

Global Learning for Sustainable Development: A Systematic Review

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Abstract

Despite continued efforts by educators, UN declarations and numerous international agreements, progress is still limited in handling major global challenges such as ecosystem collapse, accelerating climate change, poverty and inequity. The capacity to collaborate globally on addressing these issues remains weak. This systematic review of research on global learning for sustainable development (GLSD) aims to clarify the diverse directions research on GLSD has taken, to present the historical development of the research area, and highlight emerging research issues. The review summarises key findings of the English language literature in the period 1994-2020 identified with the search terms “global learning” and “sustainable development”, sustainability or GLSD, respectively. The review documented a gradually growing knowledge base, mostly authored by scholars located in the global North. Conclusions point to what we might achieve if we could learn from one another in new ways, moving beyond Northern-centric paradigms. It is also time to re-evaluate core assumptions that underlie education for sustainable development more generally, such as a narrow focus on formal learning institutions. The review provides a benchmark for future reviews of research on GLSD, reveals the emerging transformative structure of this transdisciplinary field, and offers reference points for further research.

Keywords: global learning, global learning for sustainable development, South/North perspectives, sustainability; sustainable development; education for sustainable development

Background

Both education for sustainable development (ESD) and global learning for sustainable development (GLSD) were catalysed by the Rio Earth Summit of 1992 and Agenda 21. At this time, it was clear that the planet was facing unprecedented challenges, and that these could only be addressed collectively. The call to action of the 1987 Brundtland report [1] recognised that environmental issues were closely connected to social and economic questions. International cooperation and solidarity were essential, since merely pushing towards economic growth would lead to environmental disaster, without resolving the pressing challenges of the so-called developing nations.

The declarations at Rio acknowledged the gravity of the situation but the mood was also imbued with optimism. Although the challenges were serious, the steps to change course from the path of disaster to a brighter future seemed simple and feasible. It was in the interest of everyone to avoid rendering the planet inhabitable. The states forming the UN were prepared to join in shared efforts. Since poorer nations had less scope of action, the so-called “developed” nations would have to make particular investments in sustainable development. Coming from the UN, this was a top-down agenda, but it was supported by numerous NGOs, and the necessary coordination of efforts required the international structures that the UN could offer. The practices of certain industries were unsustainable, but these industries could be “greened” or converted to more sustainable modes of production. There was also a risk that

citizens might not be willing to change unsustainable habits, but this could be averted through information, education and increased awareness.

To achieve consensus and start moving, the vision was to focus on the intersection of the “economic”, the “environmental” and the “social”, that is, actions that would produce a win-win situation with immediate benefits for all. For instance, it was supposed that increasing efficiency and using less raw materials would be both cheaper for the industries and more environmentally friendly. Demonstrating corporate social and environmental responsibility would – all other factors equal – make industries more popular with consumers and constitute a competitive advantage. The supposition was thus that focusing on changes that could be made within the intersection of the three domains would incrementally lead to increased sustainability, and this process could continue until sustainable development had been achieved.

Although Rio in many ways marked a decisive turning point, in shaping a perception of common efforts for a shared goal - bringing together national governments, NGOs, international organisations and educators worldwide – the ideas and practices it mobilised did not arise in a vacuum. For several decades preceding Rio, activists and researchers had been pointing to the dangers of environmental destruction. Powerful social movements were engaged in combatting social and global injustices, as well as the threats of intolerance, racism, militarisation and warfare. Numerous bodies, organisations and international agencies were working on issues such as eliminating poverty, ensuring safe water supplies, developing renewable energy sources, reducing pollution, fighting acid rains, conserving species or reversing desertification. These experiences ultimately fed into the fields of both ESD and GLSD [2].

Aim

This systematic review aims to show the diverse directions research on GLSD has taken since its inception, and to present the historical development of the research area. As a subfield of the wider notions of both global learning (GL) and education for sustainable development (ESD), the discussion will also include works from both these fields with relevance to GLSD.

Method

A search was made in Scopus on 27 April 2020 for publications with the search terms “global learning” AND “sustainability”, excluding conference presentations. The search resulted in only 12 publications summarised below (Table 1). An updated search on 12 September 2020 in Scopus using the same search terms and criteria yielded no further publications. The updated search in Scopus on 12 September 2020 using the search terms “global learning” AND “sustainable development” resulted in 22 publications. The combined searches resulted in a total of 28 items. Results from these searches (specifying overlapping items) are presented in Table 1.

Since the aim of this literature review is not only to trace the development of research on global learning for sustainable development (GLSD), but also to see how the term “global learning” has been used in connection with sustainability more generally, no items were excluded, and a brief summary will be provided of the contents of publications that do not directly pertain to the field.

Many journals and publication types are not listed in Scopus, so an additional search was made in Google Scholar, using the search terms GLSD and “global learning”, which yielded a further 12 journal articles, dissertations and reports. The results of the additional search are shown in a separate table (Table 2).

Table 1. Search in Scopus 27 April 2020 with search terms “global learning” AND “sustainability” and 12 September 2020 with search terms “global learning” AND “sustainable development”.

Year of publication	Article title	Authors	Search criteria
2020	The erasures of racism in education and international development: re-reading the ‘global learning crisis’.	Sriprakash, A., Tikly, L., Walker, S.	A
2020	A historical perspective on the OECD’s ‘humanitarian turn’: PISA for Development and the Learning Framework 2030.	Xiaomin, L., Auld, E.	A
2020	Different schools, different cultures.	Heto, P.P.-K., Odari, M.H., Sunu, W.K.	A
2019	The case for inclusion of international planning studios in contemporary urban planning pedagogy.	Jones, P.	A
2019	Integrating sustainability into higher education curricula through the project method, a global learning strategy.	Fuertes-Camacho, M.T., Graell-Martín, M., Fuentes-Loss, M., Balaguer-Fàbregas, M.C.	AB
2018	International staff exchange: Evaluation of a collaborative learning partnership.	Naleppa, M.J., Waldbillig, A.A.	B
2018	Intercultural education as a prerequisite for sustainability.	Schrüfer, G., Schwarze, S., Obermaier, G.	AB
2018	Learning and teaching sustainable development in global–local contexts.	Nordén, B.	A
2018	A review of the literature to inform the development of a new model of global placement: the Global Learning Partnership	Lees, J., Webb, G.	A
2018	Education for sustainable development: Vision, policy, practices—an open or closed ‘doorway’ for teachers and schools?	Chatzifotiou, A.	AB
2016	Global citizenship education: Everyday transcendence.	Gaudelli, W.	B
2015	Sustainable wellbeing, creativity and innovation.	O’Brien, C., Murray, S.E.	B
2015	The creation of interactive activity pods at a Recycling Education Centre.	Pickford, T., Ellis, L.	A
2014	Global Learning for Global Colleges: Creating opportunities for greater access to international learning for 16-25 year olds.	Bentall, C., Bourn, D., McGough, H., Hodgson, A., Spours, K.	A
2014	Global Learning and Education: Key Concepts and Effective Practice.	Peterson, A., Warwick, P.	AB
2014	Island development: Local governance under globalization.	Tsai, H.-M., Hong, S.-K.	B
2014	Success and failure of grassroots innovations for addressing climate change: The case of the transition movement.	Feola, G., Nunes, R.	B
2013	Learning and transformative networks to address wicked problems: A golden invitation.	Waddell, S., McLachlan, M., Dentoni, D.	B
2013	Debates in Geography Education.	Lambert, D., Jones, M.	A
2013	A review of clean energy innovation and technology transfer in China.	Liu, H., Liang, D.	A
2012	Learning in global settings: Developing transitions for meaning-making.	Nordén, B., Avery, H., Anderberg, E.	AB
2012	Sustainable development through global learning and teaching.	Nordén, B., Anderberg, E.	AB
2009	Global learning for sustainable development in higher education: Recent trends and a critique.	Anderberg, E., Nordén, B., Hansson, B.	AB
2008	Play locally, learn globally: Group selection and structural basis of cooperation.	Choi, J.-K.	A
2006	The United Nations decade of education for sustainable development, its consequences for international political education, and the concept of global learning.	Brunold, A. O.	A
2006	School development through Education for Sustainable Development in Austria.	Rauch, F., Steiner, R.	A
2005	Global learning and education for sustainable development.	Brunold, A.O.	A
1994	Information Technology and Global Learning for Sustainable Development: Promise and Problems.	Hall, B.W.	A

Note: A= global learning AND sustainability. B= global learning AND sustainable development; global learning AND sustainable development

Table 2. Search in Google Scholar 27 April 2020 with search terms GLSD + “global learning”.

Year	Article title	Authors
2020	Global Learning from the Periphery: An Ethnographic Study of a Chinese Urban Migrant School.	Dong, J.
2018	Transdisciplinary teaching for sustainable development in a whole school project.	Nordén, B.
2017	Working with the divides. Two critical axes in development for transformative professional practices.	Avery, H., Nordén, B.
2016	Learning and teaching sustainable development in global-local contexts.	Nordén, B.
2014	Transformation towards sustainable living under global education approach: international students' experience.	Elem, S. N..
2015	A phenomenographic study of beginning elementary science teachers' conceptions of sustainability.	Hagevik, R., Jordan, C., Wimert, D.
2015	An analysis of the academic disciplinary development of global leadership education.	Whitaker, B. L.
2013	Education for sustainable development.	Engjellushe, E.
2013	Bhutanese teachers' Perceptions about Gross national Happiness in Education for Sustainable Development.	Ahonen, P. A. I. V. I., Thinley, D. O. R. J. I., Korkeamäki, R. L.
2011	Knowledge capabilities for sustainable development in global classrooms–local challenges.	Nordén, B., Anderberg, E.
2010	Learning in global settings for sustainable development: local challenges	Anderberg, E., Nordén, B.,
2010	Education for sustainable development: Research overview.	Wals, A. E., Kieft, G.

Summary of reviewed publications

The reviewed literature comprises a wide range of topics and includes both empirical studies and theoretical work. For the readers' convenience, we have grouped the literature under the following broad themes: General and historical overviews, Theoretical contributions, Teaching and learning in formal education contexts; Research in further and higher education contexts, Learning outside formal education contexts and North-South relationships.

General and historical overviews

Brunold [3] traces significant moments in the history of global learning for sustainable development, going back to the origins in international policies for environmental education (EE) in the 1970s. Brunold further connects these initiatives with the field of global learning, and the ambitions of the UN decade of education for sustainable development (DESD). Brunold highlights some of the significant challenges within the debates, including what kind of globalisation is envisaged, what mechanisms for global governance exist, and to which extent the ambition of developing economies in the so-called developing nations is compatible with sustainability targets. Finally, Brunold highlights the potentials of lifestyle changes, informed consumers, and informed citizens who will support sustainable policies in their countries.

Rauch and Steiner [4] give an overview of the historical development of environmental education and global learning in the German speaking countries since the 1950s. They argue for a convergence of these fields and also highlight the need for national policies to support educational development for sustainability in the area. They stress that global learning is not about conveying factual knowledge, but is a critical approach to concerns, interests and experiences. Global learning per se cannot serve to create a better world but encourages self-determination in a global context.

Building on earlier work, Anderberg, Nordén and Hansson [5] outline how GLSD has emerged from ESD, global education (GE) and global learning (GL), as well as related concepts in GLSD. Among crucial learning outcomes in GLSD are the acquisition of critical thinking skills, values, and socio-cultural awareness. In her dissertation, Nordén [6] [offers a detailed discussion of the various strands of research leading up to GLSD, as well as some of the debates within the field. The dissertation also contains studies of challenges experienced

by teachers trying to put the ambitions of GLSD into practice. A synopsis of the dissertation was published in *Environmental Education Research* [7].

Gaudelli [2] previously explored global citizenship linked to five different discourses—neoliberal, nationalist, Marxist, world justice/governance, and cosmopolitan—which have various political and epistemological stances. In Gaudelli's recent work [8], he further examines the tensions between different understandings of globalisation and education, leading to diverging implications for global citizenship education, underlining the problems connected to a dominant neoliberal discourse. The book gives a comprehensive overview of the field, including how issues of global learning relate to sustainability. Gaudelli also discusses the differences in perspectives on global learning coming from elite institutions and perspectives emanating from marginalised populations. A comprehensive overview of the field of global learning is also provided by Peterson and Warwick [9]. The authors conclude that to grasp which challenges the field will face in the coming years, we should engage with the approaches and questions raised in future studies.

In their review of various strands of ESD, Wals and Kieft [10] summarise GLSD as “developing learning on the uncertainty of knowledge, in the process of establishing links between everyday problems, global processes and lines of conflicts” (p. 20). They stress that most ESD activity is life-long, and takes place within non-formal and informal learning settings, often driven by NGOs. These processes fall under the broader notion of “social learning”:

“Ideally, social learning is a way to create a ‘learning system’ in which people learn from, as a result of and with one another and collectively become more capable of withstanding setbacks, of dealing with insecurity, complexity and risks. Such a system needs people who not only accept one another’s differences but are also able to put these differences to use.” (p. 37)

Theoretical contributions

In an analysis of how globalisation impacts education and implications for global learning and sustainability education, Brunold [11] argues that not only learning sustainable attitudes is necessary, but also unlearning harmful attitudes. The learning process must also work to develop public consciousness for change to take place. He also underlines that no substantial connection has been proved between environmental knowledge, attitudes towards the environment and environmental behaviour.

Nordén and Anderberg [12] discuss GLSD against the background of the challenges posed by globalisation, as well as the opportunities offered by instantaneous communication across the globe. Information technology and media coverage present difficulties in understanding decontextualised fragments of information, while the technologies also offer possibilities of global dialogue and exchange. The question of how such dialogue can be pursued democratically therefore requires sufficient attention. The chapter further underlines the importance of a transdisciplinary and trans-sectoral approach. At a time when ICTs were generally viewed in a positive light within the field of ESD and global learning for sustainable development, Hall [13] makes a significant contribution to the debate on impacts of using ICTs in the context of global learning and sustainable development, with a deep and critical analysis of the stakes and issues involved. These include not only huge disparities in access

and a centring of Northern perspectives, but also issues regarding the kinds of knowledge that can be formed.

Engjellushe [14] makes a brief discussion of the concept of the three intersecting domains (social, environmental and economic), considers the importance of changing behaviours and lifestyles, and argues that ESD needs to be promoted.

Choi [15] makes an interesting theoretical contribution to the issue of which structures may favour altruistic cooperative behaviour in global-local learning contexts by modelling outcomes of various constellations. Based on this modelling, Choi concludes that the constellation that best supports collaborative and altruistic behaviour is local interaction combined with global learning. In Choi's model, since individuals may or may not be "cooperators", the greater variation between groups produced by this constellation produces a greater chance of having some groups consisting mainly of "cooperators". However, the ideal constellation also needs to comprise some local learning to function.

Looking at the structural drivers in education globally, Xiaomin and Auld [16] offer a critical analysis of two OECD initiatives first presented in the OECD Vision Statement of 2011. PISA for Development adapts PISA tests to better correspond to low- and middle-income countries, with the ambition of making it the global learning metric. The Learning Framework 2030 incorporates non-cognitive competencies into its tests. The authors argue that by framing assessment as a human right and placing it within a humanitarian agenda, the neoliberal discourse that underlies it becomes difficult to oppose. The initiatives discussed in the article have great significance for education globally and are intended to strengthen the influence of the OECD with respect to the interpretation and implementation of the SDGs.

Teaching and learning in formal education contexts

In a rare study outside Northern contexts, Ahonen, Thinley and Korkeamäki [17] investigate how Bhutanese secondary school students perceive sustainable development and Bhutan's development principles based on Gross National Happiness. The article gives an overview of the history of ESD from a global perspective.

Nordén and Anderberg [18], [19] report on a Swedish GLSD project in upper secondary schools, linked to the Young Masters Programme, which was a university outreach initiative connecting students from across the globe in virtual "global classrooms". They explore how critical abilities to act globally relate to global learning for sustainable development. Teacher teamwork can enable transdisciplinary knowledge formation locally, since individual teachers cannot cover the entire field implied in sustainable development. Nordén, Avery and Anderberg [20] summarise transition competences and the critical knowledge capabilities learners need in organising themselves and making decisions independently; developing transnational learning communities as well as in democratic collaborative action. The article also points to the difficulties teachers and students have reconciling the demands of the traditional curriculum and assessment, with the open-ended action-oriented learning in global learning for sustainable development. Finally, Nordén [21] investigates the difficulties teachers of different subjects experienced when trying to collaborate in teaching global issues and sustainable development at a Swedish upper secondary school. Also in a Swedish context, Hagevik, Jordan and Wimert [22] investigated teachers' conceptualisation of sustainability,

concluding that their understanding was generally narrow and that they felt ill prepared to teach sustainability issues.

In a UK context, Chazifotiou [23] examines how policy documents on ESD relate to conditions for teachers' practices and identifies both gaps and incoherencies. The textbook *Debates in geography education* [24], contains a chapter by Alex Standish on what geography contributes to global learning, while the chapter by Maggie Smith considers how geography contributes to sustainable development. The second edition of the textbook [25] does not contain chapters on these topics, and instead contends that the emphasis on cross-cutting competences in global learning and global citizenship risks leading to a shallower understanding of subject specific issues in geography. However, Nick Clifford also stresses the integrative potential of geography for transdisciplinary understanding of sustainability.

Research in further and higher education contexts

Publications focusing issues in further and higher education include both wider discussions and studies on specific cases. Bentall et al. [26] analyse global learning experiences in UK further education colleges. The authors discuss that the one hand, there is a need for stronger national policy on global learning it is to go beyond individual initiatives, but that on the other, such initiatives depend on the enthusiasm and commitment of both students and college staff, which may be lost if global learning for global challenges is mainstreamed throughout the curricula. Also, local conditions vary, and not all colleges and staff are equally well equipped to teach these issues.

Avery and Nordén [27] address the issue of how to support sustainability transitions and achieve wider societal change by looking at the professional competences acquired in higher education. Since sustainability research is marginalised in higher education, they recommend establishing mechanisms that connect professional programmes with sustainability expertise available within the HEIs.

In a dissertation on global leadership education, Whitaker [28] refers to Mendenhall et al. [29] to define global leadership as "The process of influencing others to adopt a shared vision through structures and methods that facilitate positive change while fostering individual and collective growth in a context characterized by significant levels of complexity, flow and presence". Although Whitaker does not specifically focus sustainability challenges, this definition captures the balance that needs to be achieved between actively driving sustainability agendas, while remaining sensitive and open to criticism of pathways and visions that may not have been sufficiently well considered.

Elem [30] investigates global learning for sustainable development from the angle of positive changes in attitudes and behaviour of international students. O'Brien and Murray [31] argue for education that leads to employment, including entrepreneurship and innovation. Although the article has the keywords Sustainability Education and Global Citizens, it does not deal with questions of sustainability or global learning. Finally, Fuertes et al. [32] report on how projects on sustainable food are used in the context of a degree programme on early childhood education at the international university of Catalunya, including issues of values and ethics. The authors note that a complex question, problem or challenge serves to drive the learning processes in an integrated manner and stress the value of working with real-world problems.

Learning outside formal education contexts

Learning outside formal education contexts is particularly important in view of achieving rapid societal transformation. In previous theoretical work, Waddell [33] contends that global collective action for sustainability can be driven by global action networks (GANs), which are civil society initiated multi-stakeholder arrangements that aim to fulfil a leadership role for systemic change in global governance for sustainable development. Waddell, McLachlan and Dentoni [34] summarise the principles behind how GANs can address “wicked problems” and achieve systemic transformation, inviting the agro-food industry to engage in a network for global learning comprised of academics partnering with business and other stakeholders.

In a significant study, Feola and Nunes [35] discuss the possibilities and obstacles to bottom-up innovations for climate change adaptation and mitigation, within the framework of sustainability transition theory, looking at the case of the Transition Movement across twenty-three countries. The diffusion of local innovations is connected to local-global learning processes. Unique local experiences can be applicable and relevant to other local contexts. The study concludes that grassroots innovations are the result of local experimentation, and do not necessarily correspond to a consensus concerning imagined futures. Since grassroots innovations typically rely on volunteers, the reach of such innovations is limited. Networking with other local or global actors, in particular other grassroots innovations, can support diffusion. However, geographically isolated transition initiatives are more at risk of being discontinued, even when they are virtually connected online. Local clustering of initiatives therefore supports grassroots innovation processes.

Treating another crucial issue to GLSD, Naleppa and Waldbillig [36] describe the insights gained over 12 years’ experience of a staff exchange programme between a US and a German NGO without external funding. Naleppa and Waldbillig [36] emphasise the importance of continuity and working in the long term to build trust:

“Trust needs to be built, before you really can share, so you need to think of it long-term. What has been interesting was the progression in the relationship, because of that we have gotten into much deeper issues and really helping each other solve problems that I did not anticipate in the beginning.” (p. 896)

Naleppa and Waldbillig stress that travelling abroad and hosting supports learning experiences. The issue of having a shared language for collaboration is also mentioned.

The remaining publications found in the systematic review deal with very diverse issues: Pickford and Ellis [37] describe a collaboration between a local council, a private recycling provider and the Global Dimensions specialism of a university primary school teacher education programme to create an education centre for schoolchildren. Dong [38] explores how Chinese migrant children are inspired by the international scout movement to expand their skills and gain greater confidence, even without direct interaction with children from other countries. Finally, Liu and Liang [39] discuss mechanisms of technology transfer in China as a strategy to support clean energy innovation and as a form of global learning for sustainable development.

North-South relationships

Schrüfer, Schwarze and Obermeier [40] discuss ethnocentric perspectives on North-South relationships and development issues and argue that intercultural learning is essential for sustainable development. Their study focuses Geography in higher education in a German context, and offers an example of how spatial perceptions can be used to change perceptions. Sriprakash, Tikly and Walker [41] underline that although global sustainability initiatives such as Agenda 2030 ostensibly aim at reducing inequities globally, racism is seldom addressed. International development efforts thereby consolidate racist structures and practices. While educational research typically considers how unequal global power relationships affect opportunities for dialogue between communities of learners, Tsai and Hong [42] investigate these issues at national levels. The study deals with the concrete issues of impacts of globalisation on low income nations, and how island communities can drive their own agendas of sustainable development to benefit local economies, rather than being exploited. The study summarises outcomes from a geographical conference on this topic, with examples from various contexts.

In the context of developing a Global Learning Partnership for Universitas21 and their partner universities that can address SDGs, Lees and Webb [43] make a systematic review of the effects of international field placements in the context of programmes for students in the health professions. They conclude that field placements enhance cultural awareness and cultural knowledge among the students. However, students and academics from the host countries are seldom involved in the collaborative learning model. They recommend involvement from host countries to improve outcomes and increase equity. As an example of successful partnerships, Heto, Odari and Sunu [44] discuss the considerable inequities in schooling globally and in the Kenyan context, underlining financial and socioeconomic disparities, as well as the question of school culture. They further analyse the case of an exchange programme between the University of Enkare, Nyrobi, and Soka University in Japan that has existed since 1988 and which aims at fostering global citizens. They highlight the strong ethos of Soka University and efforts made to promote interaction and mutual understanding between students as factors of success. Finally, Jones [45] argues that urban planning pedagogy should include attention to global challenges in line with the SDGs. The article describes an example of international studios in informal settlements held yearly by an Australian university in collaboration with an Indonesian university and which is recognised by UN Habitat as an example of a solution contributing to sustainable development in cities.

GLSD against the background of Rio and ESD trends

Although the review has omitted publications in languages other than English, and related publications may well be described with other keyword, it appears that the field of global learning for sustainability is relatively small. By comparison, a search in Scopus 12 September 2020 using the same criteria and the search term “global learning” yielded 619 results, a search for the term “sustainability” yielded 184, 654 results, while the search “ESD” AND “sustainability” yielded 512 publications.

Debates and trends in GLSD have followed many of the more general trends in ESD. The years following Rio witnessed a reflection on competences needed in sustainable societies, and how to teach them. The reflection was initially oriented towards “action” and to some

extent vocational skills connected with reducing environmental impacts, but increasingly also included the question of individual and societal change. Thus, certain strands of research focused the question of how to move from purely intellectual knowledge to emotional investment and a willingness to change personal behaviour. Yet other areas of research dealt with teacher education for ESD, whole school development, or the question of teamwork between teachers of different subjects to encompass both natural and social science dimensions of sustainability. Today, different strands of research are instead investigating how to fundamentally change our perception and conceptualisation of the world, by giving a different status to non-human forms of life or existence. By comparison, relatively little research in ESD has investigated global economic mechanisms or issues of collectively organised action, although particularly in the period after 2000 a lively debate arose critiquing globalisation and post-colonial global power structure. In the years since Rio, ESD research has also emerged in a variety of other directions connected to sustainability challenges, such as higher education for sustainable development (HESD), local and indigenous knowledges, challenge-based learning and science education using socio-scientific issues, place-based education, or the role of outdoor education and contact with nature.

The knowledge that children and young people were supposed to learn in the frame of ESD included an understanding of the interconnectedness of various natural and social phenomena. Pollution is not confined by national borders; what people do in any part of the world has impacts on lives of people in other places. ESD also included the dimension of empathy and solidarity across national borders that was a central element of the Rio vision. Global education aims to support both individual and collective competence to act in the name of worldwide solidarity [46]. Thus, numerous researchers approached ESD from the perspective of (global) citizenship education, geography or intercultural education. Nevertheless, the emphasis remained on local action and how education for sustainability could be integrated and implemented in the curricula of national formal education systems. This is problematic to the extent that assessment and subject-oriented schooling constitute obstacles to building necessary competences and knowledge capability. Research in Taiwanese schools suggest that the subject-dominated and exam-driven educational climate is not compatible with transdisciplinary learning aims of ESD [47]. In a study of four school subjects in the UK and Germany, Bourn [48] also observed that, global learning in all the examined four subjects was "perceived as being outside the core elements of the subject" (p. 6).

The notion of "preparing for life" that is found in formal education separates the period of passively learning during school, from a supposed period of action situated in the future. This gives little scope to develop the skills, competences and capacity needed for this future action. Another problem with this notion is that it frames "knowledge" as something pre-existent, that is acquired and can subsequently be used and applied. At a time when future conditions are difficult to foresee, and new solutions are urgently needed, learners need to build "knowledge capability" [49], [12] and learn to collaboratively devise functional and sustainable solutions in situations where no ready-made answer exists.

Research has underlined that GLSD and ESD are not just about content and competencies, but also very much a matter of teaching pedagogies. Jickling and Wals [50] thus contrast authoritative pedagogies involving compliance and conditioning, with participatory pedagogies, that stress active citizenry and social learning. They further contrast a transmissive paradigm that is predetermined, prescribed and closed, with socio-constructivist transformative learning, that is co-created, socially critical, action-oriented and open. This has considerable consequences for sustainability education generally, since assessment systems

are based on authoritative transmissive education, where conformity to predetermined learning outcomes can be measured.

Scheunpflug and Asbrand [51] discuss global learning against the background both of globalisation and the idea of realising justice through development, warning against the instrumentalization of education for political goals. They argue that the central aim must be to prepare learners for a world of increasing uncertainties and complexity. Scheunpflug [52] further contends that core competences in global learning include the ability to:

“...understand and critically reflect global interdependencies, own values and attitudes, develop own positions and perspectives, see options, capability to make choices, to participate in communication and decisions within a global context.” (pp. 33-34)

Scheunpflug [53] also sees global learning as a guiding principle that should be incorporated in all school subject matters, to prepare for action. According to Rost [54], knowledge in the field of global development processes is characterised by its high level of complexity and can best be met by a system-oriented approach. The ability to understand and deal with global systematic interconnections is therefore the core competency and should be supported by knowledge from several scientific disciplines. It follows that an interdisciplinary knowledge structure is a basic requirement for learning in this field. Rost further underlines the significance of system thinking competency, valuing competency and shaping/influencing competency in global learning for sustainable development. Fazey et al. [55] stress the value of participatory approaches, which can be used to:

“encourage systemic thinking, enhance social outcomes and encourage questioning of underlying assumptions], as well as simultaneously producing evidence about, and action for, solutions. Overall, conceptualising second-order transformation research as experimenting helps ensure focus on learning from the action as much as generating tangible and actionable outcomes.” (p. 65)

Such processes “follow a prescriptive and normative logic and actively seek to be part of the process of fulfilling societal needs in fundamentally new ways”.

Like other strands of ESD, global learning for sustainable development (GLSD) was initially largely based on the Rio vision and definition of “sustainable development” as moving forward incrementally within the “win-win” inter section of the economic, social and environmental spheres. Within this approach, the emphasis was placed on local-global interrelationships, that is, the specific question of how to achieve understanding, empathy, engagement, collaboration and exchange of experiences across national borders, enabling the shift to sustainable development. While this dimension of the Rio agenda was present in mainstream ESD, it became the particular focus of GLSD. GLSD drew on previous discussions and experiences in movements aiming to ensure world peace, as well as movements of emancipation and solidarity striving to achieve global justice. Earlier efforts for global citizenship had largely relied on printed textbook materials, possibly supplemented by films and televised documentaries. Only small numbers of young people could benefit from direct experiences and engagement through “global” schools, student exchange programmes, volunteering, study trips, camps or conventions. But in the late 1990s, the internet was

starting to become widely accessible, which presented entirely new ways of connecting and communicating across national borders. While continuing to reflect on the potentials of direct personal experience, in both GLSD and other areas of education, a significant amount of research was directed towards the possibilities opened by the new ICT technologies in “global classrooms” [56] as well as issues of immersive and explorative learning through virtual realities, gaming and computer simulations.

Discussion

The reasoning behind the Rio vision for how societies could transition from business-as-usual towards greater sustainability has had considerable consequences, not only for political action but for the orientation and content of education for sustainability. As outlined above, information, knowledge, education and awareness were all seen to play a key role in societal transformations globally. As we have seen, citizens were expected to contribute to the process by accepting changes to their habits and lifestyles. Indirectly, citizens could also contribute by supporting sustainable policies through their democratically elected representatives. From a UN perspective, however, increased democracy was a possibly a desired outcome but could not be taken as a prerequisite for sustainability. Almost thirty years later, in Agenda 2030, the word democracy is conspicuously absent from the SDGs, and only indirectly alluded to in Target 16.7: "Ensure responsive, inclusive, participatory and representative decision-making at all levels", with the indicator 16.7.2 “Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group”. Due to the focus on consensus, any issues of conflicting interests were also downplayed at Rio.

In ESD, efforts were consequently directed towards raising awareness of sustainability issues, strengthening students’ scientific literacy, and pointing to concrete actions in their daily lives where they could contribute to a cleaner planet, such as recycling or avoiding littering. The intention was to build among the younger generation a commitment to support implementation of sustainability goals, rather than to question priorities and orientation of policies, or to actively drive for change. Although there was also mention of local and global “action”, this was mostly oriented towards “spreading the word” and to gaining adherence to the Rio vision within local communities. However, the assumption that awareness or knowledge would lead to behavioural change does not appear to be warranted [11]. In a study of UK schools, Hunt [57] found that despite far-reaching ambitions, the programme seemed more likely to encourage small-scale lifestyle changes, and develop a greater interest in global issues, rather than necessarily lead to children’s involvement in social action. In those contexts where attempts to “raise awareness” among young people were successful, the result was therefore often disillusionment, depression and a feeling of profound powerlessness. Among researchers in education, the following years saw the emergence of a discussion concerning democracy and the normative dimensions of sustainability, ensuing in reflections concerning values or conflicts in values.

As a fruit of Rio, GLSD was both driven by the enthusiasm of this summit and marked by its flaws. Crucially, it avoided the question of funding and structural drivers, assuming that all nations and all actors were in agreement to support these efforts. Global education (GE) was introduced in the 1960s [2], and from 1974 an international environmental education programme was launched by the United Nations Environment Programme (UNEP). This programme was already at an early stage criticized for perpetuating a neocolonialist discourse

in environmental education [58], rather than promoting genuine international cooperation and colouration among its participants. The research area of GLSD did not initially consider participation via non-governmental organizations (NGOs), policy-framing international organisations, or intergovernmental organizations. This delimitation positioned schools and formal education as somehow separate and insulated from society at large and also affected the very meaning given to the notion of sustainability.

Gwin and Foggin [59] underline that ESD continues to be dominated by a small set of countries, to the detriment of marginalised and peripheral communities:

“The core countries control the content, finances, and standards of the educational systems; control the language used for instruction and research; control the media that normalizes the ideology of globalization; and control the means that encourage the migration of the most gifted students and scholars away from peripheral areas [60,65–68]. Such disparities in leadership and decision-making seem unlikely to result in equity. Simply put: for sustainable development to occur, education must not only affect the top decision-makers for societies but must equally empower marginalized communities to develop their own capabilities.” (p. 6)

Despite the continued dominance of Northern-centric discourse and perspectives in discourse on globalisation, development agendas and global learning, Stromquist [60] points to the potential of global learning to support development and sharing in horizontally approached dialogues. Training and promoting critical thinking could allow young people to identify the underlying causes of global challenges. Moving beyond a paradigm of one-way transmission of predetermined content and agendas, GLSD needs more than ever to have the capacity to engage and remain credible for those who are engaged in it.

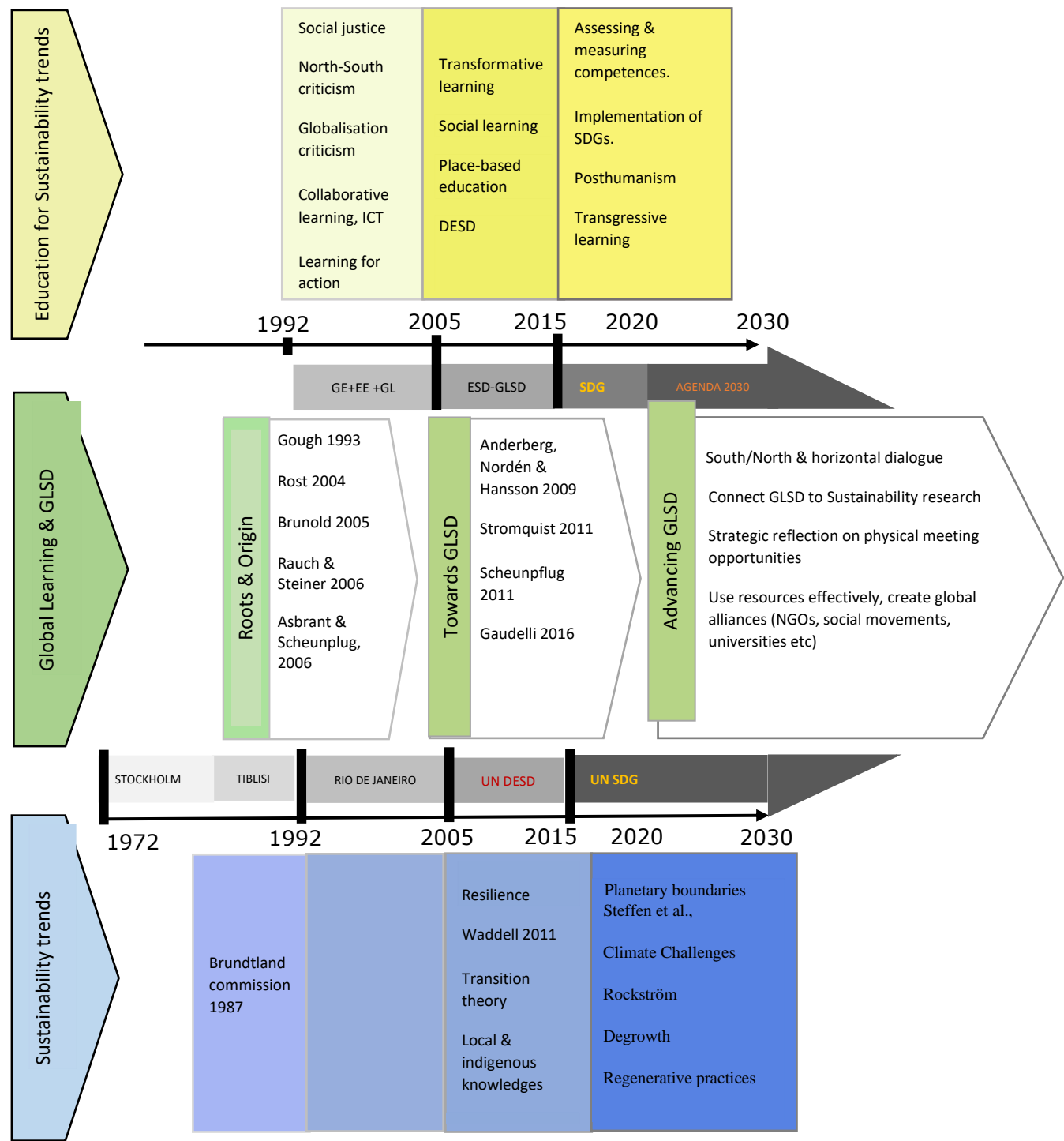


Figure 1: Overview of how discussions in the field of GLSD relate to debates in ESD and sustainability research.

Since Rio, the UN has consistently sought to build on the ideas presented at Rio, with initiatives such as the Millennium Goals, the UN Decade of Education for Sustainable Development and the current Agenda 2030. However, while the challenges highlighted at Rio appear more pressing than ever, the conditions for collectively addressing them at a global scale have substantially deteriorated. In retrospect, it is clear that the reasoning behind the notion that sustainable development could be achieved in the intersection of the social, economic and environmental domains was flawed. Attempts to “decouple” growth and environmental impacts through efficiency has not resulted in a decrease of emissions or other environmental impacts, while tighter environmental regulation in certain “developed” nations has accelerated the tendency to locate heavily polluting industries in the “developing” world. Nevertheless, the figure of three intersecting domains of sustainable development – originally intended to facilitate a consensus for action and avoid issues where conflicts of interest might arise – has persisted in the literature until this day.

With respect to global warming and limiting greenhouse gas emissions, the Kyoto Protocol was adopted in 1997 and entered into force in 2005. The United States never ratified the protocol and Canada withdrew in 2012. The Doha Amendment to the Kyoto Protocol has of 16 June 2020 not yet been accepted by the 144 parties needed to enter into force. The Kyoto Protocol has been superseded by the Paris Agreement of 2015, but in 2017 the US decided to withdraw (entering into effect from November 2020). Although some action on emissions has been set in motion, is unclear if the parties to the Paris Agreement will achieve the targets which they have set with respect to global warming, while the latest climate research suggests that warming dynamics are both much quicker and more devastating than earlier assumed. Prospects concerning other planetary boundaries [61] are equally bleak [62,63,64].

The weakening of UN structures and mechanisms of international law that is suggested by the lack of global commitment with respect to greenhouse emissions and environmental targets is mirrored in other domains. Examples include human rights violations, breaches to international humanitarian law on armed conflicts, or the recent withdrawal of the US from the WHO in the middle of the covid-19 pandemic. To the extent that Agenda 2030, education for sustainable development and global learning for sustainable development all rely on the adherence to fundamental values underlying multilateralism and the UN system, we believe that a reappraisal of certain of the assumptions behind the Rio Agenda is necessary. We also wish to argue for the urgency of considering the implications of these developments for education and sustainability activism.

Where do we go from here?

It is all too easy to treat knowledge, knowledge sharing and knowledge development as abstract disembodied entities. But learning ‘how to’ is eminently embodied. All of the competencies, skills, bodies of knowledge and capacities required for sufficiently rapid, radical, socially and globally just, agile, wise and foresightful planetary sustainability transitions require long practice and low-stakes opportunities to try out and experiment. Sustainability transitions are based on collective action, but the learning does not take place in abstract “populations”. It is carried by engaged individuals and groups or networks of specific people. This supposes that these individuals, groups and networks can actually work in a continuous manner to gradually, over time. build the necessary knowledge, experiences and

capacity. Besides funding and physical or organisational resources, transnational networks build on trust, mutual respect and deep understanding of the diverse contexts people live in. These are all difficult to achieve without opportunities for face-to-face meetings and exchanges allowing extended periods of work [35].

In a study in the UK, Hunt [57] found that most pupils' active commitment in global learning related to their interactions with school linking programmes overseas and fundraising activities. However, the strongest forms of global learning take place as a result of study visits, physically attending meetings with delegates from various countries, or longer periods of exchange with partners in an international network [65], [36]. Such activities demand considerable resources, at the same time that reducing travel is a condition for living within planetary boundaries. GLSD is thus exposed to similar constraints as other initiatives for intercultural education, mobility or internationalisation. Much of the pedagogical reflection for GLSD has therefore been devoted to how to achieve a sense of connectedness, personal life-long commitment and a sufficiently deep and nuanced understanding of how other people live, without a foundation in personal experiences and relationships. This is getting progressively more difficult. On the one hand, such efforts are competing for attention with the entertainment industry, social media, aggressive marketing, information “overload”, or efforts to simply survive in economies affected by austerity, corruption, automation, warfare, climate stress and natural disasters. On the other hand, extreme right-wing ideologies have been extraordinarily successful these past decades in spreading messages of fear, intolerance, hate and racism.

Considering the cost and effort involved in gaining personal experience of sustainability work and challenges in other parts of the planet, and the commitment which is needed to build, maintain and develop capacity in transnational collaboration networks, it is important to carefully consider the objectives of such collaboration and pay sufficient attention to the forms it takes. For instance, research has shown that when young people from the global North spend time abroad or engage in volunteering projects, the experience can be transformative, but in many cases experiences are shallow [43], and work may be framed within a patronising notion of “aid”. Similarly, when students from the global South study at northern universities or schools, they are seldom offered opportunities to express their own concerns or engage in deep dialogues. To yield fruits, such initiatives need persistence and continuity [44].

The focus on formal education has entailed a framing of learning as preparation for the future lives of individual students, rather than “social learning” [50], [10], life-long informal/non-formal learning, and learning as developing capacity for collective action (i.e. learning to self-organise, mobilise resources and further strengthen organisational capacity).

There has always been an inherent tension between the “normative” aspect of ESD and the common mission of formal schooling systems to be “neutral”, simply transmitting “objective” knowledge. Clearly, the consensus in any country on what is acceptable non-controversial curricular content is defined by local traditions, as well as by various political or commercial agendas. But while it is easy to argue that the status quo is not sustainable, and merely serves to cement behaviours and stances that are driving planetary disasters, it is not equally easy to suggest alternatives. Merely advocating “critical thinking” [66] is not enough. Ideally, citizens should have sufficient knowledge about facts to make informed choices, but this is becoming increasingly difficult. Not only is grasping the complexities of global interrelationships highly

challenging for young people, but the rapid changes and new situations which are appearing make the task equally challenging for the scientific community. Additionally, in the “post-truth” era, young people have to understand the dynamics of deliberate disinformation campaigns, and attempt to identify reliable sources of information against a background of sensationalism, propaganda, as well as well-intentioned but far-to-rapid conclusions. Here, GLSD can play an important role, by giving access to a wider range of perspectives, experiences, knowledge bases and insights, beyond the fragmented and commercialised “globalised” media landscape [67].

Conclusions

Although research on GLSD has not seen the expansion that ESD literature has, the need for global collaboration on sustainability issues is more urgent than ever. There is no time to wait for new generations to acquire the competences needed for sustainability transitions. GLSD therefore needs to focus not only on initial education but increasingly on non-formal and adult learning. To achieve transformation, GLSD cannot avoid the underlying political issues driving inequity and unsustainable development.

Fazey et al. [55] discuss the issues of how to bring about necessary societal changes and stress that:

“Second order transformation research is thus inherently political, as it involves exploring how incumbent systems and power might break down allowing for a broader societal shift towards transformative alternatives. This poses key challenges for operationalizing second-order transformation research in a world dominated by assumptions that knowledge creation is separate from politics and where knowledge creation occurs first, followed by dissemination and then decision-making about how to act.” (p. 63)

From [Figure 1] it appears that both ESD and GLSD are only marginally informed by recent developments in sustainability research, such as transition theory [68]. Greater attention to advances in sustainability research, including theories of change, would be required. Since funding and resources are scarce, we recommend searching alliances, such as the collaborations suggested by Waddell [33] and Feola and Nunes [35].

Already in the 1990s, critical voices such as Gough [58] pointed to the effects of an unequal global landscape on environmental education. Several decades later, these concerns are still warranted. To conclude, it is high time to prioritise South-North and horizontal South-South dialogue in the field of global learning for sustainability, to ensure that what is called development does not serve to export environmental costs or further aggravate inequities.

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Author Contributions

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Conflicts of Interest

No potential conflict of interest was reported by the authors.

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