

Evidence Review:

Intersectionality in research, grant-making and human capital development



A stylized illustration of a diverse group of people. In the foreground, a young man with short dark hair is seated in a wheelchair, wearing a blue zip-up jacket and light-colored pants. He is looking slightly to his right. To his left, a woman with short dark hair is standing, wearing an orange zip-up jacket and red pants. To his right, a woman with long blonde hair is standing, wearing a purple zip-up jacket and purple pants. In the background, several other people are visible, including a woman with long dark hair and a man with short dark hair. The style is a flat, graphic illustration with bold outlines and a limited color palette.

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Table of Contents

1. Introduction.....	4
2. Defining intersectionality	4
3. The role of Science Granting Councils in advancing intersectional gender transformation	5
4. Conceptual framework	5
5. Methodology.....	6
6. Systematic literature review of intersectionality scholarship.....	6
7. Study findings	7
7.1 Systematic review of Africa-focused and global intersectionality scholarship.....	7
7.2 Individual interviews with intersectionality subject experts	9
7.3 Document review of intersectionality in African SGC institutional policies and programmes.....	11
8. Discussion	12
9. Recommendations.....	14
References	15

1. Introduction

Gender inequality remains a challenge in the field of science, technology, and innovation (STI). While women are increasingly joining science, technology, engineering, and mathematics (STEM) educational programmes, their representation decreases the further they proceed through the 'leaky' STI pipeline. The UNESCO Institute of Statistics indicates that while Sub-Saharan Africa has made significant gains in the number of female tertiary graduates, only 30% of researchers in the region are women (Huyer, 2019). Gender parity on the continent is particularly low in STI leadership, decision-making, and senior research positions (African Academy of Sciences, 2020).

Adopting an intersectional framework is increasingly acknowledged as important in meaningfully addressing persisting gender and other social inequalities in knowledge production in STI. Science Granting Councils (SGCs) play a key role in shaping research agendas, methods and content. This project aimed to contribute a greater understanding of intersectionality as a framework that supports inclusive gender transformation, with a focus on the strategic role of SGCs in advancing equality. The project is nested in a larger initiative – the Science Granting Councils Initiative in Sub-Saharan Africa (SGCI) – aimed at strengthening the capacities of SGCs in Sub-Saharan Africa to support research and evidence-based policies that contribute to economic and social development. Adopting a mixed-methods design, the project aimed to establish the extent to and the manner in which an intersectional framework is integrated throughout the grant-making, human capital development and research cycles. This report summarises key findings from a systematic review of research informed by an intersectional framework, individual interviews with subject specialists in intersectionality methodologies, and a desktop review of the integration of intersectionality into African SGCs' policies and programmes. The report concludes with practical recommendations for African SGCs in advancing equality, diversity and inclusion through intersectional knowledge production and grant-making practices.

2. Defining intersectionality

Efforts to address gender inequality in research, grant-making and human capital development have evolved to recognise that marginalised groups “are heterogeneous and consist of diverse populations with varying degrees of power” (Brown et al, 2019, p. 3). The term intersectionality has been coined to explain the ways in which social identities – such as gender, sexuality, age, race, class, and (dis)ability, amongst others – are interconnected and create unique experiences of oppression and discrimination for marginalised persons (Cho, Crenshaw, & McCall, 2013). Rooted in black feminist activism and scholarship, an intersectional framework “takes as its premise that human experience is jointly shaped by multiple social positions [...] and cannot be adequately understood by considering social positions independently” (Bauer et al., 2021, p. 1). Accordingly, an intersectional analysis goes “beyond gender” to also include the interplay of other identities and experiences.

Integrating an intersectional lens in research, grant-making and human capital development in STI holds several benefits. Such a lens enables a more sophisticated analysis, thereby supporting a more “effective ‘diagnosis’ and ultimately an effective ‘prescription’” (Hancock, 2007, p. 73). It provides tools for better identification of the specific vulnerabilities that people experience, guiding more impactful policy and practice interventions. Intersectionality also contributes to increased impact and sustainability of efforts to advance inclusive gender transformation, by addressing the underpinning drivers of discrimination and marginalisation. Grabe (2020) notes that intersectionality requires researchers to “examine processes by which structural inequities lead to power imbalances and norms that sustain individuals’ experiences of marginalisation and oppression” (p. 11). Findings informed by such a framework can provide insights toward creating lasting systemic change (Schiebinger, 2014).

What is 'intersectionality'?

Intersectionality deepens understanding of the interplay between people's diverse identities and experiences, to explore how this interplay shapes and mutually reinforces oppression and exclusion (Crenshaw, 1991). It expands the focus on gender to also recognise inequalities related to other forms of diversity, such as age, race, class, (dis)ability and sexuality, amongst others, and interlocking structural inequality that creates and perpetuates marginalisation (Bowleg, 2021).



5. Methodology

The project has two overarching research objectives:

- (i) to establish the extent to and the manner in which an intersectional framework is adopted throughout the knowledge production grant-making and research cycle;
- (ii) to provide practical recommendations on the role of public funding agencies in advancing equality, diversity and inclusion in research, through applying an intersectional framework.

To address these objectives, we employed a mixed-methods design encompassing: (a) a critical systematic literature review of existing Africa-focused and global intersectional scholarship; (b) key informant interviews with subject experts in intersectional methodologies; and (c) a desktop review of selected African SGC institutional policies and programmes. The methodology and outputs were reviewed and refined throughout the project period to be responsive to the resourcing needs of participating SGCs, as the primary end-users of the research, as well as other key actors and stakeholders in the STI landscape. Detailed methodological information can be found in the full reports.

6. Systematic literature review of intersectionality scholarship

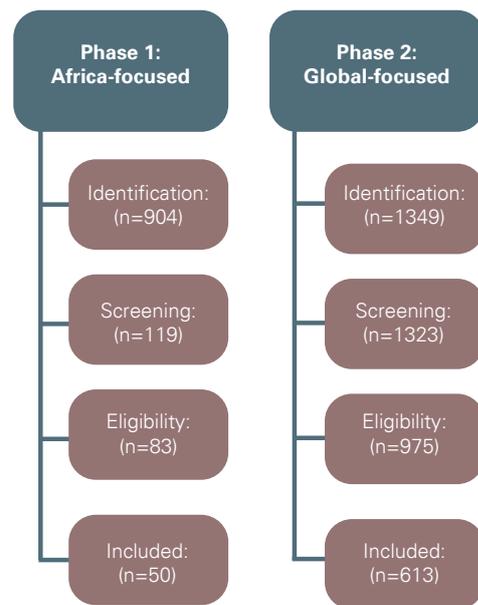
The systematic literature review of intersectionality scholarship entailed a two-phase systematic search of peer-reviewed journals across all major academic disciplines and not restricted by language of publication or institutional access. In phase one, we focused on Africa-focused studies using an intersectional framework. In phase two we expanded the focus to global literature.

For both phases, we used EBSCOhost, an aggregator library database that collates content from 375 full-text publisher databases. Inclusion criteria were: peer-reviewed journal articles comprising empirical, theoretical, methodological, literature and systematic review article types, published over 5 years from 2015 to 2019. For the Africa-focused dataset, we supplemented the database search with a Google Scholar search, motivated by the project's focus on African SGCs. After screening for relevance, the final data set for the Africa-focused analysis comprised (n=50) articles, while the global-focused dataset included (n=613) articles. Figure 2 summarises the selection and screening process for both phases.

We used qualitative data analysis software (ATLAS.ti) to organise, code and analyse both data sets (Friese, 2019). Descriptive statistics and cross-tabulations explored the following variables of interest in the coded data set: (a) research methods, disciplinary focus, and author location; (b) main social identities focused on in research; (c) main thematic areas explored; and (d) sources of funding.

Individual interviews with intersectionality subject experts

We conducted individual interviews with subject experts in intersectional research methodologies. We identified potential interview participants using purposive sampling. We selected a subset of 50 articles in the systematic literature review dataset and invited the lead authors of 30 studies to participate (the remaining 20 authors were excluded because of a lack of



contact information as well as some authors forming part of the institution of the authors of this report). In identifying potential participants, we were interested in diversity in geographic location (in researcher affiliation and/or the geographic focus of their research); career levels; disciplinary and research focus; and methodologies used.

The final sample included nine participants. Of the nine participants, two participants identified as male and seven as female, and their geographic location spanned the US, Kenya, Namibia, Sweden, and South Africa. Participants' career levels ranged from doctoral student level to veteran professors in their fields of study. Research areas included: disability studies; political ecology and feminist sciences studies; gender politics with a focus on women's representation; women's movements; policy concerns such as gender-based violence and intersectionality; history of science, medicine and technology; health equity and sexual and reproductive health and rights; public health; and the sociology of gender and sexuality. The social identities most frequently studied by participants include intersections of the following, where the combination depends on the field of study and the particular research questions: gender, race/ethnicity, socioeconomic status/class, disability, sexual orientation, and geographic location. Five of the nine participants used both quantitative and qualitative research methodologies; two used mostly quantitative methodologies and two used mostly qualitative research methodologies.

We conducted online in-depth interviews using e-mail (asynchronous) as well as digital platforms (synchronous), through Zoom and Microsoft Teams, based on participant preference. The semi-structured interview guide probed the following domains: (i) participants' conceptualisation of intersectionality in research; (ii) their decision-making process concerning which categories of identity to include or exclude in a study, and particularly if they make this process explicit in research publications; (iii) which research methodologies they find appropriate when conducting intersectional research; (iv) the benefits, drawbacks and challenges in applying an intersectional lens to research; and reflections on researcher positionality. The synchronous interviews were transcribed verbatim and the resulting transcripts, as well as written responses from the e-mail interviews, were organised and coded using ATLAS.ti (version 9). The coded transcripts were then analysed using thematic analysis.

Desktop review of SGC institutional policies and programmes

The document review of African SGC institutional policies and programmes focused on Councils' gender and inclusivity policies, reports, research calls, strategies, and capacity building initiatives. Document review as a research methodology entails "finding, selecting, appraising (making sense of), and synthesising data contained in documents" (Bowen, 2009, p. 28). Documents included in the review were treated as data and coded and organised into major themes using content analysis. We identified documents for analysis by reviewing the web pages of each Council for relevant documents. Not all Councils have comprehensive websites and therefore this data collection strategy did not provide even access to Council documents and other data necessary for the analysis. To address this, the research team solicited documents through direct requests to Councils via email.

The documents were screened for relevance, organized according to document type and coded in Excel. This was an iterative process, where coding categories such as class, age, race, disability, and socioeconomic status were added to and refined as new codes emerged. Finally, the coded documents were analysed using content analysis to examine how gender and other social identities were integrated into the policies and programmes. Documents that were only available in French or Portuguese were analysed by team members proficient in these languages.

7. Study findings

Below we provide an overview of the study findings in relation to the different study components, starting with the systematic literature review of intersectionality scholarship. This is followed by an overview of key themes identified in the individual interviews with intersectionality subject experts, before presenting findings from the review of intersectionality in SGCs' institutional documents.

7.1. Systematic review of Africa-focused and global intersectionality scholarship

We first share findings related to knowledge production, i.e., research practice and content, before presenting findings related to the funding of intersectional scholarship as reported in the articles under review.

Research methods and disciplinary focus in scholarship

The analysis of international scholarship indicates that publications are predominantly empirical (51%), followed by theoretical articles (35%), literature and systematic reviews (8%), and document analyses (6%). A similar trend is echoed in the review of Africa-focused scholarship with empirical studies dominating (80%), although document analyses (4%), theoretical articles (4%) and literature and systematic reviews (3%) are far less common.

Empirical studies mainly relied on qualitative methodologies. In terms of disciplinary focus, Social Sciences and Humanities journal publications were overwhelmingly dominant (87%), followed by 10% of articles appearing in Health Sciences journals, and 2% in STEM journals. While there is growing acknowledgement of the relevance of applying intersectionality theory in quantitative methods, the high percentage of studies employing qualitative methods aligns with their predominant use in Social Sciences and Humanities.

Location of global and African knowledge production

The majority of authors employing intersectionality theory – based on the institutional affiliation of the first author – are located in institutions in North America (60%, notably in the US and Canada). This is followed by Eastern and Central Europe (16%) and Northern Europe (7%). Significantly, authors located in Africa are amongst the least represented in the data set (2%). Analysis of geographic location in the Africa-focused data set similarly indicates low regional diversity, with more than half of studies conducted in South Africa (54%) followed by Kenya (10%), Ghana (8%), a combination of countries in Sub-Saharan Africa (6%), and Lesotho (4%). (Countries where only one study was conducted include Liberia, Nigeria, Rwanda, Tunisia, Uganda, Zimbabwe, and Guinea Bissau). This trend continues when considering authors' institutional location: Authors based in South Africa are by far the most commonly represented in the data set, at 46%.

Main social identities and research topics in global and African intersectionality scholarship

While an intersectional analysis implies that several interconnected identities are simultaneously analysed, it is possible to identify the main social identities brought into focus by the studies under review. In terms of global intersectional scholarship, findings indicate that gender, race, and socio-economic status/class dominate in the data set. Few studies address diversity in relation to age, ethnicity, and refugee/migrant status. Even smaller numbers focused on education, health status (including HIV/AIDS) and religion.

This trend persists in scholarship produced on the African continent. There is, however, still substantial diversity in the range of identities represented in African scholarship, beyond gender, race and socioeconomic status/class, albeit in smaller numbers. These include intersections of age, marital status, sexual and gender diversity, culture, unemployment, refugee/migrant status, education, disability, health status (HIV/AIDS) and religion. Disability (predominantly investigated in articles in education and public health) received very little attention in both the global and Africa-focused datasets.

Africa-focused findings indicate that the diverse social identities and experiences described above are researched in relation to a wide range of concerns relevant to the region. The range of topics covered in the data set is broad, but on closer inspection, it is possible to see that four thematic areas dominate – gender equality, sexual and gender diversity, climate change and policy-focused analyses.

Intersectionality in research funding: Funding source

Funding sources were categorised as universities (institutions of higher education and research); government; non-profit donors (non-profit organisations, trusts and foundations); SGCs; and bilateral/multilateral funders (e.g., WHO, UNICEF, World bank). Findings from the review indicate that overall, intersectionality research is mostly funded by universities (29%), followed closely by SGCs (27%) and non-profit donors (24%). Bilateral and multilateral funding sources are near absent in the review. Significantly, 76% of the articles in our review did not acknowledge a funding source.

Intersectionality in research funding: Funding source by region

In terms of funding sources distributed by author location, findings indicate that the Global North leads with financial support for intersectionality research (see Figure 4). Of the total government spending across the dataset, 55% is allocated in North America followed by 24% in Eastern and Central Europe, and 10% allocated in Northern Europe. For SGC funding, 50% is allocated in North America followed by Eastern and Central Europe (29%) and Northern Europe (7%). For university funding, 64% is allocated in North America followed by Eastern, Central and Northern Europe (11%). Africa, the Middle East and South America report the lowest funding and funding source spread.

	Bilateral / multilateral	Donor funding	Government	SGC	University
Africa	-	8%	-	2%	-
Asia	-	8%	-	4%	5%
Australia/NZ	-	-	-	4%	5%
Eastern and Central Europe	-	9%	24%	29%	11%
Northern Europe	50%	6%	10%	7%	11%
Southern Europe	-	-	7%	-	-
Middle East	-	-	-	2%	2%
North America	-	66%	55%	50%	64%
South America	50%	3%	4%	2%	2%

Figure 3. Funding source as reported by region

Intersectionality in research funding: Funding source by social identities

Findings show that funding support mainly centres on four social identities, i.e., gender (23%), race (14%), sexuality (10%), and socioeconomic status (9%). Language, religion, rurality, marital status, parenthood status, socio-economic status, culture, and disability are featured in less than 6% of all funding sources. This is consistent with the finding that these topics dominate in the articles under review, while others (such as disability) are underrepresented (See Figure 4).

Social identity	Bilateral / multilateral	Donor funding	Government	SGCs	University	% across all sources
Gender	50%	24%	24%	21%	24%	23%
Race	-	15%	9%	14%	17%	14%
Sexual and gender diversity	-	6%	16%	9%	9%	10%
Class	-	10%	5%	10%	10%	9%
Ethnicity	-	10%	10%	7%	8%	8%
Age	-	5%	9%	9%	5%	7%
Health	50%	6%	7%	6%	5%	6%
Education	-	11%	3%	2%	6%	6%
Refugees	-	4%	7%	9%	4%	6%
Language	-	-	-	1%	-	<6% of stud- ies across funding sources
Religion	-	1%	3%	2%	2%	
Rurality	-	1%	2%	-	-	
Marital status	-	2%	-	1%	-	
Parenthood status	-	2%	-	1%	2%	
Socio-economic status	-	2%	3%	2%	1%	
Culture	-	-	-	4%	2%	
Disability	-	1%	2%	2%	4%	

Figure 4. Funding source as reported across social identities

7.2. Individual interviews with intersectionality subject experts

The systematic literature review was supplemented with individual interviews with subject specialists, to deepen the analysis with the accounts of research practitioners themselves and provide insights on implementing intersectionality theory in practice. Findings from the interviews focused on methodological decision-making when applying this framework, with four themes identified in participant accounts: (i) research in the service of social and structural change; (ii) making marginalised groups visible; (iii) a personal commitment to intersectionality in research; and (iv) weaving through a self-reflexive practice. Together these themes provide insight into the way researchers navigate methodological decision-making when drawing on intersectional theory, to best serve the research issues they investigate.

Research in service of social and structural change

The first theme identified in participants' accounts is focused on using research to drive social and structural change. Applying an intersectional lens is described as providing the theoretical and methodological tools to make these inequalities visible, in order to address them. Using intersectional methodologies is considered as extending beyond exploring marginalised social identities to assist in identifying ways of dismantling the systems of power and privilege that create marginality and vulnerability (Rice, Harrison, & Friedman, 2019). A participant describes how this transformative goal shapes their methodological decision-making: *"Social identities intersect in real life—the study attempts to capture that. My work seeks to create social equities"* (Participant 1).

Participants expressed how harnessing intersectionality theory to conduct research in the service of social and structural change is not uncomplicated; rather, it can entail grappling with *"how the theory selected translates into implications for better practice that emerge from different engagement"* (Participant 5). However, drawing on intersectionality theory was frequently foregrounded as key in generating the evidence needed to develop policy, interventions and programmes to transform marginalising contexts. Methodological decision-making in support of a transformative goal was not limited to the application of the results of a study, but also articulated in relation to the research process itself. One participant, in particular, draws attention to the notion that the methodology question is also political as the process of knowledge production in itself can be empowering, or could reinforce the existing power structures at play. Further to this, the purpose of the research can also be enacted through the process of knowledge co-production.

Making marginalised groups visible

The second theme builds on the notion of intersectionality providing a lens that can “*help make visible the experiences of some groups in society*” (Participant 7). For participants, intersectionality assists in “*getting the design right for people across all society—from the very beginning*” (Participant 1). Considering social identities together as opposed to in isolation from each other is described as increasing the ability of researchers to capture experiences more accurately and consequently, inform actions more directly in terms of reducing inequalities, especially when the work directly links to policy and programmatic priorities. This is described as supporting research that offers more contextually relevant, appropriate, and effective interventions: “*In research on GBV we need to understand race and class in relation to where people live, their access to transport at night, for example, their access to shelters etc.*” (Participant 6). Participants highlighted how generating visibility of historically marginalised groups is particularly important in settings still impacted by the legacies of multiple oppressions, such as post-colonial contexts: “*The intersections of identities is important to analyse, especially in South Africa, where certain racial and disability groups were previously marginalised under apartheid*” (Participant 8).

Participants noted that the decision-making process around which identities receive prominence can be challenging. “*[A challenge is] the complexity on how best to conceptualise different social experiences – relevance and by whom*” (Participant 5). The identities researchers tend to focus on in their work, inadvertently contribute to and reinforce the idea of priority “*building blocks*”, namely race, socioeconomic status and gender. In other words, researchers attract more attention to certain identities than others in their preference to study some intersecting identities and not others, and this, in turn, influences what gets promoted in society: “*Something is happening around what is valued and what is not valued [...]. Part of the problem with the idea of intersectionality I think is you can add up your little building blocks and the building blocks tend to always be the same (e.g. race, class and gender), but the question for me with those building blocks is what are they still obscuring and what is not added up and when people say I’ll take an intersectional lens what do they really mean and what’s really included?*” (Participant 1).

A personal commitment to intersectionality in research

The third theme identified in participants’ accounts relates to how the personal experiences of researchers foster a particular sensitivity to identifying power disparities informed by intersecting social locations. This awareness contributes to their commitment to their research and the development of a nuanced analytical focus. Participants reflected on their own identities and experiences in relation to their research. For some their research interests and personal experiences are closely aligned:

I work on gender and understand that because I experience many aspects of it—this adds to the creativity of the work. I also work on race and ethnicity. I need to be careful to really understand my sources because I am from a privileged group. (Participant 1)

Witnessing examples of discrimination by gender or economic status gives me better insight to explore these issues. (Participant 2)

I explore research through the capabilities lens. This is my approach to life too and is important when considering how to expand the multidimensional capabilities of those in society to enhance participation. (Participant 8)

The below example speaks to a reflection of the participant’s intellectual focus as a researcher being influenced by their political identity and life experiences as a woman participating in historical political movements:

There was always this discomfort with where to locate the gender struggles of women in the political movement against apartheid, where that was located, so there was always a little tension between the struggle against apartheid whether it was a class struggle or a struggle for racial equality and whether the struggle for racial equality can be achieved without dealing with the class question... That was my first exposure to sort of intersectionality... (Participant 4)

Here, grappling with the intersections of various important social concerns, the participant highlights the difficulties many intersectional researchers face concerning which identities to prioritise when, or how to consider multiple social identities simultaneously.

Weaving through a self-reflexive practice

Finally, the fourth theme deals with practicing self-reflexivity in conducting and reporting intersectional research. While most researchers acknowledged that their personal experiences and viewpoints may influence what they study, they

equally state the importance of ensuring that these personal viewpoints add value and do not detract from their work. This is often achieved through the practice of self-reflexivity:

Self-reflexivity leads to a process of thinking how to understand someone else's context, to not be judgmental, to think about your race, class biases etc. (Participant 6)

Being reflexive of my experiences gives me an opportunity to advance the agenda of studying these issues together. (Participant 2)

While participants agreed on the importance of a self-reflexive practice, their perspectives on reporting on this practice in research outputs differed. While some see it as a vital, almost presupposed part of writing a research article, others view the practice as self-indulgent and unnecessary. In that sense, one participant described the practice of talking about oneself in a research output as *"centring and drawing attention to yourself as researcher instead of the participants"*. She describes how she sees herself *"already represented in the ideas [put] forward in the article"*, without needing to outline the categories of identities she belongs to (Participant 4). The practice of including or not including reflexive pieces in research papers is also influenced by the types of journals that researchers publish in, the disciplines in which they are located and whether the study relies on qualitative or quantitative methodologies: A participant notes that reporting on one's positionality *"is a feminist praxis. In most feminist journals this is an accepted and expected practice"*. (Participant 6). This contrasts with reporting practices in quantitative studies, where a participant notes: *"Not usually, as a quantitative researcher."* (Participant 8)

7.3. Document review of intersectionality in African SGC institutional policies and programmes

The final study component narrows in on how intersectionality is represented in the institutional documentation of SGCs. The desktop review of SGCs' policies, reports, research calls, strategies, and capacity building initiatives obtained aimed to identify the activities Councils are undertaking in relation to advancing gender equality and inclusion in their functions.

Gender inequality as an exclusive focus

Policies and programmes from the majority of the SGCs allude to the mainstreaming of gender and the role thereof in improving STI. The review identified several mechanisms employed by Councils to increase the participation of women, such as gender quotas in research teams, research calls targeting women scientists, and award programmes highlighting the achievements of women to attract more women into the field. For example, the National Council for Science and Technology in Rwanda has a mandatory requirement of at least 30% representation of women in research teams in all grants funded through the Council. Further to this, the Council established a targeted *Women in Science Research and Innovation Grant* to promote scientific leadership by women in research and development and supports an annual *Women and Girls in Science Award*. The review also identified funding mechanisms that support research focused on issues relevant to gender, e.g., the National Science and Technology Council (NSTC) in Zambia issued a call for proposals for a project titled *Gender Dimensions in Science, Technology and Innovation in Academia-Industry-Research and Development in Zambia*. These initiatives highlight Councils' acknowledgement of gender disparities and the need to prioritise gender equity and the inclusion of women in science.

While less common than the above stand-alone initiatives, some Councils have introduced dedicated gender policies, strategies and related gender machinery. For example, the Council for Scientific and Industrial Research (CSIR) in Ghana developed a gender policy aimed at creating a more gender-sensitive organisation. The policy includes the provision of care facilities for infant children of staff to support work-life balance and the promotion of gender-sensitive research (Global Research Council, 2019). The NCST in Malawi introduced a gender policy with six policy priority areas aimed at supporting gender inequality in the Council's functions: basic service delivery; corporate image and partnership building; employment, career development and promotion; sexual harassment and gender-based violence; capacity strengthening and gender mainstreaming; and good governance and public participation. The NCSRT in Namibia is in the process of approving the draft Charter for Establishing the Namibia Women in Science, Engineering and Technology Chapter. The NSTC in Zambia and FONRID in Burkina Faso are introducing gender focal points to coordinate policy changes in support of gender mainstreaming. Finally, the NSTC in Zambia issued revised funding guidelines in 2020 that include an objective of increasing the level of participation of women and differently-abled persons in STI.

While addressing gender inequality is important, the above examples demonstrate how gender is largely treated as binary – comprising 'women' and 'men' – and in isolation, with other intersecting identities that contribute to the marginalization of certain individuals and communities receiving less consideration (although exceptions, such as the NSTC Zambia revised funding guidelines that include disability along with gender, were also identified).

Marginalisation based on age and / or career level

Age was the second most commonly featured social identity in Council policies and programmes. While not as prominent as gender, it features in Council documents mostly through calls for young researchers and postgraduate researchers. For instance, the NSTC in Zambia has a *Science and Technology Innovation Youth Fund* that supports young innovators and seeks to create a culture of innovation among youth in Zambia. The Rwanda NSCT call for proposals in the *Sustainable Energy and Modern Agriculture* requires the inclusion of a postgraduate student, alluding to consideration of age and career level. In Burkina Faso, the listed Council activities include the allocation of grants to young researchers to encourage future scientists. Additionally, the *Call for Projects of the 1st Session 2021* is intended for young researchers – mainly Masters and Doctoral students. Initiatives have been set up since 2018 by the Council to encourage young researchers.

Some Councils also have dedicated youth programmes at basic education level, e.g., the NSTC in Zambia has established *Centres of Excellence for the Teaching and Learning of STEM* at several schools. Further to this the Council, in collaboration with the Zambia National Commission for UNESCO, supports *Girls Science Camps* aimed at encouraging girls to pursue STEM subjects in school and participate in science-based careers in future.

Marginalisation based on disability

The least commonly featured social identity explicitly identified and highlighted in Councils' institutional documents is that of disability. For instance, calls for proposals by the Zambian NSTC include the statement that, in addition to considerations of gender, differently-abled persons are encouraged to apply. As noted earlier, a focus on addressing the exclusion of persons with disabilities has been introduced at a strategic level in the Council's revised funding guidelines, in support of an objective to increase the level of participation of differently-abled persons in STI. The Tanzania Commission for Science and Technology supported the development of the *Zanzibar Research Agenda (ZRA) (2015) 2015 – 2020* which stresses the importance of initiatives that promote equal educational and employment access for people with disabilities as well as equal access to infrastructure and facilities.

Policy objectives, programmes and other targeted initiatives that include an explicit focus on disabilities are, however, generally lacking and disability is instead largely combined with more general descriptions of 'vulnerable' or 'marginalised' communities, as demonstrated in the section that follows.

Marginalisation based on multiple specified identities

It is important to highlight that a wider, more inclusive integration of intersecting social identities by Councils is not absent. This generally features in Council documents as part of a list of criteria with various diverse forms of marginalisation. For example, the Tanzania Commission for Science and Technology (COSTECH) *Research and Innovation Grants Manual* highlights that Research Ethics Committees "should also ensure that the principle of justice is taken care of in the proposal; that is the benefits accruing from the research distributed fairly among all subgroups/ populations; considering such factors as age, gender, economic status, ethnic diversity, and people with special needs considerations (equity principle)". Similarly, the Uganda NCST *Research and Technology Development Grants Operations Manual 2019* describes the Council's operating principles as including active participation of and non-discrimination against vulnerable populations including women and men, children, elderly and disadvantaged" and the provision of equal opportunity "regardless of gender, race, religion or socioeconomic status".

Finally, it is worth noting that many Council documents rely on the generic use of terms such as 'marginalised', 'disadvantaged', 'vulnerable' or 'all' communities, without specification of who constitutes these communities. For example, the Kenya National Commission for Science, Technology and Innovation (NACOSTI) *Strategic Plan - 2018-2022* lists improving the underrepresentation of marginalised groups in STI as one of several key strategic factors. Although this highlights the inclusion of disadvantaged communities or populations, a definition of marginalised groups is not provided. We unpack the implications of this in the section that follows.

8. Discussion

This mixed-methods study aimed to synthesise existing literature drawing on intersectionality theory to provide a snapshot of the current state of scholarship. It also aimed to deepen these findings by exploring methodological decision-making in the accounts of scholars employing intersectionality in their research. Finally, the presence of this framework was explored in the institutional policies and programmes of SGCs.

The systematic literature review provides a snapshot of the current state of intersectionality research. Our findings indicate that the deployment of intersectional frameworks is not yet crossing methodological and disciplinary boundaries. Instead, there is low methodological variation with the majority of studies drawing on qualitative methods and positioned in Social Sciences and Humanities disciplines. The paucity of intersectional quantitative studies and

near absence of science, technology, engineering and mathematics (STEM) disciplines is evident in both Africa-focused scholarship as well as the global evidence base. This suggests that “hard sciences” may still be grappling with translating intersectionality theory into methodological practice.

The high number of qualitative studies is to be welcomed, considering that qualitative methods are well-suited to researching interwoven, complex social dynamics and gaining depth of understanding. Bauer and Scheim (2019), however, argue for the value of quantitative intersectional analyses in, for example, analyses of their mediating drivers of intersectional inequalities. Such methodological innovation should be encouraged in the African context. The findings indicate that only a small number of articles demonstrate theoretical and methodological engagement with intersectionality, with a complete lack of articles consolidating knowledge through reviews in the Africa-focused data set. Intersectional methods are often described as intimidating, due to the complexity of analysis, and there remains a need to translate concepts “into practical methods and research tools” (Schiebinger & Arlow, 2010, p. 47). The relatively smaller number of theoretical and methodological articles, and the complete lack of such articles in the Africa-focused dataset, means that guidance for conducting intersectional research is lacking.

When analysing the geographic location of research, findings support Medie and Kang’s (2018) assertion that intersectionality research remains concentrated in North America, while African scholars and scholars located elsewhere in the Global South remain underrepresented. While institutional affiliation does not necessarily reflect nationality – e.g., global South authors in the diaspora – location is important in that it shapes access to research funding and training opportunities and influences teaching loads, among other factors (Medie & Kang, 2018). Indeed, the analysis of funding trends in intersectionality research indicates that financial research support is also more concentrated in the Global North, while Africa, the Middle East and South America report the lowest funding and funding source spread for intersectionality research.

Looking more closely at geographical variation in African scholarship, studies show low regional diversity with most intersectional research produced in South Africa. When considering the main social identities most researched within both African and global scholarship, four identities dominate, i.e., gender, race, socioeconomic status and age. The least researched social identity for both is disability. Similarly, funding support corresponds with these identities, also when considering research funded by SGCs. Significantly, a large percentage of articles does not acknowledge a funding source. This may indicate that this work was conducted without financial support and could be related to the hard-to-fund nature of small-scale, critical qualitative research.

The qualitative findings based on [interviews with intersectionality subject specialists](#) help shed light on methodological considerations when conducting research informed by this framework, which is sometimes viewed as complex and difficult to implement. The findings highlight how methodological decision-making is influenced by the potential for research to advance social and structural change; the particular intersecting identities and experiences that require illuminating; conceptual refinement based on personal experiences; and the need to integrate self-reflexivity throughout the research process. From the interview participants’ accounts, it also appears that intersectionality is more than an analytical frame, but speaks to a worldview and approach to conducting research, in many instances influenced by personal histories and experiences. Viewing intersectionality as an *approach* and not just *methodology*, enables researchers to more easily integrate an intersectional lens throughout the process of knowledge production, ‘fixing the knowledge’ (Schiebinger, 2014) in order to achieve more gender transformative analyses of complex intersecting social identities. Furthermore, this intersectional orientation they adopt and sometimes embody, assists researchers to move beyond merely exploring marginalised social identities, but shift towards identifying ways of stripping down the systems of power and privilege that produce marginality and vulnerability (Rice, Harrison, & Friedman, 2019).

Finally, the review of [African SGCs’ policies and other institutional documents](#) indicates that the degree to which Councils integrate gender and intersectionality into research funding, human capital development and grant management processes differs widely from Council to Council. The majority of Councils recognize the need to mainstream gender. This can be seen in specific policies focused on addressing gender inequality, encouraging applications from women researchers in calls and projects, and grants requiring a gender quota to be met in research teams.

While attending to gender inequality is important, attending to other identities and experiences that contribute to marginalisation are less commonly considered. Where marginalisation beyond gender is considered, this is by far most prominently done in relation to age (specifically youth, with reference to postgraduate students). This focus is in alignment with a regional focus on youth development as part of efforts to harness the continent’s youth dividend towards increased economic and social development. Further to age, while not as prominent, disability (at times coupled with reference to ‘special needs’) is a factor that is also integrated into some Council policies, programmes and projects. Noteworthy is that a general category of ‘disadvantaged’, ‘marginalised’, ‘minority’ or ‘vulnerable’ groups is

often used, but without clarification of the specific forms of disadvantage or vulnerability that are being referred to. An unintended negative consequence of the use of an undifferentiated category of disadvantaged groups is that it hampers the development of targeted measures to address particular forms of disadvantage. One of the main benefits of an intersectional lens is that it allows for more accurate identification of the specific forms of interconnected vulnerabilities that people face, thereby making it possible to respond more effectively.

The findings summarised in this integrated report have implications for efforts to advance gender transformative research that is inclusive of intersecting identities and experiences.

9. Recommendations

An intersectional lens provides guidance to improve the quality, contextual relevance, impact and sustainability of gender transformation in research and human capital development, not only for the benefit of women but for society broadly (UNESCO, 2018). Key project findings and recommendations towards the integration of an intersectional gender transformative approach in SGCs' functions are listed below, with detailed recommendations included in the full reports.

1. *Conducting an intersectional gender analysis that informs the development of policy and programmes:* Council policies and programmes demonstrate significant engagement with integrating gender-related concerns. Gender mainstreaming is, however, not without its pitfalls. The framework risks inadvertently treating gender as an add-on, where gender concerns are made to fit into existing strategies and priorities, instead of transforming the systems and institutions that create the conditions under which women are excluded. To be effective, gender mainstreaming needs to be "applied and understood as a strategy to address gender inequality at a structural level and achieve fundamental transformation by eliminating gender biases and power imbalances between men and women" (Sandler, 2004, p. 3). Further to this, adopting an intersectional approach to gender mainstreaming allows Councils to tailor policies and programmes to the diverse marginalised social identities in their particular contexts.
2. *Developing greater specificity when addressing diversity and inclusion:* Related to the preceding point, it is a positive development that some Councils have started to include diverse social identities beyond gender in their policies and programmes. This contributes to a more sophisticated analysis of overlapping factors that inhibit gender equality. However, many Council documents rely on a generic use of terms to refer to marginalised groups, without specification of who constitutes these communities. In addressing gender and inclusivity, Councils can benefit from listing specific priority groups. Related to this, initiatives that build Councils' capacity to confidently apply an intersectional framework, including practical tools to this end, will support achieving such clarity.
3. *Stimulating further research on diverse social identities and experiences:* Findings from the systematic literature review, both in the global and Africa-focused intersectional scholarship data sets, indicate a dominant focus on gender. This is echoed in findings from the SGCs' policies and programmes review. Where other social identities are included, this is focused on marginalisation related to age/career level and disability, yet the systematic review indicates that these categories are under-represented in the existing literature. Consequently, the evidence base to inform a more robust focus on age, disability and other diverse identities in policy development is currently lacking. SGCs can stimulate research in this area in order to better inform responsiveness to inclusivity beyond gender in their activities. Targeted funding programmes, calls for special issues of journals, and commissioned discussion papers may also help spur research responsive to a wide range of intersecting identities. Funding agencies might also consider mechanisms that include capacity building for grantees in applying intersectional frameworks. SGCs could collaborate with experts to offer workshops to grantees, and consider the application of intersectional frameworks in review and evaluation processes. Similarly, we recommend the funding of fellowships, postgraduate and postdoctoral scholarships about intersectional research practice to support such research across different career levels.
4. *Addressing low regional diversity in intersectionality research:* The findings of the systematic literature review indicate that scholarship generated by researchers in countries from the Global North dominates intersectional knowledge production, while countries in the Global South remain underrepresented, particularly Africa-based scholars. The Africa-focused review supports this, with our findings indicating that more than half of current scholarship is produced in South Africa. Authors from elsewhere on the continent are severely under-represented. Efforts to address uneven contributions by authors from different African countries will increase the richness and use-value of research findings, through developing scholarship that is responsive to and relevant to particular local contexts. SGCs could invest in regional programmes through, for example, consortium funding models, as well as existing regional initiatives such as the SGCI, to pilot such approaches.
5. *Encouraging methodological innovation and the development of practical guidelines* in intersectionality research. The low number of theoretical, methodological and review articles in the data set is an area that can be addressed through targeted interventions. Also here, we suggest mechanisms such as special calls or commissioned discussion papers to stimulate methodological innovation and theory building regarding intersectional research, notably on the continent.

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