The use of group work and journal writing in reinventing development planning for sustainability under complexity

Anneke Muller

> Scientific reasoning is a dialogue between two voices, the imaginative and the critical (Medawar, 1969: 48).

> For a scientist must indeed be freely imaginative and yet skeptical, creative and yet a critic. There is a sense in which he must be free, but another in which his thought must be very precisely regimented; there is poetry in science, but also a lot of bookkeeping (Medawar, 1996: 63)

Abstract

Since 2002 Stellenbosch has offered a multidisciplinary Masters programme in Planning, Management and Practice of Sustainable Development (with a specialisation in development planning), offered mainly for working adult students. One of the challenges of developing a curriculum for this degree is that sustainable development (SD) and 'development planning', the focal points of the programme, are potentially very broad concepts, requiring the exploration of a variety of complex challenges in the African context, moving beyond the traditional spatial focus of planning in South Africa. This article explores the various potential meanings of SD, as well as its link with complexity thinking, systems thinking and complex adaptive systems and its implications for planning education and curriculum development. Complex adaptive systems thrive on diversity, creativity, and innovation. The programme is not about spoon-feeding, but about allowing space to explore and discover for oneself the diverse interpretations, tensions and contradictions inherent in planning, development and sustainability. Most concepts (participation, sustainability, planning, development, and so on) have a whole continuum of possible meanings between polar opposites, and it is important to make students aware of the language games people play in order to enable them to move beyond the clichés, myths and spin. Self-managed learning is an important element of this programme and innovative methods have to be found to teach the basics (to kick-start the learning) and create the pre-conditions for lifelong learning, as well as instil the critical, questioning, and imaginative attitude needed to invent the sustainable future we need. In addition to formal lectures and discussion classes, writing skill workshops to teach the important skill of writing, two of the more innovative teaching techniques used to try and bridge the teaching divide are journal writing and group work. In the real world, actor collaboration and group processes are very important methods of building knowledge. Since SD does not have a fixed meaning and is value-laden and multi- (or trans-) disciplinary, it requires democratic and deliberative public processes to give meaning to the concept. For this reason, group work forms an important element of the teaching curriculum and students are required to give feedback on the group process after each exercise and in their journals. The purpose of the journal writing is also to try to stimulate deep, rather than superficial learning and to help make the linkages in support of transdisciplinary learning, where learners are taught to make connections between social, political, economic, biological and physical dimensions and to make use of more holistic ways of thinking. Journal writing and reflections on group work have demonstrated many learning benefits, but also the need for more structure and guidance to steer individual learning processes.

DIE GEBRUIK VAN GROEPWERK EN JOERNAALSKRYWING IN DIE HERSKEPPING VAN ONTWIKKELINGSBEPLANNING VIR VOLHOUBAARHEID ONDER KOMPLEKSITEIT

Sedert 2002 bied Stellenbosch Universiteit 'n multidissiplinêre Magisterprogram aan in die beplanning, bestuur en praktyk van volhoubare ontwikkeling (met 'n spesialiseringsrigting in ontwikkelingsbeplanning), hoofsaaklik vir werkende, volwasse studente. Een van die uitdagings van kurrikulumontwikkeling vir hierdie graad is dat volhoubare ontwikkeling (VO) en ontwikkelingsbeplanning, die fokuspunte van hierdie program, potensieel baie breë konsepte is, wat die verkenning van 'n verskeidenheid van komplekse uitdagings in die Afrika-konteks vereis, en wat buite die tradisionele ruimtelike fokus van beplanning in Suid-Afrika beweeg. Hierdie artikel ondersoek die verskeie moontlike betekenisse van VO, sowel as die skakels met kompleksiteit en sisteem-denke en komplekse aanpasbare stelsels en die implikasies daarvan vir beplanningsonderrig en kurrikulumontwikkeling. Komplekse aanpasbare stelsels floreer op diversiteit, kreatiwiteit en innovasie. Die program is nie daar om studente met die lepel te voer nie, maar gaan oor die skepping van ruimte om self die uiteenlopende interpretasies, spanninge en teenstrydighede wat inherent is aan beplanning, ontwikkeling en volhoubaarheid, te verken en te ontdek. Die meeste konsepte (deelname, volhoubaarheid, beplanning, ontwikkeling, ensovoorts) het 'n hele kontinuum van moontlike betekenisse tussen totaal teenoorgesteldes en dit is belangrik om studente bewus te maak van die taalspeletjies wat mense speel om hulle in staat te stel om verder te sien as die clichés, mites en 'spin'. Selfbestuurde leerprosesse is 'n belangrike element van hierdie program en innoverende metodes moet gevind word om die basiese beginsels te leer (om leer aan die gang te kry) en die skep van die voorwaardes vir lewenslange leer, sowel as die aanwakker van kritiese vraagstelling, en verbeeldingryke gesindhede wat nodig is om die volhoubare toekoms wat ons nodig het, te ontdek. Benewens formele lesings en besprekingsklasse, skryfvaardigheid werkswinkels vir die onderrig van die baie belangrike kritiese skryfvaardigheid, is twee van die meer innoverende onderrigtegnieke wat gebruik word om die onderriggaping te probeer oorbrug, joernaalskryf en groepwerk. In die werklike wêreld is akteursamewerking en groepprosesse baie belangrike metodes vir die bou van kennis. Aangesien VO nie 'n vaste betekenis het nie en waarde-belaaid en multi- (of trans-) dissiplinêr is, vereis dit demokratiese en gedebatteerde openbare prosesse om betekenis aan die konsep te gee. Om hierdie rede, vorm groepwerk 'n belangrike element van die onderwyskurrikulum en studente word verwag om terugvoer te gee oor die groepwerk na elke oefening en in hul joernale. Die doel van die joernale is ook om te probeer om diep, eerder as oppervlakkige leer te stimuleer en om te help om die skakelings ter ondersteuning van transdissiplinêre leer te maak, waar leerders geleer word om konneksies tussen sosiale, politieke, ekonomiese, biologiese en fisiese dimensies te maak en om meer holistiese denkpatrone te gebruik. Joernaalskryf en refleksies oor groepwerk toon baie voordele vir leer, maar ook die behoefte na meer struktuur en leiding om individuele leerprosesse te stuur.

Anneke (J.I.) Muller, Senior lecturer: School of Public Leadership, Stellenbosch University, Private Bag X1, Matieland, 7602, South Africa. Phone: 021-808 2149, email: <jimuller@sun.ac.za>

TSHEBEDISO YA DIHLOPHA LE HO NGOLA JENALE HO SIBOLLENG MORALO WA NTSHETSOPELE WA POLOKO TLASA BOTHATA

Haesale ho tloha ka selemo sa 2002 Stellenbosch e fana ka dithuto tsa lenaneho la Masters la dikgalemo tse fapaneng moralong, tsamaisong le phethahatso ya Ntshetsopele ya Poloko (ka boikgethollo moralong wa ntshetsopele), oo ho fanweng ka wona haholoholo ho baithuti ba batho ba baholo ba sebetsang. E nngwe ya diphepetso tsa ho bopa lenane la ldithuto tsa lyunivesithi la dithuto tse phahameng tsa yunivesithi ke hobane ntshetsopele ya ho boloka le 'moralo wa ntshetsopele', seoo ho tsepamisitsweng mahlo ho sona lenanehong lena, ke mantswe a batsi haholo, a batlang boithuto ba diphepetso tse tshophodi tse fapafapaneng ha ho tluwa Afrika, ho fetelwa tsipamisong ya mahlo sebakeng sa setso kapa setho sa moralo ho la Afrika Borwa. Pampiri ena e ruta meelelo ya bohlokwa e fapafapaneng ya Ntshetsopele e bolokwang, e boelang e momahana le ho nahana ho thata, ho nahana mekgwa ya ho nahana le mekgwa ya boitlwaetso e thata le tseo di e bolelang moralong wa thuto le ho bopeng lenane la dithuto (kharikhulamo). Mekgwa ya boitlwaetso e thata e hahamalla ho fapafapana, ho bopa, le ho ntjhafatsa. Llenaneho lena ha se la ho jesa motho ka kgaba, empa ho fana ka sebaka ho ithuta le ho fihlella ka bowena ho fapafapana ha meelelo, ditsitsipano le dithulano tse fumanweng moralong, ntshetsopeleng, le ho bolokeng. Bongata ba mantswe (ho kenela, ho boloka, moralo, ntshetsopele, jwalojwalo) a na le thotohadi ya meelelo e meng pakeng tsa mahanyetsi mme ebile ke ntho ya bohlokwa ho lemohisa baithuti ka dipapadi tsa puo tseo batho ba ba bapallang tsona hore ba tle ba kgone ho sutha le ho fetela ka nnqane ho mantswe a sebedisitsweng tlolo, bosatsejweng, le ho loha. Ho ithuta ka bowena ke ntlha ya bohlokwa ya lenaneho lena mme mekgwa ya ntjhafatso e tlamehile ho fumanwa ho ruta dintho tsa motheo (ho simolla thuto) le ho bopa maemo a tlang pele a boithuto ba nako e telele. Esitana le ho kenya mafolofolo a matla, boipotso, le boinahano tse hlokehang ho sibolla bokamoso boo re ka bo bolokang boo re bo hlokang. Ka ntle ho dithuto tse hlophisitsweng baithuti ba buisanang, ho etsa dikopano tsaa boitshoriso tsa ho ngola ho ruta bohlale ba sebele ba ho ngola, e mmedi ya mekgwa ya ntjhafatso ya ho ruta ya e mengatangata e lekang ho sebediswa ho kwala sekgeo, ke ho ngola jenale le lmosebetsi wa ho sebetsa le le sehlopha. Lefatshweng la nnete, tshebedisano ya ba amehang le ditshebetso tsa sehlopha ke mekgwa ya bohlokwa ho bopa tsebo. Ka ha tswelopele ya ho boloka e se na moelelo o tsepameng

ebile e tletse bohlokwa ebile e na le dikgalemo tse ngata (ho phunyeletsa), ho hloka ditshebetso tsa setjhaba ka setjhaba le buisana ho fana ka moelelo lentsweng lena. Ka lebaka lena, mosebetsi wa sehlopha kapa tshebetso ya sehlopha, e bopa ntlha ya bohlokwa ya lenane la dithuto tsa yunivesithi (kharikhulamo) ya ho ruta mme baithuti ba kotjwa ho fana ka diphetho tshebetsong ya sehlopha ka mora mosebetsi o omong le o mong esitana le dijenaleng tsa bona. Sepheo sa ho ngola jenale e sa boetse e le ho hlasimolla thuto e teb ileng ho ena le e bobebe le ho thusa ho etsa dimomahano tshehetsong ya thuto ya kgalemo e ka mahohle, moo baithuti ba rutwang ho etsa dikamahano dipakeng tsa tsa kahisano, tsa dipolotiki, tsa moruo, tsa maphelo a batho le dimela le diphetoho tsa mmele esita lel ho sebedisa mekgwa e mengata ya ho nahana. Ho ngola jenale le tse etsahalang sehlopheng sa tshebetso di bontshitse dikatleho tse ngata tsa ho ithuta, empa ha mmoho le tlhoko e kgolo ya sebopeho le tataiso ho kgana ditshebetso tsa boithuto ba motho ka mong.

1. INTRODUCTION

The popular and scientific media abound with examples of unsustainable environmental and social development, for example acid rain, ozone holes, global warming, global dimming and climate change (leading to more severe droughts, desertification, floods, mudslides, hurricanes, typhoons, melting of polar ice caps and glaziers in the Himalayas, Alps and other mountain ranges, as well as rising sea-levels), resource depletion (energy and water shortages, future oil shortages, declining fish sources, rising oil and food prices that can lead to food riots), high rates of biodiversity loss and habitat destruction and fragmentation, overuse of poisons and chemicals, pollution, land degradation and growing mountains of waste[1] as well as some of the negative consequences of globalisation, consumerism and the belief in modern technology, rising poverty and inequality, high population growth rates, growing informal housing and economic activity, with global economic and financial instability. In addition, governments also fear the possibility of future global pandemics of influenza (bird and swine flu), Severe Acute Respiratory Syndrome (SARS) and other diseases, besides the existing HIV/AIDS pandemic. Many of the challenges of climate change will affect Africa more than other continents, despite the fact that

their contribution to global warming and resource depletion is very small.

Sustainable Development (SD) is increasingly perceived as the way to address these problems. Ban Ki-moon, Secretary-General of the United Nations (Ki-moon, 2008: 46), for instance, views economic and social security, anchored in SD, as the key to all problems, as "it allows us to address all the great issues – poverty, climate, environment and political stability – as parts of a whole". The growing importance of the still evolving and also contested concept of SD requires the reinvention of the discipline of development planning for sustainability, taking note of the fact that this has to happen in a very complex context. SD calls for innovation, lifelong learning, as well as a critical, questioning, and imaginative attitude needed to help invent such a sustainable future. The planning programme of the School of Public Leadership at Stellenbosch University has been experimenting with developing a planning curriculum and teaching philosophy to do just that.

In this article the background to the planning degree will be sketched, followed by a discussion of the implications of the concepts of 'sustainable development', 'development planning' and 'complexity thinking' for planning education and curriculum development. An overview will then be given of the pedagogical implications in terms of curriculum development and teaching methodologies used in the programme.

Present teaching methods include presenting an orientation module, where a core reader with pre-readings for all modules is handed out, and which includes a writing-and-referencing workshop. Each of the modules makes use of self-managed learning, as well as a block of lectures and discussion classes. Learning is assessed through group work and the writing of short class assignments in addition to longer individual assignments. The individual writing assignments must comprise a literature review and the application of the literature to a case study, as well as the keeping of a learning journal. The teaching methodologies of journal writing and group work (and the assessment of group work) will be discussed in more detail in this article. The article will conclude with a discussion of possible shifts in curriculum development and teaching methods.

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1   BBC, 2005; National Geographic, 2006a, 2006b; 2007a, 2007b, 2007c; Walsh, 2008.

2. BACKGROUND AND ACCREDITATION OF PLANNING DEGREE

Stellenbosch University has offered a full-time Masters degree in Town and Regional Planning (MTRP) since 1966. On the insistence of the national Department of Education this accredited Masters degree in Town and Regional Planning was phased out in 2004.[2]

Parallel to this degree, Stellenbosch University began presenting a part-time M.Phil. degree in Development Planning in 2001. At that stage only two other universities in South Africa offered Development Planning degrees (Witwatersrand and Kwazulu-Natal). This course was a joint offering between the division of town and regional planning and that of development management within the then newly created School of Public Management and Planning (renamed the School of Public Leadership in 2011). The course was based on the curriculum of the MTRP degree, but with a wider focus on development planning instead of only on spatial and layout planning. It was also offered on a block release basis, as this new degree focussed on attracting working students.

In the following year, the focus of the degree was changed to planning for SD, and an agreement was signed with the Sustainability Institute to offer a joint Masters programme, with two possible specialisations (a general focus on SD and development planning). Stellenbosch University has offered this multidisciplinary Masters programme in Sustainable Development Planning and Management since 2002, mostly for working adult students in public service or working for NGOs in the development field. Over time two further specialisations were added, namely renewable and sustainable energy and sustainable agriculture. There are now three possible specialisations in addition to the SD planning option. The two-year degree has also been split into separate B.Phil.[3] and M.Phil. degrees to take advantage of the bigger subsidy that a research masters (with a 50% or 100% thesis) attracts.

The number of applicants for the programme greatly surpasses the numbers that can be accepted and, when selecting students, preference are given to those with some experience in the development field. Present planning students include many international students (not only from other African countries). Many of the planning students doing the degree are already working in the planning field (often with diplomas in planning), while others are preparing themselves for a change in occupation (teachers, social workers, and so on). Teaching (and learning from) adult learners about development planning for sustainability is both exciting and quite daunting, but even more so in the context of the political nature of planning and the complex context. It requires one to focus on issues of diversity, uncertainty, non-linearity, and the linkages between various elements.

The present development planning option has not yet received an accreditation visit from the South African Council of Planners (SACPLAN), although a visit was first requested in 2002. A pre-accreditation visit occurred in 2005, but many of the issues discussed at that meeting (such as what the spatial content of a development planning degree should be) have still not been resolved by SACPLAN. The South African Qualification Authority's (SAQA) scoping process for the urban and regional town planning qualification framework (SAQA, 2010) does not seem to address these issues, nor does the publication of a draft set of issues to be reserved as work for planners (SACPLAN, 2009). These and later documents seem to focus on spatial planning to the exclusion of other forms of planning and appear like a step backwards.

Since development planning should be considered a transdisciplinary endeavour, the issues of accreditation of the planning degree, the registration of planners and work reservation for planners are viewed as somewhat problematic, in that this could potentially limit the future growth of the discipline, especially if planning is only defined in terms of issues that can be easily described or how planning is presently defined in government legislation and policies. Planning should not just be

viewed as a state-driven concept, as that would lead to the exclusion of community-driven or insurgent planners (or citizens) (Holston, 1998). In Britain for example, planning has been mainly limited to the narrow remit of land-use planning, based on the government's vision of what planning should be (Healey, 1993).

The broadness of the planning discipline also creates the need to specialise and for the various specialisations to be recognised for the purpose of registration. The example of the Planning Institute of Australia's (PIA) concept of different chapters (discipline-based membership groups) besides traditional urban and regional planning (for example, planning law; urban design, environmental planning; transport planning, social planning and economic development) can be mentioned in this instance as a possible idea to pursue (PIA, 2010).

3. SUSTAINABLE DEVELOPMENT AND DEVELOPMENT PLANNING

The focal point of the planning programme at Stellenbosch University is SD, implying more than a mere focus on climate change. One of the challenges of developing a curriculum for this degree is that 'sustainable development' and 'development planning' are potentially very broad concepts without fixed meanings, requiring the exploration of a variety of themes and complex challenges in the African context. Concepts such as sustainability, planning, development and participation all have a whole continuum of possible meanings between polar opposites (see Muller, 2009; Hattingh, 2002), and it is also important to make students aware of the language games people play, enabling them to try to move beyond the dualisms, clichés, myths and spin.

However, there are certain elements inherent to the concepts of sustainability and SD. SD is always about change and social transformation (and possibly quite drastic changes), including the ways we presently think and behave. It therefore requires continual innovation and creativity and the promotion of lifelong learning, along with the promotion of

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2 The national Department of Education decided to stop subsidising the degree, giving as reason the fact that the MTRP degree was the only degree offered at Stellenbosch University that fell within the Classification of Educational Subject Matter (CESM) category 02 (Architecture and the Built Environment).

3 Since the beginning of 2012, the B.Phil. is being phased out, to be replaced by a postgraduate diploma, as required by the Higher Educational Qualification Framework of 2007. However, the content of the programme remains as is.

learning within organisations, regions and cities (Muller, 2009).

SD necessitates a focus on longer term thinking (bearing in mind that environmental timescales are very different from human timescales), and therefore is linked to pro-active planning. As the concept is also about integration, holism and interlinkages, the themes that should be covered in any programme include social, economic, environmental, institutions/political, as well as built environment and technology concerns (Allen & You, 2002: 16-17), together with themes such as inter- or transdisciplinarity.

In addition, SD is a value-driven concept that requires the making of certain ethical choices, such as the importance and nestedness of the economic and social systems within the environmental or ecological system. There is therefore a need to study the problem from the perspective of socio-ecological systems (SES) and the impact of human beings and other species on the planet, where human beings (as individuals, groups, cultures and socio-economic-political systems) are perceived as inextricable part of ecosystems. SD also calls for choices regarding the promotion of equity. SD is mostly viewed as referring to equity across generations (mentioned in the Brundtland definition of SD), but also important is equity within generations (also mentioned in the Brundtland report) between genders and amongst species. Concepts such as social and spatial justice (Fainstein, 2009; Marcuse 2009; Soja, 2009) thus become important themes to study.

Planning is a pro-active approach to addressing problems and is closely linked to governance and management. In addition to applying rational approaches to problems, planning should also be about promoting the imaginative attitude needed to invent the sustainable future human beings want (the art and science metaphor), despite structural challenges (agency versus structure). Furthermore, planning is highly political, linked to the fact that SD does not have a fixed meaning and that a large part of the challenge is due to the problem of managing public goods and common property. Planning for sustainability therefore requires a focus on democratic, collaborative processes of giving meaning to these concepts. Attention must also be paid to the exploration of underlying and suppressed conflict and tensions,

otherwise any agreement will end up being an example of the 'lowest common denominator' that people could agree to. Often conflict cannot just be managed, but requires structural transformation to address the issues leading to the conflict (Auvinen & Kivimäki, 2001).

Internationally, the concept of development planning was initially closely linked to development economics and planning by economists (Waterston, 1965; Tinbergen, 1967). Development planning was often used to refer to planning in or for less developed nations. In this sense, planning was primarily viewed as a way of promoting the economic and social advancement of these countries (Alexander, 1986: 73). Conyers & Hills (1992: 48) believe that the scope of 'development planning' has gradually broadened to include much more than just the economic aspects of planning. It is now generally recognised that development planning must take into account political, social, physical/spatial and environmental considerations, in addition to economic factors. However, despite the existence of the concept of integrated development plans (IDPs) in South Africa, the professional bodies representing the discipline still seem to find it problematic to move beyond the traditional spatial focus of planning.

4. COMPLEXITY THINKING

One often forgets that the goal of SD must be strived for in a context characterised by uncertainty, risk, 'wicked' problems, interrelationships between issues and regions, diversity as well as complexity. It is therefore important to try to understand the potential of complexity and systems thinking for planning. Systems thinking is a way of observing the world. Systems are artificial models of reality, where the boundaries are arbitrarily chosen by scientists and researchers for the purpose of analysis, discussion and understanding. According to Cilliers (2007), systems can be simple, complicated (an airplane) or complex (the human body). Cilliers (2005: 258-259), however, reminds one that models always reduce the complexity and that one's knowledge of a complex system will always be limited and depend on the framework one chooses to study these systems.

The present focus on adaptive or evolving, complex adaptive systems differs from the focus of the1950s to the 1970s,

where systems (like the city) were perceived as machines. These types of hard, machine-like systems differ from soft systems, where human beings are part of the equation. Although McLoughlin (1967: 81) already viewed the city as an evolving complex system, his views could still be categorised under that of rational, scientific approaches to planning (Hillier & Healey, 2008: 300). Complex systems are dynamic, evolving, open systems that consist of many components, with rich and dynamic interactions between components and their environment, along with non-linear or circular causality (Cilliers, 2005: 257; 2007).

Complex adaptive systems are a specific subfield of complex systems, namely learning systems that evolve over time, with emergent properties, as found in socio-ecological systems (Berkes & Seixas, 2005). The evolution of social systems (emergence) can be positive (more resilience) or it can lead to what Innes & Booher (1999: 417-419) describe as negative or destructive patterns such as failed states, crime and corruption. Hillier & Healey (2008: 302) view the steering of self-evolving, learning systems as paradoxical. These systems cannot be controlled from the outside (since all the role players are part of the system), but thrive on diversity, creativity, and innovation (as do the learning organisations described by Senge, (1990)). At most they can possibly be nudged into productive patterns by any of the role players (although in non-linear systems one needs to take note of the fact that huge inputs such as policies or plans can have only small effects, while small inputs could lead to massive changes in systems.

Conventional forecasting, planning and analyses are not equipped to deal with dynamic complexity. Problems are often perceived as snapshots instead of processes of change over time. Planning is often about trying to create order out of disorder (sometimes by limiting options), but creating order might also be problematic, as in the view that informal housing needs to be destroyed and replaced by formal housing (even if the formal solution might be too expensive, too small, wrongly located, or otherwise unsuitable to the context). Complexity thinking is an alternative way to examine challenges, based on the view that one has to accept that some systems cannot be predicted and controlled. According to Geyer (2003: 12), "in order to thrive [a complex system] must find the zone of creative complexity between stultifying

order and destructive disorder". Planning through the lens of complexity thinking is therefore about promoting the right balance of order and disorder, promoting diversity, novelty and synergies of the actions of many different actors towards productive patterns. Table 1 contrasts conventional versus complexity thinking in relation to planning.

5. IMPLICATIONS FOR PLANNING EDUCATION AND CURRICULUM DEVELOPMENT

5.1 Creating spaces for learning

The process of seeking, rather than setting, standards for education for sustainability, from an emancipatory vantage point,

above all means the creation of space. Space for new ways of thinking, valuing and doing. Space for participation minimally distorted by power relations. Space for pluralism, diversity and minority perspectives. Space for deep consensus, but also for respectful dissensus. Space for autonomous and deviant thinking. Space for self-determination. And finally, space for contextual differences and space for allowing the life world of the learner to enter the educational process (Wals & Jickling, 2002: 230).

The programme is not about spoon-feeding, but about allowing the space to explore and discover for oneself the diverse interpretations, tensions and contradictions inherent in planning,

development and sustainability. Learning must be made as pleasurable as possible to get students to value the experience and learning process, even if the process might sometimes cause them discomfort. The role of self-reflection and confrontation of the source of ideas is also important, as it is sometimes only through challenging one's own fixed ideas that learning occurs. It is also important that learning be viewed as a two-way process, as the teacher often learns as much, if not more, than the students.

The challenge for a planning programme then becomes how to create these spaces and pre-conditions for lifelong learning (and unlearning). This problem has some parallels to the creation of spaces for democratic contestation and public participation, as well as spaces for life, activism, creativity and exploration, change and transformation.

5.2 Knowledge production and use

Reinventing development planning requires us to analyse the way human beings create knowledge and learn, especially in relation to rational-technical-scientific versus constructivist views of knowledge, and the ways of framing knowledge (closed, reductionist, complex or open). SD needs to take note of the postmodern epistemological[4] viewpoint that knowledge is contested and socially constructed (although the ontological[5] position of critical realism believes that, while knowledge is socially constructed, there is also "a discourse-independent reality" out there (Poor, 1989: 52). Critical realism questions whether we are always aware of underlying structures, powers and mechanisms that affect that which we experience (the empirical). It believes that the sense-data we experience do not always accurately represent external objects, properties, and events and that the study of cause-effect relationships can therefore be misleading. The position also tries to reconnect the earlier two meta-theories of positivism/empiricism, and post-structuralism/interpretivism (Huckle, 2004; Patomäki & Wright, 2000).

Table 1: Conventional versus complexity thinking

Conventional thinking	Complexity thinking
Simple and complicated systems – all of them can be understood, rationally managed/controlled and planned	Simple, complicated and complex systems – only some can be rationally managed and planned; complex systems cannot be fully understood (limited knowledge), need for modest claims, continual process of trying to understand
Reductionist, analytical (whole system understood by breaking into parts and studying them)	Holism - sum is more than the parts; interconnectedness and interdependence
Future knowable through more data, certainty, can predict and control, rational	Uncertainty, unpredictability, surprises, triggers, critical mass, unintended consequences
Linear causality (simple cause-effect relationships) – change proportional to input	Non-linear, circular or network causality, dynamic interaction and feedback loops – output disproportionate to input – small events can trigger huge effects (and vice versa)
Imposed, external, planned change and meaning imposed from outside	Emergence, self-organisation, adaptation, novelty, evolution, co-evolution, resilience, persistence (often due to path dependence or lock-in), and system creates own meaning
View the world as snapshots (baselines, indicators)	View patterns and trends (initial conditions, directions of movement, space for possibilities), interlinkages, relationships, probabilities
Crisis considered to be problematic	Crisis perceived as bifurcation points or phase transitions, where system can potentially move into a higher form of order (or disintegrate into total chaos)
Planning as top-down control and control of human behaviour, often through the use of technology (traffic lights, video control), based on hierarchy and routine; rational planning (creating order)	Planning as bottom-up participation, creating spaces for debate, social learning, diverse solutions by different role players, based on equality and acceptance of mystery
State-driven, rules and regulations, Weberian bureaucracy, efficiency, rationalization and standardization, red tape, officiousness, maintenance of status quo, grand narratives, organised learning, disenchantment	Accepting of multiple narratives and discourses, accepting other ways of knowing such as emotions, intuition, tradition, magic, and different ways of perceiving problems, change, novelty, innovation and creativity, disorganised, messiness, organic learning, enchantment

Sources: Flynn Research, 2003; Ramalingham, 2010; Geyer, 2003; Holling, 2004; Brewer, 2007; Cilliers, 2005 & 2007; Weber, 1946; Ritzer, 2000; Lippmann & Aldrich, 2003

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4   Epistemology is the branch of philosophy concerned with the nature of knowledge – its possibilities, scope, general basis, nature, presuppositions, foundations, origins, extent and validity.

5   Ontology is the "branch of philosophy or science of what is, of the kinds and structures of objects, properties, events, processes and relations in every area of reality" (Smith, 2003: 1).

Planning has always been viewed as both an art and a science, but one also needs to remember that traditional science can no longer be considered the highest form of knowledge. Until now science has been closely linked to logical positivism, based on simplistic cause and effect relationships, reductionism, empiricism and the supposed objectivity of knowledge. Sustainability has led to changes in the meaning of the concept of science. A variety of new positions have developed, such as critical realism (Huckle, 2004; Patomäki & Wright, 2000), ethno-science (Rist & Dahdoub-Guerbas, 2006), sustainability science (Burns, Audouin & Weaver, 2006), post-normal and mode-2 science (Müller, 2003), and transdisciplinarity (Nicolescu; 1997; Voss, 2001; Tress, B., Tress, B. & Fry, 2006).

The concepts of sustainability science and post-normal or mode-2 science have much in common, as discussed in Muller (2009). According to Burns *et al*. (2006), the defining features of the still emerging field of sustainability science are the following:

> Use-inspired basic research; location at the interface between human society and its sustaining natural environment; focus on the resilience of complex social-ecological systems; transdisciplinary approach to understanding system complexity and resilience; acknowledgment of the validity of multiple epistemologies, extending beyond the objectivity of science to include the subjectivity of alternative knowledge systems; and emphasis on learning and adaptation.

5.3 Professional education and lifelong learning

Innovative methods have to be found to teach the basics in order to kick-start the learning process and to create the pre-conditions for lifelong learning. According to the Dreyfus model as cited in Flyvbjerg (2001), the early stages of cognitive learning are based on rule-bound understanding. Only when people are proficient performers or experts in a field do they switch over to contextual and intuitive understanding. In addition, in Bloom's taxonomy (University of Victoria, 2004) the early stages of learning are perceived as being based on building knowledge by learning to name, identify, recognise, define and reproduce that knowledge. Building on that basic knowledge, students then have to move through

understanding, application and analysis of that knowledge before reaching the levels where they are capable of synthesis (being able to create, plan and integrate), evaluation and even challenging of that knowledge. In addition, real understanding of concepts often only comes in the application thereof (and often only when one reflects on all the mistakes made during the application).

Kick-starting the learning process in planning (even for adult students) therefore requires an introductory module where the basics are first introduced and explanations are given of planning concepts, definitions and an overview of the most important theories (and the links between them) in order to guide understanding. The readings for this introductory module must be relatively basic and include more challenging and complex readings to help those at a more advanced level understand more complex concepts. Students also require a guide to further readings

Table 2: Deep versus surface learning

Deep learning	Surface learning
Critical thinking about facts and the opinions of others, seeking underlying meanings, use of analytical skills, cross-referencing, imaginative reconstruction and independent thinking Engage with experiences in a questioning way, reflective thinking	Uncritical accumulation of facts and opinions, rote learning and simple descriptions Take experiences at face value Unreflective thinking
Transformational, moving beyond intellectual development, to include also physical, spiritual, emotional, aesthetic and moral growth	Superficial, intellectual development
Engagement of both the left and right brain, combining logical/ rational with emotional/ intuitive	Logical/rational

Sources: Bourner, 2003: 271; Henning, Van Rensburg & Smit, 2004; Grauerholz, 2001; Warburton, 2003

and discussions of the various tensions, contradictions and questions they will discover in these readings.

A part of adult education is to promote personal exploration and growth, professional growth and lifelong learning. Lifelong learning is not only about performance (obtaining good grades), but also about learning to value the learning process and benefits of experience. Self-managed learning also requires self-discipline and time management skills. In order to help students in their career paths, they are required to complete their own professional development plans (based on the one developed by the Royal Town Planning Institute (RTPI, 2008)), which is used to make people aware of the gap

between where they are and where they want to be.

5.4 Deep and critical learning

SD calls for the promotion of deep, rather than surface learning (see Table 2 for a comparison of the types), as well as reflective and critical thinking, writing and learning. SD is not about indoctrination, but about learning, innovation as well as critical and reflective thinking. In addition to teaching facts and exploring values, a critical and questioning attitude must be developed (trying to disbelieve what you want to believe and to believe what you do not want to believe).

The opposite of this is paradigm maintenance. Learning for sustainability under complexity requires diverse routes of enquiry, not the control of knowledge by powerful institutions such as the World Bank has done until now in relation to neoliberal economic development (Broad, 2007). Reflective

practice in research and professional practice require students not to take things at face value but to seek deeper meanings by asking critical questions and reflecting on what they do, say, read and write. Reflective practice has been described as "thinking back in order to move forward" (Fortune, 1999: 135, as cited in Duncan & Watson, 2004: 315). Reflective learning has a great deal in common with critical thinking, as both imply the asking of searching questions about experiences and bringing certain issues into conscious awareness (Bourner, 2003: 271). Table 3 indicates some questions that students should ask themselves when reading, writing or discussing any source.

Deep learning is closely related to critical pedagogy, which Ira Shor (1992: 192) describes as follows:

> Habits of thought, reading, writing, and speaking which go beneath surface meaning, first impressions, dominant myths, official pronouncements, traditional clichés, received wisdom, and mere opinions, to understand the deep meaning, root causes, social context, ideology, and personal consequences of any action, event, object, process, organization, experience, text, subject matter, policy, mass media, or discourse.

Table 3: Questions as tools for critical thinking

1	What arguments are used by the speaker or writer to substantiate their viewpoints?
2	Why do you think the argument was used?
3	What explicit assumptions are being made? Can they be challenged?
4	What implicit/taken-for-granted assumptions are being made? Can they be challenged?
5	How logical is the reasoning?
6	How sound is the evidence for the assertion(s)?
7	Whose and what interests are served by the assertions?
8	What values underpin the argument and reasoning?
9	What are the implications of the conclusion?
10	What meaning is conveyed by the terminology employed and the language used?
11	What alternative conclusions can be drawn from the evidence?
12	What is being privileged and what is off-the-agenda in this discourse?
13	What is the context of this discourse? From which different perspectives can the discourse be viewed?
14	How generalisable are the conclusions? Will it work in other contexts?
15	What alternative viewpoints, arguments and solutions are possible?
16	How do the assertion(s) make you feel? Why do you think that is so? Have you maybe been indoctrinated to believe as you do?

Source: Adapted from Bourner, 2003: 269

Deep learning is also related to the concept of pedagogy of hope (based on the work of Paulo Freire (1995), and the opposite of a pedagogy of oppression (Freire, 2006)), which fits in with what the present rector of Stellenbosch University, Prof. Russel Botma, is promoting as part of the University's Hope programme. According to Freire (2006), the practice of a pedagogy of hope (and liberation) at the collective level leads to social transformation. Gast (2009, citing Freire, 1990) describes this as follows:

> [Paulo] Freire endorses students' ability to think critically about their educational situation; this way of thinking allows them to "recognize connections between their individual problems and experiences and the social contexts in which they are embedded". Freire goes on to reshape the idea of praxis within the educational setting by defining it as; "Praxis involves engaging in a cycle of theory, application, evaluation, reflection, and then back to theory".

As mentioned earlier, systems thinking and an interdisciplinary/transdisciplinary approach are essential themes of learning for SD (Warburton, 2003: 44). In order to promote interdisciplinarity (or transdisciplinarity), students must be taught to make connections between social, political, economic, biological and physical dimensions and to make use of more holistic ways of thinking (Warburton, 2003: 44; Grauerholz, 2001: 44). They also "need to be engaged on many levels", such as the "emotional, physical, spiritual and cognitive" (McLeod, 1996, as cited in Grauerholz, 2001: 44). Keeping a learning or research journal can help make these linkages.

Most learning takes place through practice, experience, and mistakes (and by then many students have already forgotten most of what they were taught). There is also a difference between what lecturers try to teach and what is received and learnt by students, based on experiences and knowledge students already possess. Problem-based learning can also be simulated through the use of role play, field trips, case studies, and practical examples, all of which are used in the programme under discussion.

Sustainability science is closely linked to joint problem identification and solution by stakeholders, through action and social learning. It is about building bridges for the new type of science through dialogue and interaction with potential users. Knowledge-policy-action systems are therefore also very important themes to be studied in any planning programme and many valuable lessons can be learnt from the latest thinking about these systems (Muller, 2009: 16-19), *inter alia* about linking knowledge generation to policy to action to monitoring and evaluation feedback systems for sustainability. The emphasis is on social learning as a collaborative exercise, and the adaptation of complex systems, building social and natural resilience (defined as the capacity of a system to absorb disturbance, including major shocks, and adapt to change so as still to retain the same function, structure and identity), as well as the creation of pre-conditions for social learning to happen within learning organisations (Senge, 1990).

6. PLANNING CURRICULUM

Students come from a multitude of undergraduate programmes and countries, with various learning agendas, and a two-year postgraduate degree does not allow students enough time to explore each of the relevant themes to the same level of detail. Students also have different capacities to take in and understand what they are taught, based on the knowledge they already possess. In addition, most learning takes place through being involved in practice, and often students have already forgotten most of what they were taught by the time they need to apply the knowledge and skills in their jobs. The programme must, therefore, allow for specialisation, as in choices of individual assignments and theses.

SD is embedded in all modules, as is collaborative learning and decision-making. All of the planning themes listed in the Invitation and Guidelines for Preparation for the Association of African Planning Schools (AAPS) workshop in Dar es Salaam (AAPS, 2009; Odendaal & Watson, 2009), namely informality; spatial planning, implementation and infrastructure delivery; actor collaboration; climate change and African cities; access to land; land and tenure reform, are presently covered in the programme (most of them since 2001). However, it is not clear whether

the themes are dealt with in-depth enough.

Although spatiality is viewed as a very important element of planning (since space underlies all development), layout planning and urban design cannot be the only issues on which planning should focus. The focus of spatial planning in this programme is, therefore, on observing the linkages between space and other issues, such as space and economics and space and justice, and not so much on layout planning. Spatial justice as a concept (as in the example of Amsterdam, which has been described by Fainstein (1997 & 2006) as the 'Just City'), was, for example, mostly influenced by policies about the allocation of rental housing, rather than merely by spatial policies. The focus on space has in the past made people forget about what is really important in development, namely people. A recent example of this problem is the upgrading of the road for the Rapid Bus Transit in Cape Town and how, according to a recent complaint on a radio programme by some of the flower sellers in Adderley Street (whose families have been selling flowers on the same spot for over 100 years), the planning thereof has ignored their livelihoods, by not even involving them as role players in decisions about the design of the bus lane.

Important themes explored in the curriculum range from various perspectives on poverty and development (as an income problem, basic needs, sustainable livelihoods, social exclusion, human development, capabilities and human rights) and what pro-poor policies could potentially mean (such as empowerment). Other themes are formality versus informality; state-driven (as in the developmental state) versus insurgent planning; technical, rational planning versus communicative planning; critical theory versus appreciative inquiry, and professional and expert knowledge and realities versus local knowledge and realities. Also important is the focus on language games (such as dualisms, continuums of meaning, government spin, green-washing by companies, superficial meanings (buzzwords) or contradictions between meaning and application) and the role of discourse analysis in this context. Even potentially useful concepts such as social capital can be misused, for example, by using it in such a way as to ignore issues such as "the state, class, power, and conflict" (Fine, 2007:566). The solution

to the problem of poverty and social exclusion is, for instance, often viewed as better inclusion, while Du Toit (2004: 987) believes that adverse incorporation might in fact be the problem, as "poverty can flow not only from exclusion but also from processes of integration into broader economic and social networks". New terms (like the second economy in South Africa) are continually being created and with them often come already crafted solutions. Some people perceive the solution to the challenge of the 'second economy' as transforming the second economy or bridging the divide between the first and the second economy, but according to Aliber, Kirsten, Maharajh, Nhlapo-Hlope & Nkoane (2006: 59), the solution should rather be to make the 'second economy' more vibrant and broad-based, as many people in this sector do not have the required skills needed to benefit from linkages with the first economy. Instead of viewing the formal (economy in this instance) as the normal, the solution may in fact lie in focussing on the informal as the normal, which requires more support (instead of more regulation or trying to incorporate it into the formal).

7. TEACHING TECHNIQUES

Since learning to write critically is a very important skill students need, they attend a writing skills workshop (and receive various guideline handouts) during an orientation programme, where they are also taught how to do a literature review, develop arguments (the golden thread of a paper), apply the knowledge to a case study, and reference properly. In the writing up of case studies students must pay attention to detail, as generalisations do not approximate real-life scenarios. They must also learn to ask the right questions and show that they are "able to analyse the issues and problems under discussion" (Chait, 2002: 8). Students also have access to a Writing Centre at the University, which provides free writing consultations to registered students, but since many of the students are not based in Stellenbosch, it is often not easy for them to use these services. The Writing Centre is, however, in the process of extending their individual, face-to-face writing consultations to consultations via the telephone and video-conferencing.

Two of the more innovative teaching techniques used to try and bridge the

teaching divide are group work and journal writing, which also requires students to reflect on their group work experiences.

7.1 Group work

As discussed earlier, actor collaboration and group processes are very important methods of building knowledge in the real world. Since SD does not have a fixed meaning and is value-laden and multi- (or trans-) disciplinary, it requires democratic and deliberative public processes to give meaning to the concept. For this reason, group work forms an important element of the teaching curriculum and students are required to give feedback on the group process after each exercise and in their journals. Collaborative processes are about building positive relationships and team-building, and how to move from a group to a team (which is difficult to do in only one week-long module). Students need to address the barriers to active involvement of certain group members, and apply conflict management skills or know when conflict transformation is called for (requiring changes in the structure of systems). Students are encouraged to make use of appreciative inquiry in their group work (Cooperrider & Whitney, 1999; Watkins & Mohr, 2001) by building on positive relationships and the basic goodness of people and situations (in contrast to a problem-solving attitude, which focuses on that which is wrong or broken). However, they must balance this with critical analysis by, for example, questioning when a focus on the positive might actually exclude some views.

Group processes are about combining academic and theoretical knowledge with local or indigenous knowledge and social capital of the group, with personal growth. Group processes need to promote innovation and lateral thinking, making use of concepts such as brainstorming. However, how much innovation happens, depends on how prepared students are when they attend the course (by at least doing the required pre-readings) and what learning stage they are at in relation to Bloom's taxonomy (University of Victoria, 2004) or the Dreyfus model (Flyvbjerg, 2001).

Students are also encouraged to use theories about the benefits and challenges of participation and collaborative/communicative planning, as well as theories of power, when assessing

their group experiences, by putting the spotlight on tensions between various issues, such as cooperation and competition, between seeking consensus (without ending up with 'lowest common denominator' end-products), but also exploring difference and conflict instead of suppressing it (for instance, when dealing with free-riders). Additional important issues include the tension between participation and speed (getting to answers sooner, but without getting everybody in the group on board), as well as between power and rationality. The benefits of adding more expert knowledge into the process (more theory and reading) also have to be weighed against more participation. It has, however, become clear that more guidance needs to be provided to groups on how they should assess their own group processes and learning. A guideline document on the subject is being drafted.

The group project makes up 25% of a module's marks and is, therefore, a significant element of each module. Journal writing and reflections on group work (in the journal) have demonstrated many learning benefits, but also the need for more structure and guidelines to steer the learning process. Students have requested more guidelines on successful team-building. The success of group projects also depends on the level of pre-readings students do before the formal class week. One of the challenges in the programme is thus about encouraging individual pre-readings. One method is by requiring students to submit a class assignment, based on the required pre-readings, on the first day of the class week.

7.2 Keeping a learning or research journal

The purpose of the journal writing is to stimulate deep rather than superficial learning (see Table 2). Deep learning is critical (seeing the difference between fact and opinion), reflective, and potentially transformational. Keeping a learning or research journal can help make the linkages in support of trans-disciplinary learning, where students learn to make use of more holistic ways of thinking (Warburton, 2003: 44; Grauerholz, 2001: 44). Keeping a learning or a research journal can play an important part in these processes and can help students and professionals "grow in understanding and responsibility" (Grauerholz, 2001: 44).

It is for this reason that the keeping of journals is required as part of the learning experience in the Masters programme in Sustainable Development Planning and Management. Students are required to keep and submit for marks a journal of their experiences, thoughts, reflections and feelings during community work, group work, classes, service learning, and while reading and writing assignments. Experience has shown that students who put more effort into self-reflection through journal writing get more out of the process, both in terms of higher marks and more insights into the issues they are studying.

One of the options available for a thesis in the M.Phil. programme is a research journal kept during a prolonged practical experience or internship, where the learner has kept a daily logbook of events, reflections and lessons learnt which then forms the basis of a research report. A research journal or diary can be an important tool in developing research capabilities and is also essential in participatory action research or any type of fieldwork, where field notes or fieldwork logs should be kept. The research journal can also prove to supervisors that students have been working consistently.

A learning journal helps to fix experiences in long-term memory. In addition, it has the potential to promote active engagement with learning processes and to empower students to take more responsibility for their own learning. It also helps students clarify their own views and values and explore connections between course material and their own lives, thereby helping to engage students on the "emotional, physical, spiritual and cognitive" levels (McLeod, 1996, as cited in Grauerholz, 2001: 44). The process helps students articulate concerns; acknowledge, express and examine feelings, and explore solutions, thereby providing an emotional release (dealing with anxiety, fear, anger, depression). Besides allowing students to have a voice, the journal also provides valuable feedback to lecturers (Hughes, 1996; Grauerholz, 2001; Park, 2003; Hammond, 2002; Borg, 2001; Korgel, 2002).

According to Hughes (1996), it is important to write in the diary regularly, preferably daily, or every day that any work was done on their assignments or research projects, or even if they did nothing else towards the project in a given week. The journal can be

an exercise book, a bound notebook, loose-leaf papers, special forms or an electronic diary. According to Hughes (1996: online):

> Nothing in the diary should be thrown away. You should not try to produce a perfectly polished essay. The diary is a record of your developing thought and action, and of the real process of action research and reflective practice. Because your diary entries will be of different lengths from day to day, a printed diary is not a good idea.

Hughes (1996) also suggests that students make entries under headings, such as Event/Observation, Reflections, Plan/Action, or that they at least separate their reflections from recording of events and observations. Various writers have made suggestions as to what may be included in a journal (Hughes, 1996; Warburton, 2003; Bourner, 2003; Hammond, 2002, Borg, 2001). These include daily summaries of readings or observations, stories of conversations, discussions, interviews with classmates, group members, co-researchers, teachers and supervisors, and reflections on these. The suggestions also include reflections on teaching methods, module contents, and exploration of the ways students learn (and unlearn), and on how experiences, observations and readings made them feel (positive or negative emotions), what they liked or did not like and how experiences affected their prior beliefs and assumptions (confirmed or contradicted them). Reflections on how knowledge and experiences may affect the learner's professional growth and development are also important, as are reflections on how students acted or reacted in certain circumstances, their own strengths or weaknesses and what they might do differently in future. The journal is also ideal for noting fresh insights and new discoveries, future goals and research plans, as well as patterns, interconnections, causal relationships between issues that came up in experiences or readings, and critical evaluations of these issues and ideas. Additional themes that can be addressed include thoughts, dreams, metaphors, poems, pictures, analogies, diagrams, drawings, mind-maps showing connections with existing knowledge or knowledge from other modules or knowledge fields. In addition, the journal can be used to help answer questions and to list topics for further study or investigation such as: How big a jump in knowledge, skill or understanding did a module require?

How much did students value what they learnt? How was the experience? What did students understand and what did they not understand? Reflections on re-reading of the journal are also important, as it provides the opportunity to revisit, critique and revise ideas.

The marking of the journal, which counts 15% of the final mark, is very important, as it is then that students are rewarded for their effort and insights shown in the journal. Based on Hammond's (2002: 38) suggestion, the following four criteria are used to assess journals:

- Quantity – the number of entries completed (the required number or more).

- Content – the accuracy and clarity of concepts and examples.

- Quality – the diversity of media, format, depth of thinking, quality of expression, thoughtful formatting/ organisation.

- Creativity – evidence of risk-taking, use of diverse entry types and tools, humour, graphics.

8. POSSIBLE SHIFTS IN CURRICULUM AND TEACHING TECHNIQUES

Poor (1989: 6) believes that "[t]he failure to understand education's role in the reproduction and transformation of social reality [...] is still common in many perspectives on education". According to Poor (1989: 109), social change happens when "individuals transform and/ or reproduce social structure through the intended and/or unintended consequences of their actions". The promotion of better ethical choices, equity and sustainability therefore requires a deeper exploration of what kind of spaces for learning a critical and transformative pedagogy needs.

In complex settings in which many actors promote diverse ends, collabora-tive, communicative planning and group processes are important ways of building knowledge, which, according to Holden (2008), is based on social learning. A greater emphasis on com-plexity thinking in planning as part of the programme has only reinforced the importance of group work and journal writing as methods of teaching, but has also highlighted the need for more guidance and research on the subject. Another implication of complexity think-ing for curriculum development is that the focus of the Master's programme

should not be on planning as a form of control, but should rather explore the role planning can play in emancipation and transformation towards a more sustainable (and equitable) future.

Although the M.Phil. programme has a teaching philosophy linked to SD, which is discussed with students during the orientation to the programme, it would help if this philosophy were expanded and set out in a written document, to which students can refer during their studies. As discussed earlier, better written guidelines are, for instance, also needed to guide group work and students' assessment of their group work experiences. The role of power in group processes and how to help students make more ethical choices need to be explored further. The possibility of a new module in community facilitation and group processes is being investigated to help fill the knowledge gap in relation to group processes.

One of the limitations of the present teaching approach is the short contact time with students. A great deal of learning, therefore, has to be self-managed and based on readings, and a written guide to the extensive readings provided to students would ensure that students make better use of self-managed learning time.

The concept of transdisciplinarity requires better linkages between mod-ules, which require better linkages be-tween lecturers. Lecturers in the School of Public Leadership at Stellenbosch University can learn more from each other if there were more group discus-sions on curriculum development and teaching techniques and if there was a continual learning process of trying to address shortcomings and problems, on which a better programme can be built over time. However, as in many organisations, the School also has its own barriers preventing learning, which Senge (1990) and Senge and Kotman (1993, as cited in Muller, 2009) call learn-ing disabilities. Muller (2009: 21-22) lists an entire inventory of potential learning disabilities.

The lessons learnt over the last decade of presenting the SD planning degree at Stellenbosch University have been many (and have also highlighted how many lessons there still are to learn). Many questions still have to be answered with regard to the curriculum and teaching ethos, relating to issues of breadth ver-sus depth, how much spatial planning

the degree should include, and how South African the focus should be.

9. CONCLUSION

Planning has often been described as an art and a science, which requires an imaginative as well as a sceptical and questioning attitude. A more sustainable future calls for continual innovation, lifelong and deep learning, and the promotion of diverse routes of inquiry about the future. Journal writing and group work have an important role to play in the remaking or reinvention of development planning in South Africa in order to enhance its transformative and emancipative potential.

Learning as a group has many benefits, whether it be as students, colleagues, or as part of an extended network such as the Association of African Planning Schools (AAPS) reflecting on teaching methods, curriculum development and one's own learning, in the context of the challenges of African cities. The AAPS can, therefore, play a very important role in promoting collaborative learning among planning lecturers in Africa. In the context of the need for transdisci-plinarity, more collaborative learning opportunities should also be developed with extended peer communities, including other disciplines involved in socio-economic development and the growth and management of the built environment (such as environmental management, development econom-ics, civil engineering, transport planning, social work, and sociology).

> The product of education can also be seen [...] as the collec-tive making of the knowledge of the future (Poor, 1989: 142).

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