

# Educating healthcare students in the Sustainable Development Goals: from translational science to translational humanities

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## ABSTRACT

Healthcare courses typically approach Sustainable Development Goals (SDGs) education from a 'translational science' perspective. Students are taught about 'evidence-based' interventions, which are developed through scientific research (hence, assumed to be politically neutral), implemented with 'fidelity' (ie, in a standardised way in diverse contexts) and then 'rolled out'. Progress is measured using standardised indicators. We argue for a shift to 'translational humanities', in which students are supported to engage critically with the cultural and political dynamics and epistemic uncertainties underpinning the setting of SDG targets, the development and implementation of programmes, and the measurement of success. Translational humanities seeks to surface alternative framings and measures of success, especially by giving voice to marginalised and ignored communities. This radical approach, informed by political philosophy, recognises that conflict among stakeholders and the uncertainty it generates are inevitable and can be a productive force (eg, if surfaced and used to inform multifaceted debate and values-driven action).

Whereas a translational science approach to SDG education emphasises objectivity, technical precision and (the pursuit of) certainty, a translational humanities approach seeks to foster human and interpretive qualities such as reflection, critical thinking, commitment to human rights and fairness, appreciation of complexity, epistemic humility and flexibility, willingness to examine problems from multiple angles, the capacity to adapt, and tolerance of uncertainty. In a worked example of how this can be achieved, we introduce the 'critical datathon'—a group exercise in which students engage deeply with case studies of SDGs, examine the assumptions and interests behind conventional solutions, and navigate diverse implementation contexts.

## INTRODUCTION

The United Nations' 17 Sustainable Development Goals (SDGs) are often incorporated into healthcare curricula (Serafini *et al.* 2022; Alcántara-Rubio *et al.* 2022; Shaw *et al.* 2021; Adams *et al.* 2023). Too often, however, this important task is undertaken superficially, uncritically and even formulaically. Currently, the SDGs are primarily integrated into health education through thematic or module-based approaches, often aligned superficially with existing curriculum content such as public health topics or global health modules. Although their health importance is widely acknowledged, SDG teaching is 'fragmented and scarce' and is usually inserted by integrating it with other topics to avoid curriculum overload (Velin *et al.* 2023). Medical curricula have been mapped to the SDGs using automated keyword analysis (Adams *et al.* 2023). Each medical school can then say, for each SDG, *whether* it is covered (yes or no) and *where in the curriculum* it can be found. But this approach places limited emphasis on *what* is taught about the SDGs and *how*.

In this paper, we argue that SDG teaching in medical schools is not merely too little, too late, but is also insufficiently engaged, insufficiently imaginative and insufficiently critical. We show that the SDGs are usually framed *scientifically* in terms of pre-existing, largely uncontested problems which are best solved by 'evidence-based' interventions whose impact should be monitored using standardised metrics. This approach aligns with the principles of *translational science*,

which we define as the study of how to maximise the impact of research discoveries—including drugs, non-pharmaceutical interventions, digital applications and service innovations—on human health and health services (National Center for Advancing Translational Science 2024). 'Translation', in this context, means progress along a more or less linear—but also meandering and leaky—pipeline from (A) Early stage discoveries (eg, a molecule that binds to a receptor, a software algorithm, an idea for redistributing work) to (b) An 'optimised' innovation (eg, a drug with provisional regulatory approval, a 'validated' decision-support system, a new staff role with defined scope of practice) to (C) Experimental testing of that optimised innovation (preferably in clinical trials) to generate evidence of efficacy, and (d) Implementation, roll-out, scale-up and continuation of this 'evidence-based' intervention beyond the experimental setting (Berrone *et al.* 2023; Danforth *et al.* 2023; Leeman *et al.* 2017; Albers, Shlonsky, and Mildon 2020).

In a radical departure from this approach, we argue that the SDGs are more usefully framed *politically*—that is, as complex and shifting issues that are suffused with values, entangled with vested interests and variously prioritised, deprioritised, dismissed and even denied by different interest groups. If students are to study the SDGs 'politically', they need to question how and by whom these goals are framed and prioritised, how progress towards them is defined, measured and monitored, and how different framings and metrics might surface (and conceal) particular perspectives. This analysis will begin to reveal the links between language and power and the implications for epistemic justice. In other words, the deeper, more engaged study of the SDGs needs *translational humanities*, defined as the study of the competing framings and political and epistemic conflicts associated with programmes and their implementation. Such an approach is translational in a different sense: it involves activating political framings that 'strengthen or undermine particular aspects of the narratives they mediate, explicitly or implicitly', in order to 'produce a politically charged narrative in the target context' (Baker 2006, 105).

These two complementary approaches to translation are contrasted in [table 1](#)

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**Table 1** Translational science and translational humanities—two complementary framings

	Translational science	Translational humanities
Focus	Implementation of programmes which are based on scientifically tested interventions	Examination of how problems are framed and whose interests particular ‘solutions’ serve; challenging dominant actors and giving voice to marginalised ones
Disciplinary basis	Evidence-based medicine Implementation science	Critical linguistics/discourse analysis Political science
Ontological assumptions	Problems are pre-existing; interventions are apolitical, culturally neutral and generally agreed-upon; implementation is a largely technical and procedural process. Science (including the development and testing of interventions) is a separate field from politics and society	Problems are fluid, negotiated and shaped by different interest groups; interventions are not neutral; implementation is a values-driven, conflict-ridden process. Science is a social and cultural product, and hence value-laden and politically embedded
Epistemological assumptions	The ‘effect size’ of an intervention can be measured objectively to determine whether and to what extent it works; interventions can be implemented rationally, for example, using logic models (inputs-activities-outputs-outcomes-impacts)	In order to surface and challenge the ideological and epistemic assumptions inherent in any particular programme, it is necessary to adopt a pluralistic approach (embracing multiple kinds of evidence) and to study human and societal interpretations via a careful and critical examination of language (including narrative) and symbols
Quality judged in terms of	Efficiency (fast implementation with as little resource as possible), fidelity (ensuring that the same core programme is established in multiple settings) and progress towards a defined target (monitored using a narrow set of mostly quantitative metrics) (Albers <i>et al</i> 2020).	Reflexivity, engagement, ‘thick description’ (ie, rich detail of a particular case), attention to context, authenticity, inclusivity, fair representation, confidentiality, dialogue
Preferred methods	Development and testing of complex interventions (eg, in trials); goal-setting; monitoring and evaluation using mostly quantitative indicators and metrics	Real-world case studies presented with rich qualitative evidence Narrative methods (eg, individual and group storytelling) Critical datathon (see example in box 2) Visual thinking strategies Reflective writing Critical discourse analysis Deliberative democracy
Orientation towards conflict, disagreement, uncertainty	Conflict and disagreement impede progress and can and should be eliminated; the goal is avoidance of antagonism and achievement of consensus and ‘shared vision’ Uncertainty is quantifiable and reducible; the goal is to reduce it and to achieve certainty	Conflict and disagreement promote progress and cannot and should not be eliminated; the goal is productive engagement and ‘agonism’ (a healthy pluralism of political frames and positions) Uncertainty is non-quantifiable and irreducible; the goal is to acknowledge and tolerate uncertainty
Examples of learning outcomes for students	Explain how a complex intervention is developed, refined, piloted and tested Using the hierarchy of evidence, explain why a randomised controlled trial is the gold standard method for testing interventions Apply a critical appraisal checklist to an academic paper Construct a logic model for a programme to deliver that intervention in the real world, including identifying key data sources for evaluating and monitoring Maintain records and report appropriately	Examine an SDG-related case study from the perspective of multiple stakeholders, questioning the stated goals, targets and metrics, and identifying sources of conflict (eg, why particular positions are strongly held and fiercely defended) Demonstrate commitment to human rights and fairness Defend the inclusion of local and indigenous knowledge alongside ‘scientific’ evidence, and show epistemic humility Tolerate uncertainty; accommodate new ideas and evidence which prompt a change in perspective

SDGs, Sustainable Development Goals.

and examined in turn in the sections which follow.

**SDGS IN HIGHER EDUCATION INSTITUTIONS: MULTIPLE METRICS; LIMITED IMPACT**

The ‘translational science’ approach to SDGs is illustrated by the example of their educational objectives (Shaw *et al* 2021). Each objective is expressed as a specific *target* (a statement of what those seeking to achieve the objective should strive for) and a linked *indicator* (how progress towards that target should be measured). SDG Target 13.3, for example, is ‘Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning’. The corresponding indicator is ‘Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in: (a) national education policies, (b) curricula, (c) teacher education, and (d) student assessment’.

These targets and indicators, cascaded from the global to the local—in this case, via national education policies to

curricula to teacher education to student assessment—appear worthy and unarguable. It seems self-evident that there is a body of knowledge about sustainability to be taught to students, a set of skills to be honed and some attitudes to be inculcated. These surely need to be organised in a nationally-defined curriculum and then rolled out, consistently delivered and formally assessed?

Various competency frameworks have been developed to integrate Education for Sustainable Development into curricula (UNESCO 2020). Among the competencies emphasised are anticipatory, normative, strategic, interpersonal, critical and systems thinking (Wiek *et al* 2011). This emphasis on competencies suggests a view of sustainability as driven by individual and collective human behaviour and assumes that sustainability is a calculable, measurable objective which can be systematically achieved through technical innovation, evidence-based policy interventions, and modified consumer habits. This perspective reflects optimism in the power of human ingenuity and technological progress, positing that a sustainable

future is within reach if the right competencies are developed and behaviours properly aligned. The requisite knowledge and skills are conceived as precisely definable and measurable, often through the use of psychometric tools to gauge progress and achievements (Holfelder 2019).

While clarity on educational objectives, targets and indicators offers a standardised blueprint for educational practice, it risks oversimplifying the complexity of sustainability challenges and overlooking deeper ethical, political and cultural dimensions. Emphasis on individual behaviours and standardised competencies underplays the structural power dynamics, contested values, and systemic uncertainties that profoundly shape both the meaning and the pursuit of sustainability, resulting in a politically bland, unassertive, and non-impactful educational offering.

Recent reviews have summarised universities’ efforts to produce and deliver SDG-oriented curricula (Serafini *et al* 2022; Alcántara-Rubio *et al* 2022). Staff at the Times Higher Education (THE) journal have produced a ‘league table’ ranking based on standardised indicators

for each SDG, applied uniformly across 1591 universities and disciplines from 112 countries (Times Higher Education 2024). This exercise unwittingly illustrates the pitfalls and limitations of crude numerical metrics for capturing progress towards a set of complex and interdependent goals like the SDGs. Indicators for SDG 3 (Good Health and Wellbeing) in the THE league table, for example, include the number of health educators at the university, the number of research papers published, the proportion of these that are viewed or downloaded, and the extent to which they are cited in clinical guidelines. The resulting ranking reduces a university's work on SDGs to numbers of educational personnel, papers published and citations accrued, failing to capture whether any more intensive and meaningful research and education is occurring (eg, oriented to addressing systemic issues such as social inequities or environmental degradation, as well as the relation between them).

Some medical educators have extended the relatively sketchy educational targets and indicators in the SDG documents and produced a more comprehensive curriculum (Shaw *et al* 2021) and an “evidence-based road map” for delivering it (Oudbier *et al* 2023). But as the authors acknowledge, despite this highly structured and targeted approach to SDG education (and, we suggest, perhaps *because* of it), there is limited evidence of a global stream of graduate health professionals who know and care about the SDGs sufficiently to take meaningful action on them.

So it is more generally. The story of each of the SDGs since its inception in 2015 is one of recurring mismatch between an ambitious, rational and detailed global vision (characterised by objectives, targets and indicators and implemented top-down from global to national to local) and the limited progress actually made. Soon after the 17 SDGs were announced (United Nations 2015), the Inter-Agency and Expert Group on SDGs produced a list of 232 indicators covering multiple targets, which were intended to *drive* action towards those (unarguable and more or less universal) targets (United Nations 2024). But despite investment running into trillions of US dollars annually (Vorisek and Yu 2020), the latest global report indicates that only 17% of the SDG targets are on track; nearly half are showing minimal or moderate progress; and progress on more than a third has stalled or regressed (United Nations 2025).

To overcome this widespread failure to progress, we need to do more than simply

pour in more resources, tighten the time-scales or get everyone to try harder (Engebretsen and Greenhalgh 2025). Indeed, the evidence suggests that, far from being an effective evidence-based solution, the top-down, hyper-rational, comprehensively detailed, technocratic and metrics-driven approach to the SDGs is part of the problem. One reason for this is that such an approach engages local communities and surfaces diverse voices only minimally (and sometimes not at all), resulting in a lack of local ownership (a sense, perhaps, that something is being ‘done to them’) and limited local action.

A key difference between translational science and translational humanities is their opposing approaches to disagreement and conflict. Translational science scholars often talk of ‘shared vision’ and stakeholder ‘engagement’ (meaning, signing up to a programme as presented). Consensus is desirable and a prerequisite for going forward with a plan. Disagreement, like bias, is something to be eliminated or minimised, and conflict is viewed as interfering with progress. Translational humanities scholars, on the other hand, warn *against* the valorisation of ‘consensus’ among stakeholders, a goal which they believe may be illusory and achieved (in some situations at least) by silencing dissenting voices (Greenhalgh *et al* 2023). Humanities scholars contend that, as with all political processes, conflict is inevitable and may provide productive friction. It is *through* conflict that diverse stakeholder groups can come to gain mutual understanding and respect for others’ perspectives.

If this translational humanities perspective is accurate, it could explain why a translational science approach to the SDGs has been counterproductive.

### TEACHING STUDENTS TO CHALLENGE METRICS

Medical students, whose mainstream curriculum is heavily objectivist and quantitative, sometimes find it difficult to view quantitative metrics as anything other than a precise and accurate measure of an external reality. But as Adams (2016) has argued, while metrics may appear neutral, they embrace and perpetuate a specific ideology of knowledge. Numerical data, she says, have dramatically reshaped the field of global health by acting as a defining tool, deciding what matters and what doesn't, thereby influencing our comprehension of what is known and visible: ‘Metrics will, once and for all, get us talking about evidence instead of

politics. Metrics today are assumed to be able to give us a value-neutral, but also politically unbiased way of talking about health problems and their solutions’ (page 23). Metrics reflect the interests and values of powerful stakeholders. Once set, they are hard to change, and they imply—but do not actually reflect—a consensus and a level of certainty on what it is important to measure. **Box 1** offers a case study—the Global Burden of Disease project—to help students grasp the entanglement of metrics with geopolitics.

This example also illustrates how outcome-focused, metrics-based overviews of complex phenomena can obscure systemic barriers that contribute to those outcomes, efface important differences between subpopulations or local communities, and foster narratives of underperformance or non-compliance for countries, institutions or populations (Telleria and Garcia-Arias 2022; Sandset *et al* 2020). By failing to address root causes, contextual factors and individual variation, quantitative metrics risk oversimplifying complex problems and shifting responsibility onto individuals, institutions or local communities, resulting in the ubiquitous problem of the *unimplementable* SDG—a worthy global objective that proves impossible to implement locally (Engebretsen and Greenhalgh 2024).

The focus on quantifiable metrics often aligns more closely with the priorities of powerful stakeholders or global institutions—typically rooted in the Global North—than with the specific needs and priorities of local communities. This disconnect can exacerbate existing inequities by imposing external standards that may not reflect local realities or challenges. According to Lloyd and Ordorika (2021), university rankings, including the THE SDG ranking, prioritise certain aspects of universities—such as scientific production and prestige—while overlooking others, such as their role in contributing to their local or regional economy or fostering more equitable and democratic societies. Drawing on Bourdieu, these authors argue that university rankings embody a form of cultural imperialism, where values originating from specific national contexts are presented (and even imposed) as universal standards.

### TEACHING THE VALUE OF STORIES

Small (2013) defines the humanities as the study of ‘meaning-making practices’. The creation of meaning is intrinsically linked to *translation*, broadly understood in the humanities as the process of connecting

### Box 1 The Global Burden of Disease (GBD) project—learning to challenge metrics

The GBD project is often hailed as a key tool for tracking health outcomes worldwide. It offers a clear, data-driven way to prioritise interventions, but it also has notable blind spots. By critically examining the GBD framework, students can learn how to question underlying assumptions, explore equity and power dynamics, and consider a broader range of local realities.

#### 1. Unpacking the numbers

Metrics such as life expectancy, infant mortality rates and disability-adjusted life-years (DALYs, which estimate how many productive years are lost due to illness or disability) are useful for standardising and comparing data across populations and over time. But these metrics are outcome-focused and probability-based—emphasising average estimated effects on large populations—and can thus obscure systemic barriers, such as environmental factors, that contribute to those outcomes and introduce variability for population subgroups (Voigt 2012). Students should be encouraged to ask critical questions to the numbers, such as: *What lies behind a particular numerical summary of how a disease or condition affects a population? Who are the ‘outliers’ in the populations these numbers purport to represent, and to what extent has their experience been obscured?*

#### 2. Identifying blind spots

If life is valued primarily in utilitarian terms (eg, each person’s potential economic productivity, as in DALYs), interventions that promise high economic returns will be valued over those addressing issues of equity or human dignity (Adams 2016). Conditions predominantly affecting economically disadvantaged groups or older populations may receive less attention because their resolution is perceived as yielding lower economic benefits. Thus, the very metrics designed to safeguard equity and ensure that, in the words of the SDGs’ architects, ‘no one is left behind’ (United Nations 2015) can, paradoxically, perpetuate new and nuanced forms of exclusion. A country might come to be labelled (using some indicator or other) as ‘underperforming’ in reducing disease burden, but such a label will typically fail to recognise

Continued

### Box 1 Continued

the role of global economic policies, colonial legacies or climate injustices that exacerbate health disparities. Students can scrutinise these issues by asking: *What is left out when health outcomes are defined in particular ways (eg, in terms of economic productivity)? What aspects of human experience and well-being are not counted, and even distorted or suppressed by the use of particular outcomes or metrics? Who decides which diseases and conditions are worth measuring and how?*

#### 3. Challenging the metrics

GBD has been criticised for adopting a reductionist approach that overlooks how health is perceived and valued within local communities. While attempting to be descriptive, measures such as infant mortality, life expectancy and DALYs quickly become normative through their use (Murray 1996)—that is, they shape our thinking and other ways of visioning health and well-being may be excluded. Communities may, for example, prioritise well-being in terms of social harmony, spiritual health or traditional practices, dimensions that GBD metrics typically do not account for. Students need to learn how different metrics might shift policy priorities and reflect different ideological framings and reflect on other potential ways of visioning and measuring health. They can ask, for example: *How do DALYs compare with other indicators (eg, well-being indices, quality-adjusted life years, or qualitative community assessments)? How else might we represent a particular community’s state of health, well-being and patterns of sickness? How does the choice of particular metrics reinforce particular beliefs or values, or social and political arrangements?*

different linguistic, epistemic or cultural sign systems. Meaning-making tends to assume a narrative form, as stories serve to connect and integrate separate events into a cohesive and meaningful whole (Bruner 1990; Fisher 2021). All human interventions, including those presented as ostensibly universal and evidence-based, such as the SDGs, are fundamentally shaped by stories that reflect local historical and cultural roots. For humans to engage with such narratives, they must relate them to other stories that hold meaning for them.

From this perspective, implementing the SDGs should be reframed from a technical,

metrics-driven exercise into a meaningful, value-oriented endeavour that deeply engages with people’s stories and the reasons behind their position on a topic. One potential path forward is the inclusion of context-rich narratives. However, these ‘free text’ elements of conventional evaluations are typically undertheorised, either conflated with general qualitative indicators or negatively defined as the absence of numerical metrics. A translational humanities approach offers a more careful assessment of the different stories involved, their inherent logics and the values they adhere to.

Narratives are also a route to surfacing the conflicts, clashing interests and misunderstandings between different interest groups. By valuing and engaging with multiple narratives (hence, multiple framings of the situation and its causes), translational health humanities brings contestation and conflict to the surface, thereby overcoming the impasse of false consensus—and the challenge of unimplementability discussed above. If unimplementabilities are surfaced, discussed and strategically harnessed, they can become a positive force or what Mouffe (2005) refers to as ‘agonistic pluralism’ (Engebretsen and Greenhalgh 2024). Mouffe holds that conflict is inherent in the maintenance of any society, but she distinguishes between *antagonism*, a destructive and hostile form of opposition, and *agonism*, which refers to a healthy pluralism of political frames and positions. In other words: it is only when the SDGs are met with resistance that we know they are beginning to make a difference, and it is only by acknowledging the validity of dissenting perspectives that implementation practices can begin to accommodate the pluralism they require for success.

### FOSTERING A TRANSLATIONAL HUMANITIES ORIENTATION AMONG STUDENTS

To develop the kind of humanities orientation needed to critically examine SDGs, educators must go beyond mere competencies (specific domains of knowledge, skills and attitudes) and orient to *capabilities* (defined as ‘the extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance’) (Fraser and Greenhalgh 2001, 799). Education for capability entails the inculcation of various human qualities, especially the attitudes and character strengths needed to tolerate the many uncertainties about SDGs and the methods used to implement them

(Han 2021). These include, for example, reflection, critical thinking, appreciation of complexity, epistemic humility and curiosity, acknowledgement that there is not one single ‘right’ answer in any situation (but that there may be a best or better answer), ability to strike an adaptive balance of negative responses to uncertainty (eg, fear, dread, inaction) and positive responses (eg, hope, excitement, action) depending on the circumstances, and willingness to embrace dissensus productively (Hillen *et al* 2017). These related uncertainty-tolerant responses, skills and character strengths allow individual learners, health professionals and local community members to engage productively with conflict, dissensus and multiple truth claims, and thereby more effectively address problems involved in implementing SDGs.

Box 2 shows how these qualities are fostered in a ‘critical datathon’ approach. A critical datathon differs from traditional hackathons or data sprints by emphasising reflexivity, dialogue and critical inquiry over rapid problem-solving or polished deliverables. Rather than racing to produce a single ‘best’ solution or data-driven product, participants work together to surface underlying assumptions about what constitutes ‘sustainability’ and whose voices are privileged or marginalised in the data. In a critical datathon, the process becomes as important as the output. Facilitators might ask participants to map out the narratives embedded in the data—for instance, how certain communities or regions are portrayed as either in need of ‘development’ or as role models for sustainable practices. By identifying these narratives and seeking out possible counternarratives, participants are prompted to interrogate how knowledge claims about sustainability are constructed. This reflective practice can, for example, reveal discrepancies between official statistics and local lived experiences or expose the absence of important contextual factors like cultural traditions, indigenous knowledge systems or variations in governance structures across regions.

At the Centre for Sustainable Healthcare Education at the University of Oslo, a corpus-assisted datathon model for student-led, empirically grounded debate on key concepts in the sustainability agenda has been piloted and evaluated (Engebretsen *et al* 2023). Using electronic corpora of authentic texts exceeding 10 million words, supported by bespoke software tools, the team has successfully implemented datathons in two course programmes. These datathons—delivered

### Box 2 A critical datathon approach for translational humanities and the Sustainable Development Goals (SDGs)

A critical datathon offers a structured yet flexible setting where participants collaboratively explore and interpret data on a sustainability topic (Aboab *et al* 2016). Rather than racing to produce polished outputs, the focus is on uncovering underlying assumptions, framing narratives and identifying counternarratives about the SDGs. By treating data not as objective truths but as stories shaped by cultural, social and political contexts, datathon participants gain insight into how knowledge is produced, circulated and contested.

#### 1. Interdisciplinary dialogue

- ▶ Bringing together students, scholars and practitioners from diverse fields (eg, the humanities, health science, ecology, etc) fosters a multiplicity of perspectives. Each discipline interprets data sets differently, highlighting how methodological choices can mask or reveal critical details.
- ▶ Participants learn not only the technical aspects of data analysis but also the humanistic angles: How do cultural norms, institutional priorities or historical legacies shape what the data ‘say’

#### 2. Critical inquiry and ethical reflection

- ▶ Participants critically assess data’s construction, asking *what* is measured, *how* and *why*. They scrutinise the political and ethical dimensions of decisions like indicator selection and data collection methods.
- ▶ Paraplegia, for example, might have radically different impacts in Cameroon versus Australia due to disparities in healthcare access, infrastructure and social support (Voigt 2012). Hence, a Global Burden of Disease (GBD)-focused methodology (see box 1) can systematically underestimate the disease burden in less developed regions, potentially exacerbating health inequalities. In a critical datathon, participants use such examples to question how data and metrics may inadvertently mask local complexities or reinforce existing inequities.

Continued

### Box 2 Continued

#### 3. Narratives and counternarratives

- ▶ Using interpretive methods from the humanities, participants uncover the ‘story’ behind data: asking whose voices are amplified, whose experiences are marginalised and which discourses shape the ‘official’ narrative of sustainability.
  - ▶ By seeking and constructing counternarratives, participants expose alternative ways of understanding sustainability. For example, they consider how cultural, spiritual or communal conceptions of well-being—such as those of Indigenous communities—can be overshadowed when metrics focus on purely economic or productivity-based indicators.
- #### 4. Fostering human qualities for translation
- ▶ The datathon setting nurtures critical thinking, empathy and ethical awareness—qualities central to a translational humanities approach.
  - ▶ Participants learn to engage with uncertainty, recognise their own biases, and remain open to contestation and revision.

for Debating Democracy: Concepts that Matter and Politics of Sustainability in Public Health: Data-Driven Critical Conceptual Analysis—have enabled students to critically examine foundational concepts such as well-being, equity, partnership and empowerment as they appear across various discourses related to the SDGs. We have found that students respond with great enthusiasm to this model—they often report that the datathon workshops are among the most challenging yet rewarding of their learning experiences. We are currently seeking to adapt and scale the model and would be keen to hear from potential partners in this regard.

Other ways of integrating the humanities in health professional education can help cultivate uncertainty-tolerant capacities that enable learners to approach SDGs with a critical awareness of their own (and others’) beliefs, assumptions and ways of seeing the world (Nussbaum 2016; Freire 2000). Health professional education in the humanities has many benefits, but one of the most important is its potential to improve learners’ uncertainty tolerance. Ofri (2017) has characterised the medical humanities as ‘The Rx [prescription]

for medical uncertainty', arguing that *'The humanities allow us to develop the underused mental muscles of reflection and contemplation. They foster perspective and questioning. They emphasize context and provenance. They confront and relish ambiguity...They leaven the thought process to promote more nuanced thinking...'* (page 1658). Several different kinds of humanities education interventions can help cultivate these uncertainty-tolerant capacities, although they are not always deliberately implemented for this specific purpose.

Visual thinking strategies are one example of a novel humanities intervention that uses art to teach learners to see ambiguous phenomena in different ways, to respect the perspectives of others, and to critically examine their own interpretive biases and blind spots (Cerqueira *et al* 2023). Such interventions can help learners develop the intellectual and cultural humility, open-mindedness and creativity needed to understand SDGs from the perspective of local community members, and to develop implementation strategies that respect and accommodate their experiences, priorities and values.

Other health humanities interventions can also help cultivate learners' capacity to regulate their emotional responses to uncertainty. Narrative medicine interventions, for example, provide opportunities for learners to develop empathy and compassion for the suffering of others, and greater sensitivity to the range of emotions that uncertainty provokes in different circumstances. They provide literary 'simulation' exercises that enable learners to vicariously experience these different emotions and to even practise regulating them. More effective emotional regulation, in turn, can help learners react less impulsively and defensively to conflict and dissensus among different people or ideas. It can thus enable learners to approach the implementation of SDGs more productively, with greater empathy for the feelings of community members and other stakeholders.

Integrating these and other established humanities interventions in health professional education in a more deliberate way, focused specifically on cultivating learners' uncertainty tolerance, is critical to teaching SDGs. At a fundamental level, these and other medical humanities interventions help learners engage more productively with SDGs by helping develop their skills in reflective practice and their capacity for metacognition. Humanities education interventions such as reflective writing encourage learners

to pause and engage in reflection, which Nguyen *et al* (2014) have defined as 'the process of engaging the self in attentive, critical, exploratory, and iterative interactions with one's thoughts and actions, and their underlying conceptual frame, with a view to changing them and with a view on the change itself'. Such interventions help learners make deliberation, self-reflection and self-critique into habits of mind, promoting what Donald Schön (Schön 1987) termed 'reflection-in-action' and 'reflection-on-action'. They enhance learners' capacity for metacognitive monitoring and control, which encourages alternative responses to uncertainty—beyond those dictated by prevailing clinical guidelines, rules or checklists—that may be more optimal and adaptive to particular situations. Higher-level, metacognitive awareness enables learners to go beyond the superficial, verbatim meaning and goals of SDGs and use of simple, process-based or outcome-based checklist metrics like the THE rankings to evaluate implementation efforts. It pushes learners to go deeper: to focus on the gist meaning and fundamental goals of SDGs, and to develop both interventions that promote these fundamental goals and evaluation strategies that better capture whether they are being achieved.

In all of these ways, a humanities-informed approach—whether in medical education more broadly or in specific efforts to implement SDGs in communities—not only reflects but also reinforces the capacity to cope productively with conflict, pluralism and dissensus; it is self-sustaining. Importantly, this capacity is moral and existential in nature: It pertains to our most fundamental motivations for acting and reasons for living. It entails a capacity to find an acceptable, optimal balance—between relativism and absolutism, pessimism and optimism, nihilism and dogmatism—in one's approach and responses to uncertainty. It manifests a perspective of meliorism, as William James (James 1907) described it, which attempts to strike a middle ground between these negative and positive extremes, and views human progress as achievable although not guaranteed. This melioristic perspective thus provides a motivation for action and a reason for living. It represents a kind of faith, a conviction that important human goals—such as health and the sustainability of life on earth—are achievable and worth pursuing, no matter how challenging they may be. In the final analysis, perhaps the most important

contribution of a translational health humanities approach to implementing SDGs is to enact and sustain this faith.

## CONCLUSION

In this paper, we have presented the limitations of a 'translational science' approach to SDG teaching based on the uncritical, depoliticised and, to a large extent, *standardised* translation of research knowledge into policy and practice in different settings. We have argued that this approach may be responsible for the 'unimplementability' of SDGs at the local level. We have proposed, instead, a 'translational humanities' approach to the SDGs—the critical, politically aware and explicitly *non-standardised* examination of what these goals and the machinery of their implementation mean for local experiences, contexts, meaning systems and priorities.

Our proposed approach will require a number of radical shifts: from scientific to humanistic thinking; from top-down to bottom-up delivery models; from epistemic monism to epistemic pluralism; from 'fidelity' and 'roll-out' of standardised solutions to engagement with the uniqueness of contexts and communities; from predominantly quantitative (metrics) to predominantly qualitative (narrative) forms of evidence; from competencies to capabilities; from an approach to data that is espousedly value-free to one that is explicitly values-driven; and from disregarding, avoiding or reducing uncertainty to acknowledging, engaging with, and tolerating it. Of course, these shifts do not represent mutually exclusive binaries; rather, they emphasise a necessary recalibration of focus towards achieving a more holistic and contextually responsive approach. These transformations will not occur overnight, but we can begin by transforming what we mean by quality, and how we deliver it, in the SDG educational curriculum.

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**Contributors** EE, TG and PH conceptualised the manuscript. EE and TG wrote the first draft. PH redrafted certain sections and edited the manuscript. All authors have accepted the final draft. EE is the guarantor.

**Funding** EE's research receives funding from the Norwegian Directorate for Higher Education and Skills, under its Centre for Excellence in Higher Education scheme.

**Competing interests** None declared.

**Patient consent for publication** Not applicable.

**Ethics approval** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.



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**To cite** Engebretsen E, Greenhalgh T, Han PKJ. *Med Humanit* Epub ahead of print: [please include Day Month Year]. doi:10.1136/medhum-2025-013292

Accepted 14 May 2025

*Med Humanit* 2025;0:1–7. doi:10.1136/medhum-2025-013292

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