The role of local knowledge in sustainable development programmes

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Chapter 2
Critical discourse analysis of perspectives on knowledge and knowledge societies within the Sustainable Development Goals

Abstract

Critical discourse analysis (Fairclough, 2012) is employed to consider discourses of knowledge and knowledge societies in the Sustainable Development Goals (SDGs). Two prior discourses of knowledge societies are identified: a scientific-technical discourse, proposed by governments of developed countries, and a pluralist-participatory discourse, championed by some academics and UNESCO. Knowledge and knowledge societies are found to have a marginal position within the main policy document 'Transforming our world' (UN, 2015). The technical-scientific-economic discourse is the dominant discourse at the level of goals, while there is some evidence of the pluralist-participatory discourse at the level of vision and strategy. A mismatch is identified between the transformational vision and strategy of the SDGs and implementation which represents a continuation of the status quo.

2.1 Introduction

In September 2015, the member states of the United Nations (UN) General Assembly agreed on the Sustainable Development Goals (SDGs), a transformational agenda to address the problems facing the global community, including poverty, gender inequality, and climate change (UN, 2015). The SDGs will set the framework of the international development agenda up to the year 2030 (UN, 2015). The international organisations, such as the UN Food and Agriculture Organisation (FAO, 2015), and the world's largest aid donor, namely the European Union and its member states, have embraced the new agenda, re-framing their development efforts in the light of the SDGs (European Commission, 2015). For the first time, global development efforts in the economic, social and environmental spheres for both developed and developing countries are being integrated (Cummings, 2015). This represents a great step forward, reducing the fragmentation of efforts to address global problems. To achieve this ambitious agenda, global efforts to address the complex challenges identified in the SDGs will need to make the most of new modes of knowledge production and exchange

The way in which knowledge is perceived in the SDGs has, however, not yet received concerted attention. To date, criticisms relating to knowledge are, themselves rather fragmented. They focus on the model of knowledge transfer (Ramalingam, 2015), the lack of reference to local knowledge (ICSU/ISSC, 2015) and the failure to recognise that development needs to be based on developing countries' experiences and realities (Leach, 2013). Ramalingam, for example, argues that 'the overriding mentality [in the SDGs] is still that developing countries are vessels to be filled with knowledge and ideas' (2015, no pagination). At the same time, there appears to be increasing recognition that knowledge needs to receive more attention within the SDG process. In November 2015, 60 global health policy think tanks from around the world met in Geneva to explore the role that think tanks and academic institutions could have in implementing the SDGs related, in particular, to health. They argue that global knowledge sharing, capacity building and innovation will have a key role as is illustrated by the following quote:

> New knowledge about determinants of health, responses to diseases, mitigation of environmental problems, and successful policies and programme implementation is generated rapidly. Yet, knowledge often diffuses too slowly… Ensuring that knowledge is treated as a global public good and disseminated quickly, effectively, and widely should be a priority. (Jha et al., 2016: 2)

To consider how the SDGs focus on knowledge, this article investigates the discourse on knowledge and knowledge societies in 'Transforming our world: the 2030 agenda for sustainable development' (UN, 2015), the final text of the SDGs ratified by the UN. This is an important issue for at least two reasons. First, as described above, the SDGs set the framework for international cooperation and development up to 2030, and will probably have an impact on shaping all aspects of human life including the development of knowledge societies. Second, in the words of the United Nations Educational, Scientific and Cultural Organisation (UNESCO), 'reflection upon knowledge societies and how to build them makes it possible to rethink development itself' (2005: 19). We aim to answer the following research question:

which discourses of knowledge and knowledge society are evident in the SDGs at the level of vision, strategy, implementation and goals, and to what extent would approaches to knowledge, enshrined within these discourses, be in a position to address the complex problems facing the global community? To answer this question, we adapt Fairclough's transdisciplinary Critical Discourse Analysis (CDA), employing a genealogical approach which locates discourses on knowledge and knowledge societies within the field of previously-existing discourses. According to Fairclough (2012) who has written about the knowledge society as well as designing CDA, knowledge society (although he refers specifically to knowledge-based economy and the information society) is both a strategy and a discourse. We argue that knowledge society and the SDGs are both what Fairclough (2012) calls 'nodal discourses' because they subsume and reflect many other discourses. Like the knowledge-based economy and information societies, knowledge society subsumes and expresses technological discourses relating to ICTs, the discourse of intellectual property, the discourse of science, discourses of economic development, and discourses related to the network society. The SDGs also both subsume and reflect the discourse of the knowledge society.

2.2 Methodology

Discourse analysis is a collective name for a number of scientific methodologies for analysing semiosis, namely how meaning is created and communicated though written, vocal or sign language. Discourse analysis is used in many disciplines in the social sciences, each with its own assumptions and methodologies. CDA is one type of discourse analysis which aims to 'understand, expose, and ultimately resist social inequality' (van Dijk, 2005: 352). CDA focuses on the dialectical relationships between discourse and other elements of social practices. According to Fairclough (2012), social practices networked in a particular way constitute a social order, such as the emergent neo-liberal global order. As Fairclough argues 'one aspect of this ordering is dominance: some ways of making meaning are dominant or mainstream in a particular order of discourse, others are marginal, or oppositional, or alternative' (Fairclough, 2013: 265). This study employs an adapted version of transdisciplinary CDA (Fairclough, 2012), comprising a four phase research process (see Box 2.1). The first phase involves the selection of a research topic that relates to a social issue that can be productively approached by a focus on semiosis. The second phase involves the identification of obstacles to addressing the social issue based on the analysis of dialectical relations between semiosis and other social elements. This involves the identification of a suitable text as well as information on how the text was created. Once an appropriate text has been identified, the text is analysed. The third phase considers whether the social order 'needs' the social issue, namely whether it is inherent to the social order, whether it can be addressed within it or whether it can only be addressed by changing the social order. The fourth phase is based on the identification of possible ways past the obstacles with a semiotic point of entry by the use of discourses, narratives and arguments. In short, it uses words in texts and speech to identify social issues and then considers how words in texts and speech could be employed to contest these issues.

In this chapter, the CDA methodology has been adapted to make it more suited to the analysis of key policy documents and to make the methodology clearer for readers who are not necessarily experts in discourse analysis. The adapted methodology also places much greater,

explicit emphasis on the genealogy of past discourses, which now receives a full step in its own right. Although Fairclough refers to the genealogy of past discourses as an important issue, it is not explicitly included in the original methodology. We consider that making this stage explicit is an important amendment to the methodology, making it particularly effective for identifying sub-discourses, our purpose here. In addition, we have also added an extra step which describes why and how the text was developed, an important issue for policy documents (see, for example, Freeman and Maybin, 2011). In one further adaptation of the methodology, we analyse what we consider to be a 'social issue' rather than what Fairclough identifies as a social wrong. This aspect of CDA makes it clear that the methodology is strongly normative. We use 'social issue' rather than 'social wrong' because our purpose is to create an opportunity for discussion, rather than attribute blame for a social wrong. This represents an effort to move away 'from binary contrasts which polarise, exaggerate differences and even caricature' (Chambers, 2010: 42). Such discussion falls within the words in text and speech which contest this social issue.

According to Fairclough (2005), this methodology is transdisciplinary because it assembles diverse disciplinary resources, without expecting or seeking any substantive change as a result and without confronting 'thorny theoretical and methodological problems involved in transcending theoretical boundaries' (Fairclough, 2005: 53). However, we would argue that this type of CDA represents a particular interdisciplinary approach. Based on the transdisciplinary tradition within which the authors are located, transdisciplinary research is characterised by 'a focus on real world problems, involvement of multiple stakeholders, integration of different forms of knowledge, and crossing boundaries between disciplines and between science and society' (Cummings et al., 2013: 11). Given the lack of involvement of multiple stakeholders, the methodology would not be considered to be transdisciplinary from our perspective.

2.3 Results

2.3.1 Phase 1: Selection of the research topic and an overview of past discourses

Step 1: Selection of research topic

In the introduction to this chapter, we argued that the social issue being dealt with here is the way in which knowledge is approached in development and whether approaches to development are able to sufficiently utilise the potentially transformational role of knowledge. If the transformational power of knowledge is not harnessed, we consider that the global community will not be able to achieve the ambitious agenda proposed by the SDGs. This is, roughly equivalent to the first phase of the methodology which involves the selection of the research topic. In broad terms, this is a 'social issue' because the transformational potential of knowledge for development is not being recognized or harnessed.

Step 2: Study of genealogy of past discourse on knowledge society

The notion of the knowledge society first emerged as the knowledge economy in the late 1960s and early 1970s. Drucker (1969) popularized the term 'knowledge economy', attributing it to Machlup, while Lane (1966) referred to the 'knowledgeable society.' Bell (1975) is credited with investigating the role of predominantly theoretical knowledge as the emerging 'axial principle'

of society. Hornidge (2011) has reviewed the conceptual and political emergence of the term 'knowledge society' from the 1960s onwards. She argues that knowledge society started as an academic concept, developed by Drucker and others, which has since been used by governments to create a vision of an emerging future society, illustrated by the following quote:

> Knowledge society was often seen [by governments] as a product of technological developments in the information and communication sector as well as economic developments in the service and knowledge intensive sectors. Governments of many countries embarked on the creation of knowledge societies as stages of national development and legitimised their actions by referring to the perceived necessity to guide, guard and monitor ongoing technological developments. (Hornidge, 2011: 3-4)

Box 2.1 Methodology for analysis of key policy documents, adapted from Fairclough's transdisciplinary CDA (2012)

Phase 1: Selection of research topic and providing an overview of past discourses

Step 1: Select a research topic that relates to a social question that can be productively approached with a particular focus on the dialectic relations between semiotic and other elements.

Step 2: Undertake a genealogical study of past discourses in which the current discourse can be located.

Phase 2: Selection and analysis of texts

Step 1: Select texts appropriate to the object of research

Step 2: Describe how the text was created.

Step 3: Analyse texts in terms of vision, strategy, means of implementation, and goals and targets at the level of:

- individual words and phrases
- how the words and phrases relate to each other in the text
- the priority given to different themes

Step 4: Identify discourses in the text, based on the prior discourses identified in Phase 1.

Phase 3: Consider whether social order 'needs' the social question, namely whether it is inherent to the social order, whether it can be addressed within it or whether it can only be addressed by changing the social order.

Phase 4: Possible semiotic solutions: identify possible ways past the obstacles, involving developing a semiotic point of entry into the contesting of obstacles by the use of 'discourses, narratives and arguments.'

In this discourse, the notion of a knowledge society is often linked to its symbolic value of an emerging future society with a central role for technologies, particularly ICTs, and economic development (Hornidge, 2011). This is similar to the way Fairclough defines knowledge societies, that is as 'a qualitative change in economies and societies such that economic and social processes are knowledge-driven and change comes about, at an increasingly rapid pace, through the generation, circulation, and operationalisation of knowledges in economic and social processes' (Fairclough, 2001: 233). As Felt and colleagues note, such terminologies

prioritise 'the instrumental use of scientific knowledge for competitive economic advantage' (Felt et al., 2009: 14). Given this characteristic emphasis on the technological, UNESCO calls this approach the 'techno-scientific model' (UNESCO, 2005: 5). We consider that the economic imperative is also a key element so we identify this approach to knowledge societies as the techno-scientific-economic discourse.

The techno-scientific-economic discourse is dominant in government policies of the USA, Japan, the EU and Singapore, and has a number of common characteristics (Hornidge, 2011). First, it is based on a form of technological determinism in which ICTs play an important role in shaping the socio-economic development of society. Second, conceptions of knowledge society recognise the primacy of scientific knowledge with the implicit assertion that scientific knowledge is the best form of knowledge. Third, the definition of the knowledge society is often based on linear and instrumental conceptions of how knowledge generates economic growth. Mansell, for example, reports that speakers at the international conference WSIS +10 generally argued that 'knowledge societies are fostered by the diffusion of technologies and market competition which automatically (or at least relatively unproblematically) stimulates innovation, encourages collaboration and promotes the production of content' (2016: 631).

Another very different discourse on the knowledge society has been championed by UNESCO and researchers such as Castells, Mansell and Stehr (UNESCO, 2005). Mansell calls this 'a plural and strongly participatory vision of knowledge societies' (2016: 631) and we identify this approach as the pluralist-participatory discourse. The pluralist-participatory discourse gives the term 'knowledge society' a different provenance, linking it to the notion of 'learning societies' and 'lifelong education for all', which emerged in the 1960s and 1970s (Mansell, 2016). It favours a discourse that features freedom of expression, universal access to knowledge, and respect for linguistic and cultural diversity (Mansell, 2016). It is also linked to the notion of network society, described by Castells (2010), which involves new forms of organization in which traditional vertical hierarchies are being replaced by horizontal relationships that are able to transcend social and national borders.

The approach to problem solving within the pluralist-participatory discourse involves critical questions about the role of knowledge in human development but also the combination of practical experimentation with theoretical knowledge. The hierarchy of knowledge is based on principles of pluralism with an emphasis on endogenous knowledge, demonstrated by the following quote:

> All societies possess a rich range of knowledge and make use, in their daily lives, of various levels and types of knowledge that they produce and pass on using a wide variety of means, practices and tools. They are a base on which the capacities necessary for their development can sooner or later be built. (UNESCO, 2005: 188)

The economic aspect in this discourse focuses on knowledge sharing and collaborative and communal knowledge rather than individual ownership. In terms of ownership, UNESCO sees knowledge as a non-rivalrous public good because 'knowledge, in the strict sense, cannot then be treated as exclusive intellectual property' (UNESCO, 2005: 170). The attitude to

technology is very different than in the techno-scientific-economic discourse because of the emphasis on digital solidarity rather than on technological determinism. Digital solidarity involves the creation of innovative partnerships bringing together representatives of states, regions, cities, and of relevant international governmental and non-governmental organisations, the private sector and civil society (UNESCO, 2005). The pluralist-participatory discourse emphasises the internet as a medium while also including books, radio and terrestrial television. In this discourse, old and new ICTs are complementary (UNESCO, 2005).

Within this pluralist-participatory discourse, a number of interlinked sub-discourses have emerged related to knowledge. These sub-discourses include transdisciplinary research (Bunders et al., 2010); knowledge management for development (KM4D) (Cummings et al., 2013); as well as a whole range of participatory approaches concerned with development practice and research (Chambers, 2010). Transdisciplinary research responds to real world, persistent problems, and involves multiple stakeholders, such as citizens, patients, children, entrepreneurs and practitioners. It aims to integrate knowledge across disciplinary boundaries and across boundaries between science and society, representing an emergent process which can be applied to address complex problems (Regeer and Bunders, 2009; Bunders et al., 2010; Cummings et al., 2013). The KM4D field is also particularly relevant here because it is specifically focused on the role of knowledge in development. It is the domain of a community of practice of approximately 3000 global practitioners working in the field of international development (see, for example, Cummings et al., 2013; Ferreira, 2009; Ferguson and Cummings, 2008). Key characteristics of this emerging sub-discourse comprise:

- a growing awareness of multiple knowledges, collective thinking and multi-stakeholder processes in the solution of so-called 'wicked' problems (see, for example, Brown, 2008; Brown et al., 2010; Brown and Lambert, 2013) which 'defy efforts to delineate their boundaries and to identify their causes, and thus to expose their problematic nature' (Rittel and Webber, 1973: 167);
- recognition of the importance of the development knowledge as a global public good (Cummings et al., 2011) and of the development knowledge commons (Ferreira, 2012);
- an increasing emphasis on cross-domain interactions and knowledge co-creation (see, for example, Ho, 2011; Ho et al., 2012); and
- recognition of the importance of complexity and emergence (see, for example, Ramalingam, 2013; Jones, 2011).

Table 2.1 Comparison of discourses on the knowledge society

Techno-scientific-economic discourse	**Pluralist-participatory discourse**
Main proponents	
Policies of, for example, USA, Japan, EU, Singapore, Slovenia	UNESCO, Mansell, Stehr, Castells
National governments	International organisations, academics, development practitioners

Conceptual provenance	
Knowledge-based economy	Learning societies
	Lifelong education for all
Symbolic value	
Symbolic power of socio-economic development based on knowledge	Universal access to knowledge
	Knowledge societies as a source of development
	Humanization of the process of globalization
	Transformational value of knowledge
Types of partnerships	
Predominantly a partnership between national governments and private sector	Global information societies
	Network societies
Approach to problem solving	
Linear approach to technical problems	Non-linear, emergent approach to complex problems
Emphasis on scientific knowledge	Combination of practical experimentation with scientific knowledge
	Need for collective thinking
	Multiple knowledge are needed to solve complex problems
Hierarchy of knowledge	
Primacy of scientific and technological knowledge	Pluralism
Lack of cultural and linguistic diversity	Cultural and linguistic diversity
Failure to recognise the value of local knowledge	Recognising the value of local knowledge
Approach to development	
Exogenous development	Endogenous development
Ownership of knowledge	
Primacy of monetary value of knowledge	Knowledge as a public good
Current models governing ownership of knowledge are needed for wealth creation	Knowledge should not only be subject to economic exchange
Strict copyright rules	Open Access
Economic instrumentalism of knowledge	Knowledge also has a cultural and social value
Role of technology	
Technological determinism	Absence of technological determinism
Focus on ICTs	ICTs, internet but also books, radio and terrestrial television
Focus on new technologies	Old and new ICTs are complementary
Digital divide	Digital solidarity

In Table 2.1, we compare the two discourses on the knowledge society from a number of perspectives; these characteristics have been identified in the academic papers cited above. For the pluralist-participatory discourse, we also include aspects of the transdisciplinary research and KM4D sub-discourses. We consider that the techno-scientific-economic model is very much business as usual, while the pluralist-participatory model harnesses the transformational power of knowledge. Given its approach to problem-solving, the pluralist-participatory model appears in a far better position to resolve some of the global problems that the SDGs are designed to combat.

2.3.2 Phase 2: Selection and analysis of texts

Step 1: Select texts appropriate to the object of research

To examine discourses of knowledge within the SDGs, this article analyses 'Transforming our world: the 2030 agenda for sustainable development' (UN, 2015), the 'outcome document' of the negotiations around the post-2015 development agenda. Political documents like this have been 'formed, disseminated and legitimised within complex chains and networks of events (committee meetings, reports, parliamentary debates, press statements and press conferences, etc.)' (Fairclough, 2013: 244-245). The document describes the background, means of implementation and the 17 Goals (see Box 2.2).

Step 2: Why and how the text was created

The SDG document was developed by the UN to replace the Millennium Development Goals (MDGs), based on a widespread process of consultation. In 2012, the Rio +20 summit mandated the creation of an Open Working Group to develop a draft agenda for sustainable development from 2015. The Open Working Group, with representatives from 70 countries, had its first meeting in March 2013 and published its final draft with the current 17 suggestions for the SDGs in July 2014. This draft was presented to the UN General Assembly in September 2014. Member state negotiations followed, and the final wording were agreed in August 2015. At the same time as the Open Working Group discussions, the UN conducted a series of 'global conversations', including 11 thematic consultations, 83 national consultations, door-to-door surveys, and an online 'My World' survey. This was a complex process and, even in the final stages, priorities and agendas differed between countries as a journalist reported in the *New York Times*:

> 'The tent is very large, and everyone is in it,' a diplomat from a rich developed country told me, speaking on the condition of anonymity to discuss a touchy diplomatic issue. 'Priorities differ, agendas differ. The willingness to take on commitments differs.' (Porter, 2014: no pagination)

According to Briant Carant, 'Both the MDGs and SDGs are branded as agreed-upon documents representative of the UN as a whole. Yet the UN approach to poverty abatement is one programme among many possible. Alternative programmes also exist but critics allege that they are under-represented as a result of particular power configurations and voting patterns within the organisation' (2016: 1).

Step 3: Analysis of texts

In this step, the text is analysed to identify vision, strategy, means of implementation, and goals at the level of: individual words and phrases, how the words and phrases relate to each other in the text, and priority given to different themes. We first looked at the references to knowledge and knowledge societies, and the context within which they appear. Given that there are very few explicit references to knowledge within the SDGs, we also searched for characteristics of the knowledge discourses, identified in Table 2.1 above.

The **vision** of the SDGs is presented on pages 5-14 of the text. It comprises 'a supremely ambitious and transformational vision' which aims for 'a world free of poverty, hunger, disease and want' (UN, 2015: 7), and with a commitment to making 'fundamental changes in the way

that our societies produce and consume goods and services' (UN, 2015: 12). It is an inclusive agenda as demonstrated by the following quote: '[the agenda is] accepted by all countries and is applicable to all, taking into account different national realities, capacities and levels of development and respecting national policies and priorities' (UN, 2015: 9). In addition, it appears to recognise the integrated nature of the problems facing the world as can be seen in the following quote: 'reflecting the integrated approach that we have decided on, there are deep interconnections and many cross-cutting elements across the new goals and targets' (UN, 2015: 9). The vision also refers to the symbolic value of knowledge societies, the first specific mention of knowledge comprising 'The spread of information and communications technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies, as does scientific and technological innovation across areas as diverse as medicine and energy' (UN, 2015: 9).

In the SDGs' document, strategy is based on 'a revitalized Global Partnership… bringing together Governments, the private sector, civil society, the UN system and other actors (UN, 2015: 14). The means of implementation has its own short section (UN, 2015: 14-15), while Goal 17 is also focused on implementation. The means of implementation is based on finance, technology, capacity building, trade, and systemic issues, such as policy and institutional coherence and multi-stakeholder partnerships.

Under goals and targets, there is specific reference to knowledge in 'Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.' Target 2.3 comprises:

> By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment. (UN, 2015: 19)

In this target, knowledge is seen as a means of production. In Target 2.5, there is reference to traditional knowledge as a subset of genetic resources:

> By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed. (UN, 2015: 19)

Box 2.2 The SDGs:

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3. Ensure healthy lives and promote wellbeing for all at all ages

4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialisation, and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts (taking note of agreements made by the UNFCCC forum)
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalise the global partnership for sustainable development

Under 'Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all', knowledge is again referred to in Target 4.7 as 'knowledge and skills' in the context of lifelong learning, global citizenship and cultural diversity:

> By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development. (UN, 2015: 21)

In 'Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development', 'scientific knowledge' is referred to in conjunction with research capacity and technology transfer under Target 14a as follows:

> Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing

> countries, in particular small island developing States and least developed countries. (UN, 2015: 28)

Knowledge also receives three mentions in 'Goal 17: Strengthen the means of implementation and revitalise the global partnership for sustainable development'. One of these can be found in the sub-section 'Technology' which comprises Targets 17.6-17.8. Under 17.6, 'knowledge sharing' in a context of science, technology and innovation and international cooperation is referred to as follows:

> Enhance North South, South South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the [national] level, and through a global technology facilitation mechanism. (UN, 2015: 31)

In the section 'Multi-stakeholder partnerships', knowledge appears again under Target 17.16 as 'mobilization and sharing knowledge', linked to expertise, technology and financial resources:

> Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnership that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries. (UN, 2015: 32)

Knowledge appears again near the end of the document under the section 'Means of implementation and the Global Partnership' under Point 63:

> At the same time, national development efforts need to be supported by an enabling international economic environment, including coherent and mutually supporting world trade, monetary and financial systems, and strengthened and enhanced global economic governance. Processes to develop and facilitate the availability of appropriate knowledge and technologies globally, as well as capacity-building, are also critical. (UN, 2015: 33)

In this same section, knowledge receives a mention under Point 70, which concerns the launch of a Technology Facilitation Mechanism and its associated online platform:

> The online platform will facilitate access to information, knowledge and experience, as well as best practices and lessons learned, on science, technology and innovation facilitation initiatives and policies. (UN, 2015: 35)

Step 4: Identification of discourses in the text

At the level of **vision**, the SDGs appear to be inclusive and transformational, aiming to eradicate poverty, change the economic system, and recognising the interlinked nature of the problems facing the global community. In this way, the SDGs appear to be linked to the pluralist-participatory discourse. At the same time, the portrayed vision of the knowledge society, in which ICTs (and global connectedness) lead to the development of the knowledge society is much more strongly linked to the technological-scientific-economic discourse. In

terms of **strategy**, the emphasis on global partnerships and multi-stakeholders partnership also seem to place the SDGs within the pluralist-participatory discourse. The **means of implementation**, however, appears to be in the technological-scientific-economic discourse with its emphasis on finance and trade. At the level of **goals and targets**, the SDGs seem to be squarely in the technological-scientific-economic discourse. Despite the one reference to knowledge and skills in lifelong learning, all other references to knowledge relate to, respectively, knowledge as a means of production, traditional knowledge as a subset of genetic resources, and the emphasis on scientific knowledge and science, technology and innovation. In this way, despite the presence of the pluralist-participatory discourse in vision and strategy, at the level of implementation and goals and targets, the technological-scientific-economic is dominant.

Once we have reached the conclusion that the techno-scientific-economic discourse is the dominant discourse, particularly at the level of implementation and goals, we can see further evidence of this dominance, related to themes that are given prominence. Prominent themes within the SDGs, related to knowledge, include technology (and technologies and technological) which is referred to 45 times while science (and scientific) receives 30 references. Information (18 references) receives more references than knowledge (11 references) while five times this is part of a reference to 'information' in ICTs. Fairclough argues that 'dominant construals of the "new global order" have certain predicable linguistic categories' (2013: 247), namely that processes of change are divorced from social actors, history, time and place; that statements are presented as truths; and that they are normative. These characteristics are evident in many of the references to knowledge in the SDGs.

2.3.3 Phase 3: discussion of the social issue

In the preceding section, we reach the conclusion that there is a mismatch between the transformative **vision** and **strategy** within the SDGs and the non-transformative nature of the **means of implementation** and the **goals and targets**. In keeping with the technical-scientific-economic discourse, at the level of means of implementation and goals and targets, the SDGs pay no attention to the fact that development is an endogenous process, and that it represents 'synergy among millions of innovative initiatives people take every day in their local societies, generating new and more effective ways of producing, trading, and managing their resources and their institutions' (Ferreira, 2009: 99). As a consequence, the SDGs almost totally ignore endogenous knowledge with one reference to 'traditional knowledge' but only as it is associated with genetic resources. In a joint publication, the International Council for Science (ICSU) and International Social Science Council (ISSC) also miss mention of indigenous, local knowledge in the SDGs, and argue that there needs to be a new target on 'the role of indigenous, local and traditional knowledge in biodiversity use and management' (ICSU/ISSC, 2015: 74). However, in the pluralist-participatory discourse, indigenous, local and traditional knowledge has a far wider application than biodiversity use and management because endogenous knowledge is at the basis of all endogenous development (see, for example, Cummings and Hoebink, 2016). If you accept that development needs to be based on processes of endogenous development, almost completely ignoring endogenous development in the SDGs undermines the transformational agenda.

By refraining from translating the pluralist-participatory discourse, that can be recognised in the vision and strategy, into goals and targets, the SDGs miss out on the transformational potential of knowledge. This transformational potential can be found in new approaches to knowledge, such as transdisciplinary research, which are able to address complex problems, deal with emergence, and co-create knowledge. There are three possible explanations for the absence at the level of implementation. The first is that the actors involved in the SDGs did not know of these new possibilities. The second is that they knew of them but did not give them sufficient priority to include them in the text. The third is that they knew of them but did not want to include them because of the effect they might have in disrupting the status quo. In support of the latter possibility, Hornidge has demonstrated that 'the vision of a self-emerging knowledge society therefore acted as basis for legitimising government programmes and activities towards the realisation of the envisioned future stage of development' (2011: 4). It is possible that the inspirational vision of the knowledge society and of the SDG agenda as a whole is being used to gain support for a strategy which will not be able to address the complex problems facing the global community but which will rather preserve the status quo.

2.3.4 Phase 4: Possible semiotic solutions

As we have argued above, the purpose of this study is based on a normative premise, namely that the transformational potential of knowledge for development should be recognised and should be reflected in the SDGs, and that this lack of recognition represents, in very broad terms, a social issue which needs to be addressed. Given that this social issue appears to be inherent to the current social order, can it be addressed within the social order or by changing it? We consider that discussions of changing the social order are outside the scope of this paper but that there are a number of opportunities for addressing this social issue within the social order at the level of discourse, narratives and arguments. As we argued in the introduction to this chapter, this is an important issue because 'making the most of knowledge leads to imagining a new, collaborative development model' (UNESCO, 2005: 19-20). Greater emphasis on the transformational role of knowledge might have the potential to start some of the transformation systemic shifts necessary for sustainable development more generally.

Many of the sub-discourses on the knowledge society, found within the pluralist-participatory discourse and within the KM4D sub-discourse, are transformative when compared to the dominant techno-scientific-economic discourse. In addition, recognition that poverty and climate change are complex problems, reflected in the KM4D sub-discourse, could lead to the development of new types of strategies, currently largely lacking. Many of the actors championing these subordinate, alternative discourses, such as the KM4D community, have not been advocating on the theme of the transformational role of knowledge to a wider audience but have, instead, been concentrating on developing their own field of practice. We argue that to address the social issue on which this paper is focused, such actors will need to become involved in advocacy, promoting awareness of the transformational potential of their approaches. As John Akude states: 'KM4Dev has not addressed the issue of the significance of accentuating knowledge as a development factor for the overall delivery of global development solutions (…) KM4Dev should look beyond itself and the immediate concerns

of its members and embrace wider issues of global development' (2013: 9). All actors, including organisations and networks, with a perspective on the transformational role of knowledge for development should make their voices heard with different discourses, narratives and arguments, influencing the future development agenda and the way in which the SDGs are implemented. One such opportunity for advocacy is an international initiative of the Austrian Knowledge for Development Community which is working to conceive a set of Knowledge Development Goals for the year 2030. In this initiative, leading figures in the field of development will be invited to share their visions and ambitions to co-create and collectively constitute these Knowledge Development Goals and an Agenda Knowledge for Development (Brandner and Oster, 2015). Although this goes beyond the semiotic point of entry provided by the methodology, we also argue that these actors and their transformational approach to knowledge also need to become actively involved in the implementation of the SDGs.

2.4 Conclusions

From the perspective of national governments of both developed and developing countries, the document 'Transforming our world', incorporating the 17 SDGs, has set the international development agenda until 2030. The SDGs represents a nodal discourse under which many other discourses, such as the discourse of the knowledge society, are subsumed. The nodal discourse of the SDGs is politically powerful, representing an imaginary which is already being enacted on a global scale.

In this paper, we have used CDA to analyse the extent to which discourses around knowledge and knowledge society can be identified in the SDGs, employing a genealogical approach which locates discourses on the knowledge society in the field of prior discourses. We established that knowledge and knowledge societies are very marginal to the SDGs but that the techno-scientific-economic discourse is the dominant discourse at the level of implementation and goals, while there is some evidence of the pluralist-participatory discourse at the level of vision and strategy. In this way, there is a mismatch between vision and strategy, and implementation and goals. The vision and strategy are, on the whole, transformational while the implementation and goals and targets appear to represent business as usual. Unless the implementation and goals are able to harness the transformational power of knowledge, expressed in the pluralist-participatory discourse, we expect that international efforts at achieving the ambitious agenda will be unsuccessful. There are, however, opportunities for those actors who are convinced of the transformational potential of knowledge to raise their voices in terms of discourses, narratives and arguments, and also to take an active role in the implementation of the SDGs.