to science and technology-based settings and to engage with disabled artists and their work in STEAM, both of which were absent in the literature we covered.

Given the descriptions by the publishers of three journals present in the databases that had art(s) and techno* in the journal title, these journals could and should have had content related to disabled artists and science and technology. The journal *Leonardo* is described by its publisher as “the leading international peer-reviewed journal on the use of contemporary science and technology in the arts and music and, increasingly, the application and influence of the arts and humanities on science and technology” [94]. The journal *Technoetic Arts* is described by its publisher as a journal that “focuses upon the juncture between art, technology and the mind, drawing from academic research and often unorthodox approaches. *Technoetic Arts* is a peer-reviewed journal that explores the juncture of art practice, technology and the human mind, opening up a forum for trans-disciplinary speculative research” [254]. The *Journal of Science and Technology of the Arts* is described by its publisher as “a peer-reviewed publication that results from a commitment of the Research Center for Science and Technology of the Arts (CITAR) to promote knowledge, research and artworks in the field of the Arts. The Journal provides a distinctive forum for anyone interested in the impact which the application of contemporary Science and Technology is having upon the Arts” [255].

Furthermore, the databases we covered included many art(s) journals, ethics, and applied science and technology journals, as well as disability studies journals, that could have engaged with disabled artists in relation to science and technology even if science and technology is not their main focus. However, our results reveal that not one article covered the topic of the influence of disabled artists and their work on science and technology advancements including science and technology ethics and governance discussions. We only found six abstracts covering science and technology in which five focused on the role of disabled artists as users and developers of technology [186,230–233], and one, without linking it to disabled artists, simply stated that we are all incomplete without technology [189] and that the “heterogeneity among people calls for a more prominent position for disability in contemporary culture” to which such “involvement could be making disability aesthetically interesting to the art scene” [189] (p. 185).

Science and technology governance discourses that focus on analyzing social implications of advancements in science and technology, as well as the involvement of stakeholders and public engagement, involve non-disabled artists and their art in var-

ious ways [24,112–121,127]. To also involve disabled artists in science and technology governance fits in with a long history of literature that engaged with the topic of the social responsibility of artists including in relation to science and technology advancements [135–142] and artists as activists [143–149]. Given that artists are expected to capture aspects of the social experience, including preservation of what is known and anticipating the future [57], it seems logical to involve disabled artists and their work not only as a means to interact with the disability community but also the non-disability community. Indeed, some topics can be covered only by disabled artists to disabled people and topics can be covered in different ways by disabled artists to non-disabled people.

It is noted that “art-science collaborations offer the potential to engage both publics and scientists” [121] (p. 98) but also cautions that there are “challenges in effectively implementing collaborations” [121] (p. 109). Involving disabled artists, whether or not they focus on the social aspect of disability issues triggered by science, poses challenges in the implementation (accessibility) and as such, studies that address this topic are needed.

It is also argued that there are “dangers in potentially instrumentalizing artistic work for science policy or innovation agendas” [121] (p. 93). Furthermore, “humanities, social sciences and arts has been co-opted for legitimisation [of science and technology advancements]” [256] (p. 201) and this problem is increasingly called out [256]. Disabled artists and their work can help to regain a critical lens, but there is also the danger that disabled artists with a specific message, such as medical-related, are co-opted to legitimize certain advancements in science and technology. Our findings and the non-academic literature indicate a contested and diverse view on the scope and meaning of disability art(s) and who can be the producer of disability art(s). However, we did not find in our scoping review an engagement of disability art(s) with advancements in science and technology. As such, studies that engage in depth with disability art(s) in general and its relationship to science and technology are needed.

The use of arts in science education has been covered in the academic literature for some time [257–261]. One study made the case that it is important to employ the five responsible research and innovation values, namely “creative and critical thinking, engagement, inclusiveness, gender equality and integration of ethical issues”, in using “digital and arts-based methods in science education activities” [262] (p. 1). Our findings suggests that none of the values reflecting responsible research and innovation as covered by Ruiz-Mallén, Heras, and Berrens in [262] have been engaged with in relation to disabled artists or their work in the literature we covered. Indeed, disabled artists and their work were not covered in relation to science education at all.

4.3. Opportunities Based on the Existing Roles of Museums

Museums play an increasingly important role in science and technology education and governance [150–159]. Science museums enable scientists, researchers, and other stakeholders to shape and negotiate their own images of the public and to become meaningful players in the dialogue between science and society [160]. Science, technology, and society studies highlight the role of museums in the domains of the education, dissemination, and communication of science, “leaving a gap about the role of SCMs [science centers and museums] as platforms to support public participation in science policy” [160] (p. 421). Science centers and museums play an increasingly important role in bringing science and technology to the public [161]. Uninvited publics “require new strategies to reach them and a new positioning of the museum in regard to its stakeholders, highlighting its role as a “broker” between different constituencies rather than as a content provider” [160] (p. 441). Science centers and museums are important in the continuing education of teachers [161]. Science museums have personal, social, political, and economic impacts, in which the focus is mostly on the personal and the social, while the political and economic is ignored [162]. However, the social role of science centers and museums is increasingly considered important [162]. Science museums increasingly fulfill the role of “brokers between the public and policy-making institutions and are becoming platforms that enable

scientific citizenship" [152] (p. 131). Interestingly, this role is also seen as a barrier due to the fear of negative public opinion [152]. Some studies suggest "that museums need to shift both their purpose and role in society and their working practices radically, if they are to become effective agents for social inclusion" [263] (p. 89). "Science museums are a place of "knowledge-based democracy" [264] (p. 3) whereby "scientific citizenship means dialogue" [264] (p. 3). All these roles of museums suggest that disabled artists and their work have a role to play in the museum-based science and technology education.

5. Conclusions

Our findings suggest a lack of depth and diversity of engagement regarding the social role of disabled artists and their work in the literature we covered. Furthermore, our findings suggest a disconnect between disabled artists and their work and the advancements in science and technology. We see both as a problem. Indeed, the diversity of views on the meaning and scope of the term disability art(s); who can perform disability art(s) that exist in the non-academic literature; the academic literature we covered [170–174,189,265,266]; and the many articles in the literature we covered that flagged identity of disabled artists and disabled people as a main topic of debate and engagement suggest the need for many studies. For example, what is accepted as the scope of disability art(s) and what identity a disabled artist is to have will greatly impact the social role of disabled artists and their work as educators and influencers on societal issues in general and scientific and technological advancement. The barriers encountered by disabled artists and their work in fulfilling social roles (negative social attitude toward and negative imagery of disabled people [187,195,203,206,215], non-acceptance or lack of uptake of its political message [187,206,207], decreased disability equity and lack of rights of disabled people [187,203,215], and lack of respect for their work [203,215]) as reported in the literature we covered also greatly impact the ability of disabled artists and their work to perform certain social roles such as being educators and influencers in relation to societal issues in general and in relation to discussions concerning scientific and technological advancements, as well as ethics and governance discussions of such advancements in particular.

Our findings suggest research and educational collaboration opportunities between many fields such as STEAM; arts education; science education; disability studies; science and technology studies; museums studies; ethics; and other academic fields engaging with societal problems and issues. In addition, our findings suggest vast opportunities for collaborations with disabled artists to fill the gaps and analyze, reflect, and engage with the societal role of disabled artists and their work.

The field of arts education could also broaden its educational and research focus on disabled artists and their work. Studies that investigate how arts education curricula cover disabled artists and their work in general are warranted. Given that STEAM is an educational approach that includes science, technology, engineering, arts, and math [122,267–271], it is warranted to investigate how arts education engages and portrays disabled people in general and the work of disabled artists in relation to STEM, how STEM education covers disabled people, how the education uses disabled artists and their work to cover STEM. Art/science residencies [21–26,272] could be investigated in depth in relation to disabled artists. Our findings also suggest that studies are warranted regarding the involvement or lack thereof of disabled artists and their work in science and technology education in general and in museums, as well as in the discussions around the governance, ethics, and social implications of science and technology, including discussions that take place under the phrase "responsible research and innovation". It might also be useful to link the gap of inquiry we found in our scoping review to the problems in academic discourses that cover equity/equality, as well as diversity and inclusion (EDI) strategies for disabled people in universities [273]. The very problematic situations of disabled people in universities [273] might be one reason for our findings. An improvement in EDI realities in universities for disabled students as well as academic and non-academic staff might lead to changes in

the research topics chosen and an increase in engagement with disabled artists. Given the reality, one could surely conduct many participatory research projects with disabled artists.

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