Sustainability as a framework for inquiry
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“Education for sustainability” is the curriculum theme that won St Leonard’s College, Melbourne the award of “Sustainable School of the Year 2004” from the University of New South Wales, and the Herald Sun “Teaching Team of the Year 2005”. This short paper outlines a four strand sustainability construct that assists an inquiry approach in the middle years. It describes the approach to our year 9 curriculum that ends the year with three-week “Big Experiences” overseas and within Australia and it describes our purpose built learning centre for sustainability. St Leonard’s College, Melbourne educates children from three-year-old early childhood to the final years of secondary education, including the International Baccalaureate Diploma. Our practices are consistent with, but go beyond, the local Victorian Essential Learning Standards and also the International Baccalaureate Primary Years Programme and could be adapted to other settings.

St Leonard’s College has an established campus of 1,450 students with high standard yet conventional facilities in a wealthy suburb in bay-side Melbourne. In the 1980s, the College acquired a 40 hectare plot of land a mere 30 km from the centre of Melbourne with a view to establishing an environmental centre and some sports fields. It is now the site of a small campus of 300 students with both a primary section and a middle school. The environmental focus has evolved into a strong sustainability construct. During the same period, the larger campus developed educational programs that enhanced the life-skills of its students in the broadest sense.

As an educational leader and administrator, I am constantly looking for ways to improve the educational outcomes for my students and staff. While every country will have well described goals for education that assist policy makers in their prioritisation and implementation of plans, those goals many not be enough for individual institutions and professionals. If education can be likened to an ecosystem, then each species and player operates in a niche. I seek a way of helping people to understand their niche.

I wish to explore the relationship between sustainability and both the broad social purposes of education and the narrow individual perspectives of young learners and their parents. Public policy development considers broad social and individual purposes of education. A useful framework is provided by the four pillars of the UNESCO Delors Report: Learning to Know (basic education), Learning to Do (Delors clearly focuses here on vocational skills; this should not to be confused with the pedagogical notion that we learn through doing), Learning to Live Together (social and cultural knowledge and skills), and Learning to Be (developing the full richness of our humanity, with independence, judgement and responsibility). A fifth dimension has been suggested in this model, Learning to Change. The Delors report was written for an audience of social and educational policy makers and planners. It views education as instrumental for the individual, for the citizen and for society. It correctly looks to see what the benefits are for the learner as a wage earner, as a member of society and as a unique human being. It sees education as one of the principal means available to foster a deeper and more harmonious form of human development and thereby to reduce poverty, exclusion, ignorance, oppression and war. It is comprehensive, global and long term. While Delors is important and proper, it is not the every day language of teachers, parents and students, rather it is the language of governments, resource planners and education departments.

Once inside the school gates, we require a model that begins with the needs of the individual student, the parents and the teachers. They do not work in isolation, nor do they have a narrow view of education, but in their day to day concerns, they require a way of looking at education that is meaningful and relevant to their interests and aspirations. The educated person can understand exactly
what Delors is advocating, but the young person in the class room and the busy teacher also require something more immediate. It is my view that we can articulate meaningful educational purposes for the individual based upon very simple, universal principles.

For parents and children, education has an individual purpose. They do not see themselves in isolation, but their perspective begins with themselves. Umberto Eco puts the case that a universal ethic can be built from just two concepts held in all cultures: the awareness of self and the awareness of other human beings. Eco asserts that in all cultures we have a sense of individuality, and therefore of our rights to air, food and safety. Similarly, we universally have a sense of compassion for the other, and therefore of their rights.

What are the purposes of education for the individual? As the head of a private school in a very wealthy part of Melbourne, a large city in a very wealthy country, if I ask the parents of my children what they want from education, they will talk of being well rounded and of being happy. When I taught in Zambia a generation ago, in a government school in the bush, students were quite clear what they wanted: a qualification to get a job and the skills to keep it. My parents do not mention the vocational side of education because they take it for granted, it is a given. The choices that their students make when they go to university make it clear that education is also, for them, a means to a job. At university they choose to study law, medicine, business studies, information technology. They do not choose to study philosophy or literature. For students and their parents, whether in bay-side Melbourne or the Zambian bush, the vocational purpose of education is one of the fundamentals.

At a less anecdotal level, I look to wider ranging surveys. At the 12th International Conference on Thinking in Melbourne in 2004, I was impressed by a presentation on well-being. The Australian Unity Wellbeing Index seeks answers to the following questions.

1. How satisfied are you with…?
2. your standard of living?
3. your health?
4. what you are achieving in life?
5. your personal relationships?
6. how safe you feel?
7. feeling part of your community?
8. your future security?
9. your spirituality or religion?” (The International Wellbeing Group 2006)

The Wellbeing Manifesto asserts that our perceived sense of wellbeing is enhanced by a good marriage, the company of friends, rewarding work, sufficient money, a good diet and physical activity, sound sleep, engaging leisure and religious or spiritual belief and practice. What can school education do to prepare a young person for a life of well-being?

It is of passing interest that these factors are remarkably aligned with both the four pillars of Delors and a set of motivational “needs” described first by Maslow in 1942. It is the task of a few moments to demonstrate that Delor’s purposes for education can be mapped onto Maslow’s needs initially for simple biological things like food and shelter, then for higher order needs that are increasingly met through relationships with others. Maslow’s physiological and safety needs can be met by adults who have vocational skills and the capacity to earn a living. The needs for love, esteem and belonging can be met by those who have social and cultural knowledge and skills. The needs for being and self-actualisation can be met by those who have learned to be and learned to change. Learning to know is fundamental to meeting all of these needs, it is the pedestal upon which all other learning is based. It is equally straightforward to map Delors onto the well-being enhancers.
I do not have an academic’s interest in critiquing Delors, Maslow or well-being in order to refine them to the nth degree. I am a practitioner looking for metaphors and big ideas to help me do my job better. Each person will take from them what is useful to them in their culture at their time in history. Starting with Eco’s universality, and some factors that seem to have widespread currency, I seek a language of education that is consistent with other approaches yet meaningful to mother, father, child and teacher.

I require a metaphor or model that assists decision making and prioritisation in the class room, that helps teacher and student design pathways through an inquiry pedagogy. It is my contention that sustainability provides one such metaphor. It has the breadth of Delors and the personal immediacy of Maslow and well-being. It has the advantage of non-technical terminology which is concrete rather than abstract and which is relevant to our concerns as individuals, social beings and citizens of a globalised world.

Sustainable development became a catch-phrase in the 1990s, balancing the aspirations of developing nations with the environmental concerns of everyone. Sustainability requires a long term perspective, respect for the aspirations of all members of the human race and the capacity to balance competing rights. Sustainable development means achieving a quality of life (or standard of living) that is socially desirable, equitably fulfilling people’s cultural, material, and spiritual needs, economically viable and maintaining the long term viability of supporting ecosystems. It is the tensions and contradictions between each of these components that requires wisdom and sophistication in the resolution.

At the centre of sustainable education is the individual with identity, aspirations and compassion. The individual has a place in space and time, with a place of work, a place to live, a history, a culture, relationships, one or more communities and a place in the environment. Our practical model of sustainability can be drawn as a series of concentric circles, spreading out from the individual to the entire planet.
It is pedagogically useful to separate the “built” environment (the villages, towns and cities in which we live) from the “natural” environment. At St Leonard’s College, we express sustainability as these four interwoven strands. This is slightly different to many definitions of sustainability in that it starts with the person, but it has the same optimism and humanity, with the initial focus on people, communities and cultures, that was present in early writing on sustainability in the 1980s. For an educator, placing the individual, the learner, at the centre, has its own powerful logic. These are some of the questions in each strand that are appropriate to use in secondary schools, and with some simplification of terminology, in primary schools.

- **Personal sustainability**
  - Are we healthy mentally and physically?
  - Can we communicate clearly in our own language and another language?
  - Can we communicate through mathematics and the arts?
  - Are we learning skills for the world of work?
  - Can we work well with other people?
  - Do we have the skills and attitudes to develop healthy relationships in our communities, families and work places?
  - Do we have the skills and knowledge to make informed decisions as citizens in a democracy?
  - Are we developing life long hobbies and interests?

- **Urban (the built environment)**
  - Do our villages, towns and cities provide safe, healthy, diverse environments for all of our citizens at all stages of their lives? Are young and old catered for, the disabled, the poor, as well as those who are able-bodied and relatively independent?
  - Is there community consultation in the design and use of space?
  - Are these environments adaptable to changing demographics, climate and priorities?
  - Can we move around our villages and cities safely, with a choice of transportation?

- **Socio-cultural sustainability**
  - Does our society provide us with access to the information and opportunities to make informed decisions as citizens in a democracy?
  - Does our own culture encourage our respect and contribution?
  - Does our culture respect other cultures and political systems?
  - Does our culture encourage us to have the time and opportunities to develop healthy relationships in our communities, families and work places?
  - Does our culture provide us with the capability to share our planet, including fair and equitable commerce and trade with people from other countries and cultures?
  - Are we able to pursue our religion or spiritual beliefs in freedom and without fear?

- **Environmental sustainability**
  - Is our use of natural resources equitable within generations and between generations?
  - Do we recycle where we can and minimise the depletion of finite minerals?
  - Do we minimise the pollution of the environment, at least to within the capacity of the environment to safely absorb the pollution?
  - Is our use of the environment and our impact upon it in balance with the needs of current and future inhabitants of the planet?
  - Do we understand the importance of natural areas and our responsibilities towards them as repositories of diversity, for their aesthetic value and for their intrinsic value?
Do we act with a practical understanding of the fundamental diversity and the richly interacting webs of life?

Having established four strands, we must accept that they cannot stand on their own. They overlap and interact with each other. The tension of the interaction is as important as the separate strands. You cannot have a tapestry without both warp and weft. Each strand in itself involves tension and compromise, as the rights, needs and aspirations of individuals are mediated by the rights of each community. No individual can meet his or her own needs without some relationship with other people. Even personal sustainability requires an understanding of how to deal with potentially conflicting rights and responsibilities. Compromise may be required between strands, since factors that contribute to personal sustainability may be at odds with environmental sustainability (what is good for one person may be bad for a whole community). Similarly, urban sustainability may put pressure upon socio-cultural sustainability.

Personal sustainability has a strong connection with the concept of well-being, that balance between physical and mental health, social adjustment and having economic resources available to make choices possible. Socio-cultural sustainability may well be the most difficult strand in practice. No culture stands still, and never has. Every culture is evolving. Some simply cease to exist except in memory or through artifacts. The definition of evolving sustainability is therefore wide open to opinion and interpretation. What might be a small evolutionary change to one person is a revolutionary transformation to another. Belonging to one culture automatically sets up the question of exclusion of others, and places all cultures in a dynamic balance. While we might feel a natural affinity for our family and our village, that will often present itself as a rivalry with a neighbouring family or village. When there is competition for resources, or competition to meet personal needs, then conflict has serious consequences.

It could be argued that without a sustainable environment, nothing else is possible. However, a sustainable environment is, in the end, a matter of definition and opinion. It is not simply holding on to a status quo, it is maintaining a dynamic balance between competing rights.

Our definition of sustainability does not have a hierarchy to it, but rather emphasises the interactions that exist between the intertwined strands. Just as the separate strands in a tapestry are rarely evident, and even then only when looking so closely that the iconography of the tapestry becomes blurred, so the four interwoven strands of sustainability rarely exist in isolation.

The eight well-being enhancers, the four Delors pillars and all of Maslow’s needs are present in the four strands of sustainability. Clean air and water require a healthy and sustainable environment. Individuals need to have incomes and adequate resources in order to provide themselves with warmth, sleep and food. Most people have their shelter and work place in an urban and social setting both of which contribute to security of resources and security from aggression. Socio-cultural sustainability provides for esteem, community and the development and exercise of our ethical capabilities.

For us, sustainability is the glue that links everything we do. It is also the field of dispute upon which competing rights are asserted, defended and held in balance. It is meaningful and relevant to teacher, student and parent.

What does sustainability mean in practice in a school setting?

Firstly, it means complexity. It means dealing with individual rights, preferences and priorities. It requires building respect, for self and for others. It requires powerful thinking and negotiating skills. Our firm conviction is that these can only happen when students are engaged in inquiry learning on large scale problems over significant periods of time.
I will illustrate the power of the sustainability construct with three examples: a brief outline of an inquiry into medieval history by year 8 students, a description of CUE, our innovative year 9 program, and a brief description of our latest building project.

How does the construct assist the teacher in her year 8 class on medieval history? This one term unit for year 8 students is a routine topic that has been delivered at the College for many years. It is fully documented in terms of our local Victorian Essential Learning Standards in the following terms. The discipline based learning is in the realm of Humanities, exploring social, power and property relationships, markets and international trade. The exploration of building, farming, mining and manufacturing encompass science, mathematics and technology in European, Arabic and Chinese cultures. Music, art and literature are rich, varied and international.

Personal, physical and social learning takes place through group work and individual projects. Interdisciplinary knowledge and skills range widely, with food being a common theme. A standard analysis has been made in terms of Bloom’s taxonomy. An assessment grid has been constructed. The next step for the practising teacher is often the most difficult: how do I get started, making my inquiry approach to the topic relevant to the students, appropriate in scope for a limited period of time, and rich in learning? How do my students and I develop suitable open ended questions, neither too broad nor too limiting? Student and teacher alike now apply the four layers of sustainability. Students tend to readily want to explore the personal dimension, looking at health, music, art, food and day to day living. But rather than approach this from a personal or anecdotal stance, they will now question these topics in terms of personal sustainability. They have a ready framework within which to form questions. They will consider the socio-cultural elements that include family, church, landlords, feudalism and the influence of trade that brings in new technologies, mathematics and new building styles into Europe from the east. They will explore how the environment changed as farming expanded, how land ownership changed the relation of people to the land on which they lived and the forests they cleared. They will discover how the urban (built) environment changed with the accumulation of wealth and the growth of settlements around cathedrals. Each of these will be questioned using the sustainability framework to provide a rich tapestry for exploration. Each student will rapidly develop his or her own inquiry and have a ready made structure for both exploration and reporting.

The pedagogical value of this structure is its meaning for the students undertaking the course. They have a familiar conceptual framework as they explore the personal, urban, socio-cultural and environmental elements of the topic.1

Our year 9 program takes the sustainability concept a little further. Every student spends one day a fortnight out of school exploring one of the larger themes of the CUE program: community, urban exploration and environmental studies. They take a significant amount of responsibility for their own learning and their day to day program. They spend time collecting data on marine habitats in Port Phillip Bay, they undertake community service with the children of refugees at local schools, with aged-care centres and in various charity shops. At the end of the year, they travel with their peers to Vietnam, Thailand, Fiji or outback Australia to explore these strands in new settings. Activities include snorkelling over reefs in Fiji to collect data for marine researchers. They investigate and document the rapid growth of economies in Thailand and Vietnam. They travel to remote areas in each of the four countries to deliver materials and funds that they have raised to help those in need. They even undertake simple construction projects to house elderly people.

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1 The description of this implementation of sustainability relies upon the work of two outstanding teachers at St Leonard’s College, Annemarie Denton and Marcia Behrenbruch, who regularly present workshops on their approach.
By year 10, our unit on global sustainability returns to a conventional layering, it moves beyond a pedagogical metaphor to a discipline, with environmental, cultural, economic and social strands, preparing students for studies in the Victorian Certificate of Education and the International Baccalaureate Diploma in years 11&12.

My third example is a building that teaches.

Our sustainability centre is purpose built as a community centre, a display space, a workshop and a low energy building in which all of the scientific principles are on display and are applied by the users of the centre. It is a solar passive design with a northerly aspect for its solar chimneys that heat the building in winter and cool it in summer. Solar chimneys and evaporative coolers are controlled by hand, using ropes, pulleys and valves. The actions of the user on ropes, pulleys, vents and valves are immediately obvious, inviting questions as to purpose and effect. Rainwater is collected and used for evaporative cooling and irrigation. There is also high technology: solar panels and a wind powered generator to provide electrical energy and feed excess back into the grid. The workings of the Sustainability Centre are self evident to the user. Many environmental factors are monitored continuously: wind strength, incident solar radiation, temperature and humidity. But above all, the Centre is a meeting space, a celebratory space and a learning space. Students work in the centre on long term projects confident that there is adequate, readily available storage so that their work is secure until the next “lesson”. By working for longer periods of time and having plentiful ready storage, we minimise the disproportionate disruption to creativity caused by the loss of time, concentration and workflow in setting up and packing up at the start and end of lessons. We encourage longer term projects and more complex and comprehensive displays which in turn facilitate the inquiry learning of our primary and middle years. Display space is abundant, so that the whole community can share in and celebrate the work of the students. The design and use of this building is consistent with modern pedagogical trends in using authentic relevant tasks, with the student working in small groups guided by the teacher.

There is one small downside to the sustainability construct. It is increasingly used by people who wish to slow down progress or take us back to some time in the past when life was simple and pure. Sustainability is not, in my view, conservative and it should not be. It is shorthand for sustainable development and it must always be progressive. The question is not about whether we should make progress, but what sort of progress. As an educator, I must continually ask the questions “is our work likely to be of assistance to our children when they are 50 years old?” “Am I educating them for their future rather than their parents’ past?” Thomas Friedman makes some strong points for educators in his latest book The world is flat. Friedman paints a detailed, optimistic picture of
globalisation that will frighten some and excite many. His flat world is a global level playing field in the world of work, made level by the internet, by good transport and by the market economy. According to Friedman, it is the world of today. He writes “There will be plenty of jobs out in the flat world for people with the right knowledge, skills, ideas and self-motivation to seize them. But there is no sugar coating the new challenge: every young American today would be wise to think of himself or herself as competing against every young Chinese, Indian or Brazilian.” I suggest to my community that every Australian, regardless of age, should have the same perspective. People in other countries may have different views, but I commend chapters 6&7 to any future oriented educator. If our students are entitled to the sense of well-being that most of us who attend conferences like this have, then we must be educating them with suitable breadth. We owe it to our students to help them thrive in a sustainable developing future.

In conclusion, the College uses the International Baccalaureate Primary Years Programme (PYP) and it uses the local Victorian Essential Learning Standards. It has a strong commitment to sustainability and to an inquiry based pedagogy.

Sustainability is a user friendly construct. Sustainability implies long term thinking, large scale ideas and interconnectedness, but it does so within a very real set of categories. These categories are real in the outside world, they are meaningful and personal to the individual. They are full of questions and starting points for teachers and students. Sustainability brings it all together, it helps our dialogue with students, it helps our planning. It does not replace a range of other mappings that the teacher will have to use, including those of Bloom and Gardner, or the requirements of curriculum determined by national and regional education authorities. Rather, sustainability adds a set of parameters for establishing relevance, reality and relationship for the student, parent and teacher in a future-oriented inquiry-based school.

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