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Research integrity, ethics, the SDGs and citizen science (RIECS)



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To live, every being must put out a line, and in life these lines tangle with one another. As such – together we interrogate **research integrity, ethics (RIE), the SDGs** within the context of citizen science



What can you expect

Ethics and Research Integrity (RI) overview

SDGs and RI

Authentic learning and its role in promoting RIECS

RIECS and monitoring and evaluation

Concluding remarks

Ethics, also known as moral philosophy, involves systematizing, defending, and recommending concepts of right and wrong behavior. Ethics has been described as the branch of philosophy that defines what is good for the individual and for society

Virtue is not simply an isolated action but a habit of acting well. For an action to be virtuous a person must do it deliberately, knowing what he/she is doing and doing it because it is a noble action

Establishes the nature of obligations, or duties, that people owe themselves and one another. It may be said that ethics offers a normative guidance framework on what should be done to ensure good for the individual and society, regardless of the absence or applicability of a legal obligation

One of main points in Amartya Sen's 'Idea of Justice' is that justice should be understood as existing to a matter of degree, and should correspondingly be evaluated along a continuum

Imagine that you and some friends are in a totally darkened room. Each of you has a flashlight. When you turn on your flashlight you create a partial picture of what's in the room. Somethings are concealed and some revealed. Now imagine your friends each take turns with their flashlight. Every person presents a different picture of what is in the room – revealing part but not all of it. None reveals the full picture of the truth

In the policy proposed by U.S. Office of Science and Technology Policy, scientific misconduct is defined as fabrication, falsification, and plagiarism (FFP), specifically in proposing, performing, or reviewing research, or in reporting research results

“ manipulating research materials, equipment or processes or changing or omitting data or results such that the research is not accurately represented in the research record” (control or influence a person or a situation cleverly or unscrupulously)

Poduthase, Gaza and Wood (2018)

The Singapore Statement (2010) on Research Integrity, was drafted at the Second World Conference on Research Integrity which took place in Singapore from the 21st to 24th July 2010. An important step toward promoting ethical conduct among scientists around the world

There have been plenty of other declarations that outline the components of trustworthy research and the principles of research integrity, the Montreal Statement in 2013, the Hong Kong Principles in 2019 and the European Code of Conduct for Research Integrity in 2011 (revised in 2017) among others

Writing about research integrity and fraud is complicated by the lack of terminological stability. Prior to 1975, (at least Anglo-American) talk was largely focused on “deviant” threats to scientific “norms,” as normal science was viewed as helping to propel the twin motors of progress and democracy

As if to underscore the confusion, the Association of Universities in the Netherlands (VSNU) speaks of “*wetenschappelijke integriteit*” (scientific integrity) in Dutch but uses the term “research integrity” in official English translations on its website and in its official “Code of Conduct”

Informed consent is over 100 years old

Serious discussion on ethics and informed consent started only around 1972 in medicine, law, philosophy

Prevent unnecessary hostility of competitiveness

Ensure fair – socially just

Prevent excessive pressure: e.g. producing articles, supervising

Create clear guidelines to avoid confusion

Set up training – mentorships

Confidence counselling

Peer review procedures

Protect whistle blowers – formalize procedures to protect those accused of misconduct

Identify fair principles for sharing data

Establish rules that are sound and transparent

State conflicts – address head-on entanglements (e.g. personal/financial)

Create systems that booster quality, relevance, reliability



Honesty in all aspects of research
Reliability in performing research
Objectivity, impartiality and independence
Openness and accessibility
Accountability in the conduct of research
Fairness in providing references
Professional courtesy and fairness in working with others
Good stewardship of research on behalf of others

Risk of erasing the contributions made by a host of diverse peoples and individuals, activities, and interactions situated in diverse locations around the globe, and a wide range of practices and approaches

Present doubts and contradictions

Make mention of statistical uncertainty of research results
and margins of error


Defining science as a public good – and equating it with research for society's benefit opens up a number of questions. Is society sufficiently homogenous for benefits to be universal. Who is qualified to determine what constitutes a benefit and which benefits are worthy of being pursued

In 1994, Pogge developed an institutional global theory of justice, based on the wealth gap between rich and poor, which is causing structural injustices. Pogge's theory ascribes a moral responsibility of the global rich at least not to harm

.....
“For the SDGs to elicit public trust
and confidence, ethics must be
central to their realization”
.....

Singh 2015

<https://youtu.be/-Q0xUXo2zEY>



Brundtland Commission (1987) described Sustainable Development (SD) as development that meets the needs for the present generation without sacrificing the need for future generations to meet their own needs

The Paris Agreement is a legally binding international treaty on climate change – adopted by 196 parties at COP 21 in Paris, December 2015 and entered into force on 4 November 2016

1 January 2016, the 17 **Sustainable Development Goals (SDGs)** of the 2030 Agenda for Sustainable Development — adopted by world leaders in September 2015 at an historic UN Summit — officially came into force (soft law)
SDGs are internationally agreed goals that allow us to determine what humanity as represented by 193 member states, finds acceptable and desirable

Anthropocentrism is a current in the philosophic discipline of environmental ethics that perceives nature as the human habitat which has a mere instrumental value insofar as the wellbeing of present and future generations depends on its preservation

In this line of thinking, clearly what is considered worthy of being *sustained* is human well-being rather than the environment

Apel coined the notion of Macroethics in 1990
– referring to human-nature relationships and
assuming that accumulated human activities can
damage the environment globally

Human ecosystems analogous to living, breathing organisms, whereby the overall health of the human ecosystems influences the health of the populations and individuals who are part of the biotic components of the system

It is logically impossible to derive ethical guidelines from nature. Ethics relates to human values. However, exploring natural system characteristics such as interdependence, diversity, complexity and their affiliation with social values such as responsibility, openness, correspondence can help integrate biocentric and anthropocentric ideas for the benefit of the SDGs

An ethical connotation of diversity can address recognition and appreciation of multiple cultures and of perspectives from various stakeholders

Aims of SD and their articulation in SDGs advance the discussion of a better world, with emphasis on values for human rights, justice, health and well-being

“Everything we do during and after this crisis (COVID 19) must be with a strong focus on building more equal, inclusive and sustainable economies and societies that are more resilient in the face of pandemics, climate change, and the many other global challenges we face”

Antonio Guterres: Secretary General of the United Nations

A fundamental transition has occurred in recent decades from “traditional” science to something new - led to the much cited book *The New Production of Knowledge – the Dynamics of Science and Research in Contemporary Societies* which claims fundamental changes in the ways in which scientific, social and cultural **knowledge** is produced

Human created problems require human-centred solutions and these require different ways of thinking and acting to those behaviour patterns that are contributing to the challenges (Taylor et al 2021). Changing attitude is not enough – it's the practical doing, and being that matters

Knowledge consists not in propositions about the world but in the course of direct, practical and sensuous engagements with the being and things with whom – and with which – we share our lives. For like people everywhere and at all times, we are both observers and participants

Citizen science raises ethical issues that should be addressed before projects begin and throughout the course of scientific investigation. Some of these include 1) data quality and integrity 2) data sharing and intellectual property 3) conflicts of interest and 4) exploitation

Beyond simply data management or transmission of 'facts' but how to convert this knowledge into more sustainable and socially just development in the future

Methods align with ethics of care and social justice –
working at different scales and in complex socio-
political-economic systems

In contexts of extreme inequality in terms of resources, power and privilege, together we develop the capacity to become critical, thinking and caring people using participatory learning and action techniques

Shared mindset in participatory processes for CS is openness, continuity, responsibility, empowerment of users, realism and spontaneity

Citizen science is in an ambivalent situation – on the one hand a feeling of injustice may arise if citizens are not paid for undertaking activities that researchers are paid for – but CS can provide a space free of economic considerations where key motivations are learning, emancipation and contributing subtly to sustainable development – and having fun

Taugniene et al (2021)

... the emergent paradigm for human living on and with the Earth brings together decentralisation, democracy and diversity. What is local and what is different is being valued. The trends towards centralisation, authoritarianism and homogenisation are reversed – top-down implementation doomed

Using multi-media tools to strengthen impact
in conscious raising, data-gathering, advocacy
and community decision-making and action

[Using the River of Life as a Tool - YouTube](#)

If your life were a river, what shape would it take

Where are the bends and turns when your situation might be changed – or perspectives altered

Was the transition smooth or sudden

Are there rocks or boulders – obstacles or life-altering moments – shaping your river

Are there points at which it flows powerfully and with purpose or slows to a trickle

If you were to divide your life journey into sections, where would the divisions occur – new tributaries

Think not only about your tribulations – joys, pains etc. – but also about what was going on in the world around you (in your local village) that might shape your river



Not enough information in rural areas

Citizens who live close to the wells become scientists and transmit data on groundwater that is really valuable, reliable data, trustworthy and has integrity

In qualitative approaches, validity is ensured by presenting solid descriptive data or what Geertz (1973) calls thick description so that there is enough internally coherent information in order that others can attach their own interpretations

Moving beyond merely reliable knowledge towards socially more robust knowledge. Put briefly, expertise spreads throughout society and becomes socially distributed expertise

The divide is between strictly objective research and citizen science where researchers can – and should – help policy makers, researchers, NGOs, planners, incorporate local knowledge into their thinking

PAR participants co-create an enabling workplace environment to get and give information to make informed choices – lasts beyond the life of a specific PAR research initiative

Requires encouraging participation, sharing power, building relationships, establishing open communication

Negotiating change

Most significant change stories (SCS)

Participating in activities that bring about
positive social or political change

Knowledge or awareness

Personal development

Attitude and behaviour

Authentic relatable stories

Collaborative efforts improve science

Science literacy – engaging people, fortifying relationships

Transformative power of science

Demystify science process

How

How often am I expected to collect this data?

What

What data are we expected to collect?

What happens if a gauge breaks - who will fix it?

What will they do with the data that will help me in the end?

Where

Where to from here?

Why

Why should I do it? - I am not getting paid

Why should I collect data for others what's in it for me?

Who

Who will (should) do the collecting?

Who are we collecting for?

If you do not measure results you cannot tell success from failure

If you cannot see success you cannot reward it

If you cannot reward success you might be rewarding failure

If you cannot see your success you cannot learn from it

If you cannot recognize failure you cannot correct it

If you cannot correct it - it might be false or fabricated

Ngwena dza madi (water champions)

Tangible concerns of materiality as well as
intangible or emotional aspects of
community

Asymmetrical contours implied by an ethics of care

Ethics of care is a viable moral theory

Evolving out of societal conditions of privilege and subordination

Communication as mediating these tensions

Struggles for a more just society

Does not seek to substitute women for men in the hierarchy of domination but to overcome domination itself. The care that is valued by the ethics of care can –and must – include caring for distant others in an interdependent world, and caring that the rights of all are respected and their needs met

It must include caring that the environment in which embodied human beings reside is well cared for. The ethics of care will strive to achieve these transformations in society and the world non violently and democratically but with persistence

Far more isolated on the one hand – but also connected on the other as COVID meant that our research team needed to take more – not less – interest and touch base with the citizens for verification, validation and much needed support – not only in collecting the data but also emotional support because of feelings of isolation and separation

Mandela manifested an exemplary instance of both personal and professional moral excellence

“I have cherished the ideal of a democratic and free society in which all persons live together in harmony and with equal opportunities. It is an ideal which I hope to live for and to achieve. But if needs be, it is an ideal for which I am prepared to die”

Citizen's contribution to research, informing policy makers with new science-based evidence

Distinction between the professional with their technical know how and citizen scientist far more blurred

Citizens become technically savvy

Broadening the realm of CS – to nurture an emancipatory role

Ethics – and democratisation of knowledge

GENERAL OBSERVATIONS: RIECS

- 1 Not enough has been written on Research Integrity in Africa
- 2 Leaning towards the 'medical fraternity – not enough focus on research integrity in social sciences
- 3 Literature on codes of conduct – and misconduct – in 'science' but not citizen science
- 4 Participatory methods not seen as part of ethical behaviour
- 5 Theory often ignoring ethics of care and feminist philosophy