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Building for a Sustainable Future in Our Schools

Brick by Brick

Springer

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Foreword

This book is a call to action for anyone concerned about the future of our planet. It is based on the premise that education for sustainable development is critical. The authors describe the concept of sustainable development in terms of social, economic and environmental parameters and take the readers on a journey using research and case studies to identify opportunities and challenges that will provide a path to global sustainable development. Although the research and case studies are drawn from many countries, the basic principles and learnings can be adapted across countries.

This journey is guided by the principle that social capital and particularly education for all in the context of a cohesive and responsible global community are critical for the planet's survival The United Nations (1987) defines sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".

The authors make it clear that there are no simple answers, but there are many practical examples and research findings that will inform policymakers and practitioners. Key questions addressed in this book are: " What are the opportunities and challenges? What matters? From their perspective, here is the essence of what matters.

Leadership and organizational culture matter. Middlewood and Abbot maintain that the values and beliefs are the heart of an organization's culture and of an institution's culture of sustainable practices. They identify barriers to a sustainable culture in a variety of fields and provide practical strategies to achieving a culture of sustainability. A key component of building a sustainable culture is leadership and the importance of succession planning in an organization.

Beycioglu and Kondakci provide a compelling leadership case study of an alternative sustainable school in Turkey and the leadership practices that contribute to a culture of sustainability. They illustrate the different interpretations of sustainability and sustainable leadership between education and other fields.

Bell and Smith provide another case study of transformational leadership in a "challenging" school in England and analyse the strategies that resulted in a posi-

tive change. They describe and compare transformational leadership and leadership which is sustainable and highlight the importance of both.

How and what educators teach matters. Education for sustainable development implies equity of access, opportunity and outcomes for all. The challenges of equity of opportunity and access at both the pedagogical and institutional level are addressed. Papa argues for the importance of ethical and moral values embedded in teaching sustainable practices and the important critical relationship between the classroom and the local community and policies. At the pedagogical level, Armfield and Armfield use case studies and research to identify the inequitable structures and practices in academia that exist for working class students and propose solutions drawn from andragogy and adult learning theory to mitigate some of these challenges. The importance of using real-life problem-based learning in educating for Boko highlights sustainability. He uses 29 research reports to illustrate the improvement on student learning and especially the development of interdependent behaviour and reflective thinking.

Institutional supports and values matter. Readers can gain insights into how institutions can foster sustainable development through the case study of St. Andrews Sustainability Institute in Scotland.

Development of noncognitive skills matter. Staub emphasizes the important link between education and the economy at the individual and global level. He is critical of the efforts of government, especially in developing or emerging countries to develop and sustain this link. He cites two critical factors that impede closing the gap: access to quality higher education and the lack of attention in primary and secondary education paid to students' social and emotional development. He argues that there is ample evidence that the focus on cognitive development alone will not result in economic and cultural stability.

We all share a responsibility. Santone presents a compelling case for the importance of collaboration and interdependence as foundational principles to drive educational policy and practice. However, she argues that education policies and practice are largely driven by competition and individualism that is derived from neoliberalism.

Addressing the challenges of population growth matters. According to Groves, population density has the potential to lead to disaster. She also highlights the role of education in addressing this by recommending specific curriculum policy changes and measures such as addressing the issue of global poverty that could inform and embed sustainability values and practices.

Each sector of the economy bears responsibility. As an example of implementing sustainable practices, a specific sector of the economy, the construction industry, is highlighted in its role in contributing to sustainability of natural resources and industry Policymakers in all countries, especially those with rapid growth, are called upon to take notice and act accordingly.

It is heartening to read the passion and commitment for sustainable development from learned authors in a variety of countries. If policymakers and practitioners heed their words across the globe, we can be confident in the future health of our planet and all its inhabitants.

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Part I
Social Capital and Economics of Sustainability

Chapter 1
Social Capital Dimensions: Social Justice, Morality, and the Common Good

Anna Saiti

Abstract At present, humanity is hinging its hopes on achieving sustainable development—a vital element for the survival of the planet. The role that social capital needs to play in the endeavor to build a strategy and a policy that can facilitate progress towards human prosperity becomes clear. The purpose of this chapter is, through the use and analysis of the relevant literature, to highlight the need for the enhancement of social capital in order to achieve qualitative development. This study supports the view that only through the education process—one that ensures education for all—can social capital exhibit the levels of improvement needed to ensure a sustained societal development for the populations of the world.

Keywords Social capital • Development • Human prosperity • Equality • Social ecology • Social justice

Towards Societal Development

The word 'development' is characterized by the values associated with the preferences and priorities of each society. As such, there is no generally accepted definition of values since they vary according to people's preferences, way of life and their relations with the rest of society. Moreover, through political events, countries express different views about the desired standards of society—views that change over time. The word 'development' refers either to the production of economic goods and the improvement of citizens' standard of living (economic development) or to a more general framework of the social, economic and environmental life of the population (sustainable development).

At present, humanity is hinging its hopes on achieving sustainable development—a vital element for the survival of the planet. According to the *Environment and Development*: *Our Common Future* Brundtland Report (1987), sustainable

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development requires the needs of the present to be satisfied without compromising the future satisfaction of human needs. Hence, the challenge for communities is to improve themselves in a sustainable manner. However, it is important to understand that sustainable development does not solely refer to the protection of the environment but also implies the promotion of economic and (most importantly) social development (Beatley & Manning, 1997; MacDonald, Hanley, & Moffatt, 1999). Thus, it constitutes a general attempt to promote three sustainable aims, each of which has crucial significance for the prosperity and development of humanity.

A fundamental step towards sustainable development is the establishment and implementation of sustainable indicators that cover not only the environment but include all the other sectors that contribute to the development of a society, such as education and health care. For each sector, specific criteria should be established so as to provide the relevant authorities with all the necessary data and information concerning community development. Identifying these criteria is a rather complicated matter as the nature of a sector such as education does not allow or the different stakeholders' needs and attitudes to be satisfied easily. Nevertheless, the active involvement and participation of people with an appropriate 'level of knowledge' and skill set can, through substantial discussion among the interested parties (stakeholders), result in a consensus being achieved. Sustainable indicators constitute a control mechanism that can facilitate the achievement of the desired outcome, namely, sustainable development and human prosperity.

While the focus of every social science is on the human and social systems in which human beings organize their activities in order to satisfy their needs, it is generally accepted that the goal of every organizing society is to develop itself for the prosperity of its members. Human needs refer to both material and non-material needs. The latter are generally 'quality of life' aspects such as health, political and spiritual freedom, human rights, labor, as well as a clean, healthy and natural environment. There is a growing recognition that societies can enhance their well-being only through societal development, for which social capital is an important indicator that provides useful information and can contribute to improvements in human welfare (Rotberg, 2001; Saiti, 2007; Woolcock, 2000).

At present, humanity is going through a transitional phase whereby the socio-economic impact of migrants and refugees is threatening to jeopardize 'social ecology'—a term that derives from sustainability and indicates ecological balance, social justice and democracy while also implying freedom and human equality (Bookchin, 1987; cited by Roseland, 2000, p. 82). The concept of social ecology suggests that the key to sustainable development is human equality and social justice; the harmonization of physical capital through the cooperation and coordination of all efforts among and within communities (Bookchin, 1987; cited by Roseland, 2000, p. 82).

In this process of development and enhanced social justice and equality—which calls for improved opportunities for all citizens with absolutely no discrimination—education has a major role to play as it not only has a social and cultural aim but also has an economic value since it significantly increases both labor productivity and production. Education directly determines the quality of the labor market as well as

the development and implementation of new technologies. Furthermore, education influences other factors in the development process. For example, countries such as Uganda, with rich natural resources and a surplus of labor, belong to the poor South due to the lack of an educated labor force and the relatively low educational level of its population. On the contrary, countries such as Israel and Belgium, with limited natural resources, belong to the rich North due to their relatively well-educated labor force.

With particular reference to social justice, this significant factor includes both current and future justice (Chiras & Herman, 1997; Clugston, 1997; Roseland, 2000). Future justice depends heavily on the achievement of sustainable development which, among other things, aims to maintain an ecological balance. Current justice refers to the relationship between the industrial minority and poverty within and among countries (Roseland, 2000, p. 87). Certainly, an ecological balance alone is not sufficient since the satisfaction of human needs, improved efficiency and the creation of a structure for sustainable development must also be considered (Clugston, 1997; Roseland, 2000).

Given that (a) education is a social good (b) social capital embeds equity, democracy and "civic virtues such as trust, tolerance, cooperation and civility; the engagement of active participation from the members of society with mutual benefits for individuals and groups" (Print & Coleman, 2003, p. 126), and (c) the socio-economic phenomenon of migration and displacement, especially in recent years, has increased the recognition of social capital as a crucially important aspect in the societal (qualitative) development process and also raises the question as to whether or not education has a significant impact upon, and contributes to, the enhancement of social capital (Saiti, 2007), then the purpose of this chapter is, through the use and analysis of the relevant literature, to highlight the need for the enhancement of social capital in order to achieve qualitative development. This study supports the view that only through the education process—one that ensures education for all—can social capital exhibit the levels of improvement needed to ensure a sustained societal development for the populations of the world.

The Role of Social Capital in the Societal Development Process

The qualitative part of economic development is of practical importance and contributes to the development of human prosperity. Economic development in its final form unites not only the expressions of social development but also of social status. This expansion is the result of the new goals that have been incorporated into the direct aims of the development process. Economic development does indeed express both the quantitative (growth) and the qualitative (societal) progress of a nation. However, economic growth does not automatically guarantee an improvement in the development process. Economic growth, contrary to qualitative development,

can be measured through the use of indicators (criteria or measures) (Meier, 1995; Meier & Baldwin, 1957; Stern, 1991), such as Gross Domestic Product (GDP) and per capita income. But at the same time, an increase in the GDP of a country does not necessarily mean an increase in the standard of living or the level of societal development. Given that economic systems are not perfectly efficient, due to the existence of distortions, there might be inefficiencies in the distribution of productivity (only a small proportion of a population benefits from a rise in GDP), a fact that does not guarantee improvements in the qualitative level of development in society. Therefore, a country or a nation may achieve economic growth but not necessarily societal development. The former can be achieved more easily compared to the latter and in a relatively short period of time. However, this achievement may be only temporary, whereas societal (qualitative) development takes longer to attain but once this has happened it can be more readily sustained over time. Hence, development is not solely an economic phenomenon.

International relations and economies worldwide are coming through a deep crisis since in many parts of the globe, people are working just to cover their basic needs to survive. This world crisis includes many dangerous traps, mainly due to inequalities in the economic strength of individual nations and the dramatic impacts of belligerent powers in some countries. These inequalities are growing and are becoming a significant factor as the crisis intensifies. Despite attempts made by international organizations and various meetings held between economically strong countries, the international community does not give the impression that it has the capacity to overcome the crisis, to get out of poverty—at least not any time soon—or to show greater sensitivity to human needs and prosperity, especially when considering that these problems have been burdening the world for some time. The excessive reliance and attention solely on quantity (economic growth) does not appear to be making the vital step closer towards real sustainable development. Hence, the role that social capital needs to play in the endeavor to build a strategy and a policy that can facilitate progress towards human prosperity becomes clear.

"Social capital is a public property good" and consists of social responsibility, cohesion, social trust and communication networks (Coleman, 1990, p. 315; see Vera-Toscano, Garrido-Fernandez, Gomez-Liman, & Canados-Reche, 2013, p. 1335). Based on a series of rules and values and groups of social networks, its basic aim is to increase social productivity and to ensure sustainable development. Compared to other forms of capital, social capital is on another level and differs on several points. The most important difference is that social capital is not driven by "materialization," whereas the only limitation is the lack of vision (Roseland, 2000). According to social capital theory, the only way to achieve sustainability is through ongoing development and has nothing to do with the availability of material resources. The three basic elements of social capital are: cooperation, support and mutual help (Sabatini, 2008; Vera-Toscano et al., 2013)—elements that empower individuals through the formation of groups and networks. Social capital adds value to human capital through education since social networks give the opportunity for the creation of several informal types of social security and health while individuals may catch up in a caring network of protection. Moreover, it gives additional value

to natural capital since it contributes to a more efficient use of natural resources. The use of social capital creates mutual understanding and can lead to activities with a lower potential cost as to the environment, in the case of sustainable development (Vera-Toscano et al., 2013). However, those that do not exercise their capabilities can lose human capital very quickly. The limitations of social capital are different from other types of capital: it is fragile, it cannot be transferred, and it needs time to be created (Coleman, 1988). It consists of three elements (Meehan & Bryde, 2014; Sabatini, 2008; Vera-Toscano et al., 2013):

- *Structural*. Social structure exists at a group level and provides the key that facilitates the development of sustainable communities through a natural structure. Among the basic elements for social structure and for the sustainable development of communities (Roseland, 2000; Swanson, 1996) are the characteristics of social networks, including innovation and the ability to use community resources efficiently. Within this structural dimension, social capital may be differentiated into: Bonding Social Capital (influences among members of a homogenous group); Bridging Social Capital (inter-influences among members of a heterogeneous group); and Linking Social Capital (description of links between individuals). These links allow groups to have access to resources, ideas and information about various institutions. They are dedicated to the enhancement of social capital at micro level but also to social action within the existing political and economic framework.
- *Cognitive*. Within this dimension, political and active participation of citizens is the key towards Societal Development. The level of participation of individuals is of particular importance since it "not only taps into local passions and expertise but fosters ownership" (Chiras & Herman, 1997, p. 113). Certainly, the provisions of motives to citizens are the keys for sustainability and for a cooperative, respectful and balanced growth of communities. Success is not guaranteed but the shared knowledge of citizens for the common good and in community affairs can at least lay the foundations for a convergence in attitudes and take a significant step towards the coherent and constructive behaviour of citizens.
- *Relational*. This dimension focuses on the relationships among individuals "that have been built up between them through a number of interactions which are not necessarily long-lasting ones" (Vera-Toscano et al., 2013, p. 1335). In order to stimulate relations a code of conduct and mutual trust are the key elements required to sow positive seeds in the development process.

From the above, social capital is clearly a valuable asset that fertilizes the ground in order for cooperation and mutual trust to be nurtured among individuals. Consequently, it builds relationships and social networks—two powerful elements for citizens' engagement in common objectives. Only through this constructive building-up of a society based on strong relationships can citizens bridge their differences, share a common vision for the future, facilitate action to a consensus and lay the foundation for a policy's successful implementation (Roseland, 2000; Selman & Parker, 1997).

Link Between Education and Social Capital

What is required for citizens worldwide is to learn how to cope with change and hence make sustainable development possible. Here, a question arises: *How can the improvement of human capital through socialization processes be better understood?*

The answer is complex and requires a number of considerations, one of which is evident: the economic and environmental dimensions of sustainable development alone are not enough to facilitate the process, to ensure human prosperity (economic, environmental and social well-being). Society needs, to a great extent, to benefit not only from greater productivity and a higher standard of living but also, through effective leadership, greater community involvement and support at every level so that society can be enriched through the liberated creativity of its citizens—described by some as "civic vitality" (Segedy & Lyons, 1997, p. 338).

Indeed, the process towards qualitative development (and consequently to economic growth) is not easy since, over time, societies change and get into a cycle of self-empowerment "which proceeds in a series of steps or cycles toward increased sharing of power … in a series of cycles … the resolution of each issue increases the group's choices and power" (Seymoar, 1997, p. 420). This is illustrated in Fig. 1.1.

The understanding of this cyclical process of empowerment that societies go through will enhance the level of engagement and commitment in the satisfaction of the common interest by individuals, and consequently prompt societies to the cultivation of a mutual benefit, which constitutes development for all. Moreover, through this cyclic process the sharing of knowledge will be enhanced (both the indigenous and the scientific) and everyone will "benefit so much from each other" (Novaligna, 1994; cited by Seymoar, 1997, p. 415). A valuable tool towards the achievement of social ecology is social capital—a type of capital that cannot be lost in time. While it is true that social capital needs to be cultivated in the long term in a sustainable social ecology, it is equally true that absolute social equity and justice can never be achieved and hence the best thing that societies can do is to get as close as is practically possible to the ideal scenario. All the dimensions of sustainable development

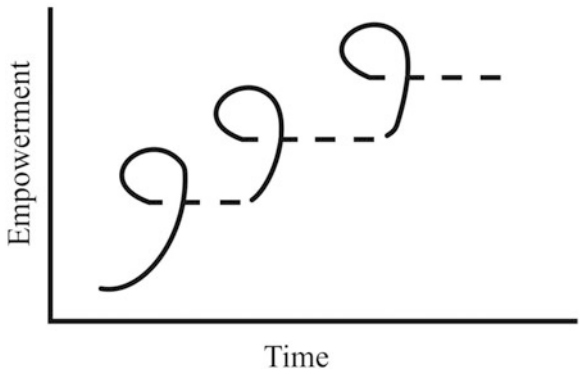

Fig. 1.1 Empowerment and time. *Source*: See Seymoar (1997, p. 420)

can be successfully and more efficiently integrated through its social dimension, namely, education. Through the education process individuals understand and can easily be convinced of the necessity for consensus in decisions. In addition, education increases and improves the trust and confidence of individuals or groups in their relationships and hence significantly decreases the level of resistance to the implementation of a strategy, which facilitates development.

If it is accepted that education is an activity with immediate costs and future returns then it may be said that investment in education has a. future return It provides opportunities to individuals that will bring both economic and non-economic benefits. The basic aim of each educational system is not just the attainment of academic qualifications but also to create long-term benefits that result from the application of the new knowledge acquired. Education is an investment that helps people to work in an economic and social system, to improve their skills and consequently contributes to the increases in future benefits (Schultz, 1961a). The educational outcome has the characteristics of both consumption and investment. Resources are 'consumed' when teachers are appointed and buildings are constructed. Investment is rewarded when students obtain new skills and abilities.

"It is right for people to appreciate enough the social contributions of education and continue to see the economic contribution as well" (Schultz, 1961b, p. 63). Among those who benefit from education is society itself (all members) since a higher quality in the level of systemic education provides the framework and the possibilities for social, economic and cultural development. Indeed, it is through education that individuals add richer cultural and political dimensions to their value capital and hence obtain a greater sense of participation in public affairs. According to Solmon (1985) there is no easy answer as to how the benefits from education are accumulated during the educational process. Certainly, there is no easy means of measuring the ways that education benefits individuals. Regarding the benefits from the first two levels of education (primary and secondary), these include aspects such as the socialization of students, protection from criminals, etc.

According to human capital theory, individuals obtain the duration and the quality of education and contribute, through skills and abilities, to a greater productive capacity. Social benefits are correlated with an increase in the social and political level of society—advantages that contribute positively to the facilitation of income inequalities and to the design and implementation of social and economic reforms. According to Bowen (1977),

> A result of education (higher) over society is being successful through changes in individuals that are going into societies. When individuals that enter societies are well-educated and cultivated people their presence changes the general social environment. And those can influence the types of interest, values, attitudes and behaviors (p. 443).

Teaching and learning are the main duties of education towards society, while education is required to make significant adjustments to societal changes. Teaching is a creative art that requires each teacher to possess personal abilities that make the teacher capable of responding to new situations in their own personal way. Due to

the rapid development of, and changes in societies over time, education should be able to empower people by developing in them the necessary skills and abilities that allows them to respond successfully to the demands of the world.

The process of obtaining knowledge enhances the personal dynamic of individuals and prepares them to assume certain duties and employ actions that will change their environment. Taking into consideration that the development process is being influenced not only by technical knowledge and skills but also by the ethical and spiritual values of citizens, then all educational levels contribute, one way or another, to societal development. Basic education contributes to the increase of the knowledge base and helps people to make better decisions. The high qualitative level of basic education offers a competitive advantage while society gains from the increased sense of wellbeing and its competitive contribution to both productivity (economic benefit) and social change (qualitative benefit).

Children not going to school could be a threat to development since it is knowledgeable and capable individuals that are the key to economic development. The success of fusing education to establish new behaviors that stimulate societal development depends, to a great extent, on avoiding a scenario of conflicting demands that can lead to negative attitudes among children towards their schooling. Without doubt, the socio-economic situations and the educational level of a country are highly correlated with the success of children at school and the duration of their schooling. Family, social background and school values are responsible factors for children's entrance into, and continuation in, schooling. Keeping children in education should help them to develop positive feelings about education. Children's desire for success is closely linked with their interest and skills. The scenario of children not going to school does not solve the development problem and certainly does not contribute to a satisfactory resolution of the crisis, since it is the teaching and sharing of knowledge and scientific principles that contributes significantly to the elimination of biased behaviors while it reinforces the norms and values necessary for the effective functioning of the economy.

The quality of education is being influenced by variations in population and geography as well as by the economic and political changes within countries. These changes bring a correlation between educational attainment and the socio-economic status of a country.

However, it is true that people are born with unequal opportunities and within unequal social and economic environments so it is not realistic to talk about equal opportunities in education, in the absolute sense. It is equally true that migration (especially trans-national migration) could be a significant obstacle to the schooling of migrant children. Indeed, as every phenomenon (hence migration) have negative and positive implications to people's lives (costs and benefits), the cost of migration is most likely to fall upon children (and women) as it could act as an impediment to their schooling (Long, 1974). As such, it condemns migrant children in a receiving society to an inferior status (Amin, 1974, p. 66; cited by Colman & Nixson, 1978, p. 287). Subsequently, migrants in host countries will be more diverse in terms of social networks and knowledge.

Therefore, it is evident that the qualitative improvement of a nation (and hence its economic growth) is indeed the first aim of every country in the world but in order to attain appreciable levels of success, this can only happen through education. In essence, development is necessarily dependent on "civic vitality" (Segedy & Lyons, 1997, p. 338), human knowledge and skills.

Conclusions

Any attempt at societal improvement, development and growth is a continuing struggle using education and knowledge, as modern societies hinge their bets on the improvement of human rights and welfare. In modern societies, the role of education is even more evident than in the past as the contribution of social capital makes an ever-increasing contribution to the development of economies. Indeed, rapid economic and social changes require education to shape citizens and provide them not only with substantive knowledge but also to make them capable of creating new knowledge. In practical terms, this requires, firstly, that knowledge and skills are differentiated over time and, secondly, that the development process continues to adapt to change.

Given that (a) education has significant indirect impacts on human rights and economic growth through its implications and social externalities (McMahon, 1999), (b) enrolment in basic education (particularly secondary) and low military expenditure are among the major determinants of human rights, and (c) the major equity issues of the world concern the redistribution of wealth and expansion of human rights (Seymoar, 1997), then clearly more attention given to a sustainable social ecology and wider access to basic education, especially among poorer populations, would contribute significantly to the re-distribution of income, offsetting the crisis and consequently feeding human prosperity and development back into the system (McMahon, 1999).

Education is becoming not only an individual right but also a significant factor in terms of competitiveness and, most importantly, a duty of responsible communities. Education fosters interaction among individuals, the sharing of knowledge and the broader participation of citizens in common affairs. Indeed, the market approach alone does not appear to be providing a holistic solution (one that addresses all aspects of wellbeing) nor is it improving the level of mutual understanding regarding the circumstances and ways of solving problems that could lead to a stronger commitment to the welfare of current and future generations (Gauri, 2004; Rambla, Ferrer, Tarabini, & Verger, 2008; Seymoar, 1997).

The establishment of norms and values are absolutely necessary for societal development—the most important aspect of sustainable development. The education of all children is a significant determinant in raising qualitative standards in a community. Hence, giving proper attention and care to education is the key to a sustainable and long-term social (and consequently economic and environmental) development. While the methods used in the planning and designing of policies that protect the

environment and boost the economic perspective of society may not necessarily provide useful policy tools for society, it is nevertheless important to understand that society, nature and the economy are inter-dependent elements and, inevitably, the degree (or relative degree) of a country's development can often be reduced to theories whose definition and assessment rely mainly on valued judgements.

Key Chapter Concepts

1. Social capital is a valuable asset that fertilizes the ground for establishing cooperation and mutual trust among individuals.
2. The education of all children is a significant determinant in raising qualitative standards in a community.
3. Development is facilitated only through civic vitality, human knowledge and skills.
4. The level of engagement and commitment in the satisfaction of common interests by individuals subsequently leads societies to the cultivation of a mutual benefit, which constitutes development for all.
5. The key to securing sustainable development, namely, to ensure the prosperity of current and future generations, is to create a trustful, cohesive and committed environment. The only way to achieve a coordinated international effort is through the 'ecological management' of the global community.

References

Amin, S. (1974). Modern migrations in Western Africa. In S. Amin (Ed.), *Modern migration in West Africa*. New York: Oxford University Press.

Beatley, T., & Manning, K. (1997). *The ecology of place: Planning for environment, economy and community*. Washington, DC: Island Press.

Bookchin, M. (1987). *The rise of urbanization and the decline of citizenship*. San Francisco: Sierra Club Books.

Bowen, H. R. (1977). *Investment in learning: The individual and social value of American higher education*. San Francisco: Jossey-Bass.

Chiras, D., & Herman, J. (1997). Sustainable community development: A systems approach. In I. Audirac (Ed.), *Rural development in America* (pp. 107–127). New York: Wiley.

Clugston, R. M. (1997). Sustainability and rural revitalization: Two alternative visions. In I. Audirac (Ed.), *Rural development in America* (pp. 79–94). New York: Wiley.

Coleman, J. S. (1988). Social capital in creation of human capital. *American Journal of Sociology (Supplement), 94*, S95–S120.

Coleman, J. S. (1990). *Foundations of social capital theory*. Cambridge, MA: Harvard University Press.

Colman, D., & Nixson, F. (1978). *Economics of change in less developed countries*. Southampton: Camelot Press.

Environment and Development: Our Common Future (Brundtland Report). (1987). Report of the World Commission on Environment and Development: Our common future (Brundtland report). *Council on Foreign Relations*. Retrieved from http://www.cfr.org/economic-development/

report-world-commission-environment-development-our-common-future-brundtland-report/p26349
Gauri, V. (2004). Social rights and economics: Claims to health care and education in developing countries. *World Development, 32*(3), 465–477.
Long, L. H. (1974). Does migration interfere with children's progress in school? *Sociology of Education, 48*(3), 369–381.
MacDonald, D. V., Hanley, N., & Moffatt, I. (1999). Applying the concept of natural capital critically to regional resource management. *Ecological Economics, 29*, 73–87.
McMahon, W. W. (1999). *Education and development. Measuring the social benefits*. Oxford: Oxford University Press.
Meehan, J., & Bryde, D. J. (2014). Procuring sustainably in social housing: The role of social capital. *Journal of Purchasing & Supply Management, 20*, 74–81.
Meier, G. (1995). *Leading issues in economic development* (6th ed.). Oxford: Oxford University Press.
Meier, G., & Baldwin, R. (1957). *Economic development: Theory, history and policy*. New York: Wiley.
Novaligna, Z. (1994). *Personal notes*. Sanikiluaq: Northwest Territories.
Print, M., & Coleman, D. (2003). Towards understanding of social capital and citizenship education. *Cambridge Journal of Education, 33*(1), 123–149.
Rambla, X., Ferrer, F., Tarabini, A., & Verger, A. (2008). Inclusive education and social inequality: An update of the question and some geographical considerations. *Prospects, 38*, 65–76.
Roseland, M. (2000). Sustainable community development: Integrating environmental, economic and social objectives. *Progress in Planning, 54*, 73–132.
Rotberg, R. (2001). *Patterns of social capital*. Cambridge: Cambridge University Press.
Sabatini, F. (2008). Social capital and the quality of economic development. *KYKLOS, 61*(3), 466–499.
Saiti, A. (2007). School leadership and educational equality: Analysis of Greek secondary school data. *School Leadership and Management, 27*(1), 65–78.
Schultz, T. W. (1961a). Investment in human capital. *American Economic Review, 51*, 1–17. In M. Blaug (1968), *The economics of education: Selected reading 1*. London: Penguin Books.
Schultz, T. W. (1961b). The concept of human capital: Reply. *American Economic Review, 52*(4), 58–64. In M. Blaug (Ed.), *The economics of education: Selected reading 1*. London: Penguin Books.
Segedy, J. A., & Lyons, T. S. (1997). Sure (sustainable urban/rural enterprise): A partnership for economy and environment. In I. Audirac (Ed.), *Rural development in America* (pp. 325–340). New York: Wiley.
Selman, P., & Parker, J. (1997). Citizenship, civicness and social capital in local agenda 21: Local environment. *International Journal of Justice and Sustainability, 2*(2), 171–184.
Seymoar, N. K. (1997). Equity and sustainable development: Community self-empowerment in three indigenous communities. In I. Audirac (Ed.), *Rural development in America* (pp. 409–412). New York: Wiley.
Solmon, L. C. (1985). Benefits of education. In *International encyclopedia of education* (vol. I). Oxford: Pergamon Press.
Stern, N. (1991). Public policy and the economics of development. *European Economic Review, 35*, 243–250.
Swanson, J. (1996). Social infrastructure and economic development. In T. D. Rowley, D. W. Sears, G. L. Nelson, J. N. Reid, & M. J. Yetley (Eds.), *Rural development research: A foundation for policy* (pp. 103–121). U.S.A.: Greenwood Press.
Vera-Toscano, E., Garrido-Fernandez, F. E., Gomez-Liman, J. A., & Canados-Reche, J. L. (2013). Are theories about social capital empirically supported? Evidence from the farming sector. *Social Indicators Research, 114*, 1331–1359.
Woolcock, M. (2000). *Using social capital: Getting the social relations right in the theory and practice of economic development*. Princeton, NJ: Princeton University Press.

Chapter 2
Minding the Gap: Preparing the Working Class for Success in Academia

Dawn M. Armfield and Shadow W.J. Armfield

Abstract While many books and articles, including autobiographical accounts, have been written about the working class student and the difficulties of navigating academia, little has been published about the meaning that a working class presence has in academia, and how to bridge the divides between knowing, understanding, and connecting with academic structures and practices when there is little institutional infrastructure to support those needs.

This chapter builds on previous research and theory and focus on the teaching structures required to support students as they move from working class backgrounds into academia. We begin by addressing the structures that are in place that limit working class individuals from success in higher education, including familial and economic restraints and connecting with faculty and students who have little comprehension of the constraints placed upon working class academics. We then define how teaching methodologies and practices drawn from understandings of andragogy and adult learning theory can reduce exclusionary practices and create open, inclusive, and supportive learning environments regardless of socio-economic background.

Keywords Working class • Andragogy • Adult learning theory • Systemic prejudice • Social justice • Narrative

Pedagogy and the Working Class Background

When we graduated from high school we watched many of our friends leave town to go to universities across the state and country. Others stayed closer to home and attended the local university, but still left home to participate in life on campus. For any of these students, it was an expectation and gift from the family to get an

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undergraduate degree. The expectations and path to a degree were a little bit different for us. While our parents talked of the importance of education and their desire for us to go to college, they did so with stipulations on their support. Our parents, who worked in the auto repair shop across the street from the university, believed that above all, we must begin to be independent and support ourselves directly out of high school. They had shared how the university students and faculty, while learned, failed to have the common sense required to make it in the 'real world.' In contrast, the authors saw the university as something else: a place where the world began.

Dawn began her studies before Shadow and experienced the hardships associated with working class students, and discovered the knowledge that would eventually support both in being successful at the university. Dawn immediately left home after high school and lived on campus with the help of Pell Grants and working at our parents' shop. For a year, she struggled to maintain the life of a student and an employee, but in the end was overwhelmed with the stark differences between university life and working. She left the university to work full-time. When Shadow entered the university 5 years later, Dawn had been out for 4 years, but still took classes at the community college with the hopes of returning for the degree she coveted. While Dawn was required to fully support herself at the university, Shadow was offered support as long as he lived at home and continued to support the family business. For nearly 2 years he lived at home, went to school in the mornings and worked at the shop or at other jobs in the afternoon or evening. During this time, Shadow maintained passing grades, but never fully connected to any discipline and switched majors many times.

In Shadow's third year of college, he left home and Dawn returned as a full-time student. They began to navigate the university and work life collaboratively. This connection to the university and each other also created a disconnect between us and the rest of our family. While we could see the potential for our lives through the university, our family began to see us as uppity college students who were 'smarter than everybody else.' Without the support of one another, we would have been lost in a world of individuals who we had little in common with (university students and professors) and ostracized from a family who didn't see the same potential as we did from the university experience.

The authors' narrative above illustrates the difficulties of connecting with different communities as educational awareness and integration increase. Our story is not new nor is it a singular event. Music has been a constant throughout the authors' lives and you will see lyrics woven into this chapter. The lyrics of out music (and genres vary), help us remember that we are not alone in the struggle to find our place. We have chosen selections from our musical catalogues that both represent our background and relate to the overarching ideas of what it means to be feel connected and disconnected within certain communities. Investigating these ideas of connectedness is at the forefront of this chapter: how we think about social capital of the working class and how to build sustainable academic environments that not only welcome the working class, but put them at the forefront of curriculum development to improve the inclusivity and sustainability of programs and institutions themselves.

The Working Class

For the promises our teachers gave
If we worked hard
If we behaved
So the graduations hang on the wall
But they never really helped us at all
No they never taught us what was real
Iron and coke
And chromium steel
And we're waiting here in Allentown
(Joel, 1982)
Billy Joel—Allentown

Many working class academics have similar stories of struggle and have found that the importance of learning is often different depending on the needs or desires of a student's family. For instance, if a student comes from a family where both parents are college educated, the assumption may be that college is a given and that higher education is a necessity for progress in life. In a working class family, this emphasis on education may take a back seat to other priorities, like being able to put food on the table, having clothes, or obtaining shelter. When education is less important to the family structure, there is little knowledge to how the institutional constructs of education work, how to navigate the systems within those constructs, or how to find assistance within the systems.

In order to develop a concrete path toward mentoring working class students, we must first understand what we mean by the 'working class.' This tends to be a term that is highly personal, and, thusly, highly ambiguous. However, many scholars turn to Bourdieu (1987) to develop a foundation for understanding what it means to be 'working class.' As Bourdieu explains, the concepts of "working class [are] always the product of a complex historical work of construction" (Bourdieu, 1987, p. 8). What was working class in the 1950s would be defined differently from today's perspective because of different sensibilities and social constructs. However, how we define the working class,

> through the words used to name it, such as 'working class,' 'proletariat,' 'workers' (travail/eurs), 'labor,' etc., and through the organizations supposed to represent it, with their acronyms, offices, councils, flags, and so on, this class is a well founded historical artefact. (1987, pp. 8–9)

The Oxford Dictionary (2016, p. 1), defines "working class [as] the social group consisting of people who are employed for wages, especially in manual or industrial work." This approach expands on the concepts of working class as those who work for wages, but also points to the historical perspective of working class by addressing how it has been contained to certain demographics within those who work for wages. In 2012, Block explored class in order to determine how to work with second language learners better. He determined that there were many dimensions of class: property, wealth, occupation, place of residence, education, social networking, consumption patterns, symbolic behavior, and spatial relations (2012, p. 194).

Table 2.1 Key dimensions of class

Dimension	Gloss
Occupation	This refers to the kind of work done across a range of job types, such as blue-collar manual labour vs. white-collar knowledge-based labour, or service sector jobs vs. manual jobs, etc.
Place of residence	This can refer either to the type of neighborhood one lives in (is it identified as poor, working class, middle class, an area in the process of gentrification, or upper class?) or the type of dwelling (individual house, flat, caravan, etc.)
Education	This refers to the level of schooling attained and the acquired educational capital one has at any point in time. There is close link here to Bourdieu's notion of cultural capital
Social networking	This refers to the often unspoken reality whereby middle class people tend to socialise with middle class people, working class people with working class people, and so on. There is a close link here to Bourdieu's notion of social capital

Source: Block (2012, p. 194)

For the purposes of this argument (see Table 2.1), we are going to focus on Block's definitions of class with regards to occupation, place of residence, education, and social networking. In this table, the term 'dimensions' exemplifies constructs used to identify class. 'Gloss' refers to the descriptive attributes of the dimensions.

Block's assessment of dimensions of class is supported by others' research into how class affects identity and inclusion. For instance, the act of establishing a family's identity may be directly affected by perceived notions of upward-mobility. Dews and Law (1995) contend that working class families "know that a college degree has everything to do with class, unlike professional or managerial-class families, who believe it has to do with merit and entitlement" (p. 5). This is reinforced by academia and popular media that shows the difficulties of working class families going into higher education and being the 'other' in those situations. In addition, Nesbit (2005) stated that one of the problems of class in academia is that it has become an invisible 'othering' of certain demographics (as opposed to race or gender—which are at the forefront of academic dialogues). "Of course, it's precisely this invisibility that, when linked with its apparent naturalness, allows an unfair class system to reproduce itself continually" (Nesbit, 2005, p. 9). Working class families also "know that somehow the very existence of a college degree undermines and actually threatens their children's and, consequently, their own working-class identity. In the end, they do not want what they would wish for" (Dews & Law, p. 5). Indeed, all forces point to a changing identity for a student who goes to college, and who can never really go home again as the same person within the family dynamic.

In order to maintain a family's identity and connection to community (social networking and residence), a student must remain in the same types of jobs (occupation) and have the same level of schooling (education) as her parents, grandparents, and other family members. To step outside of those constraints means that the entire family's existence or importance is put at risk because the student, who wishes to obtain a different way of knowing, learning, and living, must then expand

her networks in order to have the support needed to be successful in those arenas, going outside of the norms and inviting others in.

> To live your early life … [on] any one of hundreds of other depressed communities -- and to journey up through the top levels of the American educational system will call for support and guidance at many, many points along the way. You'll need people to guide you into conversations that seem foreign and threatening. You'll need models, lots of them, to show you how to get at what you don't know. You'll need people to help you center yourself in your own developing ideas. You'll need people to watch out for you (Rose, 2005, pp. 47–48).

This need to be more inclusive of different ideas, connections, and insights is difficult to master, however, when a student is raised in an environment where the emphasis is placed on reliance upon family and community that has been developed over time. Bronfenbrenner (1986) examines chronosystem models of research, addressing longitudinal data sources, in which the mobility of class is examined. Much of this research demonstrates how family behaviors and socioeconomic status remain consistent over multiple generations because children are reticent to step out of the norms of their family and community to develop new ways of being. While not all of the data describes the continued behavior of the parents by children, much of it indicates that children follow in the footsteps and behaviors of parents, whether to the advantage or disadvantage of the individual, demonstrating how childhood life experiences reach "into the child's life and shape the course of subsequent development" (p. 733). This indicates that despite all efforts to the contrary, reaching out to new communities is not easy, nor a given, when working class students enter university systems that have been created for more affluent students.

As Bronfenbrenner (1986) found, much of how families and students react or resist higher education is due to systemic norms that are expected of each generation as handed down by parents. For instance, students who come from working class families tend to follow rules instead of trying to think outside of norms. This is a behavior that is common with parents who work in positions that "typically required compliance with authority [because they then] tended to hold values that stressed obedience in their children" (Bronfenbrenner, p. 728). Middle-class fathers, however, "expected self-direction and independence, the qualities called for by the demands of their occupation" (Bronfenbrenner, p. 728). This type of obedience that working class families follow moves against educational norms of 'thinking outside the box' and critical thinking. These students will often do best when told what to do in a class rather than to think and create from their own ideas—a main tenet of adult education. Research in this area makes it clear that moving beyond class structure is difficult, even when education is available because there is a "strong tendency for sons to choose an occupation similar to their fathers', as denned along dimensions of work autonomy and the function of work activities" (Bronfenbrenner, p. 728). Moving beyond those class structures are difficult enough. Finding a space within new institutions can prove equally as difficult with students often occupying a middle-space between where their families are and where their academic lives exist.

> I got it bad, you don't know how bad I got it
> You got it easy, you don't know when you've got it good
> It's getting harder, just keeping life and soul together

I'm sick of fighting, even though I know I should
(Kershaw, 1984)
Nik Kershaw—Wouldn't it be good

While students don't always think of themselves as following in their parents' footsteps, they often see the society, or the institution, as oppressive and difficult to manage. Horton, Freire, Bell, and Gaventa (1990) discuss what it meant for Horton to come from a lower socio-demographic and how he reacted to those forces. Horton recalls that he understood not to blame his parents for the situation, but "that there are non-personal sources which I later identified with an oppressive system" (Horton et al., 1990, p. 17). Because of that oppression, students who may conform because of obedience are then confronted with a difficult system to work in and may resist the academic culture. "Refusing to adopt the discourse and behavior expected by the school, they develop a counter-culture and resistant attitude toward all things 'official,' resulting in a linguistic code that is largely antithetical to that expected in academic environments" (White & Lowenthal, 2011, pp. 291–292).

This further alienates those students from a system that has oppressed them in the first place to maintain the status quo. Schools are not developed to create spaces for those it has oppressed, but, instead, to continue as they have because they are focused on educating a certain type of student—one which is not typically from a working class family. The problems that arise from this class oppression are vast. Sometimes students "fall into a predetermined mold designed for school failure and social inequity (Brown, 2006, p. 701). Brown asserts that despite all of their best efforts, students "are left behind, without hope, without vision, and without equal access to the excellent education that all children are entitled" (p. 701). Sometimes, however, the schools, the system, are at the root of the problem. Because the system does not treat each background, and, thusly, each literacy, as equal, schools treat non-dominant literacy practices "as deficits and barriers to learning" (White & Lowenthal, 2011, p. 292), rather than different ways of learning.

Of course, this does not happen to all students. Some students learn to assimilate to the academic norms they are presented with, feeling "pressured not to differentiate him or herself" (DiMaria, 2006, p. 63). DiMaria continues to argue that the students will "conform to a middle-class academic norm by observing, quietly, both in the classroom and socially, to avoid revealing a lack of academic preparation or awkward details of a personal nature" (p. 63). Other students succeed while resisting the molds of academia. Still others ignore the box they are shifted toward, deciding that they deserve an education just as much as anyone else. Horton et al. (1990), upon determining that it was the system at fault, learned an important lesson from his parents. "They never accepted the fact that they were inferior to anybody, or that anybody was inferior to them" (p. 15). Instead, he chose to focus on the problems within the system rather than problems with people.

The discussion of the connection with parents decreases as the student progresses through their education, but the connections with the working class background are not diminished. For instance, Harris (2015) argues that the more distance between her roots and her education, the less support she received from family.

> While many of my grad-school peers receive social support and guidance from college-educated parents and extended family members (several with advanced degrees), I've watched the support I had during my undergraduate years become increasingly spotty. It's difficult to rely on folks back home when they don't understand the crux of what I do on a daily basis or, even worse, they imagine I'm living in the lap of luxury with no room to complain about my comfortable collegiate life. (Harris, 2015, para. 4)

This is often true for working class students who move beyond undergraduate studies. Families, who thought that the ultimate goal was a college degree, may not understand that a graduate degree is required for some positions or that support is just as critical in graduate school as undergraduate (and sometimes more critical because of increased responsibilities and fewer hours for outside work).

In the research found for this chapter, much of the discussion focused on traditional residential students in higher education. However, it is also worth noting that many students entering university today are non-traditional working class students who have participated in the military, have been working full-time, or have been raising families, and who return to earn degrees for various reasons. The National Center for Education Statistics (NCES) (2009) showed that from 2000 to 2009, the percentage of enrolled students under the age of 25 increased by 27 %. However, during the same time period, enrolled students aged 25 and over increased by 43 %. In a study conducted by Reay (2003) of women ages 29-late 40s, who came from working class backgrounds, the women were found to have "a commitment to 'education for its own sake'" and a "further commitment to make a contribution to society" (p. 304). This indicates that not only do older working class students have different motivations from traditional students, but that they may also have a desire to improve their own communities and to develop their communities with their own growth.

Overall, working class students, whether traditional or non-traditional, struggle with familial, community, and academic expectations as well as issues with their own identity and where they fit within all of those structures. It is also worth noting that these students, no matter what their student status, feel unprepared for the requirements of academia.

Academic Knowledge Building

Discourse Communities

> I went to see the Doctor of Philosophy
> With a poster of Rasputin and a beard down to his knee.
> He never did marry or see a B-Grade movie.
> He graded my performance, he said he could see through me.
> I spent four years prostrate to the higher mind,
> Got my paper and I was free.
> (Saliers, 1989)
> Indigo Girls—Closer to fine

Some of the issues that students from poor and working class families often have difficulty with are understanding what they need to know, how to learn about different areas of academia, where to ask for help, and when to ask for help. White and Lowenthal (2011) determined that one of the reasons students have these difficulties is because the academic institutions have constructed their own discourse communities (which are often unique to that institution) that are inclusive for those who know the language, but exclusive for those who don't—which is where most working class students find themselves when arriving on campus. In fact, "the discourse of the university can be further divided between the social and the academic, between students, faculty and staff, between regions, size of schools, etc. In short, there is no one university discourse" (White & Lowenthal, p. 295). If a student is not familiar with the localized discourse, they are immediately at a disadvantage.

Academic discourse communities often go beyond simply knowing the language of the college or university, but also create spaces for understanding what the purpose of education is, what the conventions of the institution include, how to navigate a system that is not necessarily forthcoming with information (which seems to go against how most think about education), and what is meant by diversity and inclusion. White and Lowenthal (2011) argued that learning the academic discourse should begin prior to students arriving on college campuses because "teachers in the K-12 setting and especially in the college setting simply assume that students entering the university have mastered (and are ready and willing to use) academic discourse" (p. 297). However, "these relatively specific conventions have never been fully examined or deconstructed in the K-16 classroom" (White & Lowenthal, p. 297). Harris (2015) argued that administrators and faculty should not have the expectations that all students arrive in the classroom with the same foundational knowledge about how to be a student, how to engage in the academic discourse community, or how to engage in the professional community. She writes that

> I am constantly reminded that, as a doctoral student, I should know better. I should have known to apply for an assistantship months before I received my acceptance letter. I should have known to research my adviser's reputation before agreeing to work with that person. I should have known to check the attendance roster from my first academic conference to know which senior scholar from my field would be in attendance.
>
> (Harris, 2015, para. 5)

The question that should be asked is why would administrators, faculty, or other students assume that students should have this knowledge instead of asking them, encouraging discussion about this type of discourse, and making sure students feel secure enough to request information. Elbow (1991) argued that "learning new intellectual practices is not just a matter of practicing them; it is also a matter of thinking and talking about one's practice" (p. 149). Students need to be engaged in these topics by their academic colleagues in order to understand the specialized discourse of their discipline and institution. White and Lowenthal (2011) argued that those in power can take it further, that they "have an exponentially greater ability to influence what a given discursive event means and the associated semiotic images participants take away from such an exchange" (p. 289). Because of this ability to define what is meant by the discourse and within the discourse community,

those in power are also able to teach newcomers "a set of social and authority relations" (Elbow, p. 146), that, while inclusive of the newer learners, teaches them how to be exclusive in language choices as well. Students then learn "to talk to each other as professionals in such a way as to exclude ordinary people" (p. 146). Elbow maintained that "this professional language is much more formal and complex and tells others that academics are professionals who do not invite conversation with nonprofessionals or ordinary people" (p. 146). This then perpetuates the distancing of the students from their families and originating communities, making them an 'other' in two communities: home and academic.

Part of the problem that working class students face is that class, unlike race, disability, and other issues, is rarely discussed. "Class remains largely invisible on college campuses, as most institutions do not include class in their campus dialogues, diversity training, or curricular offerings" (Soto, 2008, para. 2). Soto argued that the problem with class is that it is often conflated with race and is, therefore, often ignored as its own systemic issue, "with race sometimes becoming a stand-in for class" (2008, para. 2). While both issues are equally important, it is incumbent upon the institution and educators to increase equity amongst the student body. Discourse, however, is only one issues students deal with when it comes to moving from their working class backgrounds to academic settings.

Personal Identity

Everyone plays the hand they're dealt
And learns to walk through life themselves
Not everything in life is handed on a plate
When people think your words are true
It doesn't matter what you do
I sold my soul to get here
How 'bout you?
(Lewis 2003)
Staind—How about you

Students who come from backgrounds that differ from those of traditional students often deal with issues of a changing, reforming, and conforming personal identity. They are often required to change the ways they speak, which is "complicated by the strong ties of language to culture and identity and is further complicated by issues of 'official' authority and resistance to this authority" (White & Lowenthal, 2011, p. 302). Students are trying to navigate many different structures all at once, navigating complex issues of identity, community, and education, topics they may have very little previous understanding of and nothing to build upon to gain that knowledge. In addition to navigating new structures, students still exist in their previous working class communities where higher education discourse is not the norm. The ways the students have to code switch language is sometimes painful. One doctoral student, when trying to explain her dissertation research to her parent, was told *I just don't understand what you're doing*, and upon trying to explain it in

a different way was admonished *Don't talk to me like I'm stupid* by her parent (Anonymous, 2016). These struggles are a constant in the life of a working class academic. Oftentimes, a student is expected to have many kinds of knowledge, not only from his discipline.

> School can be a tremendously disorienting place. No matter how bad the school, you're going to encounter notions that don't fit with the assumptions and beliefs that you grew up with -- maybe you'll hear these dissonant notions from teachers, maybe from the other students, and maybe you'll read them. … You'll see a handful of students far excel you in courses that sound exotic and that are only in the curriculum of the elite: French, physics, trigonometry. (Rose, 2005, p. 28)

Students arrive at college having different ideas about what college is constructed by movies, television, books, and articles. Reconstructing the concept of college also requires students to rethink what it means to be at college and how they fit into the overall structure. This causes many to deal with issues of imposter syndrome or a misunderstanding of what it takes to be a successful student.

> I had little understanding of the different types of colleges and universities. Besides, moving away from home to attend college wasn't a financially realistic option. So instead I lived at home and enrolled at a local "commuter campus" college, in large part because of the full academic scholarship that I was offered. Having mostly breezed through high school, I entered college with poor study habits. And then there were the exciting distractions that are bundled with college. I ended up barely getting along. (Hicks, 2009, para. 6)

Coupled with not understanding the system, not having the community literacy skills to effectively navigate the system, and having to change the fundamentals of their communication styles, students from working class families often don't ask for help. They may not ask for help because they aren't sure they need it, they aren't sure what to ask for, or that the "student may need help dissociating the need for support from notions of personal weakness" (Casey, 2005, p. 33). Students from working class backgrounds are, as suggested earlier, used to obeying rules without asking questions. Not knowing what to ask, if they can ask, or who to ask are barriers to a student's growth within the academic setting.

In addition to issues dealing with shifting communities and understanding where one fits within the academic structure, working class students often have to work their way through school. Rarely do they have the opportunity to avoid working at outside jobs to help supplement the costs of education as wealthier students may be able to do. Linkon (2008) cited a report by King (2006) in the American Council on Education ACE Issue Brief which states that students from lower socio-economic statuses work far more than those from a higher status, which means that there are far more demands on those students from the moment they arrive on campus, and that "the decks are stacked against them" (para. 9). While working a job is not necessarily a negative, it does mean that working class students must manage their times in vastly different ways than those who do not have to work. They are not able to live up to the idealized college experience of "moving away from home, living in a dorm, spending evenings eating pizza with friends, and studying" (Linkon, 2008, para. 4). Instead, their opportunities are different because of work, access to

resources, time away from campus, and limited interactions with both their peers and their professors. As Linkon (2008, para. 4) argued,

> In reality, many college students, especially at working-class institutions, commute to campus and struggle to balance a job and homework, let alone find time for pizza [unfortunately, the structure of education] serves the interests of the privileged by structuring learners' access to and uses of various forms of social and cultural capital (Nesbit, 2005, p. 10)

This idealized view of college also includes it as being a way out of the working class. Students will sacrifice to get the degree because they see it as a way out of working class. However, Linkon (2008, para. 10) found that "while more students than ever are attending college, more people are not moving into the middle class." The questions then become what are these students working toward and what do they need to know to get there?

Systemic Problems

> Teacher, teacher can you teach me?
> Can you tell me all I need to know?
> Teacher, teacher can you reach me?
> Or will I fall when you let me go? Oh, no
> Am I ready for the real world? Will I pass the test?
> You know it's a jungle out there
> Ain't nothin' gonna stop me, I won't be second best
> But the joke's on those who believe the system's fair, oh yeah
> (Adams & Vallance, 1984)
> 38 Special—Teacher, Teacher

One topic that working class students return to time and again is not understanding the structures of the academic system. As we've stated above, they don't typically ask many questions and don't know where to go to get that information even if they are prepared to get assistance. Instead of being transparent, academia is a system of opaque rules, departments, and connections that are difficult for those without insider knowledge to traverse. In addition, this opaque structure often leads students to blame themselves for their inexperience and lack of understanding. This manifests itself in many ways, including students offering "pathological explanations of their own educational underachievement in terms of personal inadequacy or particular attitudes and pressures within their own families or communities" (Malcolm, 2005, p. 48). Students who have no support (because familial and communities of working class students don't often realize what kind of support is needed), are limited in foundational systemic knowledge.

These students, who often blame themselves for this lack of knowledge, don't understand that the system is at fault. We currently have a system which is constructed in a way that limits working class students from being successful in academia because working class students are interacting with faculty and students who have little comprehension of the constraints placed upon working class

academics (Blackwell & Pinder, 2014; Lightweis, 2014). We've listed the various constraints (outside work, lack of familial and community support, reduced out-of-classroom time for work, etc.) above. Students who have to deal with these constraints are still required to adjust to a system that is stacked against them. If they don't, they are not supported in pursuing a degree. Instead, these students are required to "adjust to a taken-for-granted middle class norm of behavior, such as re-training, to enable integration" (Stuart, 2000, p. 27; cited in Malcolm, 2005, p. 46). Re-taking classes because of a lack understanding is often not only not economically feasible for a working class student, but is often not supported by additional assistance to help the student be successful the second time around.

Systemic issues with class begin within the classroom itself, and may begin in primary and secondary schooling. White and Lowenthal (2011) argued that student success in higher education is based on exposure to the different ways norms are communicated to students with academic settings. "Unfortunately, not all K-12 students receive the same access to or have the same motivation for learning and appropriating academic literacy. Our study highlights the fact that academic literacy is seldom explicitly taught in the K-12 setting" (White & Lowenthal, 2011, p. 284). Because this inequity exists in early levels of education, working class students are often at more extreme disadvantage than if they had been given the same access from early on.

Malcolm (2005) argued that these inequalities are "not only within educational structures, but also in the discourses and practices of teaching, learning, assessment, and accreditation" (p. 46). But, as this shows, teachers and classrooms are not wholly at fault (nor are the students and their families). This is a systemic issue that permeates throughout the entire structure of academia, from K-12. This work of teaching academic literacy, however, must begin early on because "the process of accommodating new information and developing beliefs is thus gradual, one of taking initial steps, accepting and rejecting certain ideas, modifying existing beliefs systems, and finally accepting new ideas" (Brown, 2006, p. 703). Students must have the time to process the different ways of thinking and communicating long before they are expected to be a part of an academic community.

Preparing for Success of the Working Class in Academia

Education has been called the 'great equalizer.' Unfortunately, it is only an equalizer for those who are already equal. The modus operandi at the university has been for the students to adapt to the university tradition. For students coming from backgrounds that diverge from the White, middle class standard that has been the norm of university education, adjusting can be difficult and often overwhelming.

We argue that it is not only the responsibility of the student to begin to understand the university structure, but for the university and, by proxy, the instructors, to understand their students. To begin this processes, instructors must first recognize that their students come from many backgrounds. It is often easy to recognize

differences between the instructor and the students due to language, skin color, or gender. It is not always easy to recognize differences in class. Because class is often not recognized, it is easily forgotten and students from other socio-economic demographics are left without the resources that might be provided for discernible differences.

> The student whose cultural background teaches a sink-or-swim philosophy, emphasizing emotional toughness (if not a well-honed capacity for accepting punishing circumstances), is unlikely to reach out to a faculty member when he or she is failing--especially if the student harbors doubts about the worth of college, or about whether he or she belongs there. (Casey, 2005, p. 6)

It is, therefore, imperative that the impetus of change begin with academic structure and not be the onus of the student who may not have the skills to pursue assistance. As Casey (2005) argued, "faculty must be encouraged to read that student's aloofness as something other than what it appears to be: a perverse refusal to take advantage of the resources college offers" (p. 6). The implication here is that the recognition of a need for action begins at the administrative level, which then trains and encourages instructors to understand the different ways students may ask for assistance (including avoiding resources), not with the student or even the individual faculty member.

Supporting faculty in working with diverse populations "necessitates both a close examination of personal beliefs coupled with a critical analysis of professional behavior. It requires the problematization of those taken-for-granted practices that we no longer notice, unless we are explicitly asked to do so" (Tripp, 1993, p. 17). Recognition of class differences is a crucial initial step in fully including working class individuals in the academic conversation. Being cognizant of the job, family, and community structures of the working class can support instructors in developing activities that fully include the history and talents of their working class students. Connecting to the students' personal history can then build the scaffolds necessary to support the students in developing the requisite tools to fully engage in the discourse of academia. Developing "a pedagogy that respects, builds on, and extends students' experience is the key to making formal education meaningful and useful to working-class adults" (Foley, 2005, p. 41). An important component to this curriculum is to understand that working class students have had adult experiences for much of their lives, having had to work, often taking care of siblings, and having to navigate complex bureaucratic systems (such as healthcare and education) themselves. Their personal history is likely to be much more complex than a traditional student's may be.

Pedagogy for the Working Class

> Now there must be a better way to educate
> 'Cause this way ain't workin' like it should
> Can't they just invent a pill or frozen concentrate

That makes you smarter and taste, mmm, so good
(Snyder, 1985)
Twisted Sister—Be Chrool to Your Scuel

Addressing these social capital issues that affect working class students will not require a major overhaul of all educational priorities or services, but we do need to recognize that there needs to be some change. As discussed earlier, the percentage of non-traditional older students is growing at a higher rate than any other students. This requires us to think about the ways we address aging students and their needs. Brown (2006) addressed the shift in terms that we may have to begin thinking about. Whereas we've often approached higher education with a focus on pedagogy, the art and science of teaching, we may now have to view it from the perspective of andragogy, the art and science of helping others to learn (Brown, p. 707). This shift is important because it takes the focus off of the instructor and his teaching and places it on the student and her learning—this becomes more important when we want to assist our students in connecting their learning with what is going on in their lives so they can see the value of their education. In order to facilitate this approach, Knowles (1984) addressed the five ways adult learners differ from younger learners:

1. Self-concept: As a person matures his self-concept moves from one of being a dependent personality toward one of being a self-directed human being.
2. Experience: As a person matures he accumulates a growing reservoir of experience that becomes an increasing resource for learning.
3. Readiness to learn: As a person matures his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles.
4. Orientation to learning: As a person matures his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject-centeredness to one of problem centeredness.
5. Motivation to learn: As a person matures the motivation to learn is internal (p. 12).

While much of this may seem common knowledge, especially when we think of ourselves as learners and how we approach learning, many faculty don't tend to approach students with these concepts in mind. Understanding that adult learners need to connect with their learning in different ways is at the forefront of creating a positive andragogy.

There are as many ways to approach working class students as there are types of students themselves, and much of what we must practice will, of course, be dependent on the students in our classes. However, some approaches may be able to help us think about differences in the ways students learn and to help focus on that learning. Brown (2006) addressed areas that are important to undertake when working with adult students: "voluntary participation, adult status, collaboratively determined objectives, performance-based assessment of achievement, measuring satisfaction, appropriate adult learning environment, and technical issues" (p. 711). But Brown doesn't want this to be a one-size fits all. This is why he stresses that we must also

counteract "the propagation of ideological elements in a racist, sexist, and classist society by interrogating the political implications of "externally" imposed curriculum standards, "banking" pedagogical approaches, and "hierarchical" arrangements within educational settings" (p. 711). This requires us to teach from a social justice perspective to encourage students to think outside their own situations to understand how to engage with the curriculum to move against the obstacles that may be preventing the them from progress—either in their education or their lives.

At Dawn's university, there is a focus on experiential learning to connect students with 'real world' = activities that will help them see the value of their work. This type of learning is only one step of instruction for working class learners, however. They must also be able to connect with the learning in various ways. "Transformative learning is a process of experiential learning, critical self-reflection, and rationale discourse that can be stimulated by people, events, or changes in contexts that challenge the learner's basic assumptions of the world" (Brown, 2006, p. 706). In order for our students' lives to be changed, or for them to change their own communities, as the working class students above stated they wanted to do, students must also understand how to connect complex ideas with the people they are working with, how to communicate the purpose of the changes they want to affect, and how to learn to navigate channels that are often foreign to them (such as the education system or government entities). Focusing on students' learning about social justice and social issues helps them connect learning to themselves and their communities. Beyond that, it also influences "student variables, including student interest and activism" (Brown, 2006, p. 702). This type of engagement leads students to be more critical in their assessment of issues and to be more activist in their approaches to those issues, which validates their understanding of education, their own learning, and their place in their originating communities.

Narratives

Many precede and many will follow
A young girl's dreams no longer hollow
It takes the shape of a place out west
But what it holds for her, she hasn't yet guessed
She needs wide open spaces
Room to make her big mistakes
She needs new faces
She knows the high stakes
She traveled this road as a child
Wide eyed and grinning, she never tired
But now she won't be coming back with the rest
If these are life's lessons, she'll take this test
(Gibson, 1998)
Dixie Chicks—Wide Open Spaces

One area that the authors have often found very useful in connecting with our working class roots to work in academia is the use of narrative, which not only helps

us understand where we fit within our working class communities, but also within our academic communities, establishing our social capital within multiple environments. For as long as we can remember, we've heard stories—from various family members to the music we've listened to throughout our lives to the stories we began reading in school—that shapes our ways of thinking about ourselves, our families, our peers, and the world beyond our smaller communities. Narratives have also helped us process the ways we've felt like outsiders or 'others' in much of our academic careers (as the narrative in the introduction indicates). During both of our undergraduate careers, we wrote narratives that were very much based in working class origins. Shadow wrote a fictional story about connecting with the music of Janis Joplin, hitchhiking, and a VW Bus, while Dawn wrote a creative nonfiction narrative about the family having to take baths in a trashcan because that was the only receptacle large enough to bathe in when they were living out of the back of a business. While peers and professors did not understand the lives that were portrayed, they did understand the sentiments of 'otherness' and 'differentness.' As Clark and Rossiter (2008) confirmed, "developmental change is experienced and assessed through this process of storying and re-storying one's life" (p. 63). Students are able to grow through understanding where they've come from and how that connects to where they are and where they want to go.

Learning through narrative goes beyond exploring change however. Narrative helps the learner move "from a cognitive understanding of a concept to link it to his or her own experience" (Clark & Rossiter, 2008, p. 65). Learners construct the webbing that connects different concepts—their lives and their learning—to develop deeper levels of learning. Clark & Rossiter argued that "the course content now is also more real and personal and immediate, which in turn makes the engagement the learner has with the content more complex; more is involved than mere cognitive understanding" (p. 65). The use of narrative allows the students to explore the social justice aspects of their own stories and to begin to critique the social norms they see in their narratives and imagine the different ways they can shape their futures by challenging those norms. It also allows the students "to see how they are located in (and their thinking is shaped by) larger cultural narratives" (p. 66). Understanding where one 'fits' within the larger story helps to understand where and how change can be manifested.

Assisting working class students with exploring their own narratives, requires the instructor to think about the learning process in a different way. The focus is no longer on the mechanics of the communication, but on the process and connection with the purpose, style, and audience of the communication.

> While addressing issues of academic literacy, educators must also respect students' native ways with words; they must celebrate the culturally imbued discursive styles that students bring with them to school and use those styles as the basis for teaching students how to code-switch. (White & Lowenthal, 2011, p. 302)

This is an excellent space for instructors to discuss the different ways we communicate with different audiences, and to show how communicating in academia may be different than communicating with friends, family, a job, or other situations. But it also allows the students to see how their experiences, whether at home, at

work, or in the classroom, are valuable and intricately connected to one another to create a more astute and socially-aware learner. Merriam (2008) argued that this type of learning is imperative because "critical reflection is essential for transformative learning, for engaging in the new New Social Movements, for developing brain capacity, and for confronting power and politics in workplace learning" (p. 94). Narrative helps people connect to the world around them.

> This learning style is collective, mutual, and solidaristic. People exchange knowledge and skills, hardware and software. People use each other's differences, which become group resources. And so they develop an expanding learning network: a powerful working-class resource that stands opposed to the trajectory of dominant forms of workplace and institutionalized education that individualize and commodify learning. (Foley, 2005, p. 40)

The narratives of working class students are valuable to the students themselves, but are also imperative to constructing a more progressive learning environment. By including the knowledge that is hard won in the school of life, all students, faculty, and educational institutions become stronger and more diverse in their missions, sustaining the system that encourages learning and connectedness.

Conclusions

For the working class, entering the university can feel like a betrayal of their history. Students are often torn between being the product of working class families and fitting into that narrative, and being a student in higher education and conforming to that narrative. These students, upon arriving at the university, already have many issues of oppression they are dealing with because of their backgrounds. In order to have a more sustainable development within our academic institutions, we need to be open to changes in the ways we recognize students, open to shifts in curriculum, and cognizant of the need for new ways of teaching. Only then can we facilitate their learning in ways that not only help them progress, but situate the classroom as a progressive learning environment that enriches each student's understanding of themselves, their connections with others, the social justice and equity of the academic environment, and their ability to affect change in the communities around them. Recognizing the unique backgrounds of our students and including our understandings of these backgrounds in our teaching, lessens the likelihood of our students suffering the hardships described in the opening scenario and throughout the chapter and assists in creating a sustainable academic environment.

Key Chapter Concepts

1. Pedagogy and the working class background
2. The working class
3. Academic knowledge building

   a. Discourse communities
   b. Personal identity
   c. Systemic problems
4. Preparing for success of the working class in academia
5. Pedagogy for the working class
   a. Narratives

Resources

1. Center for Working Class Studies http://cwcs.ysu.edu/
2. Extensive list of Andragogical References https://www.lindenwood.edu/education/andragogy/andragogyConcepts.html
3. New Directions for Adult and Continuing Education http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1536-0717
   Special Issue: Class Concerns: Adult Education and Social Class
   Summer 2005, Volume 2005, Issue 106, Pages 1–92
   Issue edited by: Tom Nesbit
4. The Pencilsword: On a plate http://thewireless.co.nz/articles/the-pencilsword-on-a-plate

References

Adams, B., & Vallance, J. D. (1984). Teacher teacher [38 Special]. On *Teachers* (*Soundtrack*) [CD]. Los Angeles: Capitol Records.

Anonymous. (2016). Personal interview.

Blackwell, E., & Pinder, P. (2014). What are the motivational factors of first-generation minority college students who overcome their family histories to pursue higher education? *College Student Journal, 48*(1), 45–56.

Block, D. (2012). Class and SLA: Making connections. *Language Teaching Research, 16*(2), 188–205. doi:10.1177/1362168811428418.

Bourdieu, P. (1987). What makes a social class? On the theoretical and practical existence of groups. Berkeley journal of sociology, 32, 1–17.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723.

Brown, K. M. (2006). Leadership for social justice and equity: Evaluating a transformative framework and andragogy. *Educational Administration Quarterly, 42*(5), 700–745. doi:10.1177/0013161X06290650.

Casey, J. G. (2005). Diversity, discourse, and the working-class student. *Academe, 91*(4), 33–36.

Clark, M. C., & Rossiter, M. (2008). Narrative learning in adulthood. *Third Update on Adult Learning Theory: New Directions for Adult and Continuing Education, 119*(101), 61.

Dews, C. B., & Law, C. L. (1995). *This fine place so far from home: Voices of academics from the working class*. Philadelphia: Temple University Press.

DiMaria, F. (2006). Working-class students: Lost in a college's middle-class culture. *Education Digest: Essential Readings Condensed for Quick Review, 72*(1), 60–65.

Elbow, P. (1991). Reflections on academic discourse: How it relates to freshmen and colleagues. *College English, 53*, 135–155.
Foley, G. (2005). Educational institutions: Supporting working-class learning. *New Directions for Adult and Continuing Education, 2005*(106), 37–44.
Gibson, S. (1998). Wide open spaces [Recorded by Dixie Chicks]. On *Wide Open Spaces* [CD]. Nashville, TN: Monument Records.
Harris, F. (2015). *Your race, your pace*. Retrieved March 27, 2015, from https://chroniclevitae.com/news/938-your-race-your-pace?cid=VTEVPMSED1
Hicks, R. (2009). *I'll break his Goddamned hands*. Retrieved January 26, 2016, from http://www.aaup.org/article/%E2%80%9Ci%E2%80%99ll-break-his-goddamned-hands%E2%80%9D#.VqebTCorKhc
Horton, M., Freire, P., Bell, B., & Gaventa, J. (1990). *We make the road by walking: Conversations on education and social change*. Philadelphia: Temple University Press.
Joel, B. (1982). Allentown. On *the nylon curtain* [Vinyl record]. New York: Columbia Records.
Kershaw, N. (1984). Wouldn't it be good. On *Human Racing* [Vinyl record]. London: MCA. (1983).
King, J. E. (2006). Working their way through college: Student employment and its impact on the college experience. ACE Issue Brief. Washington, DC: American Council on Education.
Knowles, M. (1984). *The adult learner: A neglected species* (3rd ed.). Houston, TX: Gulf.
Lewis, A. (2003). How about you [Recorded by Staind]. On *14 shades of grey* [CD]. New York: Elektra.
Lightweis, S. (2014). The challenges, persistence, and success of white, working-class, first-generation college students. *College Student Journal, 48*(3), 461–467.
Linkon, S. E. (2008). Stratified learning: Responding to the class system of higher education. *Diversity and Democracy, 11*(3). Retrieved from https://www.aacu.org/diversitydemocracy/2008/fall/linkon
Malcolm, J. (2005). Class in the classroom. *New Directions for Adult and Continuing Education, 2005*(106), 45–52.
Merriam, S. B. (2008). Adult learning theory for the twenty-first century. *New Directions for Adult and Continuing Education, 2008*(119), 93–98.
National Center for Education Statistics. (2009). *Projections of educational statistics to 2018, table 11: Actual and middle alternative projected numbers for total enrollment in all degree granting postsecondary institutions, by sex, age, and attendance status: Fall 1993 through fall 2018*. Retrieved from http://nces.ed.gov/pubs2009/2009062_1.pdf
Nesbit, T. (2005). Social class and adult education. *New Directions for Adult and Continuing Education, 2005*(106), 5–14.
Oxford Dictionary. (2016). *Working class*. http://oxforddictionary.com
Reay, D. (2003). A risky business? Mature working-class women students and access to higher education correspondence. *Gender and Education, 15*(3), 301–317.
Rose, M. (2005). *The mind at work: Valuing the intelligence of the American worker*. New York: Penguin.
Saliers, E. (1989). Closer to fine [Recorded by Indigo Girls]. On *Indigo Girls* [CD]. New York: Epic. (1988).
Snyder, D. D. (1985). Be chrool to your scuel [Recorded by Twisted Sister]. On *Come out and play* [CD]. New York: Atlantic Records.
Soto, R. (2008). Race and class: Taking action at the intersections. *Diversity and Democracy, 11*(3). Retrieved from https://www.aacu.org/diversitydemocracy/2008/fall/soto
Stuart, M. (2000). Beyond rhetoric: reclaiming a radical agenda for active participation in higher education. Stretching the Academy: The Politics and Practice of Widening Participation in Higher Education, Leicester: NIACE.
Tripp, D. (1993). *Critical incidents in teaching: Developing professional judgment*. New York: Routledge.
White, J. W., & Lowenthal, P. R. (2011). Minority college students and tacit "codes of power": Developing academic discourses and identities. *Review of Higher Education, 34*(2), 283–318.

Chapter 3
The St. Andrews Sustainability Institute: Fostering Sustainability in a Cold Climate

Jan Bebbington

Abstract This chapter provides a description of, and reflection upon, the creation and life of the St Andrews Sustainability Institute as a way of exploring the potential for institutions of higher education to foster sustainable development. The Institute was established in 2007 and has been led by the author of this chapter in partnership with a wider group of sustainability academics within the University of St Andrews, as well as a cohort of non-academic employees—critically senior managers and members of the University's estates function. This chapter contains the reflections of one individual and hence suffers, as all such attempts to understand recently history do, from too close a perspective. However, I hope that this narrative might uncover the complexity inherent in attempting to create capability and capacities to tackle sustainable development issues within a Scottish higher education institution.

Keywords St Andrews Sustainability Institute • Higher education • Scotland • Sustainable development

Contextualization

This chapter will describe and reflect upon the St Andrews Sustainability Institute (hereafter SASI) in order to explore the potential for institutions of higher education to foster sustainable development (hereafter SD). In order to start this task, this introduction will contextualize SASI's work from the perspective of Scotland, a devolved country within the United Kingdom (hereafter UK). In the mid 2000s, the UK enjoyed a period where SD and its attendant social, economic and environmental aspects were well supported by various Government processes. Critically, in 2005, the UK Government re-confirmed its commitment to SD via the publication of *One future—different paths: The UK's shared framework for Sustainable*

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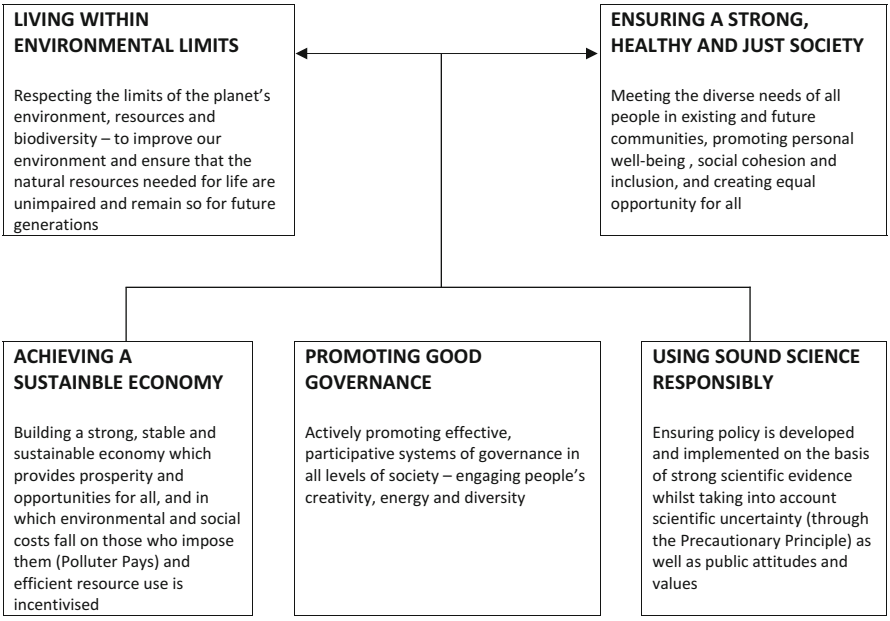

Fig. 3.1 The United Kingdom framework for sustainable development. *Source*: Public Domain: Scottish Executive (2005, p. 9)

Development (Department for Environment, Food and Rural Affairs, 2005) that created a common basis for the various sub-national Governments to shape their own SD strategies (within Scotland, see Scottish Executive, 2005).[1] See Fig. 3.1.

The Framework warrants comment. Firstly, there are two outcomes that are to be achieved in concert: living within environmental limits; and ensuring a strong, healthy and just society (in many ways pre-figuring the framing offered by Rockstrom et al., 2009; Raworth, 2012). The three enabling aspects at the bottom of the Framework—achieving a sustainable economy, promoting good governance and using sound science responsibly—are conceived of as supporting these two outcomes. As a result, the Framework cannot be said to reflect 'triple bottom line' thinking because the economy has ceased to be an outcome in and of itself. Rather, the design of economic systems enables the other outcomes (a clear implication of this framing is that the economy is not currently designed with SD in mind).[2]

[1] Technically, this framework remains the current UK Government's position on SD. However, it would be fair to say that the framework (at the United Kingdom level) is all but forgotten and plays no active part in current UK Government policy (see www.jonathonporritt.com/sites/default/files/users/By%20No%20Stretch%20of%20the%20Imagination%2027.05.15.pdf for an evaluation). In contrast, there is some echo of SD thinking in the Scottish Government's performance framework (see www.gov.scot/About/Performance/scotPerforms).

[2] See also Jackson (2009) which poses questions for how we might achieve a sustainable economy and the problematic nature of economic growth (see also Victor, 2008).

Secondly, the Framework differed significantly from the previous UK Government framing (published in 1999), where four goals were identified for SD: social progress which recognizes the needs of everyone; effective protection of the environment; prudent use of natural resources; and maintenance of high and stable levels of economic growth and employment. Some of these goals could be seen to be in competition with each other and no prioritization was offered as to which goal mattered the most (although the economic goal 'trumped' the others in realpolitik).

Finally, the new framework had an active role in driving strategy development processes which themselves led to various programs of Government policy making (the details of which are beyond the scope of this chapter but include, as their logical extension, passage of Climate Change Acts in both the UK and Scotland which enshrine significant emissions reductions into domestic legislation).

For the purposes of this chapter, however, it is important to realize that in 2007 (when SASI was founded) the 'mood music' within broader policy domains was positive with respect to SD and conceptions of sustainability were relatively radical (reflecting a 'strong' sustainability position—see, for example, Ekins, Simon, Deutsch, Folke, & de Groote, 2003). With this in mind, the chapter now addressed how SASI was created and what activities have been undertaken during its life to date.

SASI and Related Activities

The University of St Andrews, named after the town on the east coast of Scotland where it is based, is one of 19 higher education institutions in Scotland and has a long history (founded in 1413, it is the third oldest university in the English speaking world). The town has approximately 17,000 permanent residents, so although the University is small, with approximately 7,500 students, it constitutes a large proportion of the town's population. The student cohort is international in nature (some 30 % of students come from overseas) and the University consistently performs well in teaching and research rankings (for example, in the QS World Rankings 2015/2016 the University of St Andrews was ranked 68th in the world, its ninth year in succession in the world's top 100 universities—see, http://www.topuniversities.com/university-rankings).

The 'groundwork' that enabled SASI was created via an existing inter-disciplinary undergraduate program in SD (graduating its first cohort in June 2008). The basis on which individuals knew each other, therefore, was through teaching collaborations rather than research initiatives, although is not to suggest that SD linked research is absent within the University (see Table 3.1 for some examples).

The University 'invested' in SASI for 3 years by way of: (1) providing a teaching fellow to allow the Director to be relieved of teaching so that she could focus on developing SASI (making up approximately a third to a quarter of the Directors' total work load); (2) a half time administrator to provide support for the Director (for the creation of a website and supporting workshop organization); (3) a small annual budget to host workshops, seminars and invite speakers to the University;

Table 3.1 Examples of SD related institutes/centers at the University of St Andrews

Institution	Brief outline
Centre for Research into Ecological and Environmental Modelling	… links researchers from the Schools of Mathematics and Statistics, Biology and Geography and Geosciences, with a remit to develop and apply advanced mathematical and statistical methods to practical problems in biology, ecology and geography
Centre for Social and Environmental Accounting	… is an international membership-based network that aims to mobilize accounting scholarship to enable a more sustainable society
Institute for Environmental History	… undertakes research and teaching in the history of science, medicine, technology, and the environment
The Scottish Oceans Institute	… is an interdisciplinary research institute studying the marine environment, which forms a key focus for research excellence in marine-related science

Source: Public Domain drawn from the website of the University of St Andrews (http://www.st-andrews.ac.uk/research/university/centres/)

and (4) some seed corn money to enhance library provision in SD related books and journals. This investment was to be 'paid back' within a 5-year period by an associated increase in revenue to the University from SASI's activities.[3] Intimately linked to SASI's creation and the financial case was the requirement that an MSc program in SD be developed (the first cohort for this program commenced in 2009/2010).

SASI was also underpinned by some design principles. Firstly SASI was not to become an 'empire' and hold financial resources beyond its original investment. If SASI activities generated income, it was to be passed onto academic schools without any 'top slicing' (for example, the teaching income from the MSc was passed to those who undertook the teaching). Secondly, SASI was based in one school, whilst its director was a member of a different school.[4] This was to ensure that the interdisciplinary nature of SD was recognized at the outset. Thirdly, membership of SASI was not restricted to academic staff as it sought to create a forum where operational and academic staff could interact. The need for the University of St Andrews to 'walk the talk' of SD was thus hardwired into SASI's function from the outset. Finally, SASI was to be a coalition of the willing and a ground up activity rather than part of any strategic plan by the University. All of these aspects (as will become apparent) yielded benefits but they also created problems for SASI to navigate.

[3] This was achieved with the payback arising towards the end of the fourth year after investment. By then, however, the senior manager who had authorised the initial investment had left the University, so it was unclear whom to direct information about this achievement to: part of the loss of institutional memory that is described later in the chapter.

[4] SASI was hosted, along with the undergraduate SD program, in the School of Geography and Geosciences. Subsequently, two departments were created within this School, with the SD programs currently within the Department of Geography and Sustainable Development (see https://www.st-andrews.ac.uk/gsd/).

With these principles in mind the activities undertaken by SASI are not described in detail, but a summary of various types of activity are provided.

From the outset, SASI prompted engagements that might not otherwise have taken place, by working to develop themes of interest, sourcing speakers for events, supporting the administration of the events and providing funding for lunches/teas/coffees. The themes of the events included:

- Corporate social responsibility issues for the mineral resources industry (linking anthropologists, management, geography and legal scholars);
- Reframing scholarship and practice in light of the emerging United Nations' SD Goals (linking across disciplines as well as between educators/scholars and the management of the University);
- Higher education in a carbon constrained world,[5] especially in the context of an economy that relies on international students (as a cross Scotland conversation);
- Carbon accounting as part of an emerging engagement with researching low carbon transitions within Scotland (involving the University's estates and management teams, and the local regional council);
- The intersection between SD and the humanities (including colleagues from anthropology; art history; history; English, film studies and modern languages);
- The relevance of earth systems science for SD (led by geography, geoscience and biology staff);
- Ideas around global commons (led by colleagues from international relations); and
- An introduction to energy/fuel cells research (led by colleagues from chemistry).

These were largely one-off events and it was hoped that they might prompt further engagement that did not rely on further SASI input. On reflection, it seems that while people are happy to connect and learn about each others' interests, without any real cash on the table to encourage further collaboration or fund pilot projects, these types of event (useful and appropriate though they are) do not necessarily yield longer term benefit.

Two examples, however, spring to mind where initial SASI connections supported further interdisciplinary research activity. Firstly, a workshop on changing behavior lead to funding (from the University of St. Andrews and the Carbon Trust—a UK body that supports low carbon transitions) for a project to explore how energy saving behaviors at the workplace could be enabled. The University formed the base for a social psychological longitudinal study which involved an intervention that lasted for 12 weeks. The differential effects of information on relative energy saving performance and rewards for reductions were documented, as well as staff views on energy saving (for the report on the project see, www.st-andrews.

[5] SASI members also collaborated on a film that was sent to a conference as a keynote in lieu expending carbon emissions for travel, framed as low carbon intellectual renewal. A summary of this experiment can be found here: www.st-andrews.ac.uk/sasi/research/projects/biodiversity/#d.en.53479).

ac.uk/sasi/research/projects/energy/). The ultimate 'client' for this work was the University itself in terms of how it might engage staff in energy saving behavior.

The second project explored the connections, not always readily apparent, between craft and SD (see http://www.st-andrews.ac.uk/sasi/research/projects/craft/#d.en.46521):

- How craft provides opportunities to display concern for material sourcing and the relationship of 'the maker' with the natural world;
- How craft can contribute to the reconfiguration of the economy towards a new understanding of prosperity and re-localization that includes elements other than merely 'economic' ones;
- How craft can 'save' traditional knowledge and practical skills, and therefore help to maintain cultural capital;
- The intersection between craft and biodiversity (through a partnership between Craft Scotland and the Royal Botanic Gardens Edinburgh).

Academic papers (see Ferraro & Reid, 2013; Ferraro, White, Cox, Bebbington, & Wilson, 2011) emerged from this collaboration, which has a life in the ongoing research agendas of the collaborators.

Two more SASI activities warrant highlighting. The first involved funding various 'big name' speakers to come to the University and deliver public lectures (often in combination with smaller group sessions with students prior to the public lecture). These were undertaken to provide a broader benefit to the University and the town of St Andrews, as well as to raise the profile of SD thinking. Speakers included political figures (such as the previous UK Environmental Minister, Michael Meacher and Rhodri Morgan, the First Minister for Wales); academic experts (including founding members of sustainability science such as Tim O'Riordan); business leaders (such as the SD lead for a telecom business) and practitioners (including a professional film maker who specializes in capturing polar images for television programs).

Also, SASI supported 'making it real' workshops, which sought to link the impacts and management of the University of St Andrews to SD principles. This activity emerged in the early SASI meetings, where the need to be within an institution that 'walked the talk' as a SD researcher was strongly supported, and where members of the University's estates team, as well as some senior managers, exhibited strong organizational leadership with respect to SD (see www.st-andrews.ac.uk/environment/importantinfo/sustainabledevelopmentpolicies/ for a summary of the considerable variety of interlinked policies and activities in this space). The boundary between SASI contributions and organizational commitment in these contexts is impossible to determine, but synergy that these interactions engendered is evident to those within the institution.

This section has sought to provide a high level summary of the types of activities that SASI has fostered, focusing on what was perceived as being the more impactful work. The next section seeks to explore the limitations and possibilities that emerged from these various activities.

Reflecting on SASI

This section was the hardest to write in this chapter, as reflecting on SASI for me is like to trying to look at the inside of my head! In addition, I have had to walk the line between despondence (which I expect many readers who seek to champion SD will feel, given the extent of our unsustainability) and optimism (without which continuing to pursue SD teaching, research and engagement would be difficult). As a result, this section poses a series of problems for SASI that reflect broader issues that might emerge for any higher education institution that is seeking to 'do' SD. These observations are not criticisms of individuals within the University or the University itself; rather, they are reflections upon what is inevitably an incomplete journey towards SD (which is a complex goal and a long way off). The two issues that are explored are: those of the initial SASI 'design' and the impact of the loss of the institutional memory of this; and those regarding the intellectual ownership of SD.

A number of the initial design principles led to dysfunction later in SASI's life. While the decision not to create an empire was sound, if SASI had more of a standalone existence there might have been greater incentive for it to have secured (in particular) research funding of its own and to have therefore become more independent of its host School. In particular, once SASI emerged from the initial 3 year funded period (in terms of cash, but more importantly in terms of dedicated staff time), supporting SASI activities became more difficult. The School providing the Director (naturally) came to question the value they were obtaining from supporting time input to SASI, while the host School (especially as leadership changed) were puzzled by a member of staff from outside their School having influence over an Institute that they felt they 'owned'. This is the type of conundrum that I expect many distributed endeavors experience and might be particularly evident in bodies that seek to be interdisciplinary in nature (as one might expect with SD).

At the supra-School level, a loss of institutional memory about SASI, along with shifting University priorities, also affected the perceived benefits of SASI. At times the managers of the University (again, naturally) were surprised to find that a group of academics held strong views about organizational matters and believed themselves to have 'standing' in policy and practice matters. Likewise, latterly there was a (retrospective) desire for SASI to have facilitated a large research collaboration and its 'failure' to have done so was seen as a sign of a lack of traction for SD work (despite this not being a founding objective). The changing expectations of SASI's role, arising from the loss of institutional memory is a risk that many interdisciplinary bodies within higher education face: the ability to negotiate this risk is key to the long-term success of such bodies.

In addition to practical issues, intellectual aspects of SD also affected SASI's traction within the University. A survey of SD research (by the University via a series of interviews with Heads of Schools) yielded some interesting views. Various School heads saw that they had knowledge and expertise to offer on SD related topics (for example, conservation biology) but they did not wish to frame this work in terms of SD. Rather, there was a desire to retain the SD title for work that was 'truly'

interdisciplinary in nature, rather than being strongly embedded in a discipline. The reasons offered for this related to how disciplines viewed interdisciplinary work (with the fear that such work would be seen as being of lesser value), as well as the desire not to 'over-sell' existing work as being SD unless it crossed over disciplines. This means that SD work may 'fall between the cracks' in a university with a strongly discipline-based organizational structure.

In contrast, at other times it seemed that SD suffered from 'over-ownership'. That is, occasionally some disciplines expressed a belief that they are the best guardians of SD thinking within the University, and any attempts by other disciplines to engage with this concept were seen as 'stepping on toes'. This tension comes to the fore, for example, in the awarding of PhD degrees in SD which (conceptually) might be possible from several Schools, but which are currently awarded from a single School. Likewise, a sustainability science reading group (see Kates et al., 2001 for a general introduction and Bebbington & Larrinaga, 2014 for an accounting exploration) created tensions, as some SD scholars did not believe that this approach to SD was appropriate. While one of the perceived strengths of SD might be the plurality of perspectives it generates, this might also be a problem if any group believe there is a 'right sort' of SD. I suspect that the question of who 'owns' what 'sort' of SD knowledge is not unique to the University of St Andrews.

If these observations seem to be more critical than might be warranted, it is worth noting that we can't know what the University might have looked like without SASI. As such, the concluding comments offered below are more 'upbeat' in nature.

Concluding Comments

The first 8 years of SASI's existence has involved an emergent process whereby there has been a sustained attempt to build SD capacity (brick by brick) in the University of St Andrews through an interdisciplinary institute. As with much in life, it is hard to be clear about the success (or otherwise) of this attempt. Having said that, some concluding observations are offered.

SASI initiated and helped to sustain personal and professional interconnections between a cohort of scholars and practitioners for whom the pursuit of SD is part of their core mission. At times SASI activities have directly contributed to the individuals' ability to undertake their work, while at other times it has offered personal support for ongoing engagement. From the privileged position of having been SASI's Director, I can assert that I have made many good and enduring friendships (as well as professional connections) through SASI, which I can't imagine I would have been able to do solely from within the bounds of my own School. These connections have enlivened and improved my in-discipline scholarship as well as allowing for some interdisciplinary work to emerge that I would not have otherwise had the skills and knowledge to undertake.

The support from SASI members for the University to 'walk the talk' around SD has had some impact on the performance of the University. The skill and dedication

within senior management and the estates function was core to this outcome, but I believe that the support of individual staff has made this broader institutional journey easier.

A handful of activities/projects can be demonstrably linked to SASI support, including the setting up of the MSc in SD, as well as some research projects/collaborations. These activities have value and ongoing resonance with those who have been involved in them, as do the various public lectures that were attended by staff, students and the local community.

Being the Director of an interdisciplinary institute has prompted my thinking about how such institutions might flourish within the relatively chilly landscape of discipline focused higher education institutions. From observing similar institutes and conversing with leaders of these bodies I have built a skeletal 'contingency model' about what makes for successful SD/interdisciplinary, university-based initiatives. I would suggest that the coincidence of a number of aspects support/enable the 'SASIs of the world'.

Firstly, a community of like-minded people who are motivated by the aims of SD and who see their scholarship and teaching as being directed to this wider goal is necessary in order to create capacity for a SD institute. This group needs to be willing to contribute time to joint efforts that might not directly benefit them (for example, to come to workshops and talks to support collective conversations). In short, generous colleagues are necessary to create a community of interest around SD activities.

Secondly, the 'lift' that comes from a vigorous and enthusiastic student cohort (at undergraduate, taught postgraduate and research postgraduate level) sustains personal and professional enthusiasm for SD. The impact of students is not just in supporting events or creating capacity to undertake activities (the University of St Andrews student led activities are a significant part of its SD initiatives), but they also invigorate those of us who are motivated by the teaching component of our jobs.

Thirdly, staff and student enthusiasm is enhanced by observable research/teaching/operational successes. The University of St Andrews has participated and won awards in national SD related competitions, which has the twofold effect of both encouraging future efforts and legitimating SD work in the eyes of senior managers.

Finally, working within a university that is recognizably 'walking the talk' with respect to the SD impacts of its operations makes for a practical hope that higher education can contribute to wider societal transitions. Undertaking this work in a country that is also trying to tackle SD problems and who sees its public institutions as partners in that process is even more enabling (but not always guaranteed).

This combination of factors can be found and fostered in any kind of university (I don't believe that there is a 'quality' profile at work in this context) and are sufficient for me to believe that higher education institutions can be a force for innovation. While these aspects are necessary, there is at least one further requirement that I believe is essential for progress. Specifically, and crucially, such efforts also require sustained investment by universities themselves, aimed at obtaining external funding to support research in SD itself (or a plan to self-fund such a body in perpetuity). In this respect, while much can be achieved by developing capacity across the board, at some stage a 'step change' intervention is necessary. It is this last aspect that I believe is still ahead for SASI and the University of St Andrews.

Key Chapter Concepts

Enabling conditions for higher education to contribute to sustainable development include:

1. Communities of like-minded people to imagine and create change;
2. Enthusiastic support of students to energize the process;
3. Sustainable development teaching/research successes to build capacity to do more and enjoy further success; and
4. Institutions that 'walk the talk' and sustain investment in SD capacity building across all aspects of scholarship; teaching and operational performance.

References

Bebbington, J., & Larrinaga, C. (2014). Accounting and SD: An exploration. *Accounting, Organizations and Society, 39*(6), 395–413.

Department for Environment, Food and Rural Affairs. (2005). *One future—different paths: The UK's shared framework for SD*. London: Defra.

Ekins, P., Simon, S., Deutsch, L., Folke, C., & de Groote, R. (2003). A framework for the practical application of the concepts of critical natural capital and strong sustainability. *Ecological Economics, 44*(2–3), 165–185.

Scottish Executive. (2005). *Choosing our future: Scotland's SD strategy*. Edinburgh: Scottish Executive.

Ferraro, E., White, R., Cox, E., Bebbington, J., & Wilson, S. (2011). Craft and SD: Reflections on Scottish craft. *Craft + Design Inquiry, 3*, 1–26.

Ferraro, E., & Reid, L. (2013). On sustainability and materiality: Homo Faber, a new approach. *Ecological Economics, 96*, 125–131.

Jackson, T. (2009). *Prosperity without growth: Economics for a finite planet*. London: Earthscan.

Kates, R., Clark, W., Corell, R., Hall, M., Jaeger, C., Lowe, I., et al. (2001). Sustainability science. *Science, 292*(5517), 641–642. doi:10.1126/science.1059386.

Raworth, K. (2012). *A safe and just space for humanity*. Oxford: Oxfam.

Rockstrom, J., Steffen, W., Noone, K., Persson, A., Chapin, F. S., Lambin, E. F., et al. (2009). A safe operating space for humanity. *Nature, 461*(7263), 472–475. doi:10.1038/461472a.

Victor, P. (2008). *Managing without growth: Slower by design not disaster*. Cheltenham: Edward Elgar.

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Chapter 4
Classroom and Community Partners: The Ethics and Morality Inherent in Sustainable Practices

Rosemary Papa

Abstract The economic, political, and cultural elements that comprise global policies and their effect on individuals, and the greater society of nation/states is the contextual setting to this chapter and the role all educators should acknowledge: the ethical and moral values embedded in today's classrooms especially in teaching sustainable practices. This chapter examines sustainability, the role of educators in the classrooms, and within their local communities. Community involvement action when bridged to moral valued actions that educators teach and model, as extension of the family, can serve as the bridge for all citizens of planet earth to move to the ethically valued actions that will sustain earth and thereby, the well-being of all future generations.

Keywords Sustainable practices • Schools and university classrooms • Community involvement • The ethics of the common good • The moral values of the individual • The role of educators

Forecasting the Earth's Future

> In the final analysis, our most basic common link is that we all inhabit this small planet.
> JFK@JFKsaid

Is the greatest threat to our species, ourselves? An intentional ethical drive for a common good, a world-wide good in protecting the planet earth and all its inhabitants, is the vehicle that can encompass the learning through moral values in our schools and universities.

The complexity of life on planet earth is undermined by political and economic issues that deny a common good approach and instead pursue the route of self-agenda

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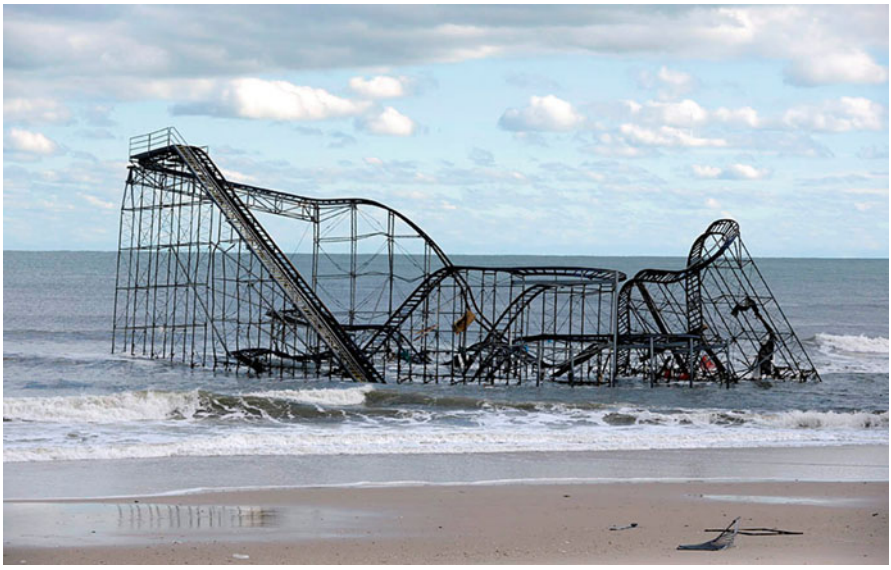

Fig. 4.1 Evidence of climate change. Los Angeles Times photo October 29, 2012

to ensure personal wealth on a reckless path for others and the planet. The predominance of economic perspective denies the wealth gap that is getting worse world-wide. As Tienken (2014) describes, policy makers seem to be sabotaging the economy from within with poor planning and lack of attention to sustainability issues (p. 11). The WEF-World Economic Forum (n.d.) researchers provided a foreboding warning to tone-deaf politicians as described by Schwab in 2012:

> The United States shows middling results in both social and environmental sustainability, which results in a slightly lower score in the sustainability adjusted GCI [Global Competitiveness Index] than in the GCI itself. The country's social sustainability score is affected by increasing inequality and youth unemployment. However, it is the score in the environmental sustainability…that is a concern for the country's sustainable prosperity. (Schwab, 2012, p. 60)

Economic competitiveness, productivity, and efficiencies often leave out the stakeholders from the field of education. Economic forecasting is based on competitive methodology that offers educators few areas of impact. The 12 pillars of competitiveness predicated by the World Economic Forum (n.d.) are assumptions that define competitiveness as:

> The *set of institutions, policies, and factors that determine the level of productivity of a country*. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates (World Economic Forum, n.d., p. 1).

In other words, a more competitive economy is one that is likely to grow faster over time. The twelve competitive indexes that measure prosperity are found in Table 4.1.

Table 4.1 The 12 competitive indexes

1. Institutional environment	7. Labor markets efficiency
2. Infrastructure	8. Financial market development
3. Macroeconomic environment	9. Technological readiness
4. Health and primary education	10. Market size
5. Higher education and Training	11. Business sophistication
6. Goods market efficiency	12. Innovation

Author created from the World Economic Forum (n.d., p. 1)

A perspective left out of the economic forecast Competitive Indexes is the use of the Gini Coefficient. The World Bank (2015) uses the Gini Coefficient to include the analysis of poverty in the economic equation of production and efficiency. The basic description of the Gini index is that it measures the distribution of income among individuals/households "within an economy deviates from a perfectly equal distribution" (The World Bank, 2015, p. 1). Papa and English (2014) translate the Gini Coefficient as "a way to describe and measure the degree of social distance disparity between the 'haves' and 'have not's" (p. 12). It is intended to measure income inequality or disparate wealth distribution among a nation/states population compared to similar nation/states. The role of income and consumption of goods is at the heart of this statistical analysis. Using this method would ensure a measure of social capital inclusion among countries.

Former Vice President and Nobel Laureate Al Gore contends that we must exponentially make the transition to "a low-carbon civilization" (Gore, 2014, p. 86). Much quicker than anticipated has been the conversion from sunshine into much cheaper energy. He notes that the utilities, especially the Koch brothers, are fighting back with carbon-based lobbyists and mis-information about solar. "The most controversial of their initiatives is…on persuading state legislatures and public-utility commissions to tax homeowners who install PV solar cell on their roofs" (p. 88). Gore draws connections to the Syrian civil war and "related drought was an underlying trigger" (p. 92) as well, "from the year-round fires in California to flash floods in the U.K. to life-threatening smog in Beijing…the devastating effects of burning fossil fuels are here" (Gore, 2014, p. 93). He has hope for the planet earth and expressed it this way:

> How long will it take? When Martin Luther King Jr. was asked that question during some of the bleakest hours of the U.S. civil rights revolution, he responded, "How long? Not long. Because no lie can live forever…How long? Not long. Because the arc of the moral universe is long, but it bends toward justice," (Gore, 2014, p. 93).

As educators, we must acknowledge that we promote change through our school and university classrooms. And, as Gore has hope related to climate change, we too can address sustainable living which will respond to the issues of equity and justice. The broader questions on how we serve all our students with equity and justice we are doing at the macro level. To translate to the micro level, the individual becomes an explicit decision within our curriculum and treatment of students that encompasses the practices of sustaining the living planet we inhabit. Datnow (2013)

believes to seriously support underserved students that all stake holders, research scholars to policy makers, must be inclusive in pursuing social justice for all students.

The Josephson Institute of Ethics (2002) describe the ability to make ethical decisions. Josephson portends that taking choices seriously, therefore ethically, "generates trust, demonstrates respect, responsibility, fairness and caring and is consistent with good citizenship" (p. 16).

We, as educators can agree that an expression of good citizenship is community involvement: the community must be included in the advocacy to protect the planet locally. We now explore sustainability and its meanings that encompass the cultural, economic, and political arenas.

Sustainability Means…

> Treat the earth well: it was not given to you by your parents, it was loaned to you by your children. We do not inherit the Earth from our Ancestors, we borrow it from our Children.
> Ancient [American] Indian Proverb

The word itself *sustainability* has been diffused in its meanings by the practices that are associated with it. The Merriam-Webster Dictionary defined sustainable as, "capable of being sustained" (p. 1) and "a. of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged, i.e., sustainable agriculture" (p. 1) and "b. of or relating to a lifestyle involving the use of sustainable methods, i.e., sustainable society" (2015, p. 1). The origins of the word are Latin and Old French. A more recent definition comes from the World Commission on Environment and Development (WCED) as "sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs" (1987, p. 42).

Other researchers (Meadows, Randers, & Meadows, 2004) have embraced the above definition as well, as "the most common definition" (Nolet, 2016, p. 4) which is also known as the Brundtland definition of sustainability (Nolet, 2016, pp. 42–43). Nolet posits that the Brundtland definition is framed around needs, especially those peoples in poverty. He further contends that the Brundtland perspective raises the following questions:

> Whose development matters? (1) Do those who have benefited from development have a right to tell those who have not "too bad, you are out of luck?"; (2) Do future generations have a right to the same opportunities we've experienced?; (3) What does it mean to meet ones needs?; and, (4) Who are the future generations? (pp. 42–43).

The Earth Charter originally began as a United Nations initiative that through a decade-long global process was officially launched June 29, 2000, by what is called the Earth Charter Commission (Earth Charter International, 2012). The Earth Charter is "an ethical framework for building a just, sustainable, and peaceful global society in the 21st century" (p. 1). It promotes global interdependence, a vision of hope, a shared responsibility for future generations, as well, a call to action on the

part of all citizens in the world. This organization is the promotion of a sustainable way of life.

What are the political and economic realities that we face in the promotion of a sustainable global life for all on our planet? Davis and Helburn (2013) believe that due to the growth of world markets through globalization of production that sustainability must encompass the whole world as "economic growth is an essential business objective…today all national economies are, to some extent, integrated into the capitalistic world economy" (p. 13). As noted by White (2013) sustainability is:

> An ethical goal that sustainable development strives to reach: Economic and social growth that (a) does not exhaust carrying capacity, (b) respects and safeguards the economic, cultural, and natural environment, (c) creates many incomes and chains of enterprises, (d) is nurtured by public policy and, (e) builds indigenous institutions that involve and empower citizens (White, 2013, p. 36).

Nolet (2016) states that education for sustainability "aims to help learners develop new ways of thinking, collaborating, and solving problems…to effectively engage…the challenges" (p. 8). He goes on to say that sustainable education is based locally with connections to global issues. For understanding sustainability, one must have knowledge on the local community context and the options available for living in a sustained way. The micro in-community context gives us the moral vehicle to shape our community towards sustainability with the role of the educator paramount.

The macro global context is the ethical reason for acting sustainably. For example: the *great human migration* is not to be overlooked and has fundamental roots in climate change. As of the writing of this chapter millions of humans are migrating: from Central Africa through the Middle East and Russia into Europe, and Central America to the U.S. As the poem called *Home* by Somali poet Warsan Shire wrote:

> No one leaves home unless / home is the mouth of a shark. You only run for the border / when you see the whole city / running as well…no one puts their children in a boat / unless the water is safer than the land. (See Alam, September 2, 2015, stanza's 1 and 4; TheGuardian.com, 2015).

These families and their children are among the millions of children not in school, fleeing the pervasive drought, extreme weather brought on by climate change. This brief mentioning of this crisis is not to underscore its impact but to refocus this chapter on locality.

Community Involvement Means…

> Never doubt *that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has*. Margaret Mead

Hargreaves and Shirley (2012) describe community involvement "as inclusive community leadership widens the circle of trust out to parents and community members increasing their support for children and their learning and schools improving achievement and attendance" (p. 145).

In 2004, Facing the Future (2015) estimated that the "U.S. citizens comprised less than 5 % of the earth's population" (Hibbard, Wheeler, & Church, 2004, p. 36). Today, it is estimated that we comprise less than 4.5 % of the earth's population "yet consume 20 % of its energy" (World Population Balance, 2015, p. 1).

As educators we are actively teaching students for a minimum of 12 years and possibly up to 20 years and more of a student's life. This affords us the opportunity to influence their sense of "personally responsible citizenry" (Westheimer, 2015, p. 28). Personal responsibility is where education plays a primary role in the teaching of values and morals that emphasize sharing and caring. Active learning strategies and practices found in most classrooms around the world, especially through multi-media tools, translate for our students the capability for a participating citizen especially when tied to moral development through active learning practices. When we teach using groups we are developing the capacity for inter-relatedness among peers. When we use cross-grade fertilization strategies such as sixth graders in first grade classrooms working with students, we are emphasizing inter-relational support. How we deal within a classroom or on a school bus with bullies becomes a learning tool for anger management and protection of all students in expressing that all students matter.

Each student has the same moral value and this can be taught within schools and universities. See Appendix for an example with young students. Caring for the common good is critical, as is the understanding of development in an ethical barometer that schools can cultivate in their practices and modeling of these values. Our ethical posture is for the greater good while moral values are the individual's sense of self and others. Makiguchi viewed a "value-creating life as a genuinely happy one that benefits the self and society" (Makiguchi edited by Goulah & Gebert, 2014, p. 87).

Figure 4.2 is the depiction by Facing the Future of the macro perspective of global issues and sustainable solutions. This 501c3 is now housed at Western Washington University.

Given the overconsumption of the developed countries, the ability to turn around this global disaster, we are told as educators repeatedly that we must be more globally competent and that testing and rigid standards in a narrowed curriculum is what is needed to be economically competitive. Figure 4.2 displays the results of a solely capitalistic economic perspective: it has created the 'haves' and 'have not's.' As the population grows, consumption increases, natural resources decline, which leads to increased scarcity, poverty, conflict and discrimination. All of these factors explain the global migration that is occurring due to the scarcity of water and drought, leading to lack of food, etc.

In Joel Spring's 2nd edition (2015) book titled *Globalization of Education* he furthers the ill effects on how global capitalistic economics as found in global corporatization of education, the World Bank economic education model, profit opportunities in higher education are all evidence that lead to the clash of civilizations and the global migration of international and national refugees. He analyzes

Fig. 4.2 Facing the future depiction of global issues and sustainable solutions. *Facing the Future: Global Issues and Sustainable Solutions.* Reproduced by permission of Facing the Future

various theories, such as the 'haves' and 'have not's' as postcolonial and critical race theories, while world education culture theorists view the spread of Western culture ideas as a positive. He contends that Western ideas also cover human rights, and democracy.

An educated society where men, women, girls and boys are educated is a United Nations goal. Spring is not so sure and believes that no single theory will encompass the global role of education world-wide. He believes that future research in global education must rest in our examining our own blinding paradigms and Morin's principle of rational uncertainty is at this point in time evidence of the unpredictability of human nature when describing the globalization of education.

I contend that working locally within our communities can empower the individual citizen as an expression of personal morals to the ethical greater good and move beyond recognition of the problems to actions taken collectively. How does a modeling of sustainable practices at the community level look?

Modeling Sustainable Practices in Classrooms and with Community Involvement

> We need to strengthen the conviction that we are one single human family.
> Pope Francis

Einstein once said, "[t]he significant problems we face cannot be solved with the same level of thinking we used to create them." Aldo Leopold through his writing in 1949, *Land Ethic*, during the mid-twentieth century and considered to have "set the stage for the modern conservation movement" (The Aldo Leopold Foundation, n.d., p. 1), believed that the idea of community as ethics directing moral individuals to cooperate with others mutually beneficial "should be enlarged to include non-human elements such as soils, waters, plants, and animals" (p. 1).

The Cloud Institute (1995–2015) and the *Journal for Sustainability Education* founded by Jaimie Cloud believes the key route to building sustainable communities is in "the creating of new patterns of relationships between schools and their communities that acknowledge Education for Sustainability as inextricable from sustainable community development" (J. Cloud, personal communication, October 24, 2015). The mission statement for the Cloud Institute is found in Table 4.2.

The Cloud Institute Community Connections are being reconceived at the time of this writing. Table 4.3 offers what is now available for public review until February 2016, in building community relations with schools. There are four main categories that were established by a group of experts world-wide: (1) Schools and communities learn and work together in partnership; (2) Schools serve as resources to the community; (3) Communities serve as resources to the schools; and, (4) Schools and communities celebrate and reflect together.

So how might a local community effort become organized? I offer one such effort, the Sustainability Alliance of Sedona, Arizona. It is a local community exam-

Table 4.2 The mission of the Cloud Institute

We monitor the evolving thinking and skills of the most important champions of sustainability, and transform them into educational materials and a pedagogical system that inspires young people to think about the world, their relationship to it, and their ability to influence it in an entirely new way
We believe that K-12 education can substantially influence beliefs, attitudes, values, and behaviors related to sustainability. This is the most fertile ground for helping to shape a society committed to sustainable development
We develop in young people and their teachers the new knowledge and ways of thinking needed to achieve economic prosperity and responsible citizenship while restoring the health of the living systems upon which our lives depend

Author created table from the Cloud Institute Mission (1995–2015) found at http://cloudinstitute.org/our-mission/

Table 4.3 Cloud Institute community connections draft

Schools and communities learn and work together in partnership
Develop sustainable community visions and re-visions over time
Conduct needs assessments and map community assets
Co-design and implement short and long term projects and programs that are mutually beneficial to partners, are inclusive of all stakeholders and are participatory in nature
Develop, measure and monitor SMART (Specific, Measurable, Achievable, Realistic and Time Bound) goals and Sustainable Community Indicator Sets. Schools data is embedded in social, ecological and economic indicators sets
Evaluate progress (read the feedback), reflect, adjust, and continually improve performance
Schools serve as resources to the community
Students and Teachers make authentic contributions to sustainable community development through service learning opportunities, project-based and place based learning opportunities for students that are laterally and vertically embedded in the core curriculum
School buildings and grounds serve the whole community as learning hubs for continuing education of individuals as well as school and community stakeholders to learn together for the future they want
School buildings and grounds serve the whole community as places to celebrate
Communities serve as resources to the schools
Local community based organizations, service organizations, local government agencies, boys and girls clubs, local businesses, Elderhostel's, parks and reserves, state and national forests, residential centers, nature centers, zoos, museums, 4-H clubs, scouting organizations, etc. provide:
Internships to students
Mentorships to students and faculty
Independent and curriculum based learning sites (case studies, learning journeys, research sites)
Physical spaces for school and community stakeholders to learn and work together for the future they want
Physical spaces for school and community stakeholders to celebrate together
Schools and communities celebrate and reflect together
School and community stakeholders:
Publicly recognize individual and collective successes and their progress toward green school and sustainable community goals on an ongoing basis at events and in the media
Regularly celebrate their successes and their progress toward green school and sustainable community goals, and celebrate the learning that comes from worthy failures

J. Cloud (personal communication, October 24, 2015), reprinted with permission

ple of what a small number of committed individuals can do. The following case study (see Table 4.4) is the story of this community's journey to connect the community to the schools.

Other examples of comparable sustainable movements are found in many communities. Some examples across the U.S. are: the Hawaii Farmers Union United (n.d.) focused on farming in Hawaii; the Rangeland and Natural Resources Management (N. S. Lowe, personal communication on Rangeland and natural resources management consulting, September 1, 2015) in the Four corners Southwest United States; The Rocky Mountain Seed Alliance (n.d.) a movement to grow local foods; etc. These are just a few mentioned but speak to all the resources a small committed community group and its schools and universities can bridge to locally.

Table 4.4 The Sustainability Alliance of Sedona Arizona

The Sustainability Alliance in Sedona, Arizona U.S. is a group of like-minded individuals/non-profits that came together in 2014 (1) to examine opportunities to improve the sustainability of the region through a multi-disciplinary, holistic approach and (2) to seek sustainable living patterns that undergird educational strategies (Hitchcock, 2015)
(This chapter is focused on the second point)
A core group of six members that represented direct service providers and educators came together to serve as a local platform for schools/universities to understand and practice sustainable strategies. The leader of this group is an industry expert that had also developed ties with community businesses to connect local business efforts, e.g., refuse management, recycling, etc. The first year focus led to a needs assessment of both teachers and administrators in the state of Arizona, U.S. In response, the *Sustainability in Schools* game was created for administrators and teachers to discover which sustainability practices had a good return on investment, both economic and social capital, and how to weave them into the curriculum. The practices included projects in: Food, Waste, Water, Energy, and Purchasing. The goal for this game is to get students, teachers, staff, and administrators to integrate sustainability practices into school operations and use those practices as learning opportunities. The game, piloted summer 2015 with teachers, school administrators and university faculty, is described as: an instructional game with 45 Project Cards which focus on operations that can ultimately save the school money and engage the community while teaching the teachers how to promote sustainable practices. Players explore how these sustainable practices can be woven into classroom instruction. This game is a free open access tool that can be found at and serves as an example of what a small number of community members can attain in a relatively short amount of time. The game is being constantly updated to include instructional curricular tools for teachers and administrators. This game is published under the Creative Commons license and free to use. http://sustainabilityallianceaz.blogspot.com/2015/03/sustainability-in-schools-simulation.html. The Sustainability Alliance is also working on a dashboard of community sustainability metrics, a sustainable business certification program, and a sustainable entrepreneurship micro loan program for schools

Conclusions

Throughout this chapter most of the globalization impacts are coming to us through technological tools which have opened up the avenue of global conversation on the impacts of human actions and the effects the earth is showing us. Technology can be a two-edged sword, one that leads us to greater information and awareness, while at the same time, as stated by Frazen (2015) in a New York Times Book Review of Sherry Turide's new book titled *Reclaiming Conversation: The Power of Talk in a Digital Age*, "her book is a straightforwardly…call to arms…digital technology has led to an atrophying of human capacities like empathy and self-reflection" (Franzen, 2015, p. 22). We use technology to measure the impacts of record-breaking heat waves, long-term drought, and "increasingly extreme superstorms…becoming the new normal" (Zinn, 2015, p. 5) all of which renders climate change as our greatest challenge.

This chapter explored how ethical and moral actions speak to a common good sustainable future for all citizens. The educator's role is both in the macro and micro approaches: the developing moral values inherent in having students practicing, e.g., composting and gardening, etc., to understand these are actions that will reduce the carbon footprint that they can own as theirs. Interdependency limits the satisfaction of human needs is the macro view. Our ecological dependency on each other is more and more understood through the internet. We as educators must help students of all ages to learn that the macro-ethical level leads to practices at the micro-moral level in promoting inter-dependent balance for the earth and its inhabitants.

Key Chapter Concepts

1. Sustainability practices include ethical (global macro issues) and moral (self and others) values for educators
2. Ethics for the greater good, common good approach to globalization at the macro social capital and economic perspective
3. Moral values for self and others, is the individual in relationship to others in classrooms and the local environment
4. Classroom and community partnerships is the local way to begin building sustainable practices at the micro and macro level

Resources

1. Facing the Future
   Western Washington University under the direction of Victor Nolet is now the new home of Facing the Future. This site features hands-on curricular practices for Kindergarten through university. https://www.facingthefuture.org/
2. The Sustainability Alliance of North Central Arizona
   This site offers free information and tools to work within this local community. http://www.sustainabilityallianceaz.org/p/news.html
3. The Cloud Institute for Sustainability Education
   This site offers educators at all levels consulting, coaching, professional development, curriculum design, assessment, mapping, alignment for schools and community partnerships. http://cloudinstitute.org/
4. Gardens for Humanity
   This site describes itself as: gives our children and all members of our community the values, tools and experiences needed to seek and regain balance with the natural world. http://gardensforhumanity.org/
5. Story of Stuff
   Offers cute and insightful YouTube videos on human needs to consume goods https://www.youtube.com/watch?v=9GorqroigqM&noredirect=1

Appendix

Teaching Activity on the Morality of Sharing with Limited Resources in an Early Childhood Classroom

An activity that met with success in one teacher's room provided the students with an opportunity to share their rationale for how to share limited resources or commodities. The teacher brought in one sealed plastic bag of individually wrapped taffy candy. If counted singly, the amount would have been enough for each person in the room to have one piece, leaving two extra. At the beginning of the lesson, the teacher made a very big show of having only one bag of candy by dramatically looking for another bag that was never found. Then, just as dramatically, the teacher placed several handfuls of candy on the desks of students who were sitting closest to the area of distribution quickly running out of taffy pieces as the third row of students looked on. With no candy left in the bag, the teacher apologized for not having enough for the entire class reiterating that it was unfortunate that there was no more to be found. As the teacher retells the story, the hush in the room sounded thunderous. The children (10 and 11-year-olds) were faced with the dilemma of fairness. Almost immediately, the children who had been given several pieces went directly to the classmates who had none and shared from their abundance. When it was realized that there were two extra pieces, the teacher found that they had been placed back into the plastic bag. No one took more than one piece of taffy. Using discussion questions that helped the children describe their actions and emotions, the teacher elicited responses that helped the children describe their need for equality and justice. The sense that everyone in the classroom should enjoy the same measure of sweetness was a lesson that held transfer to other areas of the curriculum. Teacher and students understood the need for integrality and transfer from one area to another and more importantly, that each student had a role to play in the universal acceptance of the process. This lesson was built on the premise that students deeply care about each other after they have come to know each other. As students share their family structures, neighborhoods, cultures, and uniqueness, they come to recognize unifying aspects. They wish to meet each other's needs even at personal loss.

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References

Alam. (2015). *Home by Warsan Shire.* Retrieved from http://seekershub.org/blog/2015/09/home-warsan-shire/

Ancient Indian Proverb. (1996). Quotes of Our Native Past: *Ancient Indian proverb*. Retrieved from http://www.ilhawaii.net/~stony/quotes.html

Cloud Institute. (1995–2015). *Mission*. Retrieved from http://cloudinstitute.org/our-mission/

Datnow, A. (2013). Equity-driven educational change. In H. J. Malone (Ed.), *Leading educational change: Global issues, challenges, and lessons on whole-system reform*. New York: Teachers College Press.

Davis, J. E., & Helburn, S. (2013). Economics and sustainability. In J. E. Davis & R. A. Diem (Eds.), *Sustainability, growth, and globalization: A social science perspective* (pp. 7–33). Charlotte, NC: Information Age Publishing.

Earth Charter International. (2012). *Values and principles to foster a sustainable future: The earth charter*. Retrieved from http://www.earthcharterinaction.org/content/pages/Read-the-Charter.html

Facing the Future. (2015). *About us*. Retrieved from https://www.facingthefuture.org/AboutUs/AboutUs/tabid/98/Default.aspx#.Vi5ugSuVkmc

Franzen, J. (2015). Left to our own devices. *New York Times Book Review, 1*, 22.

Gore, A. (2014). The turning point. *Rolling Stone*, 1212/1213, 84–93.

Goulah, J., & Gebert, A. (Eds.). (2014). *Tsunesaburo Makiguchi (1871–1944): Educational philosophy in context*. New York: Routledge and Teachers College Press.

Hargreaves, A., & Shirley, D. (2012). *The global fourth way: The quest for educational excellence*. Thousand Oaks, CA: Corwin and Ontario Principals Council.

Hawaii Farmers Union United. (n.d.). *Hawaii farmers union united: Mission statement.* Oahu: HFUU Pamphlet.

Hibbard, D., Wheeler, G., & Church, W. (2004). *Global issues and sustainable solutions: Population, poverty, consumption, conflict, and the environment*. Seattle, WA: Facing the Future.

Hitchcock, D. (2015). *Proposed sustainability targets for greater Sedona*. Sedona, AZ: Sustainability Alliance.

JFK@JFKsaid. (n.d.) *JFK said*. Retrieved from https://twitter.com/jfksaid

Josephson Institute of Ethics. (2002). *Making ethical decisions*. Retrieved from http://www.sfjohnson.com/acad/ethics/making_ethical_decisions.pdf

Margaret Mead. (2001–2015). Brainy Quotes: *Margaret Mead*. Retrieved from http://www.brainyquote.com/quotes/quotes/m/margaretme100502.html

Meadows, D., Randers, J., & Meadows, D. (2004). *Limits to growth: The 30-year update*. White River Junction, VT: Chelsea Green.

Merriam-Webster Dictionary. (2015). *Sustainable*. Retrieved from http://www.merriam-webster.com/dictionary/sustainable

Nolet, V. (2016). *Educating for sustainability: Principles and practices for teachers*. New York: Routledge.

Papa, R., & English, F. (2014). *Framing an international imaginative framework: Educational leaders without borders*. Retrieved from http://www.educationalleaderswithoutborders.com/who-we-are.html

Pope Francis. (n.d.). *Encyclical letter Laudato si'of the Holy Father Francis on care for our common home* (p. 14). Rome: Libreria Editrice Vaticana. Retrieved from http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

Rocky Mountain Seed Alliance. (n.d.). *Grow local*. Retrieved from www.rockymountainseeds.org

Schonaerts, C. E., & Papa, R. (2016). Creating magical moments to reveal student learning and universal acceptance of each other. In R. Papa, D. M. Eadens, & D. W. Eadens (Eds.), *Social justice instruction: Empowerment on the chalkboard*. New York: Springer.

Schwab, K. (Ed.). (2012). *The global competitiveness report 2012–2013*. Geneva: World Economic Forum. Retrieved from http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf

Spring, J. (2015). *Globalization of education* (2nd ed.). New York: Routledge.

The Aldo Leopold Foundation. (n.d.). *Leopold's land ethic*. Baraboo, WI: Aldo Leopold Foundation. Retrieved from https://www.aldoleopold.org/AldoLeopold/LandEthic.pdf

The World Bank. (2015). *Data: Gini index (World Bank estimate)*. Retrieved from http://data.worldbank.org/indicator/SI.POV.GINI

TheGuardian.com. (2015). *Poets speak out for refugees: 'No one leaves home unless home is the mouthoftheshark.'* Retrievedfromhttp://www.theguardian.com/books/2015/sep/16/poets-speak-out-for-refugees-

Tienken, C. H. (2014). Economic dominance with political incompetence. *Kappa Delta Pi Record, 50*(1), 11.

Westheimer, J. (2015). *What kind of citizen? Educating our children for the common good*. New York: Teachers College Press.

White, C. S. (2013). Sustainability in the arenas of power: An exploration of public policy. In J. E. Davis & R. A. Diem (Eds.), *Sustainability, growth, and globalization: A social science perspective* (pp. 7–33). Charlotte, NC: Information Age Publishing.

World Commission on Environment and Development (WCED). (1987). *Our common future*. Oxford: Oxford University Press.

World Economic Forum. (n.d.). *Methodology: The 12 pillars of competitiveness*. Retrieved from http://reports.weforum.org/global-competitiveness-report-2014-2015/methodology/

World Population Balance. (2015). *Population and energy consumption*. Retrieved from http://www.worldpopulationbalance.org/population_energy

Zinn, R. (2015, Spring). Food, farming and climate change: It's bigger than everything else. *For a Better World, Issues and Challenges for a Just Economy,* (10), 5–6.

Part II
Globalization: Effects of Human Beings on the Earth

Chapter 5
Beyond Neoliberalism: Education for Sustainable Development and a New Paradigm of Global Cooperation

Susan Santone

Abstract The 2015 adoption of the United Nations' Sustainable Development Goals (SDGs) represents a recommitment by the global community to advance health, equal opportunity, and an environmental protection and restoration. The SDGs specifically call out the vital role of the educational system to advance sustainability. Sustainability, and the education needed to achieve it, recognizes that all people have a shared stake in the future of the planet. Collaboration and interdependence are thus foundational principles that must drive educational policy and practice. But a different concept is wielding its influence over education: win-lose competition. This type of competition values hierarchy rather than equity, and individualism over interdependence. This mindset derives from neoliberalism, a school of economic thought focused on free markets and privatization.

This chapter will analyze the influence of neoliberal thinking on educational systems today and the implications for sustainability. The chapter outlines the rise of the neoliberal paradigm, its impacts on policies and practices, and the need for the global community to reassert education as a public good that serves the common good.

Keywords Accountability • Competition • Neoliberalism • Sustainability

Introduction

In 2015, the United Nations (UN) adopted the Sustainable Development Goals (SDGs), a set of targets for alleviating poverty, protecting the environment, securing peace, and other major global goals. Like the SDG's predecessor, the Millennium Development Indicators, the SDGs are a global effort to improve life for people, communities, and the environment that supports it all.

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The adoption of the SDGs raises a profound question for educational systems around the world: *What obligation, if any, does education have, to address these goals?* The idea that schooling should prepare citizens to create a healthy, positive future is the core of Education for Sustainable Development (ESD). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) defines ESD as a lifelong process that "allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future" (2014, para. 1).

In December 2002, the United Nations General Assembly adopted a resolution declaring a Decade of Education for Sustainable Development (the Decade) to begin on January 1, 2005. The Framework for a Draft International Implementation Scheme (2005) articulates the global vision for ESD: "a world where everyone has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation" (p. 24). The Decade advanced in ESD across the globe, with goals and implementation strategies outlined in the Global Action Program on Education for Sustainable Development (UNESCO, 2013).

The importance of ESD is embedded in the SDG's themselves. Goal 4 is to "Ensure inclusive and quality education for all and promote lifelong learning" (U.N., 2015). This goal, which emphasizes free, high-quality primary and secondary education for all, also includes this target:

> By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development (para. 2).

Like sustainable development itself, ESD is based on the principle of interdependence: the belief that people, communities, economies, and the environment (which supports it all) are interdependent (World Commission on Environment and Development, 1987). Interdependence requires global cooperation within and among communities and nations to solve common problems.

The theme of cooperation appears across sustainability and ESD policy documents. For example, Point 14 of the Aichi-Nagoya Declaration calls on all educational stakeholders to "to engage in collaborative and transformative knowledge production, dissemination and utilization" (UNESCO, 2014, p. 2).

Clearly, meeting the SDGs and the goals of ESD requires not only understanding the principle of interdependence, but also using it as the foundation of our economic and educational systems around it. This belief system and worldview define the sustainability/ESD paradigm.

But something is getting in the way of this: a paradigm built around the belief that schooling's main purpose is to prepare students to compete in the global economy. Competitiveness (in multiple forms) has become both the means and the ends of education. Economic competitiveness is the goal, with competitive individualism the strategy. An educational system built upon this mindset undermines the goals of ESD at every level, from policies to teacher preparation to classroom practices.

But is this a misguided warning? After, we need jobs, and the elimination of poverty (presumably through economic growth) is part of the SDGs goals. Moreover, competition is a central dynamic of ecological systems. Sounds good, right?

But the deeper look provided in this chapter reveals an interpretation of competition now infiltrating education is diametrically opposed to the principles of ESD. Moreover, the overwhelming value placed on economic competitiveness is also based on false beliefs about the economy's relationship to the environment. All of this is eroding social equity, the ecological systems the economy depends on, and the larger principle that education should serve the public good.

The reorientation of education to serve economic competitiveness has occurred over decades, and intensified with the proliferation of a particular economic paradigm: neoliberalism. As described, neoliberalism depends on individualism and winner-take-all competition that both creates and requires hierarchies, while shunning interdependence.

The neoliberal paradigm creates unprecedented tension between the urgency of sustainability and the relentless quest for economic growth. To what extent will society be able to meet sustainability goals if we are preparing our children to serve economic ones? The answer may lie in the questions we pose of our educational system: *What do communities need from citizens?* This question will yield a very different response than a question that asks: *What does the economy need from its workers?*

This chapter does not dismiss the important link between education and the economy. There is a widely shared understanding that students must learn skills that can translate into meaningful employment. For example, the Organization for Economic Co-operation and Development (OECD) highlights the need for schools to ensure students develop "the skills necessary to achieve their full potential" (OECD, 2013, p. 3). This means that businesses are legitimate stakeholders in the educational system. However, having an economic *interest* in education is different that defining an economic *agenda*. This chapter will examine the difference. The analysis will explore competing economic-educational relationships, what each interpretation prioritizes, and the implications for educational policy and practice.

The term 'competition' derives from the Latin *competere*, meaning, "to strive for" (Skeat, 1885, p. 345). *What, exactly, are we striving for?* This chapter illuminates the consequences of our answer.

The chapter unfolds in five sections: It begins with an overview of neoliberalism and its core beliefs and assumptions. Next, the chapter traces the rise of this thinking in the field of education since the 1950s. Third, the chapter will present ways neoliberal-style competitiveness plays out in curriculum and test-based accountability. The chapter then compares these practices with the tenets of ESD. Finally, the chapter looks at global efforts to reclaim education as a public good, and offers an alternative interpretation of competition to help us get there. While the chapter foregrounds U.S. examples, it also provides global context.

Neoliberalism

Neoliberalism is an agenda of economic and social transformation guided by the principles of free markets and limited governmental intervention (Connell, 2010; Hursh, 2005). Neoliberalism grew out of the Keynesian school of economics developed by the British economist John Maynard Keynes to address the Great Depression of the 1930s. One aspect of the Keynesian approach is the use of public policies to stimulate demand, achieve full employment, and stabilize prices (Jahan, Mahmud, & Papageorgiou, 2014). Keynesian economics dominated the post-World War II period through the early 1970s, a time when workers, women, and people of color struggled for equal rights and higher wages (Bowles & Gintis, 1986). While this was an era of stable economic growth, increasing wages and rights among workers contributed to a drop in the growth rate of profits. Between 1965 and 1974, "businesses' net rate of profit fell by more than 50%" (Parenti, 1999, p. 118, as cited in Hursh, 2005).

In an effort to restore profits, corporate and government officials embraced neoliberal ideas and promoted policies emphasizing deregulation and reduced governmental intervention. Most relevant to this chapter is the neoliberal push to bring public goods (such as education) into the private sphere. In this mindset, public systems are inherently inefficient because they limit choice and inhibit individual effort by promoting a 'welfare state' mentality. Markets presumably fix this problem by promoting competition to efficiently allocate scarce resources, free from the fetters and artificial constraints of government.

Neoliberalism, which reigns today as the dominant global economic paradigm, is based on a set of deep-seated assumptions about the definition of success, how to measure it, and who deserves it.

A core premise of neoliberalism is that unlimited growth is both desirable and possible. Growth is the goal, and success is measured in short-term, quantitative terms, such as daily stock prices, quarterly profits, or the Gross Domestic product. These measures are removed from larger social and ecological systems—relationships that neoliberalism (or most economic theories) do not account for.

Another tenet is individualism.[1] In neoliberal thinking, individual effort pays off and that those who are *successful* have worked the hardest. Likewise, those who are *unsuccessful* deserve it due to character deficits such as a weak work ethic. This is deficit thinking, a way of understanding the world that recasts social problems (such as inequality) on the defects and failures of individuals (Pearl, 1997; Royce, 2009; Ryan, 1976).

Deficit thinkers believe there is a norm (which they define) and that 'those' people are exceptions due to 'impoverished cultures,' bad parenting, or other self-made ills. In a deficit mindset, income gaps create incentives for individuals to work harder. Competition thus becomes necessary for success, and the role of institutions such as schools is to prepare people to compete (Davies & Bansel, 2007).

[1] *Individualism* (the defiance of interdependence) is distinguished here from *individuality* (the uniqueness of each person).

The Domination Mindset

Neoliberalism rests on two other core concepts: zero-sum competition and hierarchy (people to people, and people to the rest of the natural world). Zero-sum competition is based on the belief that a winner demands many losers. Because only one can win, others are a threat. Relationships are adversarial, and individuals must be constantly vigilant (Porter & Mykleby, 2011). In this paradigm, freedom is defined as autonomy from social constraints, destroying the very idea of community (Daly & Cobb, 1989). Zero-sum competition thus creates and relies on hierarchies, a mentality of domination in which winning is the deserved reward of competition (Martusewicz & Edmunson, 2005).

The concept of domination also extends to the way human view their relationship with the rest of the natural world, i.e., other species and abiotic (nonliving) elements of the environment. The idea that humans are superior to all other beings, and that nature is here to serve humans, is known as anthropocentrism. Anthropocentrism and the domination mentality are reflected in the way neoliberalism (and most other schools of economic thought) frame the relationship between the economy and the environment.

Any economic textbook is likely to contain a model that identifies the environment as one of three factors of production: land, labor, and capital. This model ignores the fact that the economy exists within the environment. In fact, the environment serves as the ultimate source of all materials, and the ultimate 'sink' into which all wastes go. Wastes may change chemically or physically from the original material (e.g., petroleum [a liquid] which turns into carbon emissions [a gas] when burned). Therefore, it is impossible to throw anything 'away.' But neoliberalism ignores this, and instead dismisses environmental and social impacts as 'externalities' (Daly & Farley, 2007).

Neoliberalism further ignores the fundamental role of the environment through accounting systems that do not recognize the value of life-sustaining ecosystem services, such as the provision of food, energy, water, and oxygen (Costanza et al., 1997). Neoliberalism dismisses the environmental or social impacts of economic activity as 'externalities' or 'market failures' (Daly, 1980; Daly & Farley, 2007).

Social Darwinism: Deficit Thinking to Explain Inequalities as Natural

One of the first lessons in ecology is that species compete for limited resources, and natural selection results in 'survival of the fittest' (Darwin, 1859). But since the 1800s, this ecological principle has been applied to social, political, and economic realms to rationalize human-created hierarchies (Leonard, 2009). The phrase Social Darwinism has become shorthand for rationalizing inequality using an ecological analogy: as with others species, some people are 'fitter' than others.

The use of Darwinian analogies emerged in the late nineteenth century, roughly paralleling the rise of industrialization and the resulting class stratification. Social Darwinism provided 'scientific' proof that some people are naturally superior to others, and theorists at the time concluded that social ills—from poverty to crime—were in fact *individual* problems that resulted from inheriting 'bad' genes.

These biological explanations helped spawn the eugenics movement—crudely put, selective breeding and sterilization to 'improve' the human genetic stock. Supporters of eugenics believed that forced sterilization of certain people would save society from future problems. A key leader in the movement was Charles Davenport (1886–1944), who spread his ideas in the 1910 publication *Eugenics: The Science of Human Improvement by Better Breeding*. Hitler, among others, embraced the false science to drive the Holocaust and advance the domination of the supposedly superior Aryan race.

The strongest ally of eugenics and Social Darwinism is dehumanization, "conceiving of people as other than human beings" (Smith, 2011, p. 26). Hitler, for example, compared the Jewish population to rats. Earlier, nineteenth century scientists aimed to demonstrate that African people were closer to apes than white Europeans (Fig. 5.1).[2]

The biological explanation of inequality is now discredited as 'old' science. But the notion of natural selection, supported by deficit thinking, is deeply embedded in neoliberalism. This paradigm is just as effective at justifying domination and hierarchy as the old biological beliefs did. The rise of Social Darwinism during industrialization seems no accident, and as we will see, the beliefs still cast shadows over educational practice.

The Rise of Neoliberal Values in Education

A comprehensive history of market thinking in education is beyond the scope of this chapter, so we will focus on ways the competition mindset has evolved since the latter part of the twentieth century, beginning with the Cold War.

The Soviet launch of the Sputnik satellite in 1957 sparked paranoia in the U.S. that it would lose the space race. Leaders became urgent about the need to compete on scientific grounds in the service of pubic defense. The National Defense Education Act of 1958 allocated a billion dollars to science education (Abramson, n.d.). In the zero-sum thinking of the Cold War, winning is necessary for national security.

As noted, neoliberal approaches to economics took hold in the 1970s as a means to bolster the growth of corporate profits, which lagged during the Keynesian era. By this time, the educational system was under the microscope as a key factor in

[2] At least in the US, these narratives continue to surface as part of ongoing police brutality against African-Americans, particularly men. For example, the social media hashtag "#chimpout" was widely used to describe the supposedly ape-like behavior of Blacks protesters.

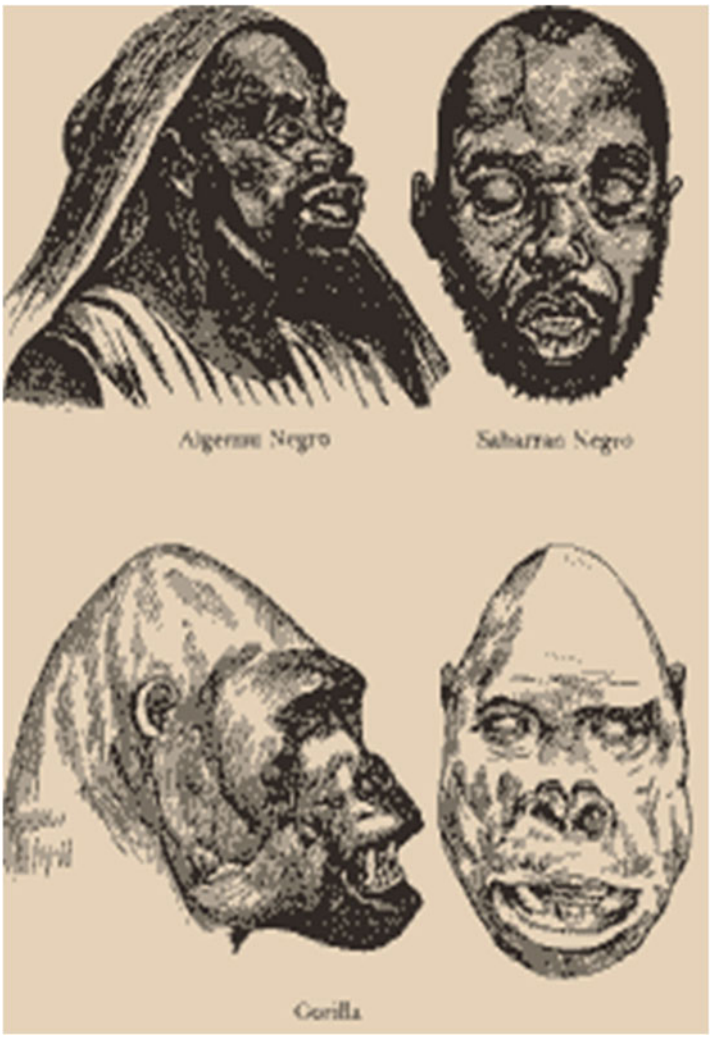

Fig. 5.1 Illustrations from *Types of Mankind. Source*: Nott and Gliddon (1854). This work is in the public domain

economic decline, and the business sector placed blame on the education system for not delivering the skilled workforce needed to compete (Apple, 2001; Furlong & Phillips, 2001). The applications of neoliberalism to education deepened in the 1980s, impacting policies for training, standards, and funding (Davies & Bansel, 2007; Waslander, Pater, & van der Weide, 2010).

To gain public support, neoliberal 'reformers' used disadvantaged students as poster children. Pointing to glaring race-and class-based 'achievement gaps,' reformers spoke endlessly of the dire need to rescue these children from failing public schools. Privatization, vouchers, and competition were sold as a scheme to

give poor families choices. Ongoing discourse about 'choices' groomed families to see themselves as consumers, schools and businesses, and public governance as a bureaucratic inefficiency.

Needless to say, grossly unequal educational outcomes certainly require intensive action. Moreover, choice is important, and no student should be trapped in a school that is not meeting her/his needs. The critique here is aimed at the way neoliberal thinking uses these inequalities and the jargon of 'choices' to justify the dismantling of education as a public good. Policies to support communities and public institutions are rarely part of the equation.

The themes of economic competitiveness and global dominance became prominent in the US with the 1983 publication of *A Nation at Risk* by the National Commission on Excellence in Education. The report begins:

> Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. This report is concerned with only one of the many causes and dimensions of the problem, but it is the one that undergirds American prosperity, security, and civility (para. 1).

The report then explicitly identifies the threats posed by others:

> We live among determined, well-educated, and strongly motivated competitors. We compete with them for international standing and markets … America's position in the world may once have been reasonably secure with only a few exceptionally well-trained men and women. It is no longer (para. 6).

A Nation at Risk opened the door to increased business intervention in educational systems, a phenomenon that was also occurring in other countries throughout the 1980s. With the pace of globalization increasing, governments responded with education policies designed to promote competitiveness and serve the needs of the market (McGregor, 2009). These policies include the privatization of educational services, vouchers, and deeper corporate involvement in defining metrics and accountability. In addition, the rise of standardized testing and curriculum has created a $1 trillion educational market in the U.S. alone (Educational Industry Association, n.d.). Corporate giants such as Pearson are increasingly dominating both the U.S. and global markets (Ravitch, 2015).

'Accountability' became another rallying cry, with schools and teachers blamed for the persistent achievement problems at the center of the reform debate. Improving achievement for all students is a laudable and widely shared goal, and accountability to students and communities must be part of this. But instead of adopting approaches to support struggling schools and communities, the U.S. passed into law a punitive test-and-punish policy, the 2001 *No Child Left Behind Act* (NCLB).

NCLB introduced an accountability system that required schools to annually increase test scores among demographic subgroups or face an escalating set of consequences, culminating in restructuring or even closure. The law was passed with bipartisan support based on the shared understanding that public schools were not serving the needs of all students, particularly low-income students of color. The resulting policy, designed to combat the *soft bigotry of low expectations*, thrust schools into a high-stakes, no-excuses climate built upon two narratives: (1) public

schools must boost academic achievement regardless of external factors such as poverty, and (2) schools are failing because of a lack of accountability (Sirota, 2013). As further explained in the next section, NCLB and its punitive mindset are based on deficit thinking and serve to replicate inequality.

More recently, the most significant manifestation of the competition mentality in the United States is the 2009 Common Core State Standards initiative developed under the aegis of the National Governors Association Center for Best Practices (NGA) and the Council of Chief State School Officers (CCSSO, 2010). Law prohibits the federal government from defining or mandating national standards.

While most everyone agreed that raising expectations was important, the development of Common Core became a political lightening rod. Critics pointed to the lack of transparency and the role of private and corporate interests in the development process. Since the federal government could not pay for the initiative, the Gates Foundation, among others, stepped up to the plate. According to Diane Ravitch,[3] a vocal opponent of Common Core, Gates (as of 2014) had given $200 million to the NGA, the CCSSO, and private nonprofits such as Achieve, a 'reform' organization focused on standards and accountability (Achieve, n.d.; Strauss, 2014). Founded in 1996 by governors and business leaders, Achieve is an example of the corporate-governmental partnerships that paved the way to Common Core.

While the standards were technically defined at the state level, the Obama administration provided incentives for states to adopt them through *Race to the Top*, a $4 billion competitive grant program. *Race to the Top* rewarded states for accountability reforms, including "adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy" (United States Department of Education [USDOE], 2015, p. 1). These standards were widely understood to mean Common Core.

Like *Race to the Top*, the standards tout the goal of 'college and career readiness,' but clearly have a larger economic purpose. Consider the mission statement:

> The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy. (National Governors Association Center for Best Practices [NGA Center] and the CCSSO). (see Youthbuild, 2014, p. 1)

This message is explicit in the very mission statement of the U.S. Department of Education (USDOE), prominently displayed on the Department's homepage in 2016: *Our mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access*. Here, equity is an afterthought, not the central goal. In the eyes of the USDOE, having students who are 'prepared for the future' is a necessity not for global problem solving or advancing the SDGs, but for economic competitiveness.

[3] Ravitch, an architect of neoliberal reforms, served as Assistant Secretary of Education under Secretary of Education Lamar Alexander from 1991 to 1993. In 2010 she renounced her earlier work and has since become one of the fiercest critics of policies she once championed.

The economic purpose of education is also at the center of *U.S. Education Reform and National Security*, a March 2012 report sponsored by the Council on Foreign Relations. The document highlights the threat and risk posed by the presumed failure of the educational system. In discussing the purpose of education, the report notes, "… the state of America's education systems has consequences for economic competitiveness and innovation" (p. xiii). The document adds that

> [S]tudents are leaving school without the math and science skills needed for jobs in modern industry … By almost every measure, U.S. schools are failing to provide the kind of education our society will need to ensure American leadership in the twenty-first century (Foreword, p. x).

To highlight the threats this poses, the report warns that "educational failure puts the United States' future economic prosperity, global position, and physical safety at risk," adding that the country "will not be able to keep pace—much less lead—globally unless it moves to fix the problems it has allowed to fester for too long" (p. 58).

The importance of education for national security as outlined in these reports is undeniable. But these reports position education as a bulwark and force to deploy against global threats, not a means to developing citizens in a sustainable and democratic society.

Current Manifestations of Neoliberal Values

The decades-long rise of neoliberalism has brought us to a place where deficit thinking and competition have turned into a neat justification for the frenetic race for quality schools and curriculum. Labaree (1997) sums it up well:

> [Education] is a private good that only benefits the owner, an investment in my future, not yours, in my children, not other people's children. For such an educational system to work effectively, it needs to focus a lot of attention on grading, sorting, and selecting students. It needs to provide a variety of ways for individuals to distinguish themselves from others-such as by placing themselves in a more prestigious college, a higher curriculum track, the top reading group, or the gifted program (p. 48).

Market thinking means that success, and the quality education it depends on, are necessarily scarce commodities that force us to see each other as adversaries. The accompanying values and mindsets—hierarchy, deficit thinking, and ranking-and-sorting—are now manifested in the education system through curriculum, classroom practice, and test-based policies.

In terms of curriculum, low-income students in the US are more likely to experience low-level courses and rote pedagogy that emphasizes test preparation and compliance over meaningful content and critical thinking (Anyon, 1981). Structural inequalities in school funding compound the problem. In the 2012 report noted, the USDOE's Office of Civil Rights documented that many high-poverty schools receive less than their fair share of state and local funding, leaving students in high-poverty schools with fewer resources than schools attended by wealthier peers.

Likewise, low-income students are also less likely to have qualified teachers, advanced courses, and access to technology. At the international level, researchers likewise found that access to quality math curriculum hinged on income, and that wealthier students enjoy greater access to more challenging curriculum (Schmidt, Burroughs, Zoido, & Houang, 2015).

Low-income students also struggle under the burden of lower expectations from teachers—a strong predictive factor for graduation and other achievement indicators. For example, researchers in the Netherlands found that teacher expectations in place at the end of primary school strongly predicted secondary school outcomes. In the U.S., secondary teachers have lower expectations for students of color and students from disadvantaged backgrounds. These teachers predicted that high-poverty students were 53 % less likely to earn a college diploma than their more affluent peers. While the researchers postulated that the low expectations might have been based on students' progress to date, the influence of teachers' beliefs is undeniable.

The combination of weak curriculum, rote pedagogy, and low expectations prepare students for low-level jobs, thus replicating socioeconomic inequalities.

Test-and-Punish Continues in the U.S.

No Child Left Behind aimed for students in all subgroups (including English Language Learners) to be proficient by 2013. Of course, the goal was not met, and NCLB came under increasing fire from many sides of the political spectrum. Despite the criticism, Duncan held onto the idea of competitiveness. In a 2013 New York Times article, Duncan notes, "If we've encouraged anything from Washington, it's for states to set a high bar for what students should know and be able to do to compete in today's global economy" (Hacker & Dreifus, 2013, para. 5).

In 2015, the U.S. replaced NCLB with the Every Student Succeeds Act (ESSA). The fierce debates leading up to its passage centered on persistent achievement gaps and how to close them. But rather than shifting to a different approach, ESSA maintains testing as the centerpiece of accountability, albeit with some modifications, such as more control by the states (The White House Office of the Press Secretary, 2015).

Few educators would disagree that accountability is important. But test-based policies breed a hierarchy of clear winners and losers. The punitive consequences of low scores make testing efficient mechanisms to sort winners from losers. The parallels to Social Darwinism are not hard to see: punitive testing serves as 'natural selection' to determine the 'fittest' schools, students, and communities.

Test-and-punish policies also ignore a dominant factor that determines student achievement: household income levels. A 2011 study showed that (1) achievement gaps based on economic inequality now exceed those based on racial inequality, and (2) family income is by far the biggest predictive factor in a student's educational achievement (Reardon, 2011). Moreover, the concentration of poverty in US schools is increasing. Between 2006 and 2013, the number of students in high-poverty

school districts (in which more than 20 % of children live below the federal poverty line) increased from 15.9 million to 24 million (Brown, 2015).

These figures illuminate that the so-called 'achievement gap' is really an 'opportunity gap.' Students in poverty are less likely to have health care, stable housing, or access to enrichment activities such as music lessons or sports leagues (Rothstein, 2008). As noted, such students are also more likely to receive a substandard education in terms of rigor and teacher expectations.

Policies to address this might include equalizing funding, investing in community services, or revamping the curriculum. But in the neoliberal mindset, these approaches are irrelevant because poverty is an individual, not social, problem. This deficit mentality blames low achievement on lazy students, apathetic parents, bad teachers, and poorly managed schools. This drives policies designed to punish. Under NCLB, for examples, schools that did not meet Annual Yearly Progress faced an escalating series of consequences that could ultimately result in firing all staff and turning over management to for-profit company.

While individual effort and teacher quality are certainly factors, deficit thinking disconnects individuals from their larger social and cultural contexts. This yields an incomplete view of the problem. Improving education is of course a shared priority, but as education historian Diane Ravitch points out, "We will not make our schools better by closing them and firing teachers and entire staffs" (n.d., para. 5).

What About PISA (The Programme for International Student Assessment)?

No discussion of competition and international education would be complete without an examination of PISA, an international benchmarking initiative that compares the academic performance of 15 year-olds in multiple countries. The OECD began work on PISA in the mid-1990s, and the first survey took place in 2000.

The PISA test results rank countries based on achievement, and at first glance this may seem like yet another example of neoliberalism. However (at least on paper), PISA aims to improve education policies and outcomes based on the valid notion that countries can learn from each other. The PISA results are supposed to highlight common international educational challenges, and compare best practices to spur improvements within countries (OECD, n.d.). The question they ask is: *What can we learn from each other to improve education for all?* And, not, *How can I beat you?*[4]

In terms of an economic angle, PISA is explicit about connection between the economy and education. But rather than foregrounding competitiveness as the goal, the 2103 report (of 2012 results) explicitly positions social and individual wellbeing as the purpose of economic success. As the OECD notes, "Equipping citizens with

[4] Despite this admirable mission, policymakers in the U.S. (which consistently lags behind other nations) use PISA scores to justify the neoliberal policies described herein.

the skills necessary to achieve their full potential, participate in an increasingly interconnected global economy, and ultimately convert better jobs into better lives is a central preoccupation of policy makers around the world" (p. 3).

The report adds that skilled people are more likely to volunteer, be politically active, and trust others. In this way, a stable society grows from skilled citizens, and good jobs serve the ends of a better life.

ESD: A Different Set of Assumptions

The inequality required and supported by neoliberalism precludes the possibility for shared goals. Interdependence is impossible because everyone is an adversary. Education for Sustainable Development, like sustainability itself, is based on a fundamentally different set of beliefs and values.

First, ESD recognizes the fact that all people are part of social, cultural and biological communities; interdependence, not individualism, is the operating principle (Martusewicz & Edmunson, 2005). Interdependence is built upon an equity perspective, a way of viewing social problems that examines systems, connections, and structural factors rather than simply blaming individuals (Royce, 2009). An equity perspective favors educational solutions that support the development of the whole child, address institutional inequalities in society, and maintain public access to and control of schooling.

The author emphasizes that the equity perspective is not against the appropriate involvement of outside stakeholders, including businesses. New ideas can be powerful drivers of positive change. Likewise, while the equity perspective favors accountability, it believes that standardized tests are inadequate yardsticks because they cannot measure real-world problem-solving, empathy, community engagement, motivation to learn, or other factors that determine students' readiness for life and citizenship (Ravtich, 2010).

ESD also addresses social and emotional skills such as social awareness and responsible decision-making (The Collaborative for Academic, Social and Emotional Learning [CASEL], n.d.). A growing body of research in the US and internationally suggests that social-emotional wellbeing is an essential underpinning for academic success, and that families, schools and communities can all support this (Ikesako & Miyamoto, 2015).

In terms of assumptions about human-economic-environmental relationships, ESD is based on several principles:

- The environment includes all living and non-living elements that comprise the world. Humans are part of the environment. They live interdependently with other species and non-living elements of the environment such as air, water, and minerals.

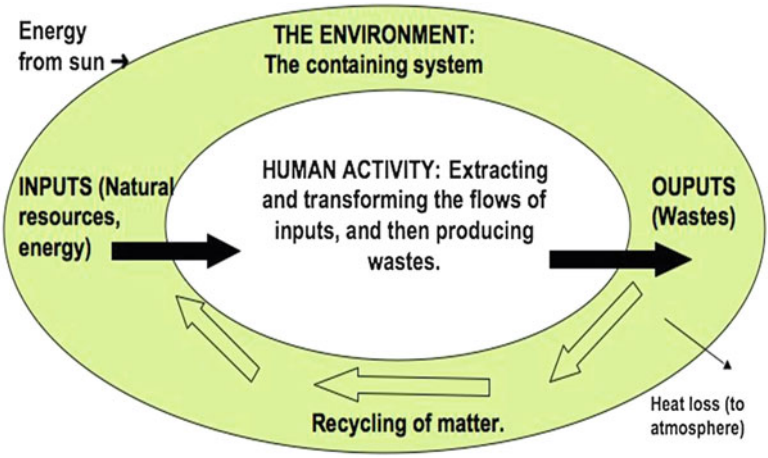

Fig. 5.2 The economy is a subsystem of the environment. *Source*: Author created and adapted from Daly (1980)

- The environment serves as the ultimate source of all materials and the final 'sink' into which wastes go. These wastes can change physically and/or chemically, but they do not go 'away' (Daly, 1980) (Fig. 5.2).

- Our wellbeing is sustained through the 'Commons': shared natural and human-created gifts, such as water, air, language, and stories, that must be passed on to future generations (On the Commons, 2011).
- *Communities* thus include human and non-human members: other species, and abiotic (non-living) elements such as air, water, and infrastructure.

The pedagogy of ESD draws upon multiple approaches, all of which emphasis experiential learning, civic engagement, and real-world problem solving (Hopkins & McKeown, 2002). These approaches include ecojustice education (Bowers, 1999), critical pedagogy (Freire, 1970), and environmental education (Orr, 2004/1994). The richness of this pedagogy demands, enables, and contextualizes academic learning to develop students as critical thinkers, active citizens, problem-solvers, and yes, workers, albeit in a sustainable economy (Barrat Hacking, Scott, & Lee, 2010; Bartosh, Tudor, Ferguson, & Taylor, 2006; Ernst & Monroe, 2004; Gruenewald, 2003; Hoody & Lieberman, 2005). Tables 5.1, 5.2 and 5.3 summarize the difference between the neoliberal and sustainability paradigms.

Table 5.1 The neoliberal and sustainability paradigms compared: beliefs about success and how to measure it

Neoliberalism	Neoliberalism in education	Sustainability	ESD (ed for sustainability)
"Developed" = industrialized. Development and economic progress are measured in quantitative terms: increases in profits, Gross Domestic Product (GDP), industrial output, etc. Short-term indicators matter most: daily stock prices, quarterly profits, annual GDP. (Daly 1980; Prugh, 1995)	Purpose of education: prepare students to compete in the global economy (Engel, 2000; Kohn, 2002; Common Core State Standards Initiative, 2011). Goals and metrics: achievement defined by test short-term test scores and other "data-driven" measures. Data and information are conflated with knowledge and wisdom (Orr, 2004/1994).	"Developed" = qualitative improvements in health, happiness, communities, etc. Economic growth can be part of development, but measures of progress go beyond the GDP. Long-term thinking: how will actions today impact the next seven generations? Change is approached cautiously. Practices that sustain the community are retained. Traditions and relationships that sustain the community are valued and preserved. Also valued: elders' experiences and non-market exchanges (Bowers 1999; Daly & Cobb 1989; Santone 2012).	Purpose of education: develop citizens for a diverse, democratic, and sustainability society. "Citizenship" implies multiple roles, including family member, community member, and worker (Apple & Beane, 1995; Banks, 2007). Achievement is based on the wellbeing of the whole child: physical, academic, social-emotional. Long-term view of success: create life-long learners and citizens in a democracy (Apple & Beane, 1995). Knowledge and wisdom take many forms (Martusewicz, et al. 2011).

Table 5.2 The neoliberal and sustainability paradigms compared: beliefs about the relationship among humans, the economy, and the environment

Neoliberalism	Neoliberalism in education	Sustainability	ESD
Anthropocentrism Nature is a collection of resources that exist for human gain. Humans therefore have the right to control and "tame" it (Bacon, 2000/1620; Merchant, 2000; Quinn, 1992). The environment is one factors of production: land, labor and capital. Unlimited growth is assumed to be both desirable and possible. Ecosystem services are not valued in accounting systems or policies. (Daly 1980).	Interdependence: humans are one of many species in a complex web of life. Communities include non-human members. "Diversity" includes cultural, linguistic, and biological diversity (Quinn 1992). The environment the basis of all economic activity. It is the source of all materials and the final "sink" into which all wastes go (Daly 1980). Economic policies and practices are based on ecological and systems principles: "waste = food," regeneration, limits, scale, feedback loops. Ecosystem services are considered in accounting and policy decisions (Costanza et al., 1997).	The curriculum separates disciplines. "Literacy" is defined by reading and math. Ecological literacy is "extra" and unrelated to other areas (Orr, 2004/1994). Environmental education focuses on "exotica" (e.g., rainforests and polar bears), sending the message that the environment is a place both far away and without people. Economics curriculum ignores the dependence of the economy on the environment, and reinforces the values of market-based capitalism (Maier & Nelson, 2007; Santone 2012).	Content is holistic, integrated and driven by what students need to contribute to a diverse, democratic, and sustainable society. Ecological literacy is co-central and connected to other forms of literacy. Economics is reframed to emphasize a sustainable economy (Orr, 2004/1994; Santone 2001, 2010, 2012). Economics emphasizes the knowledge and skills needed to advance a sustainable economy within healthy communities (Santone 2010; Santone & Saunders 2013). Concepts: environment as source/sink; Laws of thermodynamics: conservation of energy, and entropy (Daly, 1980). Analysis of paradigms and cultural beliefs.

Table 5.3 The neoliberal and sustainability paradigms compared: beliefs about the nature of the relationships among self, others, communities, and nation

Neoliberalism	Neoliberalism in education	Sustainability	ESD
Individualism is valued over interdependence. Diversity is a problem to be managed. Freedom = autonomy from community and social constraints (Daly & Cobb, 1989). Zero-sum mentality and unlimited competition: one can only win if others lose. Threats must be contained through force (Kennan, 1947; Porter & Mykleby, 2011; Quinn, 1992).	Individuals are part of ecological and cultural communities. Diversity supports community resiliency (Quinn, 1992). There is a difference among *individuality*, (the uniqueness of each person), *individualism* (prioritization of individual freedom), and *community* (existing in social and ecological relationships with others). Competitors are not necessarily adversaries, and a winner does not demand a loser (Porter & Mykleby 2011, p. 5).	Curriculum: character education emphasizes personal responsibility but ignores environmental and social responsibility, or business and institutional ethics. Economics education emphasized monetized relationships (i.e., producers and consumers) (Santone, 2010). Equity: school policies reward winners at the expense of losers. Individual teachers, students, and families are blamed for failure due to their "deficits" (Ryan, 1976). Excluding "problem" kids and "other people's children" is acceptable (Delpit, 1995; Kozol, 2005).	Equity: the health and wellbeing of students, schools, families and communities are interdependent (Rothstein 2008). Holistic approach to character and responsibility. Academic success is achievable by all, with polices based on an ethic of cooperation, mutual support, and a commitment to dismantling structural barriers to equity and achievement (Gorski, 2007; Rothstein 2008).

Global Action to Reclaim Education as a Public Good

UNESCO's historic commitment to ESD represents a high-level global effort to reorient and reclaim the educational system as a public good that serves the common good. Most recently, in 2015, UNESCO released *Rethinking Education: Towards a global common good.* This book, inspired by the original UNESCO Constitution in 1945, begins with an eloquent plea about the role of education:

> The world is changing—education must also change. Societies everywhere are undergoing deep transformation, and this calls for new forms of education to foster the competencies that societies and economies need, today and tomorrow. This means moving beyond literacy and numeracy, to focus on learning environments and on new approaches to learning for greater justice, social equity and global solidarity. Education must be about learning to live on a planet under pressure. It must be about cultural literacy, on the basis of respect and equal dignity, helping to weave together the social, economic and environmental dimensions of sustainable development. This is a humanist vision of education as an essential common good (p. 3).

The document highlights that both knowledge and education should be considered common goods available to all people "as part of a collective societal endeavor" (p. 3).

The Learning Metrics Task Force

Another, perhaps less prominent global education effort is The Learning Metrics Task Force (LMFT), convened by the UNESCO Institute for Statistics and the Center for Universal Education at the Brookings Institution. The global task force included 1700 consultation participants from 118 countries.

In 2013, the LMTF reached a consensus on the competencies needed by all children based on a set of Learning Domains that span early childhood through post-secondary education. These domains are physical wellbeing, social-emotional [health], culture and the arts, literacy and communication, learning approaches and cognition, numeracy and mathematics, and science and technology. This well-rounded list reflects the development of the whole child, focused on the "ultimate goal [of] quality education for all" (2013, p. 16).

Other recommendations in the document emphasize education as a public good. Recommendation 5, Equity, emphasizes the role of data collection for identifying and addressing inequalities, particularly within countries. Recommendation 6, Assessment as a Public Good, is an explicit recommendation that "any recommended products or services used for tracking at the global level should be considered public goods, with tools, documentation and data made freely available" (p. X). As with *Rethinking Education*, the LMTF asserts the necessity of education to remain in the public sphere.

Towards a Different Concept of Competition

Fully reclaiming education from the grips of neoliberalism will take a shift in how we think about the core topic of this chapter: competition as defined by neoliberalism. Competition is a reality, but it need not be zero-sum and based on domination. This section presents some alternative ways to think about this concept.

As noted, nature operates by the principle of competition; species compete for food, habitat, and mates to ensure survival and reproduction. But this occurs within ecological constraints (Quinn, 1992). Ecosystems remain resilient and self-renewing when competition is limited and biodiversity is preserved. Eliminating species weakens the system. Interdependence, not zero-sum dominance, is the operating principle.

Another way to reconceptualize competition is through the concepts of 'low road' and 'high road' competition (Reynolds, 2002). Low road competition focuses on winning at all costs. In an economic context, low road competition rewards externalizing environmental costs, squelching workers' rights, or compromising on safety and quality. This paradigm of competition is thus the proverbial *race to the bottom*.

In contrast, high road competition generates healthy rivalry and challenges competitors to excel. This version of competition more closely aligns with the Latin root, *competere* (to strive for). Striving is what high road competition is about: *How can I improve my educational system? How can do so in ways that take all stakeholders and impacts into account?* This framing of competition is broadly reflected in the writings Adam Smith (1776/2003), widely seen as the 'grandfather' of capitalism. Smith—and many who followed—believed that markets are healthy when they provide full transparency, internalize all costs, prevent monopolization, and provide real choices to consumers (Daly & Cobb, 1989).

High road ideals are also found in the competition outlined in *A National Strategic Narrative* (Porter & Mykleby, 2011), a document calling for a new 'story' for the U.S.—one that discards the domination mentality and instead embraces global interdependence. The report is significant because of its authors: two former high-ranking Pentagon officials, Captain Wayne Porter (U.S. Navy, retired) and Colonel Mark Mykleby (U.S. Marine Corps, retired). Porter and Mykleby served as special strategic assistants to former Chairman of the Joint Chiefs of Staff Admiral Mike Mullen.

The document critiques the dated Cold War mentality of 'threat and risk.' It emphasizes that competing countries need not be adversaries and that "a winner does not demand a loser" (Porter & Mykleby, 2011, p. 5).

The authors further make the case that global interdependence is a strength, not a weakness, and that achieving sustainable prosperity relies on engagement and diplomacy rather than force. Prosperity should not come from dominance, but from sustainable communities, renewable energy, and enduring values such freedom and justice. The report boldly declares, "Dominance, like fossil fuels, is not a sustainable form of power" (p. 5). To realize this vision, the document calls for "the prioritization

of our investments in intellectual capital and a sustainable infrastructure of education, health and social services to provide for the continuing development and growth of America's youth" (p. 13).

Finally, a new understanding of competition depends on properly seeing the relationship between the economy and society. It is a biophysical reality that the economy is contained within larger global and social systems (Daly & Farley, 2007). Likewise, students' economic skills are a subset of broader civic competencies (Santone & Saunders, 2013). Jobs are certainly crucial and schooling must prepare students to contribute to economic wellbeing. But schools must also prepare students to design an economic system to serve the planet's seven billion people while also sustaining the environment it all depends on. Viewing economic priorities in isolation from larger ecological and social systems is an inaccurate, obsolete worldview that robs our students of the knowledge they need to create a better life.

Conclusions

Education's obligation to serve the public good has given way to education as an increasingly private tool for economic growth. Driven by the values of neoliberalism, this shift has reshaped accountability policies, curriculum, and pedagogy. Instead of emphasizing collaboration towards shared goals, neoliberal approaches foster zero-sum competition, punitive consequences, and accountability schemes that sort winners from losers in the service of the economy. Too often, these reforms are justified on the backs of disadvantaged students and the promise that 'choices,' privatization, and competition will improve schools. The result (and intention) is often just the opposite.

It's time to reclaim and reorient schools worldwide to the urgent imperatives of equal opportunity and sustainability. The first steps are to recognize interdependence and to prioritize collaboration. And if we do compete, let's make sure it's healthy, fair, and an incentive for us to strive for our best. We must then call out the inherent contradiction of neoliberal-style competition and the claim that it engenders educational excellence. If healthy competition requires equal footing, hierarchy and domination actually *undermine* true competition. Neoliberalism, it seems, is in a zero-sum competition with itself.

Key Chapter Concepts

1. Neoliberalism: An economic school of thought based on free markets and a reduced role of government
2. Zero-sum competition: A type of 'either-or' competition in which a winner demands a loser.

3. High-road competition: A type of competition based on striving for higher quality and better outcomes, and the belief that multiple parties can 'win'.
4. Hierarchy: Inequalities defined by ranking
5. Deficit thinking: A way of explaining social problems as the result of individual defects

References

Abramson, L. (n.d.). *Sputnik left legacy for U.S. science education*. Retrieved from http://www.npr.org/templates/story/story.php?storyId=14829195

Achieve. (n.d.). *History.* Retrieved from http://www.achieve.org/history-achieve

Anyon, J. (1981). Elementary schooling and distinctions of social class. *Interchange, 12*(2), 118–132.

Apple, M. (2001). *Educating the 'right' way: Markets, standards, God, and inequality*. New York: Routledge.

Apple, M., & Beane, J. (Eds.). (1995). *Democratic schools*. Alexandria, VA: Association for Supervision and Curriculum Development.

Bacon, F. (2000/1620). *Novum organum*. Cambridge, UK: Cambridge University Press.

Banks, J. A. (2007). *Educating citizens in a multicultural society* (2nd ed.). New York: Teachers College Press.

Barrat Hacking, E., Scott, W., & Lee, E. (2010). *Evidence of impact of sustainable schools*. Nottingham: United Kingdom Department for Children, Schools and Families.

Bartosh, O., Tudor, M., Ferguson, L., & Taylor, C. (2006). Improving test scores through environmental education: Is it possible? *Applied Environmental Education & Communication, 5*(3), 161–169.

Bowers, C. A. (1999). Changing the dominant cultural perspective in education. In G. Smith & D. Willams (Eds.), *Ecological education in action: On weaving education, culture, and the environment* (pp. 161–178). Albany: State University of New York Press.

Bowles, S., & Gintis, H. (1986). *Democracy and capitalism: Property, community, and the contradictions of modern thought*. New York: Basic Books.

Brown, E. (2015). How student poverty has increased since the great recession. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/education/wp/2015/08/24/map-how-student-poverty-has-increased-since-the-great-recession

CCSSO. (2010). *Common core state standards initiative*. National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Office. Retrieved from www.corestandards.org

Collaborative for Academic and Social Emotional Learning (CASEL). (n.d.). *SEL competencies*. Retrieved from http://www.casel.org/social-and-emotional-learning/core-competencies

Common Core State Standards Initiative. (2011). *Common core standards initiative*. Retrieved from www.corestandards.org

Connell, R. (2010). Understanding neoliberalism. In S. Braedley & M. Luxton (Eds.), *Neoliberalism and everyday life* (pp. 22–36). Montreal and Kingston: McGill-Queen's University Press.

Costanza, R., d'Arge, R., de Groot, R., Farber, S., Grasso, M., Hannon, B., et al. (1997). The value of the world's ecosystem services and natural capital. *Nature, 387*(6630), 253–260. doi:10.1038/387253a0.

Council on Foreign Relations. (2012). *U.S. education reform and national security* (Independent Task Force Report 68). New York: Author.

Daly, H. (1980). Introduction to the steady-state economy. In H. Daly (Ed.), *Economics, ecology, ethics: Essays toward a steady-state economy* (pp. 1–31). San Francisco: W. H. Freeman.

Daly, H., & Cobb, J. (1989). *For the common good: Redirecting the economy toward community, the environment, and a sustainable future*. Boston, MA: Beacon.
Daly, H., & Farley, J. (2007). *Ecological economics*. Washington, DC: Island Press.
Darwin, C. (1859). *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*. London: Murray.
Davenport, C. (1910). *Eugenics: The science of human improvement by better breeding*. New York: Holt.
Davies, P. B., & Bansel, P. (2007). Neoliberalism and education. *International Journal of Qualitative Studies in Education, 20*(3), 247–259. doi:10.1080/09518390701281751.
Delpit, L. (1995). Other people's children: *Cultural conflict in the classroom*. New York: New Press.
Education Industry Association. (n.d.). *Frequently asked questions: How large is the education industry?* Retrieved from http://www.educationindustry.org/faq
Engel, M. (2000). *The struggle for control of public education: Market ideology vs. democratic values*. Philadelphia: Temple University Press.
Ernst, J., & Monroe, M. C. (2004). The effects of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research, 10*(4), 507–522.
Freire, P. (1970). *Pedagogy of the oppressed*. New York: Seabury Press.
Furlong, J., & Phillips, R. (2001). Introduction and rationale. In R. Phillips & J. Furlong (Eds.), *Education reform and the state: Twenty-five years of politics, policy, and practice* (pp. 3–11). New York: Routledge Falmer.
Gorski, P. (2007). The question of class. Teaching Tolerance, 31. http://www.tolerance.org/magazine/number-31-spring-2007/feature/question-class
Gruenewald, D. A. (2003). The best of both worlds: A critical pedagogy of place. *Educational Researcher, 32*(4), 3–12.
Hacker, A., & Dreifus, C. (2013). The common core: Who's minding the schools? *The New York Times*. Retrieved from http://www.nytimes.com/2013/06/09/opinion/sunday/the-common-core-whos-minding-the-schools.html
Hoody, L. L., & Lieberman, G. M. (2005). *California student assessment project phase two: The effects of environment-based education on student achievement*. Sacramento, CA: State Education and Environment Roundtable.
Hopkins, C., & McKeown, R. (2002). Education for sustainable development: An international perspective. In D. Tilbury, R. Stevenson, J. Fien, & D. Schreuder (Eds.), *Education and sustainability: Responding to the global challenge* (pp. 13–24). Gland: International Union for the Conservation of Nature.
Hursh, D. (2005). Neo-liberalism, markets and accountability: Transforming education and undermining democracy in the United States and England. *Policy Futures in Education, 3*(1), 3–15. doi:10.2304/pfie.2005.3.1.6.
Ikesako, H., & Miyamoto, K. (2015). *Fostering social and emotional skills through families, schools and communities: Summary of international evidence and implication for Japan's educational practices and research* (OECD Education Working Papers, No. 121). Paris: OECD.
Jahan, S., Mahmud, S. A., & Papageorgiou, C. (2014). What is Keynesian economics? *Finance & Development, 51*(3), 53–54.
Kennan, G. (1947). *The sources of soviet conduct. Foreign Affairs*. Retrieved from https://www.foreignaffairs.com/articles/russian-federation/1947-07-01/sources-sovietconduct
Kohn, A. (2002). The 500-pound gorilla. *Phi Delta Kappan, 8*(2), 113–119.
Kozol, J. (2005). *The shame of the nation: The restoration of Apartheid schooling in America* (1st ed.). New York: Crown.
Labaree, D. F. (1997). Are students 'consumers'? The rise of public education as a private good. *Education Week, 17*(3), 48, 38.
Labaree, D. F. (2012). *Someone has to fail: The zero-sum game of public schooling*. Cambridge, MA and London: Harvard University Press.

Leonard, T. C. (2009). Origins of the myth of social Darwinism: The ambiguous legacy of Richard Hofstadter's social Darwinism in American thought. *Journal of Economic Behavior and Organization, 71*(1), 37–51.

LMTF—Learning Metrics Task Force. (2013). *Toward universal learning: A global framework for measuring learning* (Report No. 2 of the Learning Metrics Task Force). Montreal and Washington, DC: UNESCO Institute for Statistics and Center for Universal Education at the Brookings Institution. Retrieved from http://www.brookings.edu/research/reports/2013/07/global-framework-measuring-learning

Maier, M., & Nelson, J. (2007). *Introducing economics*. Armonk, NY: M.E. Sharpe.

Martusewicz, R., & Edmunson, J. (2005). Social foundations as pedagogies of responsibility and eco-ethical commitment. In D. Butin (Ed.), *Teaching social foundations of education: Contexts, theories, and issues* (pp. 71–91). Mahwah, NJ: Lawrence Erlbaum Associates.

Martusewicz, R. A., Edmundson, J., & Lupinacci, J. (2011). *Ecojustice education: Toward diverse, democratic, and sustainable communities*. New York: Routledge.

McGregor, G. (2009). Educating for (whose) success? Schooling in an age of neo-liberalism. *British Journal of Sociology of Education, 30*(3), 345–358. 10.1080/01425690902812620

Merchant, C. (2000). Dominion over nature. In I. Bartsch & M. Lederman (Eds.), *The gender and science reader* (pp. 68–81). New York: Routledge.

National Commission on Excellence in Education. (1983). *A nation at risk*. Retrieved from http://www2.ed.gov/pubs/NatAtRisk/index.html

Nott, J., & Gliddon, G. (1854). *Types of mankind*. Philadelphia: Lippincott, Grambo. Image retrieved from http://www.oneworld.org/ni/issue260/Images/gorilpic.gif

On the Commons. (2011). *What are the commons?* Retrieved from http://www.onthecommons.org

Organization for Economic Co-operation and Development. (2013). *PISA 2012 results: Ready to learn: Students' engagement, drive and self-beliefs* (Vol. 3). Paris: OECD. doi:10.1787/9789264201170-en.

Organization for Economic Co-operation and Development. (n.d.). *About PISA*. Retrieved from http://www.oecd.org/pisa/aboutpisa

Orr, D. (2004/1994). *Earth in mind: On education, environment and the human prospect*. Washington, DC: Island Press.

Parenti, C. (1999). Atlas finally shrugged: Us against them in the me decade. *Baffler, 13*, 108–120.

Pearl, A. (1997). Democratic education as an alternative to deficit thinking. In R. R. Valencia (Ed.), *The evolution of deficit thinking* (pp. 211–241). New York: Falmer.

Porter, W., & Mykleby, M. (2011). *A national strategic narrative*. Washington, DC: Woodrow Institute for International Scholars.

Prugh, T. (1995). *Natural capital and human economic survival*. Solomons, MD: International Society for Ecological Economics.

Quinn, D. (1992). *Ishmael: An adventure of the mind and spirit*. New York: Bantam Books.

Ravitch, D. (2015). *Pearson's plans to dominate the global education market*. Retrieved from http://dianeravitch.net/2015/07/06/pearsons-plans-to-dominate-the-global-education-market/

Ravitch, D. (n.d.). *A letter to my friends and readers*. Retrieved from http://www.dianeravitch.com/action.html

Reardon, S. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), *Whither opportunity? Rising inequality and the uncertain life chances of low-income children* (pp. 91–116). New York: Russell Sage Foundation Press.

Reynolds, D. B. (2002). *Taking the high road: Communities organize for economic change*. Armonk, NY: M.E. Sharpe.

Rothstein, R. (2008). Whose problem is poverty? *Educational Leadership, 65*(7), 8–13.

Royce, E. C. (2009). *Poverty and power: The problem of structural inequality*. Lanham, MD: Rowman & Littlefield.

Ryan, W. (1976). *Blaming the victim* (2nd ed.). New York: Vintage Books.

Santone, S. (2010). Sustainability and economics 101: A primer for elementary educators. *Journal of Sustainability Education, 1*(1), 268–275.
Santone, S. (2012). Ecological economies in education. In R. McKeown & V. Nolet (Eds.), *Schooling for sustainable development in Canada and the United States* (pp. 153–168). New York: Springer International Publishing.
Santone, S., & Saunders, S. (2013). Cultivating economic literacy and social wellbeing: An equity perspective. In P. Gorski & J. Landsman (Eds.), *Teaching for class equity and economic justice* (pp. 241–253). Sterling, VA: Stylus.
Schmidt, W. H., Burroughs, N. A., Zoido, P., & Houang, R. T. (2015). The role of schooling in perpetuating educational inequality: An international perspective. *Educational Researcher*, 0013189X15603982. doi:10.3102/0013189X15603982.
Sirota, D. (2013). New *data shows school "reformers" are getting it wrong*. Retrieved from http://billmoyers.com/2013/06/07/new-data-shows-school-reformers-are-getting-it-wrong
Skeat, W. W. (1885). *A concise etymological dictionary of the English language*. Oxford: Clarendon.
Smith, A. (2003). *The wealth of nations: Adam Smith*. New York: Bantam Books (Original work published 1776).
Smith, D. L. (2011). *Less than human: Why we demean, enslave, and exterminate others*. New York: St. Martin's Press.
Strauss, V. (2014). Everything you need to know about Common Core. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/answer-sheet/wp/2014/01/18/everything-you-need-to-know-about-common-core-ravitch/
The White House Office of the Press Secretary. (2015). *White House report: The every student succeeds act*. Retrieved from https://www.whitehouse.gov/the-press-office/2015/12/10/white-house-report-every-student-succeeds-act
United Nations. (2015). *Sustainable development goals: 17 goals to transform our world*. Retrieved from http://www.un.org/sustainabledevelopment/education/
United Nations Educational, Scientific, and Cultural Organization. (2005). *Framework for a draft international implementation scheme*. Paris: Author.
United Nations Educational, Scientific, and Cultural Organization. (2015). *Rethinking education: Towards a global common good?* Paris: Author.
United Nations Educational, Scientific, and Cultural Organization. (2013). *Proposal for a global action programme on education for sustainable development as follow-up to the United Nations Decade of Education for Sustainable Development (DESD) after 2014*. Retrieved from http://unesdoc.unesco.org/images/0022/002243/224368e.pdf
United Nations Educational, Scientific, and Cultural Organization. (2014). *What is ESD?* Retrieved from http://www.unesco.org/new/en/unesco-world-conference-on-esd-2014/resources/what-is-esd/
United States Department of Education (USDOE). (2015). *Race to the top fund*. Retrieved from http://www2.ed.gov/programs/racetothetop/index.html
Waslander, S., Pater, C., & van der Weide, M. (2010). *Markets in education: An analytical review of empirical research on market mechanisms in education* (OECD Education Working Papers, No. 52). Paris: OECD.
World Commission on Environment and Development. (1987). *Our common future*. Oxford, England: Oxford University Press.
Youthbuild. (2014). *About the common core*. Retrieved from https://my.youthbuild.org/my/education/about-common-core-0

Chapter 6
Construction and Sustainability

Andrew Scanlon

Abstract Construction, rehabilitation, operation, and maintenance of the built environment consume vast amounts of natural resources and energy. The civil engineering profession and construction industry recognizes that sustainability is a major concern for future development, particularly with rapid growth in countries such as China, India, and Brazil among others. This chapter reviews the issues that face the construction industry in its role in contributing to sustainability for the benefit of future generations.

The civil engineering profession and construction industry have been concerned about sustainability for several decades and sustainability is addressed in the mission statements of the civil engineering professional societies such as the American Society of Civil Engineering (ASCE) and the American Concrete Institute (ACI). The chapter reviews the issues that confront the industry such as construction materials, recycling, and energy consumption.

Keywords Construction • Sustainability • Civil engineering

Introduction

Ever increasing development of the built environment around the world has caused concern about depletion of natural resources and other environmental impacts. The American Society of Civil Engineers (ASCE) has defined sustainable development as

> a set of economic, environmental and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely, without degrading the quantity, quality or the availability of natural, economic and social resources. Sustainable development is the application of these resources to enhance the safety, welfare, and quality of life for all of society (American Society of Civil Engineers, 2013, October, p. 1).

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The Bruntland Report (IISD, n.d.) defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (p. 1). The latter definition was adopted by the American Concrete Institute.

The issue of sustainable development has been under discussion within the civil engineering profession for several decades. In 1996, ASCE incorporated sustainability into the Society's Code of Ethics for professional practice. Canon I of the Code of Ethics states that "Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties" (ASCE Library, 1996–2006, p. 1). The current concern for sustainability in the engineering profession can be compared with the definition of civil engineering provided by Thomas Telford, one of the early Presidents of the UK Institution of Civil Engineers in the early nineteenth century, as "the art of directing the great sources of power in nature for the use and convenience of man" (Transactions of the Literary and Historical Society of Quebec, 1871, April 12, p. 159).

The built environment (also referred to as civil infrastructure) consists of all constructed facilities that form the physical fabric of modern society, including transportation (roads, bridges, airports, canals, harbors), buildings (industrial, commercial, educational, residential), etc. While engineers approached economy of construction based on initial cost in the past, there is now a recognition that life cycle assessment has to be considered including CO_2 emissions involved in materials production, and transportation. Ever increasing development of the built environment around the world has caused concern about depletion of natural resources and other environmental impacts. This chapter summarizes some of the issues related to sustainable development, research on sustainability topics, and related changes in engineering education.

Construction Materials and Sustainability

The extraction, processing, fabrication, and transportation of construction materials significantly impacts sustainable development, particularly with respect to the two most important construction materials, concrete and steel.

Concrete

Concrete can be thought of as an artificial stone made by mixing combinations of course aggregate (gravel), fine aggregate (sand), water, and cement, a fine powder that reacts chemically with water to form a paste that, when hardened, binds the aggregate together. With embedded steel reinforcement, concrete can be used to construct tall buildings, long-span bridges, dams and many other types of

construction. The Romans employed a form of concrete using volcanic ash as the cementitious material (Pruitt, 2013). Today concrete is the most used construction material in the world and its use has been increasing rapidly due to rapid development in countries such as China and India (Gates, 2014).

The production of Portland cement, the type of cement traditionally used in concrete, involves heating raw materials, typically limestone and clay, at high temperatures in a kiln. The resulting material (clinker) consisting of hard lumps is ground into the fine powder known as portland cement. From a sustainability point of view, CO_2 emissions resulting from the manufacturing process, and the high energy input from burning fossil fuels are a concern. Schokker (2010) described the steps that are being taken by the cement industry to improve the situation including increasing efficiency and use of alternative fuel sources.

Extensive research is being conducted to improve the sustainability of concrete as a construction material. The first area of interest is the durability of concrete. It is well known that the nation's infrastructure including highway bridges, water and sewer systems etc. is in need of repair and rehabilitation, and in many cases, replacement. If concrete can be designed and constructed to last longer, this will save on replacement costs, save natural resources, and lessen production of greenhouse gases. As the author of this chapter, having been a civil engineer for 50+ years, I know that research is underway to improve resistance to chemical attack, freeze-thaw cycles, deicing salts, abrasion, and sulfate attack.

A second area of enquiry is the complete or partial replacement of Portland cement with other cementitious materials (Gartner, 2004) particularly those obtained as waste products such as fly ash, a by-product of combustion of pulverized coal in power plants, silica fume, a by-product of the ferrosilicon industry, and slag (ground granulated blast furnace slag), a by-product of smelting iron ore. Another area of interest is the use of recycled or waste products as replacement for aggregates. For example, Rajabipour, Maraghechi, and Fischer (2010) have studied the suitability of recycled glass for use in concrete.

Steel

Steel is made by smelting iron ore in various types of blast furnace producing pig iron (Steel Recycling Institute, 2014). The pig iron is further processed to remove impurities to produce steel. Today most steel production incorporates a large proportion of recycled steel. The AISC (2016, p. 2) reported that recycling rates in 2016 for discarded steel items were:

Automobiles	104 %
Cans and containers	64 %
Appliances	90 %
Structural steel from buildings	98 %
Reinforcing steel from construction	65 %

Life Cycle Assessment, Longevity and Service Life

Social, economic, and environmental concerns comprise the three pillars, or 'triple bottom line' of sustainability and sustainable development. Life cycle assessment is a methodology used to assess the environmental impacts of a structure over its life cycle from construction through operation to demolition. ISO standards have been developed for life cycle assessment and software is available to provide quantified results of assessment. Hsu (2010) summarized results of seven published reports of life cycle assessments for commercial structures. These studies compare various types of construction in terms of embodied energy and CO_2 emissions over the life of the structure. These studies demonstrated that results vary widely depending on the type of construction and geographical location. Yoshitake, Inatomi, Scanlon, and Miura (2010) compared the CO_2 emissions associated with a precast concrete system compared with a cast-in-place concrete system.

Economic Impact

The economic impact of a constructed facility on a local community (and perhaps to the global community) is important for sustainable development by providing employment to local trades and making use of locally available resources. Mining operations can cause disruption to the environment but restoration programs can be implemented and the economic impact of such programs can be factored in to the overall cost. Engineers design facilities to minimize the use of materials while meeting the necessary criteria for safety against failure of the structure. Recycling steel after demolition of a building saves the cost of producing new steel components. Often existing structures can be rehabilitated to extend their use, often for a different use than originally intended. Examples include warehouse structures converted to residential structures and historic buildings rehabilitated for tourism. Such projects often restore decaying urban neighborhoods.

Heating and Cooling of Buildings

Enormous amounts of energy are needed to heat and cool buildings to provide a comfortable environment for occupants. In recent years increasing attention has been paid to improving the efficiency of heating and cooling systems and use of renewable energy sources such as solar and wind, and to develop building enclosure systems. The residential construction industry emphasizes the use of energy efficient appliances in homes.

Storm Water Management

Urban development results in large areas of paved surfaces for streets, parking lots, driveways etc. As a result rainfall run-off must be accommodated to prevent flooding during storm conditions. Storm water drains, holding ponds and other measures are required to control the potential for flooding. Alternative solutions are being investigated to allow drainage directly into the soil using pervious concrete, a type of concrete that allows water to flow through to the underlying soil.

Civil Engineering Education

In the past, engineering students learned to design structures and components to minimize initial cost, usually amounting to minimizing the quantity of material needed to satisfy standard design criteria. While this is to a large extent still the case, there is a growing trend to consider the performance and related costs associated with the anticipated life cycle of the facility. As an example, Penn State Civil Engineering offers a course entitled *Engineering materials for Sustainability*. The objectives of the course as noted by Professor F. Rajabipour includes:

> teaching students to be able to predict criticality/exhaustion of a resource (e.g., crude oil), identify different phases in the life of a structure or product, perform life-cycle cost and environmental assessments for a product, element, or simplified infrastructure system, calculate material indices and select the best materials (with optimum mechanical,durability, and eco-performance) for a project, design efficient cross sections for structural, members, and employ various techniques for designing green concrete materials (See F. Rajabipour, personal communication, 2016).

It is anticipated that in the next few years, with growing awareness of sustainability issues the overall curriculum will evolve to apply to other aspects of the curriculum.

Sustainability in Civil Engineering Practice

As the concept and ideas of sustainable development gain awareness and acceptance, their implementation in engineering practice and construction is increasing. Owners, including government and institutional agencies as well as private developers are also requiring that sustainability considerations be included in project development. Schokker (2010) presents 12 case studies describing concrete building projects in which sustainability was a feature of the design concept. These projects illustrate the use of waste materials as partial replacement of Portland cement, pervious concrete pavement that reduces maintenance needs and filters contaminants from run-off before draining into nearby streams, improved building envelopes that

reduce heating and cooling requirements, design to improve material efficiency and other features.

One example describes the Northern Arizona University Applied Research and Development Building that features partial replacement of cement with fly ash to reduce the carbon footprint and the use of concrete to provide thermal mass that regulates temperature in the building. The project also features pervious concrete pavement that filters out particulate material and surface contaminants in water before being absorbed into the ground.

Conclusions

As the public and decision makers become increasingly aware of the benefits to be gained from sustainable development it is expected that the incorporation of sustainability in design will become commonplace. In addition to seeking ways to improve sustainability of new construction it will be necessary to provide funds for adequate maintenance to increase longevity of existing components of the built environment such as roads, bridges, water treatment plants, wastewater treatment plants, and flood control systems. The civil engineering profession and construction industry are already implementing ideas and concepts of sustainable development and with further research and experience gained in this area the trend will continue.

Key Chapter Concepts

1. Sustainable development of the built environment is a growing concern for the civil engineering profession, construction industry, and society in general.
2. Research is underway to improve the sustainable use of key construction materials such as concrete and steel.
3. Increasingly life cycle assessment is being used as a tool to evaluate and compare sustainability of potential projects or systems.
4. Ideas and procedures relating to sustainable development are being included in curricula for engineering education.

References

AISC. (2016). *Project solutions: Sustainability*. American Institute of Steel Construction. Retrieved from https://www.aisc.org/content.aspx?id=3808

American Society of Civil Engineers, ASCE. (2013). *Policy statement 418—The role of the civil engineer in sustainable development*. Retrieved from http://www.asce.org/issues-and-advocacy/public-policy/policy-statement-418---the-role-of-the-civil-engineer-in-sustainable-development/

ASCE Library American Society of Civil Engineers. (1996–2006). *Appendix American Society of Civil Engineers code of ethics*. doi:10.1061/9780784412466.ap.

Gartner, E. (2004). Industrially interesting approaches to loe-CO_2 cementitious binders. *Cement and Concrete Research, 41*, 1232–1243.

Gates, B. (2014). A stunning statistic about China and concrete. *Gatesnotes*. Retrieved from https://www.gatesnotes.com/About-Bill-Gates/Concrete-in-China

Hsu, S. L. (2010). *Life cycle assessment of materials and construction in commercial structures: Variability and limitations*. Retrieved from http://web.mit.edu/cron/project/concrete-sustainability-hub/Literature%20Review/Building%20Energy/Thesis/Libby%20Hsu%20Thesis.pdf

IISD. (n.d.). *Sustainable development: Bruntland report*. Retrieved from http://www.iisd.org/topic/sustainable-development

Pruitt, S. (2013). *History: The secrets of ancient Roman concrete*. Retrieved from http://www.history.com/news/the-secrets-of-ancient-roman-concrete

Rajabipour, F., Maraghechi, H., & Fischer, G. (2010). Investigating the alkali-silica reaction of recycled glass. *Journal of Materials in Civil Engineering, 22*, 1201–1208.

Schokker, A. J. (2010). *The sustainable concrete guide: Applications*. U.S. Green Concrete Council. Retrieved from http://library.fce.vutbr.cz/files/e-book/SCGAApplications.pdf

Steel Recycling Institute. (2014). *Steel is North America's #1 recycled material*. Retrieved from www.recycle-steel.org

Transactions of the Literary and Historical Society of Quebec. (1871). Paper VII: Engineering and engineers. *Google Books*. Retrieved from https://books.google.com/books?id=LEwzAQAAIAAJ

Yoshitake, I., Inatomi, Y., Scanlon, A., & Miura, F. (2010). *CO_2 emission from precast concrete system with micropile*. A presentation at the 3rd international conference FIB, Washington, DC.

Chapter 7
How Population Density Leads to Disaster: Curriculum to Understand and Own Solutions

Janet Coyle Groves

Abstract Tension for resources is increased as we bump into each other or each other's stuff on the planet. Closing in on nine billion—nine zeros—is a massive number of anything. That number will be the human beings sharing this globe very soon. As humans, we are sexual beings and are designed for reproduction and just like the finches fighting each other for space in my once flourishing hanging basket (while two fledglings still waiting for their flight wings) are in their disputed nest. Understanding population density requires awareness, understanding, and practice in population density for all students at all levels of learning. This chapter focuses on eight concepts and strategies for solutions.

Keywords Millennium development goals • Sustainability goals • Carrying capacity • Extinction • Population growth • Resources • Water cycle • Closed system

Essential Curriculum Concepts

The service of education is responsible for alerting all humans about our individual and profound impact on the earth. Each human life has resource requirements that must be found for survival. These requirements when multiplied by nine billion leave few resources for wilderness, farm land and other life forms. Only education and science can change the fate of this saga. The earth is a closed ecosystem. We cannot order out for more oxygen and hydrogen to make new water, even Amazon.com cannot bring us clean air. Our earth is what it is and has been since the Big Bang and we have changed and poisoned our once pristine nest. The role of education is powerful and dynamic and must provide solutions to stop and reduce uncontrolled population growth and further contamination of this closed sphere.

This chapter introduces the eight curriculum concepts necessary for students to gain the insight and understanding required of each human to live in a sustainable

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way. The remainder of the chapter focuses on strategies for solutions to keep our ecosystems and human cultures thriving and healthy.

These concepts explain this author's view of the interconnectedness of the planet. If we have clean water, that will make us healthier, clean air will make us more productive. Forests and oceans will continue to absorb excess carbon dioxide and reduce global warming which is changing environments and causing mutations (Davies & Herman, 1997). The 'closed system' of the earth, with its finite resources, must be balanced and symbiotic for continued sustainability. Basic understanding of biology and geochemical cycles stimulates communication toward solving problems created by density (Kelly, 2010). We must comprehend the factual basis for sustainability, all the water in the sewers comes back to us as ice, rain, fog or snow. We need to preserve our arable land in order to produce enough agriculture to feed the people and animals (Wiedmann, Minx, Barrett, & Wackernagel, 2006). Education must include the reasons for making sustainable choices about the use of resources which support rather than destroy the environment. *We must understand that our nest needs guarding and protecting but most of all we must not let it get so dirty it cannot be cleaned or reused by the next generation.*

Reproduction

Reproduction is the primary goal of all life forms, plants utilize most of their energy producing blossoms or cones or nectar to attract pollinators to manufacture seed pods or fruits to distribute their seeds for reproduction. Animals of every description spend a great deal of time, energy, nest building, preening, fighting and dancing to secure a proper mate to reproduce. So plant biology, reproduction seed dispersal and germination must be understood by all students on a conceptual level. Human reproduction and contraception including anatomy and function must be part of every curriculum and not just in sex education: these need to be included in every biology, ethics and life science curriculum.

Photosynthesis

Photosynthesis and leaf structure; light and dark cycles; gas exchange and respiration help explain the effects of climate change. Understanding that green plants produce oxygen and glucose which ends up as useable carbohydrates is a fact which engenders protection for forest and agricultural resources. Plants use carbon dioxide during the light cycle and 'carbon sinks' like forests of green plants and oceans are absorbing our excess carbon dioxide, a product of animal respiration. During the dark cycle of photosynthesis, carbon dioxide is produced which creates a dilemma. How many green plants does it take to balance the oxygen and

carbon dioxide or produce enough oxygen to support the requirements for animal respiration which involves the intake of oxygen and release of carbon dioxide? This problem can be answered with student designed experiments. The concepts when explored will lead students to an understanding and appreciation of geochemical cycles and the carbon cycle.

Ecology

Ecology, habitats, food chains, webs and pyramids are essential understandings for humans to live responsibly and respectfully with their environment. To realize the dependency of animal life on the oxygen produced from photosynthesis creates another dilemma. Can animals live without plants and can plants live without animals? These questions can lead again to student designed experiments for suggested conclusions and to generate support for policies protecting the environment in a sustainable way.

Geochemical Cycles

Geochemical Cycles—The most important cycle as it is specific to understanding the water cycle. All the water on earth is a molecule with two atoms of hydrogen and one atom of oxygen.

These water molecules are in the states of matter: liquid, solids and gases and are in a cycle which evaporates, melts or freezes to become another state of matter however the oxygen and Hydrogen atoms remain in the same amounts. Most students become familiar with this cycle early in their education by making simple drawings and eventually performing more complex experiments involving closed systems with careful measurements. Closed systems are dependent on the ingredients which were there in the beginning. The Big Bang is considered the beginning of the universe occurring about 14 billion years ago as a violent explosion which contained all the material of our solar system, eventually coalesced into the earth and other planets in our solar system. Any additional ingredients imported to earth are from foreign debris comets or meteorites. According to Israel (2010) "72% of the material of the earth is water, but 97% is undrinkable because it is saltwater, 3% fresh water of which 77% is frozen, of the 23% not frozen only 1%" (p. 2) is available to supply every living organism on the planet. Sustainable water supplies must be provided for, to support continued expansion of food production to feed the exponential reproduction of humans in our closed system. Humans have the responsibility for the protection of water in every state of matter to make it available in a clean and consumable way (Rijsberman & Van de Ven, 2000).

Species Variation, Genetics and Evolution

Species Variation, Genetics and Evolution are keys to designing sustainable practices for the continued health of the earth as a closed system. Organisms, plants and animals, evolve and adapt based on the conditions of their ecosystems. The properties of air, food, and water determine the form and function for successful survival. Pigmentation of skin color and density of hair growth in humans is a good example of adaption. Africans and Indians have evolved with darker pigmentation, melanin, as a protection from the sun. Northern Europeans and Asians have evolved features such as lighter skin pigmentation because of the cloudy skies and smaller noses to restrict the frigid air flow into their lungs. Humans have generally become much less hairy because of wearing clothing which protects them from their environment. The DNA of all living organisms is the same whether you are looking at a bullfrog, finch or lily. It is composed of four compounds; thymine, adenine, guanine and cytosine. The variation of these compounds controls the physical and functional characteristics of all life forms. Chromosomes and genes are made of DNA which can be changed by environmental conditions. Such changes are documented by a study done by Harrison and Bergfeld (2009):

> …in the Caucasian population, cutaneous melanoma the fastest. The incidence varies around the world depending on location but in the U.S. the annual rate is approximately 14 per 100,000. In Queensland, Australia, the incidence is as high as 40 to 50 per 100,000", because of the thinning of protective ozone in their atmosphere; damaging or mutating their DNA suggesting many more environmental mutations are occurring (Harrison & Bergfeld, 2009, p. 1).

Health, Nutrition, Disease, Bacteria, Viruses

Health, Nutrition, Disease, Bacteria, Viruses and immunity all influence life on the earth. Students need to acquire research, referencing and analytic skills to remain healthy and avoid the consequence of disease on the primal instinct of procreation. Without the necessary food, air and water, disease can cause populations to become extinct.

> The world has experienced unprecedented urban growth in recent decades. In 2008, for the first time, the world's population was evenly split between urban and rural areas. There were more than 400 cities over one million and 19 over ten million. More developed nations were about 74 percent urban, while 44 percent of residents of less developed countries lived in urban areas. However, urbanization is occurring rapidly many less developed countries. It is expected that 70 percent of the world population will be urban by 2050, and that most urban growth will occur in less developed countries (Population Reference Bureau, 2015, p. 1).

The Population Reference Bureau produces lesson plans and this quote is part of a lesson on urbanization. This trend toward urbanization increases the incidence of contact with pathogens causing disease and demolishing food supplies. Air borne and contact viruses and bacteria are more likely to spread in a congested or densely populated environment. With globalization and urbanization, the density of population in

cities and ease of travel, these pathogens spread rapidly. Ebola terrorized the planet in early 2015. If we examine the data which deals with population density and spread of disease, these factors demonstrate how much jeopardy densely populated cities are in.

Data from World Bank (2016) about density, reveals that, the "population density is the midyear population divided by land area in square kilometers," (p. 1). From the data density of Sierra Leone from 2011 to 2015 was "87" (p. 2), compared with the United States during the same time frame with a population density of "35" (p. 1). According to the World Health Organization (2016) the "underlying cause of death is defined as the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances or violence which produced the fatal injury…" (World Health Organization, 2016, p. 1).

While I was living in Uganda in 2006 there was a known Ebola, outbreak in a rural area causing panic in the rest of the country. Before the dramatic shift to city life, this virus swept the rural village but quickly ran its course not contaminating a densely packed human city, as subsequently occurred in the Ebola outbreak in the second decade of the twenty-first century.

Carrying Capacity

Carrying Capacity is a major consideration for the earth's human population. This is the consequence of life in a *closed ecosystem.* Carrying Capacity is calculated by the resources necessary to support life like food, air and water. Of course, this is dependent on the diet of the people and individual consumption of other resources including water. Unfortunately, although the water cycle ensures that water does not go away but is recycled to us by rain, fog and snow much of it becomes contaminated with human generated toxins. The limited availability of fresh water is used to grow grains to feed livestock instead of feeding humans. If everyone agreed to be vegetarian the present 3.5 billion acres of arable land would support a human population of about ten billion people (Wolchover, 2011a). On the other side of the coin we must use the United States' omnivores as an example, those farmable acres can only support 2.5 billion eating everything including a lot of meat as in the United States carnivore culture. According to Earth Talk (2008) the article titled *What is the Environmental Impact of Eating Meat?* stated

> There are 20 billion head of livestock on Earth, more than triple the number of people. According to the World Watch Institute, global livestock population has increased 60 percent since 1961, and the number of fowl being raised for food has nearly quadrupled in the same time period, from 4.2 billion to 15.7 billion.
>
> The 4.8 pounds of grain fed to cattle to make one pound of beef represents a colossal waste of resources in a world teeming with hungry and malnourished people. A 10-acre farm can support 60 people growing soy, 24 people growing wheat, 10 people growing corn — but only two raising cattle. (pp. 1–3)

Fig. 7.1 Density of population living on top of one another…literally. *Source*: Free open source from The Conversation (2016, November 11). The carbon devil in the detail of urban density. Retrieved from http://theconversation.com/the-carbon-devil-in-the-detail-on-urban-density-4226

The photos below depict (Figs. 7.1 and 7.2) examples of urban density with much of the world's population living in very close proximity to one another.

"In the context of sustainability, carrying capacity is the size of the population that can be supported indefinitely upon the available resources and services of supporting natural, social, human, and built capital" (Sustainable Measures, 1998–2010, p. 1). The capacity carrying of an ecosystem is the population and three factors (Ferdig, 2007): "1) the amount of resources available in the ecosystem, 2) size of the population, and 3) the amount of resources each individual is consuming" (p. 7).

> U.N. estimates of global population trends show that families are getting smaller: Empirical data from 230 countries since 1950 shows that the great majority have fertility declines," said Gerhard Heilig, chief of population estimates and projections section at the U.N. Globally, the fertility rate is falling to the "replacement level" — 2.1 children per woman, the rate at which children replace their parents (and make up for those who die young). If the global fertility rate does indeed reach replacement level by the end of the century, then the human population will stabilize between 9 billion and 10 billion. As far as Earth's capacity is concerned, we'll have gone about as far as we can go, but no farther" (Wolchover, 2011b, October 11, p. 1).

Let us now examine data from the World Population Reference Bureau (2015). This organization gathers statistics from around the world regarding population data projections and predictions as well as national fertility, education, economic and death rate data. According to the World Population Reference Bureau (2015) 10 %

Fig. 7.2 The most populous city in China is Shanghai @ 22 million. *Source*: Free Photo Shanghai, China (2014). Retrieved from Shutterstock

of the human population lives in the Southern hemisphere, where most are considered developing countries. This is a way to help understand that although families are getting smaller, more than ¼ at least of the human population are going to reproduce.

A great mental math shortcut called *The Rule of 72* from Kalid (2012) explains the years to double = 72 divided by the % growth rate. This rule can be used for calculating any growth like your $100 savings account which will double in about 7 years if you are lucky enough to get a 10 % annual rate of increase. Even if the growth rate falls to 0.5 %, there are still 2.5 billion as yet to reproduce.

The highest fertility rates are in Africa. Data from the PRF show in 2015 the women in Niger had an average of 7.6 children, Uganda 5.9. Only 56 % of the married women in the world have the use of modern contraception. In less developed countries, population will increase by 5.7 billion by 2030 and to 7.1 billion by 2050 when compared with more developed countries with population increases of 1.3 billion in 2030 and 1.3 billion by 2050.

A more dramatic way to show the effects of population increase is births by the minute using the Population Clock (U.S and World Population Clock, 2016, January 10). The world increases the population by 278 every minute, less developed countries 252 and more developed countries only 26 births every minute. Population pyramids which

show population distribution by age group and gender are rapidly changing their pattern. When population growth was at its peak the shape of the pyramid was a triangle (expansive) with the majority of people under the age of 15. This author believes that the trends currently show a more dome like shape as people live longer and families are smaller but the bulge at the base of the pyramid shows those in line to add more population.

Climate Change

Climate Change "The private sector is the engine that will drive the climate solutions we need to reduce climate risk, and energy poverty and create a safer more prosperous future for this and future generations" (Ki-moon, 2016, January 27, p. 1). In the New York Times on Jan. 27, 2016, United Nations (2000) Secretary-General Ban Ki-moon (2014) stated, *We cannot allow the earth to continue on a runaway greenhouse emissions course with global warming such as we observe on our solar neighbor, Venus. We are in the process of cooking ourselves* (p. 2).

On December 12, 2015 at the Paris, Global climate summit, 200 countries reached a ground breaking agreement regarding climate change as reported in an announcement from Reuters by Allister Doyle and Barbara Lewis (2015). It is hailed as the first truly global climate collaboration.

Strategies for Solutions

These are some of the measures underway to alleviate the severe problems associated with population density. The *Millennium Development Goals and Beyond 2015* which were proposed in 2000 with measurable targets to be met by 2015. The eight goals have been tracked and the progress reported. In the Forward to the Millennium Development Goals Report in 2014, The Secretary-General of the United Nations Bon Ki-Moon stated,

> Global poverty has been halved five years ahead of the 2015 timeframe. Ninety percent of children in developing regions now enjoy primary education and disparities between males and female enrolment has narrowed. Remarkable gains have also been made in the fight against malaria and Tuberculosis, along with improvement in all health indicators. The likelihood of a child dying before age five has been cut in half in the last two decades. We also met the target of halving the proportion of people who lack access to improved sources of water (United Nations, 2014, p. 3).

This report show promise that the world is beginning to watch out for each other. The world is beginning to understand that we are all interconnected in our closed environment where we depend on others to keep our nest healthy.

The United Nations General Assembly published a resolution titled the United National Millennium Declaration *Goals* in September, 2000 focused on developing countries. The goals were matched with Targets for measuring progress, there have

been many amazing achievements because the specific identification for areas of most need were supported with funding and technology. The targets clearly track the progress and help identify goals needed for greater focus. In a recent *Time Magazine* Milliband (2015/2016) wrote:

> Fifty fragile and conflict states account for 20% of the world's population but [are] 43% of the extreme poor (living on less than $1.25 day). Nearly two-thirds of fragile states have failed to meet the Millennium Development Goal of halving extreme poverty by the end of 2015, and just a fifth have secured universal primary education for their children (Milliband, 2015/2016, p. 36).

The majority of these fragile states are in Africa.

In December, 2014 the United Nations General Assembly published the *Global Partnership for Sustainable Development* (2015). Like the *Millennium Development Goals* of 2000 these 17 goals with specific target data for improvement around the globe with this hope. In the announcement the U.N. included this statement, "We are determined to end poverty and hunger, in all their forms and dimensions and to ensure that all human beings can fulfill their potential in dignity and equality in a healthy environment" (United Nations, 2015, p. 1). These goals are directed to all people of all ages and particularly for the empowerment of women. Healthy educated women improve the quality of life for everyone, to live responsibly and sustainably.

The goals have a time line from 2015—with 169 targets and 13 indicators for global health. These are the goals from the *Sustainable Development Knowledge Platform: Transforming our World: the 2030 Agenda for sustainable Development* (Mahtaney, 2013; United Nations, 2015, estimate pp. 1–8).

1. End poverty in all its forms everywhere;
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
3. Ensure healthy lives and promote well-being for all at all ages;
4. Ensure inclusive and equitable quality education and promote lifelong learning for all;
5. Achieve gender equality and empowerment for all women and girls;
6. Ensure availability and sustainable management of water and sanitation for all;
7. Ensure access to affordable, reliable, sustainable and modern energy for all;
8. Promote sustained, inclusive economic growth, full and productive employment and decent work for all;
9. Build resilient infrastructure promote inclusive and sustainable industries and foster innovation and infrastructure;
10. Reduced inequalities within and among;
11. Make human settlements inclusive, safe, resilient and sustainable;
12. Ensure sustainable consumption and production patterns;
13. Take urgent action to combat climate change and its impacts;
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development;

15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainable management of forests combat desertification, halt and reverse land degradation and halt biodiversity loss;
16. Promote peace and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels; and,
17. Strengthen the means of implementation and revitalize the global partnerships for sustainable development.

The goals are comprehensive and complicated with all aspects of economic, social and environmental impact; which will support the carrying capacity of earth.

The *Sustainable Development Goals* (United Nations, 2015) are for clean drinking water and adequate sanitation because these are urgently needed to improve standards of health which is another repeated goal. I have visited the public toilets in a few African countries and they are few and far between. The conditions are shocking, usually pit variety with no running water to dilute or carry away the sewage. I have seen outhouses mounted on frames over rivers and streams which show an awareness to get rid of it. The beaches bordering Accra, Ghana have become local latrines and are hazardous to walk on until the tide comes in and sweeps human waste into the Atlantic Ocean. Lake Victoria previously pristine is now the sewer for neighboring countries, such as, Uganda, Tanzania and Kenya; heavily polluted and full of algae but home for many Tilapia and other fish sought for human consumption.

Pappas (2011, October 25) wrote *The World Has a Poop Problem*, in which eloquently she stated:

> About 2.6 billion people around the world lack any sanitation whatsoever. More than 200 million tons of human waste goes untreated every year. In the developing world, 90% of sewage is discharged directly into lakes, rivers and oceans. Even in developed countries, cities depend on old rickety sewage systems which are easily overwhelmed by a heavy rain (Pappas, 2011, October 25, p. 2).

Water collected from these sources by young girls and women with ‘jerry’ cans is not safe for drinking, cooking or bathing. The lack of clean drinking water and sanitation facilities cause disease outbreaks which spread rampantly in cities and villages. This is not sustainable, the water cycle does not purify itself, in a fast moving stream the aeration action helps clean the water but this is not a treatment process which filters and adds chemicals to reduce particulate and disease causing pathogens.

These issues combined with the larger problem of poverty must be resolved to meet the targets set by the United Nations. The countries in sub-Saharan Africa are where the effort needs to concentrate, with encouragement and support of all women’s issues. The global population will increase by billions in Africa. Women need help with education, access to modern birth control and empowerment. The goals of the United Nations are a responsible method to promote population and global health. If the world can offer economic support and opportunities for women they will respond with resourcefulness and productivity.

Extinction and Conclusions

Humans are sharing the earth with around 100 million different species. New species are discovered every day, plants and animals which we did not know existed. So how do we really know if population density is causing what is called the sixth great extinction? Historically and archeologically we can explain the previous five major extinctions because of climatic events such as comets and meteors crashing into earth.

> Humans are behind the current rate of species extinction, which is at lease 100-1,000 times higher than nature intended. WWF's 2014 Living Planet Report found vertebrate species in the wild– mammals, bird, reptiles, fish – have declined by 52 percent over the last 40 years. (WWF World Wildlife Fund, 2014, p. 1)

As human population increases the rates of extinction for plants and animals also increases. Humans are in direct competition with plants and other animals for forests, coastlines, forests, wetlands, streams, oceans, farmlands and fields for the same resources and humans are winning—really.

The goals from the United Nations General Assembly are worthy of great effort. After living in Africa for 10 years between 2000 and 2010, 4 years in Accra, Ghana and six in Kampala, Uganda, working as a science teacher in international schools I observed many challenges for the accomplishment of the goals. However, any progress would be such an advantage and definitely worth the effort. Africa is where the majority of the population will come from by 2030 increasing by 5.7 billion people based on projected growth rates. Africa is massive, within its borders are 54 different countries which

> At the time of the conference, 80% of Africa remained under traditional and local control. What ultimately resulted was a hodgepodge of geometric boundaries that divided Africa into fifty irregular countries. This new map of the continent was superimposed over the one thousand indigenous cultures and regions of Africa (Rosenberg, 2014, p. 1).

The topography of Africa contains deserts, rivers, forests, valleys, lakes and mountains. There is no highway or other transportation system connecting the continent. Tribalism is still very real; one of the office girls in the school [where I was working] was never invited to have coffee or lunch with others because she was not of the same tribe.

Ceremonies and rituals are part of village and city life; there are ghettos of tribes still practicing their traditions. The rights of women are almost nonexistent. While teaching about population in biology classes in the United States, I was very critical of the birth rates for some African countries. Not until living and working there, did I understand that women have no control over their reproductive rights, often times they are raped or defiled as the Africans call it. Women are considered property and treated this way, they do not have strong family bonds except with their children because the men usually go away to find work. African women can read and that is an example of their resourcefulness. I saw many women farmers, which led me to say, *farming in Africa is one woman with a hoe, a baby tied on her back and other young children following along, all on their way to the bean field for the day.*

Many youngsters, especially girls have the job of obtaining water for the family. On every dirt road you see children carrying yellow five liter 'jerry' cans either full or empty of water and this is a daily expected activity. Most of the cooking is done by burning charcoal, which is made by charring green trees buried in the dirt and slowly smoldered creating huge amounts of smoke.

Key Chapter Concepts

1. Curriculum topics: eight topics which are essential to understanding the workings of the planet.
2. Strategies for Solutions: United Nations initiatives responding to the pollution and population growth and the prospects for the sustainability of human population
3. Extinction: effects of population density on natural plant and animal populations.

References

Davies, E., & Herman, J. (1997). Sustainable community development: A system approach. In I. Audirac (Ed.), *Rural development in America* (pp. 107–126). New York: Wiley.

Doyle, A., & Lewis, B. (2015). *With landmark climate accord, world marks turn from fossil fuels. Reuters,* Paragraphs 1 and 4. Retrieved from http://www.reuters.com/article/us-climatechange-summit-idUSKBN0TV04L20151213

Earth Talk. (2008). *What is the environmental impact of eating meat?* Retrieved from http://life.gaiam.com/article/what-environmental-impact-eating-meat

Ferdig, M. A. (2007). Making sense of sustainability. *Sustainability Leadership Institute, 1*, 1–9.

Free Photo Shanghai, China. (2014). Retrieved from https://www.google.com/search?q=free+Photo+of+most+populated+city+in+china&biw=1366&bih=634&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEwjJwMrchKPLAhUJzGMKHVazCD0QsAQILg#tbm=isch&tbs=rimg%3ACaDogAZItKjZIjgpnHYyt-w_1Tu65YiX9mhNTCOlotpdRaDf80nkdu7SWT8sL63ZgVZFnpB2c3B8XZsriEtMbE8nf8yoSCSmcdjK37D9OEcoDAeN_19tChKhIJ7rliJf2aE1MRzvbQEyrLnoAqEgkI6Wi2l1FoNxEtd7-QwORBNyoSCfzSeR27tJZPETBqUBpkymPEKhIJywvrdmBVkWcRX4uSpqONifUqEgmkHZzcHxdmyhEjUBwG89LMCyoSCeIS0xs-Tyd_1zEYiAs0boyAd5&q=free%20Photo%20of%20most%20populated%20Shanghai%20in%20china&imgrc=KZx2MrfsP07WDM%3A

Harrison, S. C., & Bergfeld, W. F. (2009). *Ultraviolet light and skin cancer in athletes.* Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3445124/

Israel, B. (2010). *How much water is on earth?* Retrieved from www.livescience.com/29673-how-much-water-on-earth.html

Kalid, A. (2012). *Rule of 72.* Retrieved from http://betterexplained.com/articles/the-rule-of-72/

Kelly, D. E. (2010). *Community planning: An introduction to the comprehensive plan*. Washington, DC: Island Press.

Ki-Moon, B. (2014). *Forward to millennium development goals report*. Retrieved from http://www.un.org/millenniumgoals/2014MDG report/MDG 2014 English web.pdf

Ki-moon, B. (2016). UN Secretary-General urges doubling of clean energy investment by 2020. *Sustainable energy for all.* Retrieved from http://www.se4all.org/content/un-secretary-general-urges-doubling-clean-energy-investment-2020

Mahtaney, P. (2013). *Globalization and sustainable economic development: Issues, insights and inferences*. New York: Palgrave Macmillan.

Milliband, D. (2015/2016). The view. *Time Magazine, 166*(27–28), 36.

Pappas, S. (2011). The world has a poop problem. *Live Science.* Retrieved from http://www.livescience.com/16713-7-billion-people-world-poop-problem.html

Partnership for Sustainable Development. (2015). *Sustainable development goals*. Retrieved from https://sustainabledevelopment.un.org/index.php?menu=1300

Population Reference Bureau. (2015). *Human population: Urbanization.* Retrieved from http://www.prb.org/Publications/Lesson-Plans/HumanPopulation/Urbanization.aspx

Rijsberman, M. A., & Van de Ven, F. H. M. (2000). Different approaches to assessment of design and management of sustainable urban water systems. *Environmental Impact Assessment Review, 20*, 333–345.

Rosenberg, M. (2014). *Conference of Berlin of 1884–1885 to divide Africa.* Retrieved from http://geography.about.com/cs/politicalgeog/a/berlinconferenc.htm

Sustainable Measures. (1998–2010). *Sustainability indicators 101*. Retrieved from http://www.sustainablemeasures.com/node/33

The Conversation. (2016). *The carbon devil in the detail of urban density.* Retrieved from http://theconversation.com/the-carbon-devil-in-the-detail-on-urban-density-4226

U.S. and World Population Clock. (2016). *Population clock*. Retrieved from http://www.census.gov/popclock/

United Nations. (2000). *General assembly resolution: United Nations millennium declaration.* Retrieved from http://www.un.org/millennium/declaration/ares552e.pdf

United Nations. (2014). *The millennium development goals report.* Retrieved from http://www.un.org/millenniumgoals/2014%20MDG%20report/MDG%202014%20English%20web.pdf

United Nations. (2015). *Sustainable development knowledge platform: Transforming our world: The 2030 agenda for sustainable development*. Retrieved from https://sustainabledevelopment.un.org/post2015/transformingourworld

Wiedmann, T., Minx, J., Barrett, J., & Wackernagel, M. (2006). Allocating ecological footprints to final consumption categories with input–output analysis. *Ecological Economics, 56*, 28–48.

Wolchover, N. (2011a). How many people can earth support? *LiveScience.* Retrieved from http://www.livescience.com/16493-people-planet-earth-support.html

Wolchover, N. (2011b). How many people can earth support? *LiveScience.* Retrieved from http://www.livescience.com/16493-people-planet-earth-support.html

World Bank. (2016). *Data: Population density (people per sq. km of land area).* Retrieved from http://data.worldbank.org/indicator/EN.POP.DNST

World Health Organization. (2016). *Mortality.* Retrieved from http://www.who.int/topics/mortality/en/

World Population Reference Bureau. (2015). *Data file*. p. 10. Retrieved from http://www.prb.org/pdf15/2015-world-population-data-sheet_eng.pdf

WWF World Wildlife Fund. (2014). *Living planet report 2014.* Retrieved from http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

Chapter 8
Synergy Between Problem-Based Learning and Educating for Sustainability: A Review of the Literature

Paul Bocko

Abstract This literature review examines the synergy between problem-based learning (PBL) and educating for sustainability (EfS) in 29 selected research reports. Guiding questions were: *How does PBL impact learning academic content? What PBL instructional strategies promote EfS? What EfS skills and understandings are promoted by PBL? What research opportunities are revealed through analysis of the literature?* The review is framed in the context of progressivism, reconstructionism, and wicked problems. The reading and analysis of the studies revealed five themes: Knowledge for real world problem solving, tools for taking action, working together for change, interdependency for well-being, and reflection for improved actions. The findings suggest that PBL improves student learning, scaffolds aid in this improvement, and interdependent behavior and reflective thinking can be promoted. The *National Education for Sustainability K-12 Learning Standards* (U.S. Partnership for Education for Sustainable Development, National education for sustainability K-12 learning standards, 2009) were used as a tool to discover links between PBL and EfS. Using this method, natural and strong associations emerged. However, to make the case for stronger coupling between PBL and EfS, more research is needed.

Keywords Problem-based learning • Educating for sustainability • Sustainability • Problem solving • Instructional strategies • Scaffolding • Interdependency • Reflective thinking

Framing the Problem

Everyone solves problems each day of their lives. Problem-solving ranges from what clothes to wear to navigating and contributing in the workplace to citizenship and participating in political life (van Merriënboer, 2013). Therefore, real world problem-solving extends from habit to the intellectual to the social and cultural

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sphere (Jonassen, 2000; van Merriënboer, 2013). There is significant agreement that today's society requires people to be able to solve complex problems (Ertmer & Simons, 2006; Gijbels, Dochy, Van den Bossche, & Segers, 2005; Luterbach & Brown, 2011; Mobilia, 2007; Senge, 2010). The challenge facing this requisite is that problem solving is an "extremely complex cognitive process about which little is known" (van Merriënboer, 2013, p. 153). In turn, implementing problem-based learning (PBL) to teach academic content and develop specific skills for the real world is also complex.

This investigation of PBL literature reveals the need to discuss the instructional strategy in the context of significant societal challenges we face in the twenty-first century. Adapted from Wirkala and Kuhn (2011) for the purposes of this review, PBL is (a) engaging a problem without prior study; (b) using existing knowledge for new understanding; (c) developing solutions; and, (d) reflecting on skills and dispositions for future use. PBL began a consistent presence in educational literature in 1980 (Barrows & Tamblyn, 1980) after being established as a learning model in medical schools in the 1960s. The model has since spread to engineering, architecture, for our purposes here, K-12 education, and beyond. However, K-12 empirical research is limited (Belland, Glazewski, & Richardson, 2011; Ertmer & Simons, 2006; Goodnough & Cashion, 2006; Hmelo-Silver, 2004; Hung, 2011). The time consuming nature of PBL and the different skillset required for the instructional strategy may be reasons for PBL's relative absence (Ertmer & Simons, 2006). When "considering these challenges to the highly charged climate of No Child Left Behind (U.S. Department of Education, 2001), teachers may be reluctant to adopt an unfamiliar teaching approach, especially one that is perceived as being more time-consuming" (Ertmer & Simons, 2006, p. 41). Two studies put a finer point on the need for more K-12 PBL research. The "model of PBL in medical school involves an integrated, interdisciplinary curriculum organized around problems rather than subject domains" (Hmelo-Silver, 2004, p. 260). The author contrasts this with K-12 in which students more commonly study single subjects with limited time. Artino (2008), referring to Albanese and Mitchell (1993), agrees noting that PBL increases motivation in medical students and that these students are, "in general, highly motivated to begin with" (p. 7). He does not see the same for K-12 students, describing PBL for this group as "a single instructional intervention inserted among an entire traditional curriculum" (p. 7).

Forty-four states agreeing to a common baseline for what it means to be college and career ready as outlined in the Common Core State Standards (CCSS) may provide the context for PBL to emerge from being lost to traditional curriculum. Comparing their goals with CCSS, the Partnership for 21st Century Learning (P21) shared that they have "advocated for standards that adequately address both the core academic knowledge and the complex thinking skills that are required for success … in the 21st century" (P21: Partnership for 21st Century Learning, n.d., para. 2). Indeed, CCSS themselves promote 21st century skills and problem-solving. The English language arts (ELA) are a:

> natural outgrowth of meeting the charge to define college and career readiness, the Standards also lay out a vision of what it means to be a literate person in the 21st century [with] reasoning and use of evidence that is essential to both private deliberation and responsible citizenship. (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010a, p. 3)

The first ELA standard for 'Speaking and Listening' is an important problem-solving skill: "Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others ideas and expressing their own clearly and persuasively" (p. 48). CCSS for mathematics is even more direct in raising problem solving's importance in the "varieties of expertise that mathematics educators at all levels seek to develop in their students" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010b, p. 6). The first 'Standard for Mathematical Practice' focuses on expertise in which students (a) "make sense of problems and persevere in solving them"; and, (b) "understand the approaches of others to solve complex problems and identify correspondences between different approaches" (p. 6). Later, in describing the fourth practice titled 'Model with mathematics,' proficiency is described in which "students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace" (p. 7). However, while existing K-12 PBL literature alludes to links between PBL and real world application, few resources focus on the connections directly. Educating for Sustainability (EfS) provides an applicable context. EfS is defined as educating students to make decisions that balance healthy ecosystems, vibrant economies, and equitable social systems toward a sustainable future (Sobel, 2014).

Therefore, the purpose of this review was to examine the synergy between PBL and EfS learning outcomes. The U.S. Partnership for Education for Sustainable Development's *National Education for Sustainability K-12 Student Learning Standards* (2009) was used as a heuristic device to discover PBL and EfS connections. Questions that guided the synthesis: *How does PBL impact learning academic content? What PBL instructional strategies promote EfS? What EfS skills and understandings are promoted by PBL? What research opportunities are revealed through analysis of the literature?*

The review was organized in the following way in order to address these guiding questions. The first section provides a conceptual perspective including philosophical, real-life, and practical underpinnings. The second section presents the criteria for how studies were selected and reviewed. Themes and findings are presented in the third section. The themes are described in the EfS context and are PBL's track record for increasing knowledge for real world problem solving, tools for taking action, working together for change, interdependency for well-being, and reflection for improved actions. The reader will find that some research reports are noted in more than one theme and only a selection of reports are described in detail for each section in order to keep the review to a reasonable length. The final section discusses the themes collectively making connections to the larger problem guiding the study and issues in the field. Theoretical and methodological issues are presented along with suggestions for further research.

Conceptual Perspective

The genesis for the review is rooted in an argument for K-12 classroom teachers to be skilled at teaching problem solving skills for EfS learning outcomes (Bocko, 2014). That argument and this review are built on two philosophical approaches: Progressivism and Reconstructionism. For progressivism, "students should test ideas by active experimentation. Learning is rooted in the questions of learners that arise through experiencing the world. It is active, not passive. The learner is a problem solver and thinker" (Cohen, 1999, para. 4). Reconstructionism emphasizes "social questions and a quest to create a better society and worldwide democracy" in which students "must invent and reinvent the world" (Cohen, 1999, para. 5). Learning models that create conditions for student voice in the development of their own expertise for real world actions on behalf of the public good are of most interest.

The real world context in which these philosophies come to life is typified by *Wicked Problems* (Kolko, 2012) and others (Rittel & Webber, 1973) focused on EfS. Kolko (2012) defines a wicked problem as "a social or cultural problem that is difficult or impossible to solve for as many as four reasons: contradictory knowledge, number of people or opinions involved, large economic burden, and the interconnected nature of these problems with *other* problems" (p. 10). This is a reflection of our complex world with thorny societal and environmental challenges. EfS somewhat narrows the focus of wicked problems to interrelated issues of environment, economy, and equity. EfS is a "combination of content, learning methods, and outcomes" used to "develop a knowledge base about the environment, the economy, and society" in order to "participate in a democratic society, and live in a sustainable manner" (U.S. Partnership for Education for Sustainable Development, 2009, p. 2). These challenging pursuits demand multiple, integrated approaches to learning, understanding, and acting.

Collecting Research Reports

Collection methods were guided by literature review guidelines in Gall, Gall, and Borg (2003). To be included, kindergarten through high school 12th grade (K-12) empirical studies needed to address at least one of the guiding questions regarding learning academic content, instructional strategies, and skills and understandings. The review was not restricted to specific years or geographic area. PBL is still working its way into K-12 education. These criteria were not used to bound selection so to ensure an adequate number of studies with which to work.

Primary sources searched included Academic Search Premier, Educational Resources Information Center (ERIC), Google Scholar, JSTOR, and ProQuest Education Journals. The search terms *PBL, problem based learning, K-12, elementary, middle school, high school, instructional strategies, and student learning*

generated a set of 145 items. Duplicate, position paper, non-empirical, higher education, *project*-based learning, and dissertation sources were removed. Reference lists in captured reports and reviews were scanned to identify articles that might have been missed in searching preliminary sources. The abstracts of the remaining articles were read and the bodies of texts reviewed to identify a final set of 29 articles. Articles were read closely and notes concerning purpose, participants, methods, results, and connections to the EfS standards and this review's guiding questions were recorded. This process resulted in the themes presented in the next section. Elementary, middle, and high school levels are represented and varied research designs comprise this review including experimental, quasi-experimental, mixed-methods, and qualitative.

Themes and Findings

Although different objectives were pursued in the reviewed studies (e.g. impact of motivation, learning macroeconomics, measuring preference for group work), this analysis yielded five themes connected to guiding questions. The first theme, knowledge for real world problem solving, explores a set of articles that compared content learning between PBL and traditional instruction. Tools for taking action, the second theme, addresses hard scaffolds in support of PBL. Hard scaffolds are "computer or paper-based cognitive tools" (Belland et al., 2011, p. 669) and "static supports that can be anticipated and planned in advance" (Brush & Saye, 2002, p. 2). In the third theme, working together for change, the use of soft scaffolds is explored as a compliment to hard scaffolding. Soft scaffolds include "dynamic, situation-specific aids provided by a teacher or peer to help with the learning process" (p. 2). The fourth theme takes the implementation of soft scaffolding deeper with an investigation of interdependency for well-being. The final theme, reflection for improved actions, focuses on how reflective thinking may be promoted via PBL. Weshah (2012) considers reflective thinking as choosing strategies, creating representations, gathering resources, monitoring and evaluating solutions (p. 263). Dewey (1938) defined reflective thinking as "active, persistent and careful consideration of any belief or supposed form of knowledge" (p. 6). Strong associations emerged between these PBL themes and two EfS standards provided in Table 8.1.

Knowledge for Real World Problem Solving

The discussion of this theme begins to answer the first guiding question targeting a more tangible learning outcome than reflective thinking: *How does PBL impact learning academic content?* Answering this question first is vital as problem solving and EfS without knowledge and understanding is more likely to fail. Twelve reviewed studies primarily focus on a contrast between PBL and traditional

Table 8.1 Key EfS learning standards addressed by PBL

EfS Standard 2: "Students recognize the concept of sustainability as a dynamic condition characterized by the interdependency among ecological, economic, and social systems and how these interconnected systems affect individual and societal well-being" (U.S. Partnership for Education for Sustainable Development, 2009, p. 3)	EfS Standard 3: "Students develop a multidisciplinary approach to learning the knowledge, skills, and attitudes necessary to continuously improve the health and well-being of present and future generations, via both personal and collective decisions and actions" (U.S. Partnership for Education for Sustainable Development, 2009, p. 3)

Source: Author created.

instruction. The studies varied in what academic content was assessed ranging from astronomy to the human body. Seven studies focused solely on a PBL and traditional instruction comparison (Fatade, Mogari, & Arigbabu, 2013; Nowak, 2007; Sungur, Tekkaya, & Geban, 2006; Ward & Lee, 2004; Wirkala & Kuhn, 2011; Yeo & Tan, 2014; Zhang, Parker, Eberhardt, & Passalacqua, 2011) while five studies emphasized the comparison and integrated additional variables to enhance data analysis (Drake & Long, 2009; Haney, Wang, Keil, & Zoffel, 2007; Liu, Horton, Omanson, & Toprac, 2011; Lou, Shih, Diez, & Tseng, 2011; Maxwell, Mergendoller, & Bellisimo, 2005) Research reported in this section predominantly addresses EfS Standard 3 in which students "develop a multidisciplinary approach to learning the knowledge, skills, and attitudes necessary to continuously improve the health and well-being … via both personal and collective decisions and actions" (U.S. Partnership for Education for Sustainable Development, 2009, p. 3). One such approach is PBL. Findings of these comparative studies were mixed yet suggest that PBL promotes content acquisition. One study disconfirmed the trend.

Of the seven studies that compared learning content between PBL and traditional instruction, Wirkala and Kuhn (2011) was the most precise. The study examined the effectiveness of PBL in a "highly controlled experimental study" (p. 1157). The research focused on 6th grade students and PBL potential for producing superior results to lecture-discussion for both individuals and teams. Multiple classes with similar demographics took part. Experimental and control groups were assessed based on comprehension and application of content. Assessments were given 9 weeks after the learning experiences to ensure evaluation of "deep-learning" (p. 1184). Overall, the study found that students "show better long-term retention and ability to apply new material if the instructional method is one that actively engages them and enables them to put new ideas to use" (p. 1180). More specifically, PBL students applied a higher number of concepts and generated greater quality of explanations. No significant difference was found between PBL experienced individually and in a group.

Fatade et al. (2013) rivaled Wirkala and Kuhn (2011) with their singular focus on evaluating PBL versus traditional instruction. Fatade et al. (2013) investigated the effect of PBL on 96 high school seniors' mathematical understanding in Nigeria. They sought to discover any significant difference between students exposed to PBL

and those experiencing the traditional instruction using multiple assessments, experimental and control groups. Pre- and post-test results showed that students participating in PBL led to higher achievement. Moving away from experimental methods, one study employed grounded theory (Glaser & Strauss, 1967). Zhang et al. (2011) examined how a veteran kindergarten teacher adapted PBL to teach "earth materials" (p. 468) and how student learning developed. Planning, implementation, assessment, and professional development support artifacts were reviewed. Student assessment results were isolated and analyzed. In addition, data were reviewed to reveal the teacher's understanding of PBL and issues encountered during design and implementation. Pre- and post-assessment results showed that there was improvement in students' understanding of earth materials. More students were able to include key information about earth materials in their responses after the PBL lesson. Analysis showed that the teacher gained a "thorough" (p. 479) understanding of PBL over multiple years and adapted her instruction for success.

Sungur et al. (2006) provide yet another strong example of PBL and traditional teaching comparison. Their single research question: Are there differences in the effectiveness between PBL and traditionally-designed biology instruction? Tenth grade students in two classes taught by the same teacher participated. Instructional approaches were randomly assigned and content knowledge was measured via multiple choice questions and an essay. A PBL feedback form including responses to statements and open ended questions was also used. Significant differences between experimental and control groups emerged. Results intimate that PBL instruction led to better acquisition of scientific concepts than traditional instruction (see Sungur et al., 2006, p. 158). PBL participants "appeared to be more proficient in the use and organization of relevant information, in the construction of knowledge, and in moving toward better solutions" (pp. 158–159). However, the authors did report that there was some indication that the difference between groups was not significant when it comes to "simple recall" (p. 159).

While Sungur et al. (2006) alluded to this disconfirming evidence, Nowak (2007) examined whether public middle school students learn as much in PBL as in non-PBL classrooms and found significantly more evidence in favor of traditional instruction. Assessment scores, observations, interviews, and artifacts were analyzed from two eighth grade classrooms. Assessment results were analyzed to determine the significance of group differences. Analysis revealed that non-PBL students performed better on tests as compared to PBL, learning astronomy and geology content at a higher rate. However, in contrast to these findings, one group of PBL students who took an astronomy retest to measure knowledge retention showed that they retained more knowledge further out from instruction than did the non-PBL students.

The five remaining studies in this theme enhanced the measure of academic content between PBL and traditional instruction by investigating additional variables such as teacher beliefs, motivation, preference for group work, and feelings toward failure. Liu et al. (2011) examined middle school students' learning and motivation in a media enriched PBL environment. Media enriched in this case was receiving computer software guidance including videos, images, simulations, and additional

resources to aid in solving a space science problem (p. 261). Research questions addressed the effect of PBL on science learning and motivation for media tools and science learning. The context was "Alien Rescue" (p. 252) in which sixth grade students were challenged to find new planetary homes for aliens that have traveled to earth after their home planets were destroyed. Results from a pre- and post-science test, a motivation questionnaire, and open-ended questions were analyzed. The authors conclude that in the PBL environment science knowledge increased from pre- to post-test, motivation was "above the mean" (p. 256) and had a significant impact on improving science understanding, and that the students most commonly described the project as "fun" (p. 257).

Instead of just adding motivation to the mix, Drake and Long (2009) investigated stereotypical images of scientists, time-on-task, and transfer of problem-solving skills in addition to comparing PBL and non-PBL methods. It was "designed as a pilot study to examine the efficacy of PBL with younger learners" (p. 4). Students from two 4th-grade classrooms participated, one in PBL and one not. Data sources were pre- and post-tests for content, a Draw-a-Scientist Test (Mason, Kahle, & Gardner, 1991), interviews, and collecting data for time-on-task. The PBL group demonstrated somewhat better content acquisition and slightly less "stereotypical attitudes" (p. 7) about scientists. They also exhibited more appropriate time-on-task behavior and less unproductive conduct. The PBL group was also stronger in identifying problem-solving strategies and identifying a variety of useful resources. In their discussion, the authors suggest that PBL participants "showed evidence of collateral learning" (p. 11) beyond content recall.

Maxwell et al. (2005) investigated the impact of PBL and lecture-discussion on learning high school macroeconomics also along with a handful of additional variables: Attitude toward learning economics, preference for group work, feelings toward failure, and assessment of the teacher. Specific research questions focused on enhancing learning macroeconomics and skill and style of the instructor. Two hundred fifty-two students in two suburban and two urban schools participated. PBL and lecture-discussion treatments were randomly assigned. Multiple choice questions along with measures that addressed attitude, preference, failure, and teachers' skills were employed. The data imply that PBL may be a more effective tool for learning macroeconomics in high school. Analysis suggested that student learning of macroeconomics significantly increased for teachers with an undergraduate degree in economics (see Maxwell et al., 2005, p. 324). The heightened teacher expertise potentially confounds the results as it may be this variable and not PBL that boosted learning outcomes. Yet, this outcome may lend some credence to the concepts of content knowledge and pedagogical content knowledge (Shulman, 1986) as promoting strong PBL outcomes.

In summary, the twelve studies overall suggested that PBL is an instructional strategy that increases student learning when compared to traditional teaching. Yet some disconfirming evidence was discovered. A particular strength of many of these studies was their quasi-experimental design that shed direct light on the intended comparison. One grounded theory study also provided a strong qualitative research model. Compelling research reports using both qualitative and quantitative methods

Table 8.2 PBL themes with EfS standards and indicators

Guiding question	PBL theme	Key terms	EfS standard	EfS indicator
How does PBL impact learning academic content?	Knowledge for real world problem solving	Content, knowledge, lecture-discussion, problem-solving, concepts, explanation, retention	3	Students "identify skills and strategies required to create effective group change for a given issue" (p. 12)
What PBL instructional strategies promote EfS?	Tools for taking action	Hard scaffold, instructional tools, web-based, hypermedia, online environments, guide sheets	3	Students "create a flow chart, timeline, or some other type of graphic organizer to identify these components of a … action project" (p. 9)
What PBL instructional strategies promote EfS?	Working together for change	Soft scaffold, situational aids, model, coach, fade, team dynamics, collaboration	3	Students "perform effectively on teams" (p. 6) and "create effective group change" (p. 12)
What EfS skills and understandings are promoted by PBL?	Interdependency for well being	Mainstreamed, low- and high-achieving, social system, effective interaction	2	Students "explore … the different views and values that each culture brings to the community" (p. 8)
What EfS skills and understandings are promoted by PBL?	Reflection for improved action	Reflective thinking, mental model, reconstruct, creative, meaningful understanding	3	Students "write their own 'story of learning'… and reflect on lessons learned" (p. 12)

Source: Author created. EfS standards and indicators from U.S. Partnership for Education for Sustainable Development (2009).

may point to the need for mixed methods when it comes to PBL due to its complexity. Teaching content and problem solving is also inherent to EfS. Performance indicators that outline how to operationalize EfS point to learning that specifically applies content to generating solutions to problems: Students will "identify an issue in their community and analyze it … and design a solution" (U.S. Partnership for Education for Sustainable Development, 2009, p. 9) and "identify skills and strategies required to create effective group change for a given issue" (p. 12). PBL may be better at developing content understanding and be used to teach EfS problem solving skills. These results along with those of the remaining four themes are summarized in Table 8.2.

Tools for Taking Action

While the emphasis of the first theme was knowledge gained, this theme stresses instructional tools that support that learning. The skills can be gained by utilizing the tools and resources provided by the teacher. For example, the nine studies highlighted with a focus on tools for taking action specifically researched the use of hard scaffolds as an instructional strategy. This thematic section partially answers the guiding question targeting *what PBL instructional strategies promote EfS*. Six of nine studies featured the use of electronic or web-based hard scaffolds for instruction and yielded consistent positive results (Belland et al., 2011; Dovros & Makrakis, 2012; Hsu, Hwang, Chuang, & Chang, 2012; Pedersen & Liu, 2002; Simons & Klein, 2007; Tseng, Chang, & Lou, 2012). The three remaining studies investigated more traditional paper and pencil hard scaffolds such as worksheets, concept mapping, and reflective writing and arrived at differing results (Chin & Chia, 2004; Choo, Rotgans, Yew, & Schmidt, 2011; Weshah, 2012). All of these studies address EfS Standard 3 in which students "develop a multidisciplinary approach to learning the knowledge, skills, and attitudes necessary to continuously improve the health and well-being of present and future generations" (U.S. Partnership for Education for Sustainable Development, 2009, p. 3).

Two studies describe their electronic hard scaffold as hypermedia. "Hypermedia programs are characterized by a coordinated use of multiple media and interactivity" and a significant level of control afforded to the users (Pedersen & Liu, 2002, p. 356). The first study sought to determine if a "hypermedia based tool" (Pedersen & Liu, 2002, p. 358) supports learning during a middle school PBL activity. The focus was on video segments of an expert scientist using the hypermedia program to rescue one of the species and offering specific strategies. The impact of the segments on the quality of actions during self-directed work, developing rationales for choices and attitude toward PBL were investigated (see Pedersen & Liu, 2002, p. 362). This video modeling was compared to lesser degrees of guidance for how to use the hypermedia tool (see Ibid, p. 363). As in Liu et al. (2011), this study engaged students in the same problem scenario of finding homeless aliens a habitable planet. The participants were suburban sixth grade students from three science classrooms. Data was collected by examining notebook entries built into the hypermedia program and final recommendations for the various species, and via a 19-item *Attitude Toward Learning Environment* questionnaire. Overall, data analysis showed that the hypermedia "offered more effective support" to students' problem-solving activities (p. 373). Results suggested that the tool helped students work more effectively and raised the level of reasoning for solutions presented (see Liu et al., 2011, p. 374).

Simons and Klein (2007) analyzed the influence of hypermedia during a middle-school PBL unit called *Up, Up & Away!* that engages students in planning an air balloon trip around the world. The study looked at levels of hypermedia scaffolding (none, optional, required) and student project performance, achievement levels, perceptions and attitudes toward PBL, and approach to problem tasks. Participants

were seventh grade students in a 9-week science, math, and technology course. Data sources for the mixed-method study were group balloon design and travel plan, a post-test (assessing student learning), an attitude and perception survey, group notebooks, and observations. Grounded theory coding and simple trend analysis were employed to analyze the data. Results were mixed as students who worked in the scaffolding optional and required conditions both performed better. More specifically, groups who recorded information in their own words performed better, scaffold use promoted more effective note taking, and scaffolds were not shown to boost student learning based on post-test scores. Belland et al. (2011) also used mixed methods to investigate the impact and use of a "Connection Log" (p. 671) during PBL. Similar to the hypermedia examples, the log was a web-based guide to support development of evidence-based arguments in six steps: Define problem, determine needed information, find needed information, organize information, develop claim, and link evidence to claim (see Belland et al., 2011, pp. 672–673). Research questions focused on the impact of the scaffold on argument quality and students use the log to construct arguments. Participants were students in four seventh grade science classes. Two classes were identified as high achieving and two lower achieving. Data collection consisted of a pre- and post- argument evaluation test, group argument ability based on video transcripts, and observations of students using the connection log. Data analysis revealed that the log appeared to help students understand the question being posed, identify relevant information, and generate an effective argument (see Belland et al., 2011, p. 687).

Dovros and Makrakis (2012) will be showcased in a later findings section focused on the relationship between PBL and reflective thinking. The study is also worth noting here. One of their purposes was to investigate the use of a *Learning Management System* (LMS) within PBL (p. 76). The LMS used in this study was a good example of a hard scaffold that included an "online animation character", prompts, and space to record prior knowledge, ideas, questions, and opinions regarding genetically modified foods (p. 78). Affirming the previous three outlined studies, this research found that guided online environments can promote learning, in this case learning how to reflect.

Weshah (2012) also uncovered some evidence that hard scaffolds promote learning and the development of important cognitive skills, specifically reflective thinking. In this study, however, more traditional non-electronic scaffolds such as "concept mapping, reflective writing, and reflective question prompts" (p. 266) were facilitated during PBL. One of Weshah's (2012) conclusions is that by "using a variety of scaffolding tools such as reflective questions, graphic organizers, guide sheets, teachers can help to develop students' thinking as they work toward solving their problems" (p. 268). Along with Dovros and Makrakis (2012), this research report will be presented in more detail in the final findings section. Choo et al. (2011) investigated the influence of a single, more traditional hard scaffold: PBL worksheets as a tool to support high school student learning. "A quasi experimental approach was chosen in which one group of students received a scaffold during PBL and another not." (p. 519) Participants included 241 students studying science with an emphasis on immunology in Singapore. A worksheet with a series of questions

was created to guide student learning. A pre- and post-assessment was used to evaluate concept recall. Lastly, a questionnaire was administered to discern what students believe to be "important factors" that affect their learning (p. 521). Results of the assessment showed control group students scoring higher than students utilizing the worksheet. This outcome "suggests that the worksheet had no significant influence on students' learning during the PBL day" (p. 522). However, the control group was shown to have more knowledge about the topic prior to the learning experience. This was found in an analysis of variance conducted between the groups. In contrast to these particular results, the next section highlight Choo et al. (2011) finding some evidence for soft scaffolds or "team dynamics" as important to PBL (p. 523).

In summary, eight of nine studies that investigated hard scaffolds found some evidence of promoting learning and success in PBL. In particular, evidence indicated that level of reasoning, note taking, research skills, cognitive abilities, and argumentation skills were improved through using the hard scaffolds. These skills reflect the EfS performance indicator that calls for students to "create a flow chart, timeline, or some other type of graphic organizer to identify these components of a … action project" (U.S. Partnership for Education for Sustainable Development, 2009, p. 9). The skills can also be applied to more personal goals as outlined in the EfS performance indicators: "Students identify what systems and strategies work best at self-motivating planning and action for effective personal change" (p. 12). Taken together, the six studies paint a picture of potential positive outcomes through using hard scaffolds. Specifically, the outcomes point to support in developing the skillset needed to work toward change in the context of EfS. However, the contrasting evidence in Choo et al. (2011) and Simons and Klein (2007) cannot be ignored.

Working Together for Change

Hard scaffolds are not the only type of support that has received attention in the PBL literature. Soft scaffolds, situational aids provided by the teacher or fellow students to promote learning (Brush & Saye, 2002, p. 2), figure prominently in eleven studies. This section builds on the previous discussion of hard scaffolds also addressing *what PBL instructional strategies promote EfS*. Four research reports took a more teacher-centered approach and investigated what the teacher can do to promote collaborative success in PBL (Pedersen & Liu, 2002; Sage, 1996; Simons, Klein, & Brush, 2004; Yukhymenko, Brown, Lawless, Brodowinska, & Mullin, 2014). Seven additional studies were more student-centered focusing on what results when teachers organize students into collaborative groups in PBL (Cerezo, 2004; Choo et al., 2011; Dovros & Makrakis, 2012; Fatade et al., 2013; Ferreira & Trudel, 2012; Goodnough & Cashion, 2006; Wirkala & Kuhn, 2011). Consistent with hard scaffolding findings, these studies attend to EfS Standard 3: "Students develop a multidisciplinary approach to learning the knowledge, skills, and attitudes necessary to continuously improve… via both personal and collective decisions and actions"

(U.S. Partnership for Education for Sustainable Development, 2009, p. 3). It is the reference to the collective nature of learning that most reflects these findings.

The first set articles presented soft scaffolding in terms of the teacher's intentional work for collective action. Sage (1996) set out to investigate the teacher's role in PBL, specifically the process of gradually reducing the level of teacher participation. Participants were teachers and students in three urban classrooms, first/second and third/fourth grades combined and an eighth grade science class. Data was collected via observations, interviews, artifacts, teacher reflections, and pre- and post-test results for content knowledge. Grounded theory was used to analyze qualitative data. One overarching result was that taking on roles in group problem solving appears to motivate students to learn more. To achieve this, teachers chose specific strategies to participate in a model, coach, and fade process of PBL facilitation (see Sage p. 20). Teachers allowed students to self-select groups (in some cases) and choose topics, modeled active listening, and employed questioning strategies that could potentially be transferred to small group work. For example, the teacher may "model a skill like active listening, then coach group members in active listening, and finally 'fade' to allow the groups to facilitate active listening among their members on their own" (p. 20).

In addition to evaluating the impact of hypermedia, Pedersen and Liu (2002) highlight the instructor's role in terms of stages that progress from modeling to handing over control. The authors shared a similar description of fading: First, the teacher models problem-solving, then students work together, and last, the teacher hands over control of problem-solving to the students (p. 356). In this study during this last stage, students collaborated by sharing information, asking questions of each other, discussing scientific topics, modeling problem-solving for each other, and developing rationales for solutions (p. 368).

Simons et al. (2004) also presented an intentional process for foster PBL collaboration. The researchers conducted a case study to examine PBL instructional strategies used by one teacher. Research questions focused on strategies utilized, teacher and student attitude, and student learning. Participants were a teacher and sixth grade students in a "Global Connections" (p. 215) class. Data sources were teacher and student interviews, observations, teacher annotated guidebook, and student attitude and achievement measures. Coding was used to search for themes, data being "examined for overlap, and collapsed into larger categories" (p. 220). Descriptive statistics were used to analyze achievement and attitude measures. A significant finding was the identification of four instructional techniques: Questioning, reliance on peer support, feedback, and management. Questioning was used to prompt student thinking. Peer support was emphasized to distribute the cognitive load (Salomon, 1993).

Individual and group feedback was employed using a folder system in order to deepen understanding and optimize product quality (see Simons et al., 2004, p. 228). Structured management, establishing and communication daily expectations, was utilized to make the tasks more manageable for students (see Ibid, p. 229). Overall, teacher attitudes were positive with some frustration with lack of time. Student achievement was average and may have been hindered by lack of time for teacher-led

reflection and review sessions. Student attitudes paralleled the teacher's, they too were overall positive with expressed frustration over lack of time.

Choo et al. (2011) provides a transition from a more teacher centered approach to positive outcomes resulting from student collaboration. The authors make a case for both the teacher tutoring activities and students collaborating in groups. This study figured prominently in the previous section presenting evidence disconfirming the usefulness of hard scaffolds. In contrast, the study also suggested that "team dynamics" (p. 523) are important to learning. The authors went so far as to write that the "findings obtained from this study reinforced the view that soft scaffolds, such as tutoring and collaborative small group learning, are crucial for student learning in a PBL environment" (p. 523). Dovros and Makrakis (2012) build on these findings with their suggested methodology of blended learning [that] converges online and face-to-face education, providing opportunities to foster reflective thinking, facilitate communication and collaboration, give voice to all the pupils, extend the lesson in space and time, help the construction of knowledge through inquiry-based activities and promote learner control, through open learning environments. (p. 79)

Most important to this theme, the authors put forth the vital outcomes of blended learning as a more student-centered learning environment with "increases in interaction between student-instructor, student-student, student-content and student-outside resources" (Dovros & Makrakis, 2012, p. 79).

Ferreira and Trudel (2012) compliment these results with their look at PBL's impact on attitudes toward science, problem solving, and especially sense of classroom community. Forty-eight chemistry students in a Catholic high school in a Midwestern U.S. town participated. Attitude data were collected with a pre- and post- Likert-type survey and student journal entries regarding participation in PBL. Pertinent to this theme and according to journal entries, students enjoyed the "greater interaction with their peers" (p. 27) and "sense of control" (p. 28) experienced while collaboratively solving problems in terms of "design and implementation" (p. 28). The students referenced the importance of discussing ideas openly, debating, and heightened participation in small groups (see p. 27). These data point to student attraction to PBL for its interdependent nature.

Goodnough and Cashion (2006) coupled a uniquely collaborative research methodology and PBL to study associated student interactions. Collaborative Inquiry (CI), repeated episodes of reflection and action in which colleagues answer questions of interest (Bray, Lee, Smith, & Yorks, 2000), was employed. CI participants were study authors and a high school science teacher. The teacher's students navigated PBL and were observed. Observations, artifacts, interviews between CI participants and with students were collected. Data analysis coincided with collection including open coding, constant comparison, and axial coding. Study results suggest that PBL can be adapted for use in high school science classrooms though novices need to introduced to PBL explicitly (see Bray et al., 2000, p. 286). In the early stages, students new to PBL may be "reluctant to share their thinking" (see Ibid, p. 288). The teacher recognized that her role needed to change and that instruction needed to be more student centered. Students reported that the "most prevalent skills learned via PBL were negotiating and sharing within a group, research skills, and presenting skills" (see Ibid, p. 289). Students shared that being engaged in active learning and doing something different were reasons for liking PBL (see Ibid, p. 289).

While Fatade et al. (2013) placed most emphasis on comparing the impact of PBL and traditional instruction on student learning, they also alluded to the possible benefits of collaboration. Referencing prior research (Delisle, 1997; Torp & Sage, 2002), the authors reported that through group collaboration students were able to "define the issues and their learning needs, locating relevant information, questioning and researching to build a deeper understanding, evaluating possible solutions to the problem, choosing the 'best fit' solution and reflecting on both the process and the solutions" (p. 38). They suggested that these collaborative activities may have contributed to PBL students performing better on assessments. The final article presented in this theme shared results that do not support the overall pattern outlined above. As noted in an earlier section, Wirkala and Kuhn (2011) suggested that PBL students were more engaged and demonstrated a higher level of long term retention. However, the researchers also assessed whether or not collaboration was an essential component of PBL (p. 1159). They reported that the PBL groups collaborated well especially when encouraged to do so by the teacher. They also found that the performance between team-based PBL and individual PBL did not differ significantly suggesting that collaboration may not be essential to PBL.

In summary, all but one of the nine articles reported in this section indicated some evidence in support of soft scaffolds improving PBL. Specifically, teachers found success with intentional models that progressed from modeling to coaching to fading and structured management of PBL with daily expectations to make learning more manageable. With the implementation of strategies such as these, students were described as learning how to better participate in a group navigating PBL. Students were found to improve in defining problems, interacting with teacher and fellow students, communicating, researching, and evaluating possible solutions.

EfS performance indicators correspond to these results. One K-4 indicator states that students "perform effectively on teams that set and achieve goals, conduct investigations, solve problems, and create solutions" and "use systematic and collaborative problem-solving processes" (U.S. Partnership for Education for Sustainable Development, 2009, p. 6). The high school indicator is also apt: "Students identify skills and strategies required to create effective group change for a given issue, take action on that issue and then reflect on lessons learned regarding change strategies" (p. 12). The synergy between PBL and EfS learning outcomes is relatively strong in this theme based on the evidence described. Yet the substantiations are not 100 % conclusive with one quantitative study (Wirkala & Kuhn, 2011) pointing to disconfirming results regarding collaboration.

Interdependency for Well Being

Building on working together during PBL, this theme focuses on answering the third guiding question: *What EfS skills and understandings are promoted by PBL?* Specifically, four studies explored a potential benefit for students that can result from interdependency inherent in collaborative PBL. Three of the studies pointed to evidence that mainstreamed and low-achieving students benefit from PBL (Belland,

Glazewski, & Ertmer, 2009; Belland et al., 2011; Hsu et al., 2012). A fourth study cautioned that low-achieving students are often unsupported during PBL and left behind (Simons & Klein, 2007). The term "mainstreamed" refers to "general education classes serving students with special needs alongside their average peers" (Belland et al., 2009, p. 2). Low-achieving students were identified based on relative performance on prior assessments and the "impressions" of the teacher (Belland et al., 2011, p. 671) and relative absence and mobility rates and performance on reading tests (Simons & Klein, 2007, p. 47).

These studies link to EfS Standard 2: "Students recognize the concept of sustainability as a dynamic condition characterized by the interdependency among ecological, economic, and social systems and how these interconnected systems affect individual and societal well-being" (U.S. Partnership for Education for Sustainable Development, 2009, p. 3). Interdependency is reflected in mainstreamed and lower-achieving students sharing control of learning with peers to improve skills and understanding via problem solving. See Table 8.2 here.

Belland et al. (2009) investigated how members of a mainstreamed group of students managed participating in PBL. Research questions targeted the difficulties experienced and roles filled by mainstreamed students and methods used to support each other's efforts. The study took place in a low socioeconomic status town and participants were seventh grade science students. The case study had a goal to "uncover systematic patterns in human interactions through a close analysis of the actions and conversations of participants" (p. 4). Data were collected during a human genome unit via videos, interviews, and an open-ended survey. Analysis utilized coding and conversation analysis. The researchers found that "each participant focused on a certain level of thinking about solving the problem, filled a unique role, and supported each other as they worked toward a solution" (p. 13). Even with diversity in how the problem was approached, the students were able to support each other to arrive at a solution. Overall, the study indicated that members of mainstreamed groups may be able to support each other to solve an ill-structured PBL scenario successfully (see Belland et al., 2009, p. 13). The researchers were very confident in their results:

> The findings (a) confirm the potential of PBL in mainstreamed classrooms, (b) provide an example of effective interaction among members of mainstreamed PBL groups, (c) suggest types of support needed to support members of mainstreamed groups, and (d) indicate potential benefits of PBL to mainstreamed students. (Belland et al., 2009, p. 13).

Belland et al. (2011) were reported on earlier for their investigation of the impact of the "Connection Log" (p. 671), a hard scaffold. The study indicated that use of the log did promote PBL. And when comparing high and low achieving classes' use of the log, the authors found that the positive "effect among lower-achieving students was approximately twice the magnitude as the effect among all students collectively" (p. 686). The authors caution that just because they arrived at this result, it does not mean that it will consistently be the outcome.

The next highlighted study in this theme found a very different result. Also featured previously in this review, Simons and Klein (2007) analyzed the influence of

hard scaffolds on middle school students and suggested that scaffolds provide some help. In addition, the authors presented a potential challenge to the interdependency theme, that low-achieving students are often "left behind" (p. 69) during PBL. Consistently in this study, high-achieving students performed better than low-achieving students when content learning, using research information, and perceived level of difficulty were assessed. "Greater emphasis on and support for the unit objectives might have improved posttest performance, especially for lower achievers." (p. 66). Therefore, in this case, the results indicated that struggling students were indeed left behind.

In summary, this small collection of research reports shed some light on high and low achieving students' participation in PBL and EfS. Limited evidence was presented for moving toward equity when special education and struggling students are grouped with students who are achieving academically. The group interactions and associated results described here can be nested in EfS performance indicators concerning diversity. A middle school indicator calls for students to "explore their own cultural identity and the identity of their peers and people in their community and the different views and values that each culture brings to the community" (U.S. Partnership for Education for Sustainable Development, 2009, p. 8). With the few studies found to constitute this theme and one of them presenting contradictory results, no concrete conclusions can be drawn other than to encourage further study.

Reflection for Improved Actions

To further exemplify skills resulting from PBL, two international studies and one U.S. report specifically examine PBL's impact on developing reflective thinking as a key skill for EfS (Dovros & Makrakis, 2012), making implicit knowledge explicit and meaningful (Weshah, 2012), and resulting from specific instructional methods (Song, Grabowski, Koszalka, & Harkness, 2006). These research reports also address the third guiding question: *What EfS skills and understandings are promoted by PBL?* See Table 8.3.

The findings suggest that PBL is a helpful instructional strategy in developing students' reflective thinking. Broadly, PBL's influence on promoting reflection addresses EfS Standard 3: "Students develop a multidisciplinary approach to learning the knowledge, skills, and attitudes necessary to continuously improve the health and well-being of present and future generations, via both personal and collective decisions and actions" (U.S. Partnership for Education for Sustainable Development, 2009, p. 3). Two of the studies describe reflective thinking as choosing strategies, monitoring and evaluating solutions (Weshah, 2012, p. 263) in an "active, careful, and persistent" way (Dovros & Makrakis, 2012, p. 6). The consistency of this description with EfS Standard 3 is strong as it promotes reflective thinking as a skill for continuous improvement.

The Dovros and Makrakis (2012) study of high school students in Greece is the only study that parallels this review's investigation of PBL as an instructional

Table 8.3 PBL attributes with corresponding EfS skills and understandings

PBL attributes	EfS skills and understandings
Group problem-solving: Sharing diverse perspectives, questioning, negotiating, researching important information, and supporting each other	Collective decisions and actions: Perform effectively on teams; conduct investigations; understand interdependency in social systems
Co-coordinating learning: Students engaged in choosing groups, topics, and strategies	Students identify an issue that cannot be solved by personal action alone, analyze it, and begin planning for a solution
Organizing: Planning how to move forward; using tools (hard and soft scaffolds) to problem solve	Systems and strategies: Set goals, create a flow chart, timeline, and graphic organizers
Reflective thinking: Considering and reconstructing beliefs; transforming implicit knowledge into meaningful understanding	Reflect on lessons learned regarding change strategies; write own story of learning, explore identities
Visualizing, developing, and presenting creative solutions: Reaching conclusions; evaluating solutions; communicating convincing explanations	Create solutions, achieve goals, and share outcomes via a blog, article in a local newspaper, or alternative method of sharing with the wider community

Source: Author created. PBL attributes adapted from results of this literature review and EfS skills and understandings adapted from U.S. Partnership for Education for Sustainable Development (2009).

strategy for "education for sustainable development" (p. 75), their phrase for EfS. They propose EfS "requires a shift in the mental models which frame our thinking and inform our decisions and actions" (p. 75). The purpose of the study was to examine the impact of PBL in promoting the development of reflective thinking for 23 high school students in the suburbs of Crete. The methods section provides little to describe case study procedures. The report only reveals that "teacher's observations" and an "e-portfolio" (p. 83) were used to evaluate and draw conclusions. Results concentrate mostly on students' understanding of the academic content, genetically modified foods, and how the students found the lesson to be "enjoyable" (p. 85). The core conclusion was that "by contemplating on their beliefs, juxtaposing statements and reconstructing their dispositions, they [students] acquired the basic skills needed for creative citizens that live in a world that changes" (p. 85).

Weshah (2012) draws a similar conclusion with much more concrete procedures. This quasi-experimental study's purpose was to investigate the impact of PBL on reflective thinking development. This study defines reflective thinking as a metacognitive skill to help students transform implicit knowledge to explicit, meaningful understanding (p. 263). Seventy participants were randomly selected from 33 Jordanian schools. Experimental groups participated in a specific PBL framework (Delisle, 1997). A pre- and post- Reflective Thinking Test (RTT) was given and analyzed across five dimensions: Visualization, understanding conflicting factors, reaching conclusions, convincing explanations, and developing solutions. Analysis of RTT results revealed that "this study confirmed the positive impact of PBL as a sig-

nificantly helpful teaching strategy in developing the students' reflective thinking." (p. 268) Weshah's (2012) concluding statement includes a plea for teachers to play an active role in guiding PBL and reflective thinking. One suggestion, in concert with an earlier discussed theme, was teacher generated hard scaffolds for facilitating PBL and reflection. These include reflective questions, graphic organizers, and guide sheets.

Song et al. (2006) also target reflection in their comparison middle school and college student PBL experiences. A specific definition of reflective thinking is absent in this study yet the research is consistent with the two companion reports highlighted in this theme. In a northeastern U.S. state, one hundred twenty-two middle school and 749 college students' PBL experiences and perceptions were compared to determine the impact on reflective thinking. Data were collected via a ten-question survey designed to measure "perceived helpfulness of factors that prompt reflective thinking" (p. 66). Both groups of students perceived the learning environment and scaffolding as helpful for reflective thinking. However, this overall perception differed by age group. Middle school student data emphasized the importance of "small group social learning" while college student data pointed to specific teaching and learning activities such as "teacher questions, reflective writing, or ill-structured tasks" (p. 82) as important. Based on these findings, the authors suggest that to effectively promote reflective thinking using PBL practitioners must consider developmental stages.

In summary, the three studies that investigated the relationship between reflective thinking and PBL provide some evidence that this instructional strategy was helpful. In addition, reflective thinking strategies such as reconstructing, visualizing, and using think time in these studies are consistent with the high school EfS performance indicators that encourage students to "write their own 'story of learning' in which they describe how best to learn and move to action" and "reflect on lessons learned regarding change strategies" (U.S. Partnership for Education for Sustainable Development, p. 12). The studies, however, are imbalanced with Dovros and Makrakis (2012) providing limited methods and results, Song et al. (2006) defining reflective thinking only in broad terms, and, in contrast, Weshah (2012) presenting a concrete research design and clear, justifiable results, lending more strength to the "positive impact" (p. 268). Together, the research reports begin to outline how to guide students beyond merely enjoying PBL to intentional implementation for cognitive development. In the end, three studies are not enough to draw any significant conclusions regarding the relationship between PBL, EfS, and reflective thinking.

Conclusions and Next Steps

The opening paragraphs of this review cited links between PBL and CCSS (Common Core State Standards). The first guiding question about learning academic content appears, at first glance, to be more in line with static standards and far from the real

world. However, consider the prominence of knowledge acquisition in another set of standards. The EfS standards seek to "define what K-12 students should know… to be sustainability literate" and help "students develop a knowledge base about the environment, the economy, and society" (U.S. Partnership for Education for Sustainable Development, 2009, p. 2).

Fortunately, the findings in this review suggest that PBL can be used successfully as a method for learning academic content to apply in problem solving. An exemplar for this merger is Antioch University New England's (AUNE) Critical Skills model of PBL underpinned by experiential, collaborative, and standards-driven learning (Mobilia, 2007, p. 4). Critical Skills explores approaches to teaching similar to those found by answering this review's second guiding question regarding PBL instructional strategies promoting EfS. EfS "uses a variety of pedagogical techniques that promote participatory learning and higher-order thinking skills" (U.S. Partnership for Education for Sustainable Development, 2009, p. 2). This review identified a strong thread of instructional techniques in response. Most prominently, the review revealed the importance of teachers using hard and soft scaffolding, an extension of Vygotsky's (1978) "guidance or … collaboration with more capable peers" (p. 86). Answering the next guiding question regarding EfS skills and understandings promoted by PBL makes a start at discerning what students should "be able to do to be sustainability literate" (U.S. Partnership for Education for Sustainable Development, 2009, p. 2). The collection of studies reviewed for this question yielded mixed results. Studies found group members with diverse skills filling important niches for problem solving and opposing results collaboration boosting performance of low-achieving students. Additional studies revealed reflective thinking as an important skill and disposition for PBL and EfS. To make good choices and work collaboratively for "the health and well-being of present and future generations" (p. 3) students need practice in being engaged, thoughtful, and dogged in problem solving. There is compounding evidence for the importance of reflecting thinking. Increasingly, pre-service and practicing teachers in higher education are focusing internship and theses on teaching reflective practice. One student's thesis was designed to "create a curriculum and positive learning environment for early elementary school children through nurturing spiritual development and wonder" (Sellers, 2008, p. 4). Another sought to integrate meditation in his math class as a way to teach students how to be better prepared to reflect and make sustainable decisions (Jamme, 2010). A third educator's purpose was to implement "mindfulness breathing into the daily routine and monitor its effectiveness in student behavior and work habits" (Kerr, 2015, p. 3). After engaging her students in nature journaling, another student observed that this mindful activity brought calm and focus to student work (Whitehead, 2015).

Based on the findings of this literature review, theoretical, methodological, and further research opportunities were uncovered. The major theoretical consideration is identifying what type of knowledge educators are seeking to generate during PBL and EfS. The first theme focused exclusively on the comparison of knowledge gained from PBL and traditional instruction. Most of the studies reviewed narrowly the correlation between instructional method and content acquisition. This may be a

sign that the research agenda is limited. PBL research can more emphasize learning outcomes far beyond content recall. Methodological considerations build on the theoretical. Taken together, the research reports reviewed present a strong research design mix. Qualitative, quantitative, case studies, mixed-methods, quasi-experimental, and experimental were included. This translates as a set of studies that probed multiple points of entry into PBL. Within this diverse set is a call for even more mixed-methods studies that reflect the complexity of PBL and EfS. Fragmenting skills and dispositions (e.g. communication, self-direction, problem solving) and content learning (e.g. space science, geography, and macroeconomics) within PBL is not always the most promising direction. The Dovros and Makrakis (2012) study of PBL impact on reflective thinking, on the other hand, presented the most significant methodological challenge. The study simultaneously presented the research focus most in line with this literature review and the weakest description of methodologies. Echoing Zeichner (2009), it is vital to present research findings explicitly to lend credibility to the work.

Five areas will benefit from further research: K-12 education, developmental levels, potential long term recall, lower-achieving and struggling students, and reflective thinking. As noted in introductory sections, PBL research and, for the purposes of this review, EfS are relatively rare at the K-12 level. To meet sustainability challenges of the twenty-first century, more EfS research is required. Thoughtful PBL and EfS research for different developmental levels will compliment this increased research activity. Sobel's (2007) "Ladder of Environmental Responsibility" that "gradually ups the ante of responsibility as children mature" (p. 20) can be used as a lens developing EfS programs and research studies. Two studies (Sungur et al., 2006; Wirkala & Kuhn, 2011) found that students participating in PBL demonstrated higher rates learning content further away from the learning experience. A research focus on long term retention may lead to more evidence in favor of transforming how we understand PBL and EfS, especially for applying knowledge to novel situations. The themes of interdependency and reflection also opened up opportunities for study. Both themes include relatively few research reports yet the evidence within raises important issues. PBL and EfS are time consuming and engaging methodologies challenging enough to implement even without facing significant student learning difficulties. One way to tackle the trepidation for PBL and EfS with certain student populations is further research to understand how mixed ability student groups navigate, fail, and succeed. The two studies reviewed in the reflection theme complimented each other in arriving at similar results, a boost to reflective thinking skills, yet the methods used to arrive at these findings were quite different. This theme as well deserves more research attention especially for its potential for shifting mental models for sustainability.

PBL is "one of the most important goals of education" and "should not be limited to well-structured problem solving, but be extended to real-life problem solving including the joint application of strong problem-solving methods and knowledge-based problem-solving methods" (van Merriënboer, 2013, p. 159). The themes and findings presented here reveal synergies in knowledge for problem solving, tools for action, working together for change, interdependency, and reflection. The use of the

national EfS standards as a heuristic device brought the thematic links between PBL and EfS to light. They amplify strengths in both fields and provide the real-life context about which van Merriënboer (2013) wrote. Mausethagen (2013), citing Carter, Stevenson, and Passy (2010), reminds us that "according to accountability policies, the 'core task' of the teaching profession is to improve students' academic performance; as a consequence, teachers become more disconnected from the students they teach" (p. 23). If one considers teacher as guide to applied learning, it is reasonable to extend this disconnection to students disengaged with the real world. Palmer (1998) transcends the teacher- versus student-centered binary: "Perhaps the classroom should be neither teacher-centered nor student-centered but subject-centered… this is a classroom in which teacher and students alike are focused on a great thing, a classroom in which the best features of teacher- and student-centered education are merged" (p. 117). A most important "great thing" (p. 117) in the twenty-first century is the real-life work inherent in EfS.

Key Chapter Concepts

1. Knowledge can be gained from PBL for EfS problem solving.
2. Hard and soft scaffolds are promising instructional strategies for PBL and EfS.
3. Interdependency can be promoted by PBL and applied to EfS.
4. Reflective thinking is a key skill that can result from PBL and EfS.

References

Albanese, M. A., & Mitchell, S. (1993). Problem-based learning: A review of the literature on its outcomes and implementation issues. *Academic Medicine, 68*(1), 52–81.

Artino, A. R. (2008). *A brief analysis of research on problem-based learning*. Eric Document: ED501593.

Barrows, H. S., & Tamblyn, R. (1980). *Problem-based learning: An approach to medical education*. New York: Springer.

Belland, B. R., Glazewski, K. D., & Ertmer, P. A. (2009). Inclusion and problem-based learning: Roles of students in a mixed-ability group. *Research in Middle Level Education, 32*(9), 1–19.

Belland, B. R., Glazewski, K. D., & Richardson, J. C. (2011). Problem-based learning and argumentation: Testing a scaffolding framework to support middle school students' creation of evidence-based arguments. *Instructional Science, 39*, 667–694.

Bocko, P. (2014). Leverage point: The shifting landscape of teacher evaluation. In D. Sobel, S. J. Gentile, & P. Bocko (Eds.), *National action plan for educating for sustainability* (pp. 18–19). Boston, MA: Houghton Mifflin Harcourt.

Bray, J. N., Lee, J., Smith, L. L., & Yorks, L. (2000). *Collaborative inquiry in practice: Action, reflection, and meaning making*. Thousand Oaks, CA: Sage.

Brush, T. A., & Saye, J. W. (2002). A summary of research exploring hard and soft scaffolding for teachers and students using a multimedia supported learning environment. *The Journal of Interactive Online Learning, 1*(2), 1–12.

Carter, B., Stevenson, H., & Passy, R. (2010). *Industrial relations in education. Transforming the school workforce*. New York: Routledge.

Cerezo, N. (2004). Problem-based learning in middle school: A research case study of the perceptions of at-risk females. *RMLE Online: Research in Middle Level Education, 27*(1), 1–13.
Chin, C., & Chia, L. (2004). Implementing project work in biology through problem-based learning. *Journal of Biological Education, 38*(2), 69–75.
Choo, S. Y., Rotgans, J., Yew, E. J., & Schmidt, H. (2011). Effect of worksheet scaffolds on student learning in problem-based learning. *Advances in Health Sciences Education, 16*(4), 517–528.
Cohen, L. M. (1999). *Philosophical perspectives in education*. Retrieved from http://oregonstate.edu/instruct/ed416/PP3.html
Delisle, R. (1997). *How to use problem-based learning in the classroom*. Arlington, VA: ASCD.
Dewey, J. (1938). *Experience and education*. New York: Simon and Shuster.
Dovros, N., & Makrakis, V. (2012). Transforming the classroom into a reflective community: A blended learning instructional approach. *Journal of Teacher Education for Sustainability, 14*(2), 73–88.
Drake, K., & Long, D. (2009). Rebecca's in the dark: A comparative study of problem-based learning and direct instruction/experiential learning in two 4th-grade classrooms. *Journal of Elementary Science Education, 21*(1), 1–16.
Ertmer, P. A., & Simons, K. D. (2006). Jumping the PBL implementation hurdle: Supporting the efforts of K-12 teachers. *Interdisciplinary Journal of Problem-Based Learning, 1*(1), 40–54.
Fatade, A. O., Mogari, D., & Arigbabu, A. A. (2013). Effect of problem-based learning on senior secondary school students' achievement in Further Mathematics. *Acta Didactica Napocensia, 6*(3), 27–43.
Ferreira, M. M., & Trudel, A. R. (2012). The impact of problem-based learning (PBL) on student attitudes toward science, problem-solving skills, and sense of community in the classroom. *The Journal of Classroom Interaction, 47*(1), 23–30.
Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational research: An introduction*. Boston, MA: Allyn and Bacon.
Gijbels, D., Dochy, F., Van den Bossche, P., & Segers, M. (2005). Effects of problem-based learning: A meta-analysis from the angle of assessment. *Review of Educational Research, 75*(1), 27–61.
Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine.
Goodnough, K., & Cashion, M. (2006). Exploring problem-based learning in the context of high school science: Design and implementation issues. *School Science and Mathematics, 106*, 280–295.
Haney, J. J., Wang, J., Keil, C., & Zoffel, J. (2007). Enhancing teachers' beliefs and practices through problem-based learning focused on pertinent issues of environmental health science. *Journal of Environmental Education, 38*(4), 25–33.
Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review, 16*, 235–266.
Hsu, C., Hwang, G., Chuang, C., & Chang, C. (2012). Effects on learners' performance of using selected and open network resources in a problem-based learning activity. *British Journal of Educational Technology, 43*(4), 606–623.
Hung, W. (2011). Theory to reality: A few issues in implementing problem-based learning. *Educational Technology Research and Development, 59*, 529–552.
Jamme, S. (2010). *Practicum write up*. Keene, NH: Antioch University New England. Unpublished master level practicum portfolio.
Jonassen, D. H. (2000). Toward a design theory of problem solving. *Educational Technology Research and Development, 48*(4), 63–85.
Kerr, M. (2015). *Equity and change practicum portfolio*. Keene, NH: Antioch University New England. Unpublished master level practicum portfolio.
Kolko, J. (2012). *Wicked problems: Problems worth solving*. Austin, TX: Austin Center for Design.
Liu, M., Horton, L., Omanson, J., & Toprac, P. (2011). A study of learning and motivation in a new media enriched environment for middle school science. *Educational Technology Research and Development, 59*, 249–265.

Lou, S., Shih, R., Diez, C. R., & Tseng, K. (2011). The impact of problem-based learning strategies on STEM knowledge integration and attitudes: An exploratory study among female Taiwanese senior high school students. *International Journal of Technology and Design Education, 21*(2), 195–215.

Luterbach, K. J., & Brown, C. (2011). Education for the 21st century. *International Journal of Applied Educational Studies, 11*(1), 14–32.

Mason, C. L., Kahle, J. B., & Gardner, A. L. (1991). Draw-a-scientist test: Future implications. *School Science and Mathematics, 91*(5), 193–198.

Mausethagen, S. (2013). A research review of the impact of accountability policies on teachers' workplace relations. *Educational Research Review, 9*, 16–33.

Maxwell, N. L., Mergendoller, J. R., & Bellisimo, Y. (2005). Problem-based learning and high school macroeconomics: A comparative study of instructional methods. *Journal of Economic Education, 36*(4), 315–331.

Mobilia, W. (2007). *The critical skills program level 1 coaching kit*. Keene, NH: Antioch University New England.

National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010a). *Common Core State Standards for English language arts and literacy in history/social studies, science, and technical subjects*. Washington, DC: National Governors Association Center for Best Practices & Council of Chief State School Officers.

National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010b). *Common core state standards for mathematics*. Washington, DC: National Governors Association Center for Best Practices & Council of Chief State School Officers.

Nowak, J. A. (2007). The problem with using problem-based learning to teach middle school Earth/Space science in a high stakes testing society. *Journal of Geoscience Education, 55*(1), 62–66.

P21: Partnership for 21st Century Learning. (n.d.). *P21 common core toolkit*. Retrieved from http://www.p21.org/index.php?option=com_content&view=article&id=1005&Itemid=236

Palmer, P. J. (1998). *The courage to teach: Exploring the inner landscape of a teacher's life*. San Francisco, CA: Jossey-Bass.

Pedersen, S., & Liu, M. (2002). The effects of modeling expert cognitive strategies during problem-based learning. *Journal of Educational Computing Research, 26*(4), 353–380.

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*, 155–169.

Sage, S. M. (1996). *A qualitative examination of problem-based learning at the K-8 level: Preliminary findings*. Presented at the Annual Meeting of the American Educational Research Association, New York, NY.

Salomon, G. (Ed.). (1993). *Distributed cognitions: Psychological and educational considerations*. Cambridge, UK: Cambridge University Press.

Sellers, J. (2008). *Nurturing peace: Contemplation on compassion, spirituality, character, and curriculum*. Amherst, MA: Hampshire College. Unpublished Division III project.

Senge, P. M. (2010). Education for an interdependent world: Developing systems citizens. In A. Hargreaves, A. Lieberman, M. Fullan, & D. Hopkins (Eds.), *Second international handbook of educational change* (pp. 131–151). New York, NY: Springer.

Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14.

Simons, K. D., & Klein, J. D. (2007). The impact of scaffolding and student achievement levels in a problem-based learning environment. *Instructional Science, 35*, 41–72.

Simons, K. D., Klein, J. D., & Brush, T. R. (2004). Instructional strategies utilized during the implementation of a hypermedia, problem-based learning environment: A case study. *Journal of Interactive Learning Research, 15*(3), 213–233.

Sobel, D. (2007). Climate change meets ecophobia. *Connect*, 14–21. Retrieved from http://brandwein.org/sites/default/files/David_Sobel_Climate_Change_meets_Ecophobia.pdf

Sobel, D. (2014). Introduction. In D. Sobel, S. J. Gentile, & P. Bocko (Eds.), *National action plan for educating for sustainability* (pp. 6–9). Boston, MA: Houghton Mifflin Harcourt.

Song, H., Grabowski, B. L., Koszalka, T. A., & Harkness, W. L. (2006). Patterns of instructional-design factors prompting reflective thinking in middle-school and college level problem-based learning environments. *Instructional Science, 34*(1), 63–87.

Sungur, S., Tekkaya, C., & Geban, O. (2006). Improving achievement through problem-based learning. *Educational Research, 40*(4), 155–160.

Torp, L., & Sage, S. (2002). *Problems as possibilities: Problem-based education for K-16* (2nd ed.). Arlington, VA: ASCD.

Tseng, K., Chang, C., & Lou, S. (2012). The process, dialogues, and attitudes of vocational engineering high school students in a web problem-based learning (WPBL) system. *Interactive Learning Environments, 20*(6), 547–562.

U.S. Department of Education (2001). *No Child Left Behind Act of 2001*. Retrieved July 31, 2003, from http://www.ed.gov/offices/OESE/asst.html

U.S. Partnership for Education for Sustainable Development (2009). *National education for sustainability K-12 learning standards*. Washington, DC: U.S. Partnership for Education for Sustainable Development.

van Merriënboer, J. J. G. (2013). Perspectives on problem solving and instruction. *Computers and Education, 64*, 153–160.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Ward, J. D., & Lee, C. L. (2004). Teaching strategies for FCS: Student achievement in problem-based learning versus lecture-based instruction. *Journal of Family and Consumer Sciences, 96*(1), 73–76.

Weshah, H. A. (2012). Measuring the effect of problem-based learning instructional program on reflective thinking development. *Journal of Instructional Psychology, 39*(3/4), 262–271.

Whitehead, A. (2015). *Curriculum practicum portfolio*. Keene, NH: Antioch University New England. Unpublished master level practicum portfolio.

Wirkala, C., & Kuhn, D. (2011). Problem-based learning in K–12 education: Is it effective and how does it achieve its effects? *American Educational Research Journal, 48*, 1157–1186.

Yeo, J., & Tan, S. C. (2014). Redesigning problem-based learning in the knowledge creation paradigm for school science learning. *Instructional Science, 42*(5), 747–775.

Yukhymenko, M. A., Brown, S. W., Lawless, K. A., Brodowinska, K., & Mullin, G. (2014). Thematic analysis of teacher instructional practices and student responses in middle school classrooms with problem-based learning environment. *Global Education Review, 1*(3), 93–110.

Zeichner, K. M. (2009). A research agenda for teacher education. In M. Cochran-Smith & K. M. Zeichner (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 737–759). Washington, DC: AERA.

Zhang, M., Parker, J., Eberhardt, J., & Passalacqua, S. (2011). 'What's so terrible about swallowing an apple seed?' Problem-based learning in kindergarten. *Journal of Science Education and Technology, 20*(5), 468–481.

Part III
The Role of Education and Sustainability

Chapter 9
Developing a Culture for Sustainability in Educational Organisations

David Middlewood and Ian Abbott

Abstract Values and beliefs lie at the heart of any organisational culture, expressed through artefacts and symbols, but especially though the behaviour of the people there. Key principles for sustainable cultures include recognising individual contributions, using fewer consumable resources, diversity and community working. Examples are given of school initiatives which show commitment to conservation. The role of leaders is critical in developing such cultures and leaders' ability to think strategically and ensure personal goals cohere with school ones are central. Such leaders tend to be reflective, modest, unselfish, fair and effective at managing change. Change at local level is the key to larger scale reform at national educational system levels, and can address economic and political issues. Further examples stress schools' community involvements and underline the conclusion that the greatest inspiration for young people in developing sustainable cultures is the actions and behaviour of leaders and other relevant adults.

Keywords Culture • Sustainability • Conservation • Community • Role models

Introduction

This chapter defines organisational culture and examines the factors which contribute to encouraging sustainability. It discusses the role of leadership in achieving this and some possible barriers, before going on to consider the implications of a sustainable school culture in various fields such as community, economics, and politics. It ends with a few suggestions for practical strategies which may lead to achieving this kind of culture.

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What Is Meant by Organisational Culture

It is not difficult to find broad agreement in the literature on the main features of organisational culture. Schein (1997, p. 9) calls it a "pattern of basic assumptions" about the way people in an organisation will behave in certain situations, acting according to what has become established practice, based on agreed principles and beliefs. Hofstede (1991, p. 9) refers to it as something intangible, what he calls the "software of the mind." This places it apart from the 'hardware' of specific public actions such as policies, plans and procedures. This distinction fits with the iceberg model of an organisation (Plant, 1974), in which the visible manifestations of plans and policies, are above the waterline, whereas all the cultural features of values and beliefs are unseen, below that waterline. Walker (2010, p. 378) suggests there are three elements to organisational culture. The first are the artefacts or visible symbols in which can be seen the culture of the organisation; the second are the principles and beliefs on which are based the actions and behaviours of the people working there; the third are the 'invisible even unconscious workings' of the organisation. These ways of approaching a problem or situation have become taken for granted because 'that is the way we do things here.'

Values and beliefs therefore lie at the heart of any organisation's culture and since any organisation exists with a key purpose, these are, indeed, must be, embodied in any statement of that purpose. Since we are here concerned with educational organisations, primarily with schools, it is reasonable to assume the key purpose relates to learning, and the values expressed therefore are learning-centred. An examination of various statements of aims of schools, colleges and universities shows expression of lofty aspirations and high ideals in inspiring the learners to achieve their full potential in learning. They may also refer to preparation of 'future citizens'. In the twenty first century context of concern about the future and issues of sustainability, such purpose statements need to express that also. Perhaps, they should include reference to the notion of success but 'not at the expense of others', for example? However, such statements are mere words, or 'visible symbols' (as above); far more important is whether the daily behaviour in the school reflects a culture which in itself reflects such beliefs.

Cultures Encouraging Sustainability

What are the features of an educational organisation which in its operation encourages its people to encourage an effective approach to sustainability? We suggest there are some key principles, such as:

1. Individual contributions DO make a difference.
2. Sustainability is not a minority interest, but is everyone's business.
3. We can live perfectly comfortably with less than we consume now.

4. A school has an obligation to work with its community, involving itself in and respecting that community.
5. Sustainability connects by its very nature with a commitment to diversity and collaboration.

Each of these has profound implications for action, something which is important for everyone but perhaps especially for children and young people who have a healthy disrespect for any persons-mostly adults—who may be seen to be *preaching at them about the virtues of some project or other* (to quote from a focus group discussion with six 16 year olds!).

For sustainability to be a key value in any organisational culture, as noted earlier, it has to be seen and experienced in the everyday behaviour of that place. For example, the first of these principles depends eventually on everyone believing that their own minor actions do count towards the overall impact. To quote another member of the same focus group, *If I refuse a plastic bag and the person next in the queue accepts one, I might wonder why I bother. We've got to make everyone—or nearly all—think the same*. Number three of the above principles is not about adopting a 'hairshirt' approach to one's lifestyle but can be about reducing the extraordinary amount of waste in, for example, supermarkets and cafes and restaurants.

An effective culture for encouraging sustainability will therefore need to be supplying evidence at all stages that a belief in and commitment to sustainability really can and does 'meet present needs without compromising the ability of future generations to meet their own needs' (Brundtlandt, 1987-adapted). It needs to do this both to encourage the present personnel to become committed and also to inspire future people to learn that certain approaches were desirable and effective and are worth continuing and developing. Some of the following examples came during unfunded research carried out by the authors in directly visiting or accessing the websites of a range of schools in England.

- Pupils in a primary school collected rain water over a period and then the principal arranged for engineers to connect the supply so that toilets used this water. To quote a teacher, *Now, rainy days are not dreaded by the children. I have heard them hoping it would rain even*! Here, the school's water bills decreased dramatically and it was easy to demonstrate that the money saved had bought something more exciting.
- In a secondary school, students were given access to the school's electricity bills and were able in detail to analyse how electricity use could be reduced. These students led a campaign to avoid wasteful use of power in the school (simple things like cutting down 'stand-by' power on machines). Again, the money saved could be seen to be better used.
- Waste reduction—scandalised by a film shown about supermarkets and restaurants throwing away tons of edible food, a secondary school resolved to change habits, bringing a mini-revolution in the school canteen.
- Recycling—a primary school not only completely changed its habits about use of paper (always use both sides!), but asked questions about recycling plastic. This led to engineers and builders visiting the school to show how recycled

plastic is being used as house building material. This, followed by a visit to a building site, not only showed how fewer trees needed to be felled but began to change notions that plastic is always the enemy!

- 'Grow your own' projects were plentiful and especially popular in urban areas. Not only were the pleasures of 'real taste' discovered but the realisation that the 'funny shaped' vegetables sometimes produced were the very ones supermarkets were throwing away reinforced the commitment to waste reduction. Such projects also showed how waste material made good compost, grew more food and so on into a virtuous circle.

These are just a few examples of sustainability 'for conservation', along with more ambitious ones involving solar panels and other renewable energy projects. Such projects needed to have visible benefits so that children and young people can see that there is more to the initiative that adults going round switching off lights or complaining about waste of paper. Such actions can always be put down to the eccentricities of adults and therefore dismissed as not relevant!

In most of the cases found, the children and young people had at some stage been asked to imagine a school of the future, perhaps an ideal one. These often involved all kinds of automated devices and remote control engineering. But when discussed, what appeared to have emerged were insightful debates on how learning would occur, how physical fitness would be improved and how movements towards such ideal schools of the future could be helped by what is done NOW. Such debates are part of embedding sustainability into the curriculum and moving it from being simply an extra or add-on project. Inevitably, some projects begin with the backing of an enthusiast and equally inevitably some projects fail. Pepper (2014) mentions this in describing the narratives of some leaders in Western Australian schools, with people "losing interest" (Pepper, 2014, p. 514), among other very successful projects.

However, vitally important though sustainability for conservation is, sustainability involves above all an outlook or attitude towards the most meaningful aspects of human activities linking the present to the future, especially those which rise above self-interest, and contribute to a better future for everyone. The importance of such conservation projects as described above is that whatever success they may have should be seen as steps on a long-term journey (Hargreaves & Fink, 2006). In an effective culture for sustainability, short-term results need to be seen as indicators of progress towards the long-term goal. When short-term and long-term agendas are seen to be complementary, rather than in conflict, then an organisation is on course to achieve that culture. The occasional failure or premature ending of a project needs to be seen as an indicator of the rich diversity already mentioned, which, according to Fullan (2004), is always to be preferred to 'soulless standardisation' (2004, p. 37) in achieving sustainability. The references to long-term goals and their attainment leads us now to a consideration of the vitally important role of leaders in achieving this required culture.

The Role of Educational Leaders

The importance of leaders in developing and influencing an organisation's culture is widely recognised (Bush, 2012; Bush & Middlewood, 2013; Collins, 2006; Hammersley-Fletcher, 2015; Walker, 2010). The leader's values and beliefs, whilst they cannot and should not be imposed on those of other members of the organisation, set the tone and over time help strongly to develop a culture in which certain values and beliefs are manifest in the way it operates. Thus, in considering a culture for sustainability, the leader of the organisation will hold a firm belief in the vital importance of the values and beliefs which hold sustainability at their core, and will strive with others to try to ensure that these are expressed in daily operations, short-term and long-term targets and plans. We suggest the leader's actions will need to include:

- Helping to set and commit to a clear vision of what the organisation will be like in the future, a vision that is to be aspired to, and also one that is realistic based on available evidence. A vision is simply a mental picture of a possible and desirable future and, whilst outlined perhaps by the leader, will be embraced in its final form by everyone in the organisation.
- Making explicit the values inherent in aiming to achieve the vision. Such values need to be, according to Davies (2006), easily understood by others, but also to be demonstrable (in other words, we shall know they are being applied by the actions we observe being taken). But importantly, Davies (2006) suggests they must also be consequential, that is, holding these values leads to certain actions. This is an important point to make because ultimately the values become the actions and the actions become the values, and are being lived out in the daily lives of the people working in the school or college.
- Being a role model by living those values and overtly showing a commitment to them. This may often involve an almost stubborn refusal to be side-tracked in an educational world, where national or governmental policies may suggest, for example, resources are available for initiatives which might be seen by the leader and others as a distraction or, even worse, in opposition to the sustainable long-term agenda. Fuller (2006), in a study of headteachers leading for social justice, found this kind of conflict a major source of stress for school leaders in England. Abbott, Middlewood, and Robinson (2015) quote school leaders who were resolute in adhering to values, even when tempted by finance. One head in saying that funds must be related to our key aims and values said, 'If not, why would we have them in the first place? They would soon get distorted'. And another commented that 'it has been sad in the past to see some schools chasing honeypots of money offered by governments even when the money was for projects that would throw the school off course. It is very difficult in tough financial times, but otherwise, no one will know what the school stands for.'
- Ensuring that personal goals and organisational goals cohere, not just for self but for everyone in the organisation.

- Encouraging collegiality in terms of problem-solving, debate and open disagreement, and equity in reward allocation.
- Encouraging an ethos within which experiment and therefore occasional failure is accepted (Schein, 1997).
- Thinking strategically. Among the various aspects of strategic leadership thinking, as listed for example by Middlewood (1998, p. 8), those that may be particularly pertinent to a commitment to sustainability are perhaps, firstly, "identifying opportunities," and "constantly examining the external environment." The strategic leader for sustainability will be alert to what is occurring at local, regional, national and global levels, spotting the difference between a trend and a 'bandwagon'! They will within reason be able to be ready for some of the future pluses and minuses both of which are inevitable.
- Finally, although it may be a truism to say so, one of the most vital actions of leaders in schools or colleges in in recruiting and selecting and having 'on board' the right people. Collins (2006, p. 3) calls this simply "Getting the right people on the bus." In state education, there are significant constraints as to recruitment and selection, particularly in countries with centralised education systems (See Middlewood, 2010, pp. 133–135 for a discussion of this). The ideal team of personnel in a school with a sustainable culture will have people who have chosen to be committed to a sustainable future, and not cajoled or even merely initially inspired by a leader waving that specific banner. Noted, echoed by many later writers that true leadership only exists if people follow when they have the freedom not to.

To be able to do these things, we need to consider some of the qualities an education leader needs to possess. As with the leadership activities, literature abounds with evidence of these and we here note those that are especially relevant to a leader committed to developing a culture of sustainability.

Firstly, there is the need to be reflective. Hamel and Prahalad (1994, p. 4) noted how easy it was for leaders to allow "the urgent to drive out the important," meaning that in turbulent times for education and society, with constant new policies and desire for immediate answers or results, they might increasingly be judged by how quickly and efficiently they responded to new initiatives, rather than by more enduring effectiveness factors. The effective leader needs to be able to look beyond the present and consider the longer term issues within which the current situation fits or conflicts with. Fullan (2004, p. 22) calls this a "wisdom", relating it to the way human resources need to be and can be renewed as needed. Others such as Covey (1987, p. 235) were clear that the prerequisite to reflectiveness is self-reflection, "Seek first to understand then to be understood."

This ability to be reflective is in no sense a passive virtue. Fullan (2004, p. 22) suggests there is a need for leaders to both "act urgently" and show "patience". Some situations cannot be left alone and in the case of certain physical environmental contexts, there are many who believe this to be true (Coyle, 2011). At the same time, results may not be immediate, hence the need for patience to await the desired outcome. Thus, reflectiveness is allied to adaptability.

Secondly, as suggested by Collins (2006), the patience referred to may be seen as allied to his belief that sustainable leaders are never the flag-waving, loudly charismatic types who may for example bring about a change overnight. Rather, effective sustainability leaders have selflessness. Collins (2006) suggests such leaders as having a 'quiet' determination, and demonstrating a compelling 'modesty.'

"No matter how much you have achieved, you will always be merely good relative to what you can become.—The moment you think of yourself as great, your slide towards mediocrity will have already begun" (2006, p. 9). Such leaders put the organisation before self and channel their energy into the school or college and not into what will reap rewards for them personally. Self-gratification is something which may come eventually through recognition of one's achievements but it is not a part of any agenda for the present or immediate future.

A third quality to stress is a clear belief in and commitment to equity and fair mindedness. In any reasonable circumstances, this is a reasonable requirement but in a context of commitment to sustainability the notion of avoiding actions which bring harm to others brings with it the avoidance of the superiority of one person or group at the expense of another. Thus, the leader will be committed to equitable reward systems within the organisation, and to ensuring that everyone has a right to make a contribution to debate on problems or issues facing the organisation.

Fourthly, the leader will be one who has a positive attitude to change, encourages this attitude in others, and is skilled in leading and managing change. This topic is such an important one, especially as related to the culture of an organisation that it is worth looking at in more detail now.

Change

If cultures are about enduring values and beliefs linked to the organisation's (in this case the school's) key purpose, then we need to examine how an effective culture with appropriate values can evolve in future environments. In other words, how can a culture be in itself sustainable? Of course, sustainability is not the same as "maintainability" (Davies, 2007, p. 23). Rather it is the ability of schools "—to continue to improve to meet new challenges and complexity in a way that does not damage individuals or the wider community but build capacity and capability to be successful in new and demanding contexts" (ibid).

The advice of Collins and Porras (1994) to start slowly and advance positively, as well as Fullan's (1999) advice to think big but start small, seem to be stressing that change which is effective and will last will not come from any single flash of insight or "Road to Damascus' moment. This is particularly true of culture change where cultures are values based and slow to evolve. "Most people's beliefs, attitudes and values are far more resistant to change than leaders typically allow" (Hargreaves, 1999, p. 59).

The effective sustainable leader understands this and, since they are by their very nature committed to a long-term approach, is prepared to continue to persist in

projects which themselves develop sustainability but also to learn from diverse experimentation on the journey and realise this will include failure at times.

Effective change in the twenty first century is not going to be achieved through large scale or top-down initiatives or through individual or small scale actions. The first is described by Hargreaves (2010, p. 34) as "counter-productive" and the second as "inadequate." The impetus for lasting change is likely to come from the level of "family and community" (Brock, 2011, p. 35). This is a powerful message for a school or college and its leaders with a commitment to sustainability because the school will be, as part of that commitment, deeply involved in the community or communities which it serves and which it is part of. In many developed countries, where a market based education system operates, schools have become dislocated from their communities as parental choice dictates choice of school. Where this means several urban schools serve the same communities, collaboration between these schools is likely to become more and more inevitable. In less developed countries, where the urban/rural divide is often a problem, along with a lack of resources, and involving long distances for travel to and from remote locations, collaboration between schools in some form or another seems increasingly likely to have an important role to play in effecting change for the good.

Of course, changing a culture to achieve all these is far from easy and leaders face a number of potential problems, which are described in the next section.

Barriers to Achieving a Sustainable Culture

In any urging of collaboration between educational organisations to achieve the greater good embodied in sustainability, leaders and the organisations themselves are faced with the fact that for a large part of the global context, education exists in a competitive or at least market-driven environment. As Hentschke (2007) notes, the completely market-driven world of business is for many organisations essentially short-term and "the vast majority of businesses have NOT sustained themselves over long periods of time" (2007, p. 140). This is partly because of the constantly changing environment but he notes that "the environment of schooling is increasingly fluid," (2007, p. 146), and that the realities of operating in a market environment mitigate against using sustainability as a selling point in the compulsory education sector.

A key point here is that schools have, in competing against each other in attracting student numbers, inevitably become disconnected from their local communities, thus undermining one of the tenets of a sustainability culture. If the student intake comes from a range of different geographical communities, is the school's community the one immediately adjacent to its physical site, or anywhere from where students live to travel to school? Furthermore, how can the basic premise of 'do no harm' to others work when the environment encourages a school to outdo other schools in terms of student attainment, for example? Such situations are most commonly seen in urban contexts of course, but the issue can be equally relevant in rural ones where children

may have to travel large distances for access to school, especially at secondary level. This problem can be even more acute in less developed countries, where transport problems are greater (Brock, 2011).

A second potential barrier, inextricably linked with a competitive environment is the pressure on schools-and indeed all other educational organisations—for instant success. Results, in terms of student attainment, must be achieved now and improved straightaway. Under-performing schools must be 'turned round' immediately. Whilst it might seem reasonable to give leaders time to improve outcomes and have strategies that will bear fruit in a few years, parents may find this hard to accept, when they have children who are at the school NOW who only have this one opportunity at compulsory education?

In a modern world of obsolescence, in the developed countries, we have become accustomed to what is commonly known as 'the throw-away society', in which nothing lasts long and virtually everything can be quickly replaced by something new, 'better' and more 'up to date'. In the explosion of technology of recent and current times, even if there is nothing immediately at hand to replace, there will be something coming along very soon, as the frenzied advertising in advance of the 'next big thing' in e phones or e games shows. All this can make a focus on the future with responsibility for everyone else seem 'old-hat' to many young people.

These are formidable issues to be faced for those striving for a culture based on sustainability. They can be encouraged by Collins and Porras's (1994) study of a large number of companies to discover why some lasted and others struggled or faded away after a short period. They found that the biggest factor in the success of the companies that remained healthy, well-known and prosperous was a system of core values. Thus a system of values based on sustainability would seem to be relatively placed for endurance!

If an organisation such as a school or college develops a culture which encourages those things which will make the future improved for those connected with it, then the possible impact may be now considered in certain areas.

Implications for Impact on Community

The area in which the school or college can make the biggest contribution to this future is in its relationships with its community or communities. A school's commitment to this through the service of education is based on a belief that "people do grow while 'being served' so they become capable of being servers themselves" (Middlewood & Parker, 2009, p. 34). Leaders can take one of two approaches, according to Dyson (2006, p. 93) in that they can either focus on what local people lack or cannot do, and "try to change these negative or dysfunctional aspects of individuals or families" or they can focus on the disadvantaging circumstances and limiting opportunities and try to change "those circumstances rather than the people themselves." Ideally, both might need to be addressed but, pragmatically, a school or college will focus on what is specifically appropriate in THEIR context. The effective

school is likely to identify barriers to achievement and social inclusion and then analyse these according to which can be:

– addressed by the school alone, with the home giving support as needed;
– addressed by joint school-community action; and,
– addressed by the community in the long term.

Thus, a poor diet, low attendance rates, and poor homework response may be seen as ones where the school in its professional role takes the lead and can exert influence and pressure on parents to support the school for the benefit of the child. A number of schools in deprived urban areas appoint home/school workers who visit homes regularly (Abbott et al., 2015; Dryfoos, Quinn, & Birkin, 2005) and have dramatic impact on attendance, and numerous schools provide breakfasts and other meals at school.

However, certain barriers to achievement and inclusion can be listed:

– high teenage pregnancy rates;
– school's native language not spoken at home;
– anti-social and criminal behaviour;
– culture of substance abuse;
– debt; and,
– family isolation.

Some others can only be addressed through joint action of the school and the community. The value in joint action being the only way to reduce the barriers is that it prevents the school from being tempted to adopt, however unintentional, a patronising tone. Where a school claims to have all the answers for the community, the community will only listen to a few of them, and the idea of one group's superiority to another is perpetuated. Space here does not permit us to give more than a few examples of schools' interactions with their communities which we believe is evidence of a belief in social capital and a commitment to improvement in the next generation.

- Health and sexual advice clinics, some based on school sites, some in health centres attached to school—all staffed by health and agency professionals-and available to pupils and the community members;
- Sessions run by school staff on Mothers' and Daughters' Personal Safety and Self-Defence. Some were held at the schools, some at public facilities in the community;
- Use of a flat in a town used as a 'home from home' for young people at risk or as respite for young carers-staffed by a school-appointed person;
- Programmes for highly qualified immigrants who are taking low-level jobs to improve language skills and offer advice on job applications-offered by school staff;
- Students of 16–18 years going to nursery and primary schools to help with basic reading and craft skills; and,
- 'Drop-in centres' for parents or other family members who want to talk about issues without being made to feel they are 'failing' their children. These are usually held not at the schools but at a convenient local facility.

These are just a small number of examples of how schools interact with community members to improve achievement for all and to overcome some barriers to this. A quote from a long-serving headteacher of a primary school in a very deprived area of the north of England summarises perhaps the principle involved: "It is about what we can give, not what we can get. My job as leader is not to do everything but to try to make sure that everything gets done well" (quoted in Middlewood & Parker, 2009, p. 111).

Some of the values embedded in such initiatives include a stronger understanding of causes of inequality, of how fulfilment does not necessarily depend on affluence, and the personal and mutual satisfaction in collaborative endeavours for success. Such values and principles embedded in all those involved are surely part of a sustainable culture.

Impact on Economic Development

For many years there has been an on-going debate about the relationship between education and economic performance and development. In many developed countries there has been a tendency to see education as a means to secure continued economic prosperity. For example, in Britain, this has been put forward as a straightforward relationship:

- In a global economy Britain must be able to effectively compete with other countries.
- Given Britain is not able to compete on the basis of cost due to the emergence of low-cost economies we have to focus on ideas, innovation and high skill sectors (the so-called knowledge economy).
- To enable Britain to compete, standards in the schools have to be high and rising at least as fast as those in our competitors.
- The government has a responsibility to ensure that standards continue to rise in schools and colleges to develop strategies and systems that produce skilled and motivated young people.
- This will involve major changes in the education system in order to maintain our level of competitiveness.
- A successful education system will produce young people who are able to make a positive contribution to the economic well-being of the country.
- A flexible and skilled workforce will enable Britain to successfully compete in a global economy (Abbott, Rathbone, & Whitehead, 2013, pp. 136–137).

In practice this relationship is likely to be anything but straight forward. In many developed economies, schools are encouraged to promote sustainability in terms of ensuring the continuation of the countries' relative economic success through improving test scores.

In developing countries there is also a perceived correlation between education and future economic performance. In these countries education can be seen as the

means of securing economic development. However, if many schools lack basic facilities and services, it is more difficult for them to raise performance levels to support economic development. In South Africa, a country that has made some progress in education, poor educational opportunities can perpetuate the idea of a 'two nation or two economies state' (Fleisch, 2008, p. 3). In developing countries, education has to raise attainment levels in order to achieve some degree of sustainability. In countries such as Tanzania which, for example, has the lowest qualified teaching force in sub-Saharan Africa and which has serious issues around completion rates with approximately half of the school population having left the system by the age of 14, the issue of developing a culture of sustainability in schools and colleges is unlikely to be top of their list of priorities (UNESCO-CIFT Project, 2014). Their first task is to ensure adequate levels of resource to enable basic provision before thoughts can turn to sustainability (Wilson, 2010). However, once schools and colleges have achieved some adequate level of provision there has to be consideration of sustainability and the development of cultures of sustainability.

In debating the economic imperative, there arises the broader question, facing both developed and developing economies, around the issue of what is the purpose of education? An education system or organisations based solely on economic considerations are unlikely to stand the test of time. Education has a much broader purpose and should be a basic human right for all. Developing an awareness of culture or environmental issues should be just as important as preparing young people to access employment and to become economically active. According to Pring:

> The purpose of education, therefore the content of educational programmes, the standards by which educational progress is judged, the idea of the educated person itself are all permeated by feelings and judgements of value. Ultimately it all depends upon one's view of the life worth living. (Pring, 1995, p. 135)

The huge challenge therefore for educational institutions in developing countries which lack economic 'clout' is to encourage sustainability values against a background sometimes of young people being aware of greater prosperity elsewhere. This is very difficult of course and hence the focus needs to be on those related values described above.

Political Development

In many countries, in terms of political development, education has become a 'political football' with opposing political parties using education policy as means of trying to garner electoral support and as a means of securing political advantage. This has often resulted in frequent changes of education policy and schools and colleges being forced to react to those policy changes (see for example Gunter, Hall, & Mills, 2014; Chapman & Gunter, 2009). According to Abbott (2015, p. 334):

> education policy has become a major part of the political process as successive governments have placed education at the forefront of the policy agenda … Greater

> control of the education system has been exerted by the central government at the expense of local accountability and education is viewed as an issue of national interest.

Increasing political interest and state involvement in education can be viewed as positive because it can lead to additional resources and a culture of improvement and renewal, although these additional resources only come with greater accountability requirements. This increase in scrutiny and control can also lead to potential problems for school leaders and teachers. If school leaders are under pressure to change their school policies, due to frequent changes of policy, it becomes difficult for them to develop a sustainable plan and policy strategy for their organisation. There is a danger that educational organisations are not allowed to operate autonomously and they may lose contact with their own communities. According to Ball, Maguire, and Braun (2012, p. 10) "schools have to make careful and sometimes painful decisions about where their policy priorities lie." In practice this can be a daunting prospect for school leaders and their actual amount of freedom to make their own decisions may be limited by external controls imposed directly by government or through their agencies.

Therefore, as we pointed out earlier in the chapter, it is important that school leaders develop a series of values that enable them to cope with any political demands that may be placed on them. Begley (2010, p. 52) has put forward the view that the "meta values of the profession" have to have an important role to play in the decision making process of school leaders, and they need "to lead, to navigate through multiple and conflicting interests." The ability to mediate policy has become an important part of a successful school leader's role. This will enable them to deal with any potential political influence and to ensure a degree of sustainability that can be communicated to staff and students. In a climate of rapidly changing policy and constantly shifting external demands, often driven by political factors rather than educational concerns, it is important that a sustainable educational culture is established that allows for some degree of continuity and maintains links with the wider local community.

Strategies for Achieving Sustainable Cultures

In summarising some of the issues raised in this chapter, we suggest some of the ways in which schools or colleges may consider their approach to developing a culture for encouraging sustainability.

Firstly, you can only start from where you are now. If there is uncertainty, some kind of audit of attitudes and beliefs might be a valuable starting point.

Secondly, if change involving moving towards a more sustainable culture is seen to be necessary, do not make the error of focusing more on changing the overt symbols or artefacts of the culture than on what those symbols represent. Middlewood and Abbott (2017) describe a case study of two schools that both included a change

in the school uniform as part of the move to 'change the school culture' both introduced the new uniform and were strong on its implementation, insisting on adherence. Results in both schools initially improved but after 3 years, one school continued to improve whilst the other had plateaued. Research showed that in the second school, students were resentful of the 'petty' rules which they 'got round' whenever possible and, significantly, staff were also resentful of having to spend so much time on checking on what students were wearing. In the other school, students had taken over responsibility for checking uniform and generally students were unconcerned about the uniform. Further research found that one school had assumed that the new uniform would automatically bring the virtues of respect and pride in the school and had relied on telling the students that was what the uniform was for. The other school had shown all kinds of other ways which gave the students pride and respect in themselves so that they were happy to wear the uniform to represent that. That school had a culture and the students wore the uniform because of that; in the other school, the uniform had ironically bred some resentment at a culture of being told to be proud of the school.

Be role models for sustainability. Whilst being a passionate advocate for certain beliefs can be admirable, such fervour can also discourage children and young people unless they can observe tangible benefits for themselves and their futures. Encourage idealism but blend it with realism! It is more important that adults in a school or college show in their everyday conversations and actions that they are committed to a sustainable future. Children have always been alert to the adult concept of 'Do as I say!' and are more convinced by 'Do as I do!'

Conclusions

Leadership is crucial in all this. If a commitment to sustainability is virtually all invested in a single leader, however visionary, it is almost certain the commitment will collapse when that person leaves and a new leader takes up the reins. The advice from nearly all of the writers on sustainable educational organisations (Bush & Middlewood, 2013; Collins, 2001; Collins & Porras, 1994: Davies, 2007; Fullan, 2004; Fullan & Sharratt, 2007; Hargreaves & Fink, 2007) is to, in effect, 'grow your own leaders.' Thus, succession planning for leaders becomes crucial. If this initially has to be within a select number of schools that have an appropriate culture, then this may be acceptable. Further ahead in the future, as more and more schools achieve these cultures, then those leaders who have exhibited the ability to form effective relationships with a significant number of staff, all committed to the same future, may be making a most valuable contribution to sustainability by enabling these people to have capabilities in leading others. In other words, the most important thing the leader of such an organisational culture can do to ensure its growth and development is to ensure that its future leadership is appropriate.

Key Concepts

1. Culture Conservation
2. Community
3. Leadership
4. Change

References

Abbott, I. (2015). Politics and education policy into practice: Conversations with former secretaries of state. *Journal of Educational Administration and History, 47*(4), 334–349.

Abbott, I., Middlewood, D., & Robinson, S. (2015). It's not just about value for money: A case study of values-led implementation of the Pupil Premium in outstanding schools. *Management in Education, 29*(4), 178–184.

Abbott, I., Rathbone, M., & Whitehead, P. (2013). *Education policy*. London: Sage.

Ball, S., Maguire, M., & Braun, A. (2012). *How schools do policy*. London: Routledge.

Begley, P. (2010). Leading with moral purpose. In T. Bush, L. Bell, & D. Middlewood (Eds.), *The principles of educational leadership and management* (pp. 31–54). London: Sage.

Brock, C. (2011). *Education as a global concern*. London: Continuum.

Brundtlandt, G. (1987). *Our common future*. New York: United Nations.

Bush, T. (2012). *Theories of educational leadership and management* (4th ed.). London: Sage.

Bush, T., & Middlewood, D. (2013). *Leading and managing people in education* (3rd ed.). London: Sage.

Chapman, C., & Gunter, H. (Eds.). (2009). *Radical reforms: Perspectives on an era of educational change*. Oxford: Routledge.

Collins, J. (2001). *Good to great*. London: Random House.

Collins, J. (2006). *Good to great and the social sector*. London: Random House.

Collins, J., & Porras, J. (1994). *Built to last: Successful habits of visionary companies*. New York: HarperCollins.

Covey, S. (1987) The Seven Habits of Highly Effective People, London, Simon & Schuster.

Coyle, D. (2011). *The economics of enough*. Oxford: Princeton University Press.

Davies, B. (2006). *Leading the strategically focused school*. London: Paul Chapman.

Davies, B. (2007). Sustainable leadership. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 1–25). London: Paul Chapman.

Dryfoos, J., Quinn, J., & Birkin, C. (2005). *Community schools in action*. Oxford: Oxford University Press.

Dyson. (2006). What are we learning from research? In J. Piper (Ed.), *Schools plus to extended schools* (pp. 91–100). Coventry: ContinYou.

Fleisch, B. (2008). *Primary education in crisis: Why South African schoolchildren underachieve in reading and maths*. Cape Town: Juta.

Fullan, M. (1999). *Change forces: The sequel*. London: Falmer Press.

Fullan, M. (2004). *Leadership and sustainability: System thinkers in action*. Thousand Oaks, CA: Corwin Press.

Fullan, M., & Sharratt, L. (2007). Sustaining leadership in complex times: An individual and system solution. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 116–136). London: Paul Chapman.

Fuller, K. (2006). Leading with emancipatory intent. *EMAL, 40*(6), 672–689.

Gunter, H., Hall, D., & Mills, C. (Eds.). (2014). *Education policy research: Design and practice in a time of rapid reform*. London: Bloomsbury.

Hamel, G., & Prahalad, C. (1994). *Competing for the future*. Boston, MA: Harvard Business School Publishing.
Hammersley-Fletcher, L. (2015). Values-driven decision-making: The ethics work of English headteachers within discourses of constraint. *EMAL, 43*(2), 198–213.
Hargreaves, A. (2010). *Creating a self-improving school system*. Nottingham: National College for School Leadership.
Hargreaves, A., & Fink, D. (2006). *Sustainable leadership*. San Francisco, CA: Josey-Bass.
Hargreaves, A., & Fink, D. (2007). Energizing leadership for sustainability. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 46–64). London: Paul Chapman.
Hargreaves, D. (1999). Helping practitioners explore their school's culture. In J. Prosser (Ed.), *School culture* (pp. 48–65). London: Paul Chapman.
Hentschke, G. (2007). Leadership sustainability in an emerging market environment. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 137–153). London: Paul Chapman.
Hofstede, G. (1991). *Culture and organizations: Software of the mind*. London: Profile Books.
Middlewood, D. (1998). Strategic management: An overview. In D. Middlewood & J. Lumby (Eds.), *Strategic management in schools and colleges* (pp. 1–17). London: Paul Chapman.
Middlewood, D. (2010). Managing for people and performance. In T. Bush, L. Bell, & D. Middlewood (Eds.), *The principles of educational leadership and management* (2nd ed., pp. 112–150). London: Sage.
Middlewood and Abbott (2017). *Managing staff for improved performance*, London, Bloomsbury.
Middlewood, D., & Parker, R. (2009). *Leading and managing extended schools*. London: Sage.
Pepper, C. (2014). Leading for sustainability in Western Australian regional schools. *EMAL, 42*(4), 506–519.
Plant, R. (1974). *Managing change and making it stick*. London: Fontana Books.
Pring, R. (1995). *Closing the gap. Liberal education and vocational preparation*. London: Hodder and Stoughton.
Schein, E. (1997). *Organisational culture and leadership* (2nd ed.). San Francisco, CA: Josey-Bass.
UNESCO-CIFT Project. (2014, June). *Tanzanian needs assessment report*. Retrieved from http://unesdo.unesco.org/images/0023/002336/233665.pdf
Walker, A. (2010). Building and leading learning cultures. In T. Bush, L. Bell, & D. Middlewood (Eds.), *Principles of educational leadership and management* (pp. 176–196). London: Sage.
Wilson, G. (2010). Multifunctional quality and rural community resilience. *Transactions of the Institute of British Geographers, 35*(3), 364–381.

Chapter 10
Understanding Leadership Practices in a Sustainable School Model: A Case from Turkey

Kadir Beycioglu and Yaşar Kondakçı

Abstract Dissatisfaction from the current schooling alternatives has been the basic driver behind the search for an alternative schooling system among parents in Turkey. Being concerned about the quality of available public and private schooling alternatives, a group of parents has initiated an alternative schooling system which is based on different structure, values and goals. The aim of this chapter is to reveal the general features of the so called *Another School is Possible* (*ASIP*) movement and the roles and responsibilities of the school principal in creating a sustainable and alternative school system. We used document analysis, observation and interview as sources of data for revealing administrative and academic features of this alternative school system as well as investigating leadership traits and behaviors for accomplishing a sustainable school system. The data suggest that ASIP model is based on four main values including alternative education, democratic management, ecological stance and authentic finance, which guide all administrative, instructional and financial actions at schools. The leadership function is distributed across different constituencies, including the principals, teachers, parents and the students. However, the principal is orchestrating body for realizing a sustained, bottom-up, and successful school model.

Keywords Sustainable school • Leadership for sustainability • Turkey • Democratic school

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Introduction

Sustainability basically refers to any activity which does not harm ecological and social surroundings. Although the term is generally/illusively associated with the nature and as if it was a struggle only for naturalists, it has been an emerging issue on the agenda of researchers in social sciences, basically the field of economics. A great many researchers in different fields have been investing in the knowledge of a "sustainable future" in their specific fields of study and yet one could argue that the term is very complex especially for practices of social sciences. As Kofi Annan, the former Secretary-General for the UN, claimed sustainability is an abstract idea that should be turned into reality for all people in the world (Learning to Change, 2004) and he underlined that the definition of it "must encompass economic well-being, social justice, environmental protection, good governance and the rule of law" (Hopkins & McKeown, 2001, p. 231).

Sustainable development, according to the United Nations (1987), refers to the principle of meeting the needs of the present without compromising the ability of future generations to meet their own needs. This principle should become a central guiding principle for both supranational and national organizations including the United Nations, governments, for-profit and non-profit organizations and enterprises. Hence it can be argued that sustainability stands there at the intersection of social, cultural, environmental and economic challenges of our society. Because education is seen as the most effective tool "for confronting the challenges of the future" (UNESCO, 1997), the UN Decade of Education for Sustainable Development works at incorporating key concepts of sustainable development into educational policies. Capozzi (2005) indicated that "2005 marks the beginning of the UN Decade for Education for Sustainable Development (ESD)", "but awareness of this event" was "practically nonexistent" in [*public*] schools (p. 130).

Sustainability is a current and noteworthy issue for educational researchers to find out macro implications in policies and praxis of any (unique) contexts and whether sustainability is embedded in school board policy and practices in micro levels. Some researchers, on the one hand, have sought to bring to light; for example, the utility (Hanley, 2005), the implementations (Jenkins & Jenkins, 2005), and the domains (Hawkins, 2005) of sustainability. Some, on the other hand, have been searching the effects of leadership on sustainability in schools (Bottery, 2009; Clarke & Stevens, 2009; Lambert, 2007; Zachariou, Kadji-Beltran, & Manoli, 2013).

In the educational research literature the definitions of sustainability and sustainable leadership are quite different than that of other fields. Davies (2007), for example, described sustainability in education as "the ability of individuals and schools to continue to improve to meet new challenges and complexity in a way that does not damage individuals or the wider community but builds capacity and capability to be successful in new and demanding contexts" and he then stated that "sustainable leadership seeks to move the school on from its current situation to a desired and improved future state (p. 23)." Hargreaves and Fink (2006) have created a framework of seven principles of sustainable leadership. According to Hargreaves and Fink (2007);

> Sustainable leadership is characterized by *depth* of learning and real achievement rather than superficially tested performance; *length* of impact over the long haul, beyond individual leaders, through effectively managed succession; *breadth* of influence, where leadership becomes a distributed responsibility; *justice* in ensuring that leadership actions do no harm to and actively benefit students in other schools; *diversity* that replaces standardization and alignment with networks and cohesion; *conservation* that builds on the best of the past to create an even better future, and *resourcefulness* that conserves and renews teachers' and leaders' energy and does not burn them out (p. 51).

As Fullan and Sharratt (2007) maintained, leadership is vital for sustainability in schools and there is no way for sustainability unless school leaders are dedicated to sustainable schools. So we assume that looking into a sustainable school model and the practices of its principal/leader could contribute to the limited literature of sustainability in education. As the authors of this chapter we delve into the issues of leadership and sustainability by examining an alternative school model, namely Another School is Possible (ASIP) in Turkey. We deliberately aimed at conducting our study in this school system because ASIP school differentiates itself from the existing private and public school systems and pursue an academically and financially sustainable school model. Schools in ASIP movement are independent to develop their own structures and can be seen as a unique sustainable school model in Turkey. The main aim of this study is to reveal the general features of the ASIP (English acronym of *Başka Bir Okul Mümkün* in Turkish) schools and reveal the roles and responsibilities school leader in creating and maintaining a sustainable school model. For this purpose we utilized observations, document analysis and interview to reveal features of ASIP schools in relation to school culture and climate, structure, finance, instruction, and leadership (Creswell, 2007; Silverman, 2006). We purposefully analyzed the web page of the ASIP movement and the school founded in this movement because the documents on the web has the basic information on core principles of ASIP movement (Cohen, Manion, & Morrison, 2007).

Outer Context: Turkish Education System

Demographic, Financial, and Structural Features of Turkish Education System

The search for an alternative school system in Turkey is not independent of the Country's unique demographic, economic, political, and cultural features. Therefore, before introducing its alternative school system, it is important to introduce these macro level features which are closely related to the emergence of the alternative schooling system. Located at an intersection between Europe, Asia and the Middle East, Turkey inhabits approximately 78 million citizens (TUIK, 2015a), which makes it one of the most crowded populations in Europe and the Middle East. The crowded and relatively young population of Turkey makes education a critical public service for a sustained social and economic development. According to 2015

statistics, there are approximately 16.5 million students at primary and secondary levels in Turkey (TUIK, 2015b). After a controversial legislation passed by Turkish parliament in 2012, basic and secondary education system of Turkey was structured under three levels (primary, junior high, and secondary), each taking a duration of 4-year. Children start primary school at age of 6 and continue for 4 years. In the next two 4-year periods children are expected to complete their schooling at junior high and secondary education. As a result, children in Turkey, at least in theory, are expected to complete their basic and secondary education by the age of 18.

Turkey has accomplished a significantly high level of schooling rate at primary (96.30 %) and junior high school (94.35) levels. However, at secondary level the schooling rate is relatively low (79.31 %) compared to other two levels. It is also important to note the steady improvements in TES (Turkish Education System). For example, the teacher student ratio has decreased from 20 in 2012 to 18 in 2015, from 19 in 2012 to 17 in 2015, from 16 in 2012 to 14 in 2015 respectively at primary, junior high and secondary levels. These figures indicate the quantitative gains that Turkey has accomplished in the schooling of students (TUIK, 2015b).

In Turkey, like in any other country, education is financed by means of both private and public resources. Public education in Turkey is totally free of charge. In addition, the Ministry of Education undertakes the responsibility of supplying students' course books. In addition, in 2012 the Ministry of Education launched a project aiming at introducing up-to-date instructional technology in classrooms as well as supplying the mobile technology hardware (e.g., tablet PCs) to the students. Despite these developments, according to 2012 data, Turkey spends only 2.6 % of its total GDP to finance public education at primary and secondary levels, which is one of the lowest rates in OECD countries. On the other hand, private expenditures on primary and secondary education constitute 0.4 % of the GDP. This rate is still very high compared to many other countries (e.g., Austria, Belgium, Brazil, Denmark, Finland, Latvia, Norway, and Sweden) simply because primary and secondary education is totally conceived as a public service in these countries (OECD, 2016). Finally, on average Turkey spends 2784 USD for a student at primary and secondary level. This is amount is the lowest after Indonesia in OECD countries (OECD, 2016). These figures suggest important clues about the quality of public education in Turkey.

Both neo-liberal educational policies emerged during 1980s and decline in the quality of public education have been two phenomenal forces pushing families towards private schools. In Turkey economic background of the children determine his/her access to education (Engin-Demir, 2009). Private household monies used for financing education of children in Turkey have been steadily increasing and constitute a significant part of the total expenditures spent on education Turkey. The quality concern is not simply related to students' outcomes as measured by test performance. In addition to student test performance, developing critical skills (e.g. artistic skills, athletic skills, communication skills etc.), transition to reputable higher education programs in reputable universities and, consequently, transition into work life are major concerns related education quality. During the last decade parents have experienced high level of dissatisfaction with the quality of education delivered both in private and public schools.

Quality Issues in Turkish Education System

Despite the quantitative gains in schooling rate, Turkey has been consistently experiencing low performance in student outcomes. In fact, the public school system of Turkey has traditionally been identified as a failing system (Bahtiyar-Karadeniz, 2012; Güven, 2012). However, during the last 30 years the reasons of failure in TES have showed a great variation. During the 1980s the system was experiencing failure mainly because of structural and financial issues. High demand for public education but limited financial resources as well as structural issues in the economy (e.g., excessive inflation rate) were causing chronic problems in public education (e.g., high teacher student ratios). Low quality in education system is still an important concern in Turkey. However, the causes of low quality have shifted from financial reasons to administrative reasons. First, frequent reform initiatives, inexpediency of these reform efforts within the highly politicized education system is the main reason behind problems in the Turkish education system (Bahtiyar-Karadeniz, 2012; Güven, 2007; İnal, 2012). Second, structural issues were reported as another major cause of quality problems. Turkey possesses one of the most highly centralized education systems in the world. Almost every policy and administrative issue is at the discretion of the strategic apex of the Ministry of Education (Beycioglu, Sincar, Ozer, Uğurlu, & Yıldırım, 2014). At first glance such centralization may sound positive for ensuring equal distribution of educational opportunity across different segments of the society. Nevertheless, operating a huge and crowded system with 16.5 million students and approximately 800,000 teachers by a small unit at the top of the Ministry of Education is not possible, nor realistic. In other words, Turkish Education System is not able to respond to key instructional and administrative issues in schools which are closely related to student achievement (Kondakci & Sivri, 2014). A final issue, causing quality concerns in TES is teacher quality. Teachers are underpaid and there are not professional development opportunities compared to their colleagues in some of the developed countries. These are some of the immediate causes of low quality of education which has been evidenced in the international student assessment programs. For example, PISA results have been consistently documenting the low performance of Turkish students in reading, science and mathematics. Other field based international assessment systems such as TIMSS and PIRLS have been suggesting parallel findings for Turkish students' performance in science, mathematics, and reading comprehension. The results of these assessment programs provide concrete evidence on the failing nature of TES (OECD PISA, 2015; TIMMS & PIRLS, 2015).

The high failure rate is considered as the main motivation of change and development initiatives in Turkish education system. For example, in 2005 MONE initiated a major change and development movement aiming at boosting student outcomes by adopting the constructivist program policy. According to Ministry of Education the main purpose of the new program policy was to facilitate the use of alternative teaching methods and help the students construct their own learning, developing alternative teaching methods putting students in the center of teaching, adapting

alternative student assessment programs, facilitating construction of knowledge by the student rather than simple knowledge transmission, developing critical and creative thinking skills of the students, building effective communication skills, problem solving skills, and entrepreneurial skills (MONE, 2009). Despite the slight increase Turkey has been consistently underperforming in international student assessment programs (OECD PISA, 2015; TIMSS & PIRLS, 2015).

The general features of the Turkish Education System suggest that public education suffers seriously from quality issues. Therefore, private schooling may sound a viable alternative to public education for Turkish parents, who can afford to pay for schooling of their children. However, the basic mission of private schooling and general qualities of education delivered at private schools is still a major concern for parents because private schools run competitive and for-profit institutions. More importantly private schools run with the logic of preparing students for tests and they are less concerned with elucidating students' interests, developing various skills (e.g., artistic skills, athletic skills, communication skills, problem solving skills etc.) as well as academic skills. Therefore, in Turkey the search for a third alternative school system which balances academic skills with other skills and is concerned with integrity and well-being of children has been intensified during the last decade.

Another School Is Possible (ASIP-BBOM) Movement in Turkey

History and Background

ASIP movement was initiated in 2009 by a group of parents with the purpose of creating a third alternative for education of their children. The idea of establishing an alternative school model was raised in Istanbul, the financial and cultural capital of the country. However, financing such a school in Istanbul, where land, material, and human assets are more expensive compared to other parts of the country, was very difficult. Therefore, the first school was opened in Bodrum, a well-known summer resort city on the Aegean coast of the country. As part of democratic involvement and ecological stance (more on these values below) of the ASIP movement, the first school was named as "Happy Goat School" (HGS) by the students. The HGS was an important step in the history of ASIP movement because the ideas and practices invested in establish alternative schools were embodied with a real institution. As a result the movement gained the confidence to maintain the goals of establishing schools in other parts of the country. The HGS was an encouraging experience for other parents in other cities who were not happy with the existing public and private school systems. As a result, in 2015 "Curious Cat School" (CCS) was established in Ankara, the second largest city and political capital of the country. By the year 2016 the movement managed to open two fully functioning schools in two

provinces, establish associations in four provinces, and initiate establishment of associations in two provinces. As a result, by 2016 the ASIP movement is active in eight cities.

As stated above, structural, financial and academic problems surrounding the education system of Turkey have been a great concern for a big segment of the society. The dissatisfaction with the public and private schools in Turkey had mobilized a group of parents to brainstorm about a third option for schooling of their own children in Turkey. The principal of Curious Cat School in Ankara described the motivation of the ASIP movement as

> The quality of public education has declined. On the other hand, private schools pursue a very different purpose [profit making]. The need for a third alternative of schooling emerged from a groups of parents asking 'I do not want to send my child to a public school, I do not want to send my child to a [typical] private school, do we not have a third alternative?' question.

They simply concluded that 'if we do not have a third alternative let's create one.' As a result, in 2009 this group came out with the idea of forming a school system as an 'alternative' to both public and private schooling in Turkey. The movement was initiated as a bottom-up movement and democratic involvement of any person or group sharing the common values (more on these values below) identified for an alternative education in Turkey. In 2010, the movement for an alternative school has gained a more structured and systematic approach.

Organization of ASIP Movement: Structure, Mission, Vision and Strategy

Schools of ASIP movement are independent to develop their own structures. However, they commonly form the same structure. For each school there is a principal, who is responsible to the general council. The schools typically adopt a simple and non-bureaucratic structure. Rather the structure is flexible enough to accommodate committees and work groups to accomplish different functions at the school. For example, as part of this structural understanding, at each school the parents form different committees or departments to handle key issues of the school. Education committee, construction committee, finance committee, and advertisement committee are some the committees formed at CCS in Ankara. The teachers and the principal cooperate with the education committee. However, the education committee does not intervene with instructional practices. Rather they are responsible for facilitation instructional practices at the school. In other words, these committees function as suppliers and facilitators in the schools.

The mission, vision and key strategy of ASIP schools reflects the open, non-profit, and bottom-up nature of the movement. ASIP movement does not have calculated and profit making goals. The principal of Curious Cat School summarized this strategy as

> To be honest, we do not have big goals, like having huge number of students, and multiplying the number of schools in and out of Ankara. This school has a capacity 120 students but we will limit the capacity with 60 students because we will implement individualized education plans, and we are planning to have maximum 12 students per teacher. Therefore, we are not advertising the school and we would like to have parents sharing our understanding of education. Actually parents, who would like to raise their children according to our understanding of education, come and find us. We do not have big goals, we rather want the student adapt to real life.

Parallel to this basic idea of schooling, CCS in Ankara adapted the slow-grow strategy, which is more realistic according to the principal. The principal highlighted another important dilemma for the mission of the school. As stated above, the school aims to offer an alternative school model which eliminates the competitive, suppressive and alienating nature of public and private schooling that exists in the country. However, the graduates of this school will have to join other schools at the secondary or tertiary levels. The principal admitted that ASIP schools are not independent of the outer context; the education at large and dominant philosophy of education and meaning attributed to education in the outer context. Rightfully parents may have concerns over schooling and progress of their children. The principal stated, at pre-primary level the parents' main concern is the happiness and comfort of their children. However, she expects a shift in the concern of the parents of the children attending the school towards nationwide standardized tests. As stated above in the outer context section, the whole education system in Turkey is organized towards the nation-wide tests regulating the transitions between primary to secondary and from secondary to higher education. The principal admitted that parents experience the dilemma of sending their child to a school contributing to social and academic development or preparing them to these tests. The principal stated that, *this is a dilemma that ASIP movement will have to deal with in the future*.

School Culture

ASIP movement is not based on a totally new philosophy of education. In Turkey and in the world there are different schooling practices constructed around progressivist, existentialist and social reconstructivist philosophies of education. However, ASIP movement deviates itself with a set of unique values and a culture constructed around these values. The principal of CCS in Ankara stated

> We visited several schools implementing different school models in Germany … It is not possible to copy and install one model to Ankara or to Turkish culture. [Even in ASIP movement] there is a huge difference between Bodrum and Ankara including climate, the location of the school, family structure etc. For example, Ankara is a city of civil servants. The working hours of families are very different [from Bodrum]. In Bodrum we stay until 3.5pm at school; however, here we have to stay until 5.5 or 6pm. Hence, rather than adapting one model, we are trying to install our own 'rights'. This is shaped according to the group dynamics as well.

The initial step in the movement was defining four key values guiding ASIP which are *alternative education*, *democratic education*, *ecological stance*, and

unique finance. The school principal is the key agent ensuring every practice formed and implemented according to these four key values. Any group of parents espousing these key values may establish an association, a legal body endorsing the establishment and operation of the school. These values are defined as the main pillars on which the school is based. Any structural and functional issues including physical infrastructure, design of the school, academic programs, teacher qualities, and school leadership must be compatible with these key values.

Alternative education simply refers to a true student centered education. Formed around the motto of freedom in education, alternative education considers education as an important life domain of each individual and claim to give the freedom of defining the content of this life domain to individual rather than to a guardian, e.g., teacher, principal, parent etc. (BBOM, 2015). In other words, alternative education indicates the beliefs that no matter at what age they are, students have the capacity to decide on the content, context and method of their education, which speaks to their needs, interests and skills. According to ASIP movement this is essential to eliminate the suppressive nature education practices in public and private schools of Turkey which causes alienation and impairment of students' capacities. The principal of CCS in Ankara admitted the challenge of revitalizing this value by stating that

> Many things are still missing with regard to academic dimension at the school because we did not go through such an alternative education. We are coming from conventional families and we have had classical lives and living conditions. We need to adopt [alternative education] to both our own lives and our understanding of education. At this school administration supports us for gaining this understanding of education. We went to field trip in Germany to observe alternative education practices at different levels including pre-primary, primary and secondary.

The second value, ***democratic education*** simply refers to the fact that every constituency at the school, including teachers, students, principal, and support staff has the opportunity to directly contribute to the decisions related to the academic and administrative processes of the school. In order to accomplish a democratic practice, every school constructs an assembly and every issue is discussed and resolved in assembly meetings. Every constituency, including the principal has one vote and the decisions are made in an open and transparent process. The assembly meetings are led by the principal as well as the students. The principal stated role of democratic education by

> The most appealing part of the school as a working place was the fact that everybody is at the same level. [She maintained] we accomplished a very nice harmony in here, communication is great, everything is transparent, and everything positive or negative is discussed and handled in the same way. Every 15 days we hold regular meetings with the association and four representatives from the association … The decisions are not the products of a single person. All of the decisions are discussed in the general council. If nobody objects in two days the decisions are put into practice.

One of the most distinctive illustrations of democratic education at ASIP schools is that the name of the schools is decided by the students. Rather than imposing on a name, the students convene 'school name' meetings and they decide on the name of the school.

Ecological stance is another important value distinguishing ASIP movement from other private and public schools in Turkey. The ASIP movement sees ecological stance as an important value because, according to the principal, it reflects the belief, *right now the world is experiencing an ecological crisis and a true measure for dealing with this crisis would be reconstructing the relationship between nature and human being*. As part of this ecology understanding, ASIP movement aims to develop a new perspective towards nature and environment on the part of the students. According to this understanding, nature is not a collection of endless resources available for the service of human being. Rather it is an entity and its variety is a major input for education in general and for curriculum implementation in particular. Competition as the dominant economic development model is consuming the nature. The harmonious co-existence of various species and entities in the nature is inspiring for accomplishing cooperation between human beings and nature, which is considered as the basis of fundamental and sustainable social and economic order. ASIP movement's most distinctive argument behind creating an alternative school system is integration of the new understanding of ecology to curriculum.

According to the principal of CCS, the ecological stance is partly related to the families' consciousness about the environment. As part of this consciousness, at CCS the environment is an important part of curriculum implementation. At times the environment functions as the context of academic conduct, at other times it provides instructional materials, at still other times it is the content of the curriculum. The principals stated this understanding of curriculum implementation with

> When it snows we are out, when it rains we are out. We get our boots and coats … This is part of our belief about the nature. The nature is vanishing and even if we cannot find a fundamental solution to this problem we can adopt correct behaviors towards use of environmental resources. Starting from our immediate environment, our consumption and eating habits we can protect the environment.

The schools of ASIP movement artfully integrate ecological stance into the curriculum implementation.

The final value, *unique finance*, asserts that education must be financed by public resources. This value is not new *per se* as most of education systems claim to be financed by public resources in the world, some of which are stated above in the first part. However, the current practice in most countries, including Turkey relies on private spending in the form of 'buying a service from an agent delivering education service for-profit purpose.' As stated above, Turkey has adopted the neo-liberal policies for finance of education. As a result, according to the ASIP movement expecting the education system to be fully financed by public resources is not realistic right now. Therefore, ASIP movement adopted a temporary solution of financing its schools with household monies. What makes this financial scheme unique and different from a typical private school is its non-profit nature. For example, rather than obliging a standard fee from every family the school observes what they call the 'affordability' principle and families are asked to pay their share to finance the expenditures. Although financing the school by parental payments sounds a

common private education practice, it is important to note that ASIP schools seek creating public value and public benefit rather than seeking private gains and profit making. In the perspective of ASIP movement, this is necessary for creating equitable educational services with adequate quality and quantity serving every member of the society. Financing schools in Turkey is an expensive involvement. Cultural values, particularly ecological stance, and democratic involvement, encourage parents to take active roles in the construction of the schools. As part of this, parents are involved in every process requiring financial expenditure such as construction of the schools, development of materials, and providing basic services.

The non-profit and shared nature of ASIP's finance model makes each school an independent body. As stated above, the expensive nature of constructing a school makes the ASIP movement open for contribution of Ministry of Education, public organization and civil society. As part of this, they get significant donations from these entities. Nevertheless, the principal of CCS stated that donations from private and public organizations and contributions from civil society are accepted on the condition that they will not intervene with the functioning of the schools. The principal maintained that such donations and contributions should not distort the autonomous nature of the school. The principal notes that despite the financial challenges, the school is able to pay a salary which is higher than the average teacher salary in private schools.

The principals of the schools in ASIP movement have a vital role in enacting these four key values. For example, the principal of CCS is an active agent coordinating the financial issues. The coordinating role involves talking to parents, private and public institutions including local Mukhtar, the lowest administrative unit in Turkish public administration, contacting municipalities and civil society. Besides, as part of democratic and alternative education she is playing a role model for other teachers and students at the school. For example, she is not employing the key ruling role in every assembly meeting but she opens ways for students and teachers to undertake the role of leading assemblies.

Curriculum Development and Curriculum Implementation

In Turkey the Ministry of Education—MoNE (2009) is the key body determining what to teach at private and public schools. However, the authority of MONE is result oriented rather than process oriented. In other words, MONE observes whether key objectives are accomplished in schools. However, the schools in Turkey are free in their methods, content, activities, instructional materials and assessment approaches they follow to accomplish these objectives. Despite the flexibility provided by MONE, according to the ASIP movement curriculum implementation is still the most problematic practice in both private and public schools in Turkey. Therefore, one of the core instructional purposes of the ASIP schools is to deviate from curriculum practices which are based on rote learning and the test system.

ASIP movement and CCS benefits are to the maximum extent for the flexibility of curriculum implementation. The principal of the school raised several aspects making their curriculum implementation different from private and public schools in the country. First of all, the core concern of ASIP movement in curriculum implementation is focusing on real life experiences. She stated that they are following the same curriculum just like any other school in Turkey. However, she stressed that they are quite different, innovative and simplistic in the methods they are following. For example, they learn the numbers with what she calls '*rhythmic counting*.' As a part of this practice, they learn the numbers in real life events such as counting leaves or by kicking balls in the playground. They are trying to accomplish objectives in the curriculum by relating them to real life experiences. The principal stated that

> The core of our curriculum practices is based on giving real life skills to students. At any school the students resolve very difficult mathematics problems or they do great homework or they read novels. But they cannot take a bus from school to home. They do not know the price of bread. If we are not able to transfer the knowledge that we get at school to real life it is meaningless and I believe, since ten years we have been training children partially in Turkey. In other words, we train children for academic life only but they experience huge problems in real life. In CCS the students and teachers go to shopping, take the cats and dogs to the veterinary for vaccination, visit health center, the post office, or go to the kitchen and help cooking. Our purpose is helping them adapt to and survive in real life.

The second aspect in curriculum implementation is related to the flexible curriculum implementation. They put the objectives at the center and as long as it is compatible with the objectives they are open to any method, content, and implementation. As a fundamental change at the CCS they brought a flexible classroom practice. As part of this practice, rather than bounding the students at one class during the academic year, they let the students switch their classrooms. This principal named this practice as 'transitivity,' which allows the students to go to other classrooms, spent one full day in the class as a guest or visitor. According to the principal, this is a true practice of helping the student learn what he/she needs to learn. However, the common practice in private and public schools is bounding the students according to their biological ages. In transitivity practice the student finds out his/her place according to his/her cognitive capacity, needs, and interest.

The third distinctive aspect in curriculum implementation of the ASIP schools is related to individualized curriculum practice. At the CCS, every student has the flexibility of defining what to learn. As part of this practice, the students write their weekly plans on a small board. These plans enable individualized pace on the curriculum. According to the principal individualized learning helps to feed each student potential rather than suppressing these potentials with the purpose of accomplishing a common pace in the class. The students define the content and method of their own learning. The teachers do not impose the content but the students decide on content and method for his/her own learning. For example, one student may try extracting numbers, while others are still learning summation.

Parental Role

As stated above, parents are real owners of the ASIP movement. The schools are constructed by parental associations and they are the key financial source for the schools. The parents are typically middle class families with high level education and employed in different sectors including education, public bureaucracy, and research and development. However, the principal stated that the most distinctive commonality across parents is their commitment to their children's education. The principal indicated,

> To be honest I am amazed with the time, effort and energy they invest in the school. I am mean they are employed, they work very hard in their workplace, and despite the money they pay for the schooling of their children, in the weekend they come to the school to paint walls. This is crazy. But honestly the effort and energy they invest in the school touch me … They invest their physical labor, time money, effort, and thinking to the school.

Teacher Profile

In ASIP schools teachers are selected and recruited through a detailed but open, democratic and professional practice. The schools form a committee called the education committee. In addition to our education committee, the teacher recruitment committee includes external consultants and professors from universities. The committee holds different interviews on different days with the candidates.

The schools of ASIP movement are small schools and they operate with a small number of students. Like in any school model, the teachers in ASIP schools have a central role in accomplishment of the purposes of the school. However, being committed to the school's goals is a key teacher quality for ASIP. The principal of CCS in Ankara admitted that they have to work more than teachers employed in private or public schools. She maintained

> We do not have the common work-day understanding. We are a young school and we are trying to institutionalize several aspects. Teachers should not be ego-centric and they should not come with 'my student, my classroom' understanding. Rather they are expected to be ready to do more than they are expected to do.

The principal implies that teachers should exhibit organizational citizenship behavior, a different form of organizational commitment. Another important quality of teachers is that they should like to work with children. As a result, they should have advanced skills of communicating with children. The principal defined being open for communication and cooperation as the other key teacher qualities for schools. Thirdly, the principal stated that they are trying to promote teamwork habit and skills on the part of the teachers. Finally, in relation to these qualities, the principal indicated that they are a different school and their school model demands continuous professional development. The teachers are expected to be open for a continuous cycle of learning, practicing and modifying in every school practice.

The principal indicated that openness and commitment for continuous professional development are common features of teachers employed in ASIP schools. The principals stated:

> In my previous work experience I was working with classroom teachers, who were quite experienced with more than 10 years of experience. They had a kind of 'it is enough we do not need to learn anything new, the things we know are enough, now I am a teacher and I do not need anything new' attitude. In Turkey most of the teachers hold this attitude. Here I have colleagues who do not give me this impression. I am lucky in that sense.

The principal stated that they are aware of the fact that their schools are demanding schools. Therefore, they have an above-average payment policy. The schools want their teachers to be mentally relieved concerning salary issues so that they can dedicate their time and effort for realizing the goals of the schools.

Leadership

Leadership has a central role in realizing the alternative school model in ASIP movement. As in the case of teachers, working in an alternative school model requires extensive commitment and citizenship behavior on the part of the principal. The selection of the principal is not by chance, rather is a consciously made choice on the part of the principal and the school. First of all, the principal was an English language teacher and she had an administrative experience in a private school. These experiences were important in choosing to be the principal of the CCS in Ankara. Ever since the establishment of the first school at Happy Goat School in Bodrum, the principal expressed the interest in working at an alternative school system. She applied for an English language teacher position at the Happy Goat School in Bodrum. However, since the school has the policy of employing native speakers as English teachers, she could not get the job. In the meantime she followed the project and practices related to alternative education. For example, there was the Another Teacher is Possible movement which is pioneered by a key private sector company in Turkey. The project aimed at training and developing teachers' skills in different domains. The project delivers these skills in different modules. The principal could not get into the project. These experiences are important for the principal in building her efficacy for undertaking the principalship position on the Curious Cat School in Ankara.

In addition, the principal continuously invested in developing her skills and competencies for leading the school. Part of this effort, she got in-service training on interpersonal communication and positive discipline. She defines these trainings as key involvements in developing her skills to lead the school. Like the case of teachers, commitment and citizenship behaviors, teamwork, and communication skills are central qualities for a principal in leading the school. Finally, democratic attitude is another key quality on the part of the principal leading such schools. The principal stated the importance of her role realizing democratic education in micro processes

at the school including instructional and administrative decisions. The principal plays a key role in spreading the democratic culture to the schools. She indicated her effort for establishing and spreading the democratic culture with the motto *each one is one vote. I am one vote and the cooker is one vote, and a student is one vote. Everyone has the right to lead the assemblies, me or student[s] at the age of 51 month.*

Finally the principal indicated several leadership practices and involvements which are necessary for creating the alternative school system. First of all, the principal is faced with the challenge of establishing and getting the support of local community for the school. The principle indicated that the community approached the School with suspicion. She maintained that:

> There was a serious prejudice towards the School in the local community. First, we faced with the challenge of communicating ourselves in the right way to the community. It was very difficult to break the prejudices toward the school and what we are doing.

The principal stated three practices for breaking the prejudices toward the school. First they maintained an open door policy. They let the doors of the school open for local visitors including children and citizens. The local citizens came to the school asked questions and observe what is going on during the construction phase. The second practice was employing local community members in support of services of the school. The ground keeper and the cook are living in the neighborhood. Finally, the school adapted the policy of shopping from local community members. The principals stated that these three practices melted down the prejudices of local citizens towards the school.

The second key leadership involvement for the principal was getting the support of the key institutions including civil society, municipalities and the private sector. The support of these institutions was important for establishing the infrastructure of the school and reaching to the wider segment of the society. As part of this effort contacting municipalities and civil society is an important involvement for the principal.

The third key leadership involvement is regulating the parental involvement in school practices. Although the school is a product of a bottom-up initiative of the parents, their arbitrary intrusion with school practices would risk healthy progress of the instructional practices at the school. Moreover, such intrusions may inhibit administrative processes of the school. Therefore, the principal was the key regulating mechanism against arbitrary intrusion of the parents. The principal stated that:

> It [parental intrusion] was one of the biggest fears for us. To be honest, at that point I stayed solid against such intrusions. I tried to give the message 'well you are free to give ideas or we may ask your support but that's it, not more than what we want.' I mean when we do something we really screen what we are doing really carefully.

The third key involvement of the principal is curriculum implementation. She is a true leader in implementing the curriculum both for teachers and parents. First of all, she internalizes the curriculum understanding that the school attempts to accomplish. She is both a guide and facilitator of relating instruction to real life experiences. At times, she explains the curriculum practice, and at other times, she conducts the practice.

Conclusions

As an alternative initiative by parents, ASIP movement has been in the context of Turkish education since 2009. The aim of this movement is to create an alternative to public and typical private schools. Although they are bound to the central educational system, ASIP schools are independent to develop their own practices such as recruiting teachers and principals, not seeking to gain profit. After the agreement of fundamental principles, the ASIP movement examined and was inspired from various methods, alternative school samples and effective models in the world to develop its unique model (BBOM, 2015). In order to create an alternative to the standardizing, hierarchical and disciplinary structure of the current system in Turkey, the group developed the ASIP (BBOM, 2015) model which is based on the axis of *alternative education, democratic management, ecological stance* and *authentic finance*, with a special emphasis on *democracy, participation, social justice and ecological values* which are also among the key features of the sustainable school advocated by prominent scholars of the field in the literature (e.g., Fullan, 2006; Hargreaves, 2005; Harris & Lambert, 2003).

The mission, vision and key strategy of Curious Cat School aims to offer an alternative school model which eliminates the competitive, suppressive and alienating nature of public and private schooling existing in the country. The ASIP (BBOM) schools have leading principles and values of egalitarianism, social justice, freedom (opinion, statement, action, choice, belief), solidarity, pluralism, social sensitivity, violence opposition (physical, verbal, psychological), discrimination opposition (nation, race, language, religion, gender, sexual orientation, economic, social, physical), ecological awareness, creativity, productivity, honesty, critical thinking, self-awareness, and empathy (BBOM, 2015).

Leadership has a vital role in ASIP school model. The principal works in an extensive commitment and citizenship behavior. In addition, the principal is always in an effort to develop skills and competencies in order to lead the school. The principal got in-service training on interpersonal communication, positive discipline, teamwork, and communication skills. He/she democratic attitude is another key quality. The principal stated the importance of her role in realizing democratic education in micro processes at the school, including instructional and administrative decisions, to spread the democratic culture to the schools.

According to the principal establishing and getting the support of local community for the school is another important responsibility. The principal indicated that they always maintain open door policy. They let the doors of the school open to all shareholders. They tend to employ local community members in support services of the school and they adapted the policy of shopping from around the school. They also seek to get the support of the key institutions including NGOs, municipalities and the private sector. The principal also emphasizes their effort to regulate the parental involvement in school practices. Another key role of the principal is leading in implementing the curriculum both for teachers and parents. The principal guides and facilitates core instructional implementations to real life experiences.

ASIP movement is a unique schooling practice in the world. However, the causes of this movement are not fundamentally different from other countries sharing similar economic, social and political orders at large. In that sense, examining the causes of ASIP movement and the way it is structured and implemented, two important conclusions can be derived for international literature. First, as stated above, ASIP movement resulted from the dissatisfaction from the two available schooling alternatives—private and public—in Turkey. It is not difficult to anticipate the dissatisfaction of parents and other stakeholders from the quality of educational services provided by private and public agents in different countries. Hence, it is highly probable that, as long as countries' democratic atmosphere and legal bases allow, different stakeholders will tend to undertake the responsibility of filling the quality gap in education. In Turkey, the ASIP movement has shown that a group of parents undertook this challenge of filling the quality gap in schooling. A second and related conclusion to be driven from ASIP experiences is related to the nature of the alternative schooling movement. In Turkey, we have seen that the alternative movement emerge as a bottom up approach by a true share of roles and responsibilities for structuring and implementing the alternative school system. In other words, what we have been witnessing in the ASIP movement is a unique practice of sharing leadership for realizing the alternative school system. Considering leadership in private and public schools, it can easily be claimed that leadership practice of ASIP is a unique version of distributed leadership. Hence, we may claim that the roles and responsibilities of ASIP school leader could be the examples of distributed leadership features that is highlighted in the literature as an important leadership style for a sustainable school (Hargreaves, 2005).

Another striking uniqueness of ASIP School is the implementation of social justice that has been a currently debated issue on the agendas of educators and/or researchers in the field of education. This school model might be beneficial for sharing the experiences of the idea of creating and managing a 'just' school to all the stakeholders, and the researchers, policy makers or school leaders of any context in the world.

Key Chapter Concepts

1. An alternative sustainable school model: Another school is possible
2. Managing with participatory democracy
3. Being respectful to ecological balance
4. Providing children opportunities to self-realize
5. Creating an egalitarian and libertarian environment in education

References

Bahtiyar-Karadeniz, C. (2012). Opinions of teachers towards 4+4+4 compulsory education system. *Education Science Society Journal, 10*(40), 34–53.

BBOM. (2015). *Principles of ASIP schools*. Retrieved from http://www.baskabirokulmumkun.net/principles/?lang=en

Beycioglu, K., Sincar, M., Ozer, N., Uğurlu, C. T., & Yıldırım, M. C. (2014). Mapping the terrain of superintendency in Turkey: Structural, institutional and normative features. In A. Nir (Ed.), *The educational superintendent: Between trust and regulation: An international perspective* (pp. 131–144). New York: Nova Science.

Bottery, M. (2009). An issue without a history: A consideration of the impact of sustainable development upon school administration. *Journal of Educational Administration and History, 41*(4), 343–362.

Capozzi, R. (2005). Sowing the seeds: Moving curriculum and school culture towards education for sustainable development. *Current Issues in Comparative Education, 7*(2), 130–137.

Clarke, S., & Stevens, E. (2009). Sustainable leadership in small rural schools: Selected Australian vignettes. *Journal of Educational Change, 10*, 277–293.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in Education*. London: Routledge.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.

Davies, B. (2007). Sustainable leadership. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 11–25). London: Paul Chapman.

Engin-Demir, C. (2009). Factors influencing the academic achievement of the Turkish urban poor. *International Journal of Educational Development, 29*(1), 17–29.

Fullan, M. (2006). *Leadership and sustainability*. Thousand Oaks, CA: Sage.

Fullan, M., & Sharratt, L. (2007). Sustaining leadership in complex times: An individual and system solution. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 116–136). London: Paul Chapman.

Güven, İ. (2007). Recent initiatives in school effectiveness and improvement: The case of Turkey. In T. Townsend (Ed.), *International handbook of school effectiveness and improvement* (Vol. 17, pp. 363–378). Dordrecht: Springer.

Güven, İ. (2012). The 4+4+4 school reform bill and the Fatih Project: Is it a reform? *Elementary Education Online, 11*(3), 556–577.

Hanley, P. (2005). "Holistic yet tangible": Embracing the challenge of complexity for education for sustainable development. *Current Issues in Comparative Education, 7*(2), 85–93.

Hargreaves, A. (2005). Sustainable leadership. In B. Davies (Ed.), *The essentials of school leadership* (pp. 173–189). London: Paul Chapman & Corwin.

Hargreaves, A., & Fink, D. (2006). *Sustainable leadership*. San Francisco, CA: Jossey-Bass.

Hargreaves, A., & Fink, D. (2007). Energizing leadership for sustainability. In B. Davies (Ed.), *Developing sustainable leadership* (pp. 46–64). London: Paul Chapman.

Harris, A., & Lambert, L. (2003). *Building leadership capacity for school*. Berkshire: Open University Press.

Hawkins, R. L. (2005). From self-sufficiency to personal and family sustainability: A new paradigm for social policy. *Journal of Sociology and Social Welfare, 32*(4), 77–92.

Hopkins, C., & McKeown, R. (2001). Education for sustainable development: Past experience, present action and future prospects. *Educational Philosophy and Theory, 33*(2), 231–244.

İnal, K. (2012). The AKP's logic of reform and its critical politico-ideological analysis in terms of new noncontinuous education law. *Education Science Society Journal, 10*(39), 78–92.

Jenkins, K. A., & Jenkins, B. A. (2005). Education for sustainable development and the question of balance: Lessons from the Pacific. *Current Issues in Comparative Education, 7*(2), 114–129.

Kondakci, Y., & Sivri, H. (2014). Salient characteristics of high-performing Turkish elementary schools. *Journal of Educational Administration, 52*(2), 254–272.

Lambert, L. G. (2007). Lasting leadership: Toward sustainable school improvement. *Journal of Educational Change, 8*, 311–322.

Learning to Change. (2004, May 4–7). *Learning to change our world*. International consultation on education for sustainable development, Gothenburg. Retrieved from www.learning2004.se

MONE. (2009). *Öğretim programlarının yenilenme gerekçeleri ve davranışçı yaklaşım ile yapılandırmacı yaklaşım arasındaki farklar*. [PowerPoint slides]. Retriewed from http://www.ogm.meb.gov.tr/belgeler/program_yaklasim.ppt

OECD PISA. (2015). *Key findings*. Retrieved from http://www.oecd.org/pisa/keyfindings/

OECD. (2016). *Public spending on education (indicator)*. doi: 10.1787/f99b45d0-en.

Silverman, D. (2006). *Interpreting qualitative data*. London: Sage.

TIMSS & PIRLS. (2015). [International Database]. Retrieved from http://timssandpirls.bc.edu/

TUIK. (2015a). *Population statistics*. Retrieved from http://tuik.gov.tr/PreTablo.do?alt_id=1059

TUIK. (2015b). *Education statistics*. Retrieved from http://tuik.gov.tr/PreTablo.do?alt_id=1018

UNESCO. (1997). *Educating for a sustainable future: A transdisciplinary vision for concerted action*. Retrieved from http://unesdoc.unesco.org/images/0011/001106/110686eo.pdf

United Nations. (1987). *Report of the world commission on environment and development*. General Assembly Resolution 42/187. Retrieved from http://www.un.org/documents/ga/res/42/ares42-187.htm

Zachariou, A., Kadji-Beltran, C., & Manoli, C. C. (2013). School principals' professional development in the framework of sustainable schools in Cyprus: A matter of refocusing. *Professional Development in Education, 39*(5), 712–731.

Chapter 11
Creatures That by a Rule in Nature Teach the Act of Order (Henry V Act 1 Scene 2): A Case Study of Sustainable Transformational Leadership in a Challenging School

Les Bell and Phil Smith

Abstract This chapter follows the transformation of a failing school in central England, which had a long history of underachievement. The case study analyses the strategies that were developed to establish successful school leadership in a school in challenging circumstances, and examines the likelihood that these changes will be sustainable in the future. A brief outline of the principles of transformational leadership is followed by the strategies for change in respect of the pupils, parents, teaching and leadership. The degree to which transformational leadership informed these changes is analysed and the close parallels between transformational leadership and leadership which is sustainable are outlined; both are essential since it has been acknowledged that most school leadership practices create temporary, localized flurries of change but little lasting or widespread improvement (Hargreaves & Fink, Educ Leadersh 611:8–13, 2004). In this case study existing definitions of transformational leadership have been used to provide an analytical framework for the leadership actions of the headteacher.

Keywords Innovation and change • Leading a challenging school • Practical school improvement

Introduction

This chapter follows the transformation of a failing school in central England, which had a long history of underachievement. The case study analyses the strategies that were developed to establish successful school leadership in a school in challenging circumstances, and examines the likelihood that these changes will be

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sustainable in the future. In 2010 Packwood School (not its real name) had been classified by Ofsted as 'inadequate' and placed in special measures; by 2011, just before the current head was appointed, it was in the bottom four schools in the local authority. Academic achievement was poor and the school was notorious for the bad behaviour of its students. Dr. Hurst, (a pseudonym) the newly-appointed headteacher, was a former deputy at a school which took part in a research study of headteacher leadership of schools in challenging circumstances (Bell & Smith, 2011; Smith & Bell, 2014). Inspired by this work, he introduced leadership based on transformational principles, which proved so successful that by 2014–2015 examination pass rates were above average and the school was classified as 'outstanding' by Ofsted. Examination results (Gov. U.K., 2014) however, are only part of the story. The behaviour and progress of the students had also improved immeasurably.

How had such a transformation been achieved? Moreover, can it be sustained? This chapter examines the evidence and the strategies used to bring about dramatic changes in very challenging circumstances. Much of the data was collected during interviews with Dr. Hurst in 2013, 2014 and October 2015. In addition, school administrative staff sent out questionnaires to students, staff, parents and governors, 85% (n=76) of which were returned and analysed to find if the perception of improvement at Packwood was shared by other stakeholders. The research team was also given access to approximately 50 unsolicited emails and letters sent to the school and use was also made of articles in the local press. A greater understanding and an independent view of Packwood were gained from the Ofsted (2012) inspection reports. Ofsted (2015) carries out regular inspections of each school in England, resulting in a published evaluation of the effectiveness of the school. Three-yearly inspections examine the overall effectiveness of the school, leadership and management, the quality of teaching, learning and assessment, personal development, behaviour and pupil welfare, and what processes are in place to ensure standards of teaching and learning continue to improve (Ofsted 2015). Considerable attention is paid in secondary school inspections to national examination results, especially student performance in the General Certificate of Education (GCSE). The number of pupils obtaining 5A* (the highest grade) to C grades at the time of the inspection is compared to the previous performance of students at the school and the local authority and national averages. Ofsted (2015) publishes the inspection results; in addition to written comments, schools are assessed on each area and overall on a 4-point scale: outstanding, good, requires improvement and inadequate. Inadequate schools are usually placed in special measures and required to make very specific improvements in a limited time scale, after which they are re-inspected. Ofsted (2015) inspectors have wide ranging powers including removing the school principal, senior staff, school governors and closing the school. The school in this case study, Packwood, had been identified as 'inadequate' and placed in Special Measures 18 months before the research on which this chapter is based was undertaken. This case study of Packwood School sets out to explore the strategies that facilitated the school's dramatic improvement.

Table 11.1 The percentage of 5A* to C GCSE grades achieved by Packwood School compared with Local Authority (LA) and national averages

	2009	2010	2011	2012	2013	2014	2015
Packwood School (%)	26	31	41	57	75	76	81
Local authority average (%)	47.2	51.4	57.6	60.6	63.4	58	55.4
National average (%)	49.8	53.5	59	59.4	59.2	53.4	52.8

Source: Department of Education: the school unique reference number has been made anonymous by the authors http://www.education.gov.uk/cgibin/schools/performance/school.pl?urn=000000

Packwood: A Failing School in Challenging Circumstances

Packwood School is situated in Willbridge, a local authority in the north of England. Formed in 2004 by merging two underachieving schools, the newly-merged school continued a long history of underachievement and was eventually classified by Ofsted (March 24, 2010) as 'inadequate' and placed in special measures. During its time under special measures the school had three different headteachers, while the students' academic achievements and behaviour continued to leave much to be desired.

A measure of Packwood's academic status is that in 2010, the highest performing school in Willbridge local authority achieved 80 % 5A* to C grades including English and Math's at GCSE, whereas the lowest performing school achieved 30 %. Packwood School scored 31 %, placing it in the bottom three schools in the authority. This was 20 % below the authority average, which in turn was 2 % below the national average. In 2011, the year before this case study begins, Packwood achieved 41 % 5A* to Cs, whereas the highest performing school in the authority achieved 90 %. Pupil numbers had reduced since the school fell into special measures; at the start of this case study there were 1404 students on roll, down from 1529 the previous year. Numbers continued to fall with 1200 students on roll in 2014–2015, largely because, in spite of dramatically improved results, it is still taking time to build a better reputation for the school. Numbers were falling because of the reputation of the school and the horror stories people told of their experiences. Numbers are now increasing because it is now recognized as the top performing school in its region.

Packwood School had been in special measures for 18 months when the third new headteacher was appointed in January 2012. This new head's arrival saw a dramatic improvement of 16 % in GCSE results (Table 11.1), meaning that the school not only achieved its targets but exceeded them, placing its performance in the top 25 % of all schools nationally. It is clear from this table, however, that Packwood had consistently fallen below national and local authority averages for GCSE results and that this trend continued in 2012, in spite of the improvements made. By 2013, however, the situation had changed and a pass rate of 75 % was achieved; improvement has been sustained in each subsequent year. In 2014 Packwood students achieved a 76 % pass rate in GCSE 5* to C grades; by 2015 this had risen to 81 %. For the last 3 years the pass rate has been above both local and

national averages. The school has a sixth form of some 230 students and the Advanced Level GCSE results for 2014–2015 indicated a pass rate of 99 %, significantly above the national average.

Although examination results do not give a complete picture of a school's performance, they are, in this case, indicative of a wider improvement. Not only were results dramatically better in all measures—from the National Measures of attainment to the amount of progress that students made from entering to leaving the school—but analysis of the results also revealed that all groups of children, including those with Special Educational Needs and Disabilities, those receiving free school meals, vulnerable students, and both gender groups had made significant progress (Guardian, 2016).

It is clear from the evidence that other aspects of school life also improved. When Dr. Hurst was appointed in January 2012 it was his first headship. He found a chaotic school. He thought that Packwood was the worst school he had ever seen. Staff felt that they could not challenge negative behaviour because there was too much to deal with. Children frequently set off fire alarms, sometimes up to 3 times a day, and doors were regularly kicked off their hinges. Dr. Hurst recalled the chaos and lack of regard for others, which were almost overwhelming:

> It is a two-story school with balconies where students would stand pouring orange juice onto passers-by. On some occasions students would hang and drop between floors rather than use the stairs. It was a very menacing place where you felt unsafe just being around the site; in my first two weeks here, I personally was assaulted on more than one occasion, and saw other teachers being pushed, sworn at, and having things thrown at them. The playground was dangerous, and I saw a child ride his bike through the playground at lunchtime, hitting lots of children and knocking them out of the way, enjoying hurting them. There were lots of no-go areas for teachers, and when the bells went to signify that lessons were starting nobody moved, instead they just stayed in their groups socialising or smoking. Teachers told me one of their biggest problems were the hordes of students in corridors during lesson time, these students would open classroom doors, interrupt lessons and shout to friends across classrooms … the teachers didn't know the students and didn't feel confident in dealing with them. (Interviewee Dr. Hurst)

Within a year, however, damage to the school building had decreased. The false fire alarms that plagued the school stopped and behaviour generally, both inside and outside the school, had significantly improved. Before Dr. Hurst became head a small team of maintenance staff had been kept busy on a permanent basis, repairing doors, removing graffiti and dealing with a wide range of deliberate damage; this is now unnecessary.

Other measures revealed a perception of improvement even before the first set of examination results were published after Dr. Hurst became head in January 2012. This was evident from the questionnaires given to staff, students and governors, all of which revealed that 100 % (n = x) of respondents felt that the school had improved significantly. Of the questionnaires given to parents (n = 45), only one parent did not feel that it had improved significantly; the school was aware of this parent's concern and was dealing with an ongoing issue that had originated prior to the new head's arrival. An Ofsted inspection in March 2012 concluded that the school no longer needed to be in special measures; this was followed by a further, unannounced

inspection in 2014, after which Packwood School was graded 'outstanding' for every measure (Gov. U.K., 2014). When the school was brought out of special measures Dr. Hurst reported the verbal feedback from the lead Ofsted (2012) inspector, who stated that, *it was unusual to see so many changes implemented in such a short time, and noted that even so there was a lack of change-fatigue*. Ofsted (2012) commented that their findings were that, *people were supporting the changes and that staff and student morale were high, with everyone clear about what they were intending to achieve and how they were going to do it*.

Transformational Leadership: A Framework for Success

It is now widely accepted that headteachers are mainly responsible for the generation of improvements within a school (Day 2009; Liebman, Maldonado, Lacey, & Thompson, 2005). They are the major contributing influence on the school environment and shape the direction and ethos of the school by their behavior (Leithwood, Anderson, Mascall, & Strauss, 2011). Hence, the conscious decision made by Dr. Hurst on his appointment to deploy transformational leadership was crucial. It has already been seen that his decision resulted from the analysis carried out during the study of headteacher leadership of schools in challenging circumstances in which he had previously taken part (Bell & Smith, 2011; Smith & Bell, 2014) which had found this style of leadership to be key to success. Such leadership can have significant effects, as shown by a study undertaken by Verona and Young (2001) into transformational leadership within schools. This found that it significantly increased the examination pass rates achieved by students, while simultaneously improving the moral base of personal growth of individuals within schools. Leadership itself is a contested, complex and intricate concept which has been subject to a range of analytical approaches. However, both Eagly, Johannesen-Schmidt, and van Engen (2003), and Bass and Riggio (2006) identified transformational leadership as the most successful method of leading in such a way as to cope with challenging circumstances. The transformational leader has the potential to change the very culture of the organisation and hence help shape and develop it as the requirements of the environment change.

Rather than measuring performance, transformational leadership focuses on the leader's role in inspiring and motivating followers, fostering a desire to improve and achieve and demonstrating qualities such as optimism, excitement about goals, a belief in a future vision, a commitment to develop and mentor followers, and an intention to attend to the individual needs of these followers. Transformational leaders focus on developing and raising the awareness of their followers about the importance of satisfying higher order growth needs. Such leaders are able to alter the perceptions and self-belief of pupils, staff and members of the community; they use a vision which focuses on changing the school ethos to empower students and raise aspirations, and they involve and develop colleagues. Transformational leaders involve others in the creation and sharing of the vision, and nurture a level of

sustainability that enables the vision to be communicated by more people. This is a means of inspiring others, encouraging them to believe in an alternative future where their circumstances are improved, and where they are empowered to contribute towards bringing about this improvement (Bass & Riggio, 2006).

When any leader joins a failing school, that leader hears everyone's excuses for failure. Most of these are valid and absolutely true to the people reporting them. These excuses from the community the school serves, to the lack of support for the school from external agencies, from the layout or size of the school to over-inflated entry grades or even claims of vindictive Ofsted inspectors—leaders will hear them all and, as the leader of the school, the transformational headteacher has to make it clear that no excuse is ever good enough to prevent achievement. What new leaders will be faced with in failing schools, and in schools in challenging circumstances, is a process of denial. Hence it is important that new leaders must write their own story, change the focus from reasons for failure and concentrate on strategies for success. In this case study existing definitions of transformational leadership have been used to provide an analytical framework for the leadership actions of the headteacher.

Starting the Process of Change: Students

The first major task that faced Dr. Hurst and his staff was to establish effective leadership that would have an impact on the serious problems facing the staff of the school, therefore the basic issues of student indiscipline needed to be addressed as a matter of priority. The first step in this process was an insistence that students should come to school in school uniform. Although this may seem a rather trivial issue on which to focus, the rationale was that failure to wear school uniform by students was symbolic of a capacity to flout school rules. The purpose of the introduction of a dress code was to establish rules that were simple to enforce because of their visibility. As Dr. Hurst pointed out:

> At one of the first sessions I explained what the SLT [Senior Leadership Team] would do to support staff, and promised that students would not get into their lessons if they were out of uniform. At the time, I noticed lots of staff look at each other, as if to imply that that was impossible, which was understandable as it was hard to find a student with their tie on, or shirt tucked in—and in fact one Vice-Principal told me that was almost all he did all day, focus on uniform. To change this, we had all SLT out on the gate at 7am before the start of day at 8.50am. Anyone not in uniform was loaned the correct uniform and given a detention for being out of uniform. This now means you cannot see a single student out of uniform anywhere in the school, and teachers can focus their time on real priorities, such as the quality of learning.

The emphasis on school uniform was deliberate. In one sense, school uniform was a symbolic representation of much that was wrong with Packwood. Wearing the correct uniform was a school rule that was deliberately, consistently and visibly flouted. The breach of this rule was easy to identify and its enforcement was

relatively simple. Dr. Hurst recalled that he received numerous complaints from parents about the enforcement of the school uniform rule. While they all had valid reasons for their child being out of uniform, the head stated that he would not back down. As he pointed out, this helped show the students that rules would be enforced and that parents could not overrule them. This was a significant change, since previously parental intervention had routinely led to sanctions being dropped.

However, student behaviour in classrooms also needed to be addressed. If the enforcement of the school rule about wearing uniforms was symbolic, changing behaviour in classrooms was practical. It is widely recognised that one of the most difficult things for any headteacher to achieve is to influence what goes on once the classroom door has closed. Dr. Hurst argued that to achieve changes in the classroom it was necessary to focus both on consistency, in terms of what behaviour was acceptable and what was not, and on the individual interactions between staff and students. The starting point was student behaviour, both inside and outside the classroom.

Staff were told to use a 'three ticks and you're out' approach to poor behaviour. This meant that any student receiving more than three reprimands for poor behaviour, or being late for lessons, would be removed from the classroom to an isolation room staffed by a member of SLT and given detention. Initially there would be up to 40 students removed each period, all of whom received a follow-up detention. It was important, however, for staff not to hold grudges and each student was to be given a clean slate once a sanction had been served.

By the start of 2015 there were about 8–10 such students each day in detention. This was still too many, but it was a great improvement and the number continued to fall. Meetings were scheduled between the Senior Leadership Team, students who were underachieving due to poor behaviour, and their families. The purpose of these meetings was to describe the changes that were taking place, to ensure that rules were understood and to make clear the expectations that the school now had of its students. In order to continue to address behaviour problems the Senior Leadership Team was instructed never to compromise when meeting students and families, but instead to insist on absolute compliance with the new systems.

Students had previously hidden in stairwells and on the playing fields to avoid lessons. The tracking system for identifying which students should be in which lesson was improved and rigorously applied. Senior staff started to ensure that students were in lessons by patrolling the corridors and the head banned the use of the extensive playing field for anything other than teaching purposes during the school day. Dr. Hurst stated that this was a lot of short-term pain for long-term gain. For many members of the Senior Leadership Team, though, this was a very difficult process and they had to be reminded daily to centre on the vision of what the school wanted to be ultimately, rather than on where they were at present. Dr. Hurst highlighted the need for consistency in everything in order to bring about quick changes, stating that a lack of consistency would undermine everything and slow down any progress. He drew attention to the manner in which this was applied to students and also to staff, allowing no room for deviation, he stated:

> We made sure rules and expectations were very clear, shared these with governors, parents, staff and students, and also made it clear that deviations from this would not be allowed. So students had clear guidelines on behaviour and the consequences for not adhering to these. Also teachers had a level of consistency that they had to adhere to with this in mind, the vision had to be very simple and clear, making sure everyone knew we were a united team all driving towards excellence and never settling for underachievement wherever it was found. When the teachers saw how the changes we were making would benefit children then most came on board.

The Process of Change: Parents

Not everyone, however, supported the attempts to improve student behaviour. Some parents were reluctant to accept any changes, accusing the school in the local press of treating students like criminals. Although these parents knew the school was failing, and said that they wanted it to improve, some were against any changes that impacted on them directly. There is, moreover, an ongoing Facebook campaign instigated by a few families featuring complaints about Packwood. Many more parents, however, supported the school; some stated openly in meetings how pleased they were with the changes and the leadership of the school, these parents were not the type however to publicise their views on social media. Consequently, Dr. Hurst argued, the school's bad press was perpetuated longer than it should have been and, as a result, and Packwood's poor reputation would not improve until it was widely recognised that student behaviour had improved, and would continue to improve, through the consistent implementation of school rules.

Nevertheless, the school's reputation did improve. Staff at a local bank commented that until recently customers remained inside the bank at the end of the school day to avoid the Packwood students. This no longer happens and the students are polite and friendly. The head of a secondary school in a nearby city who happens to live near Packwood School recently wrote to Dr. Hurst complimenting him on the improvement in student behaviour in the town. A primary school head sent a similar letter. Rigorous and consistent enforcement of simple rules seems to have been the key to this improvement.

The Process of Change: Teaching

The measures described above, focusing on student behaviour, represented the initial approach to establishing effective school leadership and for generating significant improvements across the school. Improvements in student behaviour, however, had to be complemented by an improvement in teaching. Dr. Hurst argued that there was little point in ensuring that students attended lessons and improved their behaviour if lessons were not engaging; the first step towards this was establishing consistency. Consistency for teachers in their classrooms included common structures for

sharing learning outcomes, common practices for changing between activities, common procedures for engaging students in discussions, and common routines for encouraging students to accept challenging tasks. A structured approach to lesson planning and delivery, and a common approach to aspects of pedagogy were outlined by Dr. Hurst.

At the start of each lesson the learning outcomes for the session are written on the board. Teachers must introduce the lesson, referring to the outcomes and how they will be achieved. The tasks must be meaningful, relevant and constructive. One exercise used in all classrooms is for students to put everything down and focus on the teacher. The teacher then explains something concisely in no more than 2 min. Students are then asked to make notes on what has been taught. These notes are then compared with a partner, reviewing information and noting anything that has been missed. One student is then selected at random to recount what has been covered. The classes amend their work as needed. The teacher praises correct information and adds anything that has been missed or misunderstood. This exercise increased the level of retention on the part of students and it became easier to establish how far the learning outcomes were being achieved.

At the same time changes were made to the curriculum, especially the option blocks. Options start in Year 9 and each student selects two options for a year, so students take six options by the end of Year 11. Packwood School has now moved away from fixed option blocks. Instead, a full range of choices is given to students and the blocks are then fixed around student choices; if enough students choose an option, it runs. This means that departments have to consider carefully what options they can and do offer and at what levels. They must give students advice and guidance about what choices are best for them (not for the teacher or the department). The headmaster noted that experienced teachers felt that all this was a big change, especially if they viewed themselves as successful teachers. It was stressed, however, that this consistency would empower all teachers, providing frameworks where students knew and responded to routines.

The Process of Change: Training, Self-Belief and Motivation

It has already been noted that the changes that Dr. Hurst initiated at Packwood School were based on a conscious decision to use transformational leadership, based on his previous experience of its success (Bell & Smith, 2011; Smith & Bell, 2014). When he determined to use it as a vehicle for change to accelerate improvements within the school, Dr. Hurst recognised that this would require a heavy investment in staff training: 2 h every week were spent developing teams and securing consistency. Whole school sessions included effective planning, dealing with poor behaviour and setting a vision for improvement. The focus was on making lessons enjoyable, engaging students and ensuring progress. This training was supported by informal mentoring and coaching. At departmental level training sessions for heads of department, run by the headteacher, covered continuous improvement, securing staff

commitment, managing time, being a good leader, ensuring quality, target setting and achievement, and interventions that make a difference. Within departments, training sessions dealt with topics such as standardising marking, collaborative planning and literacy in your subject. All this activity was based on shared values such as putting the student first and never giving up on a student.

This transformational approach to staff training also included how to undertake some of the mundane tasks that teachers can find draining, such as marking books, which many teachers treat as a chore. As such it is very time-consuming and produces a negative effect, having no overall impact, and the time spent marking in this way really is wasted. However, when marking is connected to the purpose, it is much less of a chore and becomes far more effective. It becomes something teachers want to do, rather than a chore; the time spent looking at what students have produced can even become enjoyable, and teachers' written comments reflected this, automatically becoming more personalised and motivating. The outcome was that, instead of it being a drain, marking became an effective use of time, producing good outputs for a little input. This empowered teachers and created a shared vision of accomplishment, where teachers experienced higher levels of morale and enjoyed their work more.

Training and support were used to ensure consistency and to encourage reluctant teachers to embrace change. Dr. Hurst maintained that one of the most important aspects of implementing change was to lead by example. It was imperative therefore that he not only delivered training sessions personally, but also taught within the school so other teachers could see him practice what he preached. In addition, Dr. Hurst actively looked for teachers embracing these changes and then had them present their experiences at staff briefing meetings, providing testimonials as to how their lessons had improved by trying these new structures:

> As we walked the school, we would see teachers who had some great learning outcomes and had chosen some exciting activities as a way of teaching the material. We would ask these teachers to talk to staff about how they had planned and delivered this lesson, and how students had really enjoyed it and engaged. The idea was to show staff that if you take the time to prepare something good for students, then they will engage more.

As a result of this approach to school leadership, staff morale rose considerably; by 2013 staff absence had decreased to such an extent that for the first time, there were many weeks when every member of staff was at school. Dr. Hurst explained that the vast majority of staff were excited about the journey they were taking; many teachers had changed their approach to their working, becoming real leaders, both within the school and within their departments. He shared examples of many who had expressed their appreciation of the quality of support they were receiving and the attitude of the students in their lessons. Although most staff supported the changes that he was bringing about, not all staff were fully engaged.

Dr. Hurst acknowledged that there were some staff who would not or did not wish to improve their professional practice; these fell into two main categories. First, some felt that the pace and challenge of the school was too much for them; some of this group had already started to apply to leave and join other schools, and

he noted that the training these staff had already received at Packwood had developed them, so they were in a better position to apply for other jobs. A few former staff members had received promotions in other schools, and it was stressed that they would continue to receive his full support. The second group however were those who, in his view, should not be in teaching:

> Some teachers lose their way and forget how important their role is. I don't feel they are always to blame for this, sometimes they work in an environment where bad habits are the norm and under such conditions it is difficult to stay connected to your purpose. There are very clear systems in place for staff like these, and what we do is continue to provide high levels of training and support, but never accept substandard performance. We never make the mistake of thinking a school is here to give jobs to staff.

Although Dr. Hurst's first priority in bringing about change at Packwood School was behaviour in all its forms, it was necessary to raise the self-belief of individuals in order to help to sustain these changes. This was done by constantly painting a vision of a brighter future, that everyone felt was possible. This was originally done through assemblies, meetings and interactions with individuals, but then expanded into tutor-group work which students and their tutors would undertake together, giving them ownership of the vision and a clear pathway for bringing about changes. He went right back to basics in his interactions, spelling out how children should develop a sense of integrity and self-worth, providing concrete examples of what students should do in their daily practices in order to build these values and how they would know if they were on the right track. Dr. Hurst argued that instilling values and self-worth into students was fundamental for ensuring students had a strong self-belief and could start to set and realise high aspirations.

Staff self-belief was equally as important as student self-belief, and Dr. Hurst started what he called, 'a massive push on building capacity among staff.' He outlined how he had encouraged them to start taking risks and have greater faith in their abilities. In the beginning staff felt paralysed to act without first seeking approval from the headmaster. He believed that staff feared their actions would be seen as wrong, and they would be disciplined and overruled on even the smallest things. He changed this perception by making sure it was seen that teachers received the full backing of the headteacher; if they had made a sound decision then the headteacher would support them, even if things went wrong. Many staff were shocked and surprised at this. Dr. Hurst explained why this was the case:

> I think that the school was underperforming so much, that nobody had faith in their actions, and so when questioned about anything they simply changed. For example, parents had developed a practice of always complaining to the headteacher whenever their child received a sanction, such as a detention from a member of staff. At the beginning this was very difficult to change, with parents feeling that I was unfair to insist that their child complete the detention for the teacher, when they were fully aware that many other students had done much worse and not been punished in the past. By holding the line very strongly, the attitude of parents began to change and they started to realise that the systems were fair in their implementation and every child who behaved in a particular way would always receive the same punishment.

This empowerment fostered a belief among the staff that the headteacher respected their professionalism; this encouraged them to take greater risks in the classroom, secure in the knowledge that misbehaviour by students would never be tolerated. To achieve this, Dr. Hurst spent time in lessons with students and with teachers, praising them for the way they embraced the new classroom structures. Really good teaching practitioners were asked to lead small sections of staff briefing meetings, or to deliver at staff training sessions. When teachers stood up and shared details of how they were changing and how this had led to positive achievements, other staff started discussing the implementation. In addition, the relationship between staff changed, with more people praising each other and asking for—or offering—advice.

One small initiative indicated that staff were starting to believe: some members of staff approached the headteacher with a request for a new school-wide system of 'wild-cards,' where staff would stick a wild-card to their classroom door to inform other staff that they were attempting something out of their comfort zone. The card served two purposes: first to say, please call into my room and see what I am doing—offering support if possible—and secondly to say, 'don't judge me, I am trying something new.' In one 'wild-card' case a business studies teacher developed activities similar to the television business programme *Dragon's Den* as a way of teaching the curriculum. He shared his planning, delivery and assessment ideas with the rest of the staff. Another teacher created a circus of popular games for students to play, including Jenga (with questions on each block), Trivial Pursuit (with topics for each 'cheese'), and Question Monopoly. The games had all been modified to relate to things students knew—for example the places on the Monopoly board were named after streets in the town—and they focused heavily on key revision topics by having common questions repeated in several games.

On one occasion, six students from the same class attended an after-school club where the teacher taught them the key skills in forthcoming lessons about designing bird-tables. They then worked together to create and improve the bird-tables, adapting them to make unique features for particular bird types. In the class, these students started by demonstrating one aspect each, then provided their services as experts on different aspects of design, such as using Pythagoras's theorem to calculate the length of the sloping roof, calculating the hole-size for particular birds, and different joints for each section. The students then provided small workshops, while the teacher facilitated as learners taught each other. A French teacher adopted a similarly creative approach. She watched a science lesson being taught to her class. When they next had French she taught the same science lesson—but completely in French. The students loved it and it also served as a starting point for students to relate to this new information and also to the information as they had seen it in science. This obviously had an additional bonus of providing revision for the science lesson.

Linked to this development of extended professional expertise was the deployment of motivation as a vehicle for achievement. One teacher stated that the 'behaviour and attitude in students has greatly improved and the motivation of staff has also improved.' According to a different member of staff, achievements had been

made because of a more positive outlook by staff on pupils' outcomes and the students' own higher expectations. Many staff made a direct reference to the motivation of students as being the greatest improvement in the school. Another teacher stated that the motivation of pupils, and the fact that they want to do well in lessons, was the one thing that was making all the difference. It is evident, therefore, that high levels of motivation linked to sound professional development and effective support creates an environment which encourages risk-taking and change. The transformation in teaching would not be effective, however, without changes within the school leadership team.

The Process of Change: Leadership

Changes to staff and student behaviour, teaching and self-belief were accompanied by changes to the work of the Senior Leadership Team, which also went through a paradigm shift. Dr. Hurst recalled how members of the SLT would previously spend hours on administration tasks and hold meetings that had nothing to do with school improvement. The senior staff were now required to concentrate on the important issues, so they could become a driving force for change. At first the SLT had to focus on discipline. Senior leaders were instructed never to use their offices during the school day. Instead they should spend their time throughout the school and in lessons, supporting teachers, identifying and praising good practice and working with students. Administration duties needed to be minimised, as most such tasks did not have a sufficient impact on the achievement of students: devoting the time to interacting with students would produce more important results. Any administrative duties or meetings that were essential needed to take place out of learning time.

Both senior leaders and teachers were unused to this and felt uncomfortable at the start, so much so that the leadership team were apprehensive about entering a classroom when a teacher was teaching. To embed this practice, the headteacher devoted an hour of every Senior Leadership Meeting to feedback from the team on the week's interactions within lessons. This was then followed up by praise being given to the teachers whose work had been discussed. The headteacher felt that this helped build the vision for the school, as he was able to voice his pleasure when senior leaders talked about classroom practices they felt were worthy of note. The SLT became more aware of their school and the good lessons that were taking place, as well having ideas on how to improve other lessons. One of the Vice-Principals stated that, *instead of devoting all his time to tackling minutiae he was now a strategic leader, with an awareness of where the school was and what was needed to move it towards where it needed to be*.

Dr. Hurst also created processes to include more and more staff in the leadership of the school. He described how the weekly staff training sessions had been expanded to include contributions from an increasing number of individuals. Such improvements had been achieved by:

> Providing a great deal of staff training and personal coaching. At the beginning I delivered the first few training sessions myself, then expanded this to include the Vice-Principals, and now we have NQTs and other enthusiastic teachers contributing. There's now also a team of staff who are fully in charge of staff training and feel empowered to make important decisions about the training we need and the quality of training they are willing to accept.

These strategies for developing and sustaining effective leadership enabled staff to embrace the new challenges and become leaders in their own right. All staff now were encouraged to leave their classrooms to go and see someone else teach, even just for 5 min during non-contact time. The resulting level of change should not be underestimated: discussions between staff changed, and focused on the quality of learning and the high levels of provision that students receive. There has developed an ethos of professional respect between teachers that has created a team with drive, rather than individuals struggling in isolation with classroom problems. Dr. Hurst concluded that teachers sharing within the profession is something that too many schools lack, and is one thing that everyone should always focus on; it unites teams, develops individuals and improves performance.

Transformational Leadership and Sustainability

This case study of the implementation of transformational leadership in a failing school in challenging circumstances has demonstrated that it delivered significant positive change at Packwood School. But can these changes last? As Hargreaves and Fink (2004) observed, changes by school leaders can prove to be temporary, and produce little lasting difference. The key is not only to establish change, but to ensure its sustainability; only through creating sustainable change will progress outlast the incumbency of a single leader. How sustainable, therefore, is transformational leadership and the changes it brings about?

In order to assess the sustainability of the changes at Packwood, this section compares the principles of transformational leadership with those of sustainable educational change since, as Hargreaves and Fink (2004) observe that the prime responsibility of all education leaders is to put in place learning that engages students intellectually, socially, and emotionally. Sustainable leadership goes beyond temporary gains in achievement scores to create lasting, meaningful improvements in learning.

Zelig (2016) note that leadership might be conceptualized as *Reactive* or *Proactive*. The essential difference is that Reactive leaders are generally individualistic in their approach, focus on reacting to change and tend to punish errors, all of which inhibits sustainability. Proactive leaders, on the other hand, initiate and lead change, solve problems through team work learn from mistakes, motivate and support colleagues and have a clear vision for the school. Hence they are more capable of developing sustainable leadership. According to Leithwood and Jantzi (2009) transformational leaders also focus on a series of crucial and interlinked aspects: vision and communication, building and valuing relationships, motivating staff,

Table 11.2 Comparison of the principles of transformational and sustainable school leadership

Transformational leaders	Sustainable leaders
Establish a vision and communicate it	Share the vision and involving others in developing it
Build and value relationships	Provide support from the top, for everyone; enable everyone to support each other
Motivate staff	Pursue goals that matter and establish continuous improvement
Empower individuals	Provide opportunities for teachers to network, learn from each other and support each other
Establish self-belief	Support everyone, and encourage teachers to support each other
Share leadership	Distribute leadership throughout the school
Are committed to the development of all members of the school community	Coach and mentor

Source: Adapted by authors from Leithwood and Jantzi (2009), Hargreaves and Fink (2004)

empowering individuals, establishing self-belief, sharing leadership and are committed to the development of all members of the school community. The principles of sustainable leadership envisaged by Hargreaves and Fink (2004) show many parallels. Sustainable leaders plan and prepare for succession, put students first, distribute leadership throughout the school, support everyone, establish continuous improvement, coach and mentor, encourage teachers to support each other, model sustainable leadership and, finally, pursue goals that matter. Most of these elements can be correlated, as shown in Table 11.2.

The similarities and differences in these two approaches to leadership are now considered in more detail in relation to Packwood School. The headteacher, Dr. Hurst, made references throughout his evidence to the 'vision' for the school and his methods of communicating this with stakeholders. Interviews with members of staff revealed that they also believed in, and carried, this same vision. In 2014 one of the Heads of Department at Packwood reiterated the vision when he viewed the school as:

> a place that is giving students the best education possible. Our aim is to get to outstanding [Ofsted classification], but we're not there yet; we are now on the right track to be an outstanding school, and therefore this is a place where students are achieving and they are enjoying what they do. Results are going up. Students feel safe; they feel that teachers care about them.

Aiming for an 'outstanding' Ofsted classification was mentioned by other teachers when they were asked to describe the vision for the school; for some it was their first statement. By 2014, the school had been deemed by Ofsted to be outstanding in all areas and was designated as one of the most improved secondary schools in England. The sharing of a vision and the involvement of others in its development are also key to sustaining that vision, since it is then held in common with stakeholders.

The need for transformational and sustainable leadership to share a vision for the school is accompanied by the idea that transformational leaders need to place great emphasis on building and valuing relationships. Equally, sustainable leaders provide support from the top for all staff and students, and promote an atmosphere of mutual support. Evidence of this emphasis was revealed throughout the interviews, with one parent stating that, *the most significant change that had happened at the school was people respecting each other*; a member of support staff added, *we all work together, as a team, and everyone is 100% behind each other*. Dr. Hurst emphasised how important it was that everyone felt supported, and this was a feeling to which staff often referred; all those interviewed made positive references to support and recognised that there was a whole school approach where everyone did feel supported, both by other members of staff and the Senior Leadership Team.

Comments were also made by staff about the relationships that students had with each other and with members of staff. Every interviewee stated that students now had much greater respect for staff and for the other students. One classroom Humanities teacher saw this as the greatest improvement in the school since, by 2014 significant improvements could be seen in:

> the behaviour of the students in and around the academy; the way they get on with each other, the way that they get on with the staff. It's a lot calmer and a far more pleasant atmosphere … it enables me to teach my subject.

The improvement in student behaviour, therefore, is not only important in itself; it also facilitates more creative teaching and helps students to learn more effectively. Behavioural improvements also had a wider impact on the school. Two lunchtime supervisors and 15 parents of students were interviewed about what had changed at Packwood and they all suggested that the biggest change was that 'pupils are happier'. This was also noted by a Second in Science teacher who talked about the students' positive attitude; she recounted how the school had changed in the first year of the new leadership:

> It's been pretty dramatic actually, the atmosphere in the school has changed generally; there are fewer pupils out in corridors and more pupils excited about getting to lessons. Pupils are just generally more positive about the school, overall there's a real buzz and excitement about learning and it's completely different to last year.

Headteachers who are transformational focus on individuals, motivating and empowering them to achieve more, to become flexible and to develop a strong belief in their own abilities. Similarly, sustainable leaders also pursue goals that matter and establish continuous improvement, and also provide opportunities for teachers to network learn from each other and support each other. The case study showed clear evidence of all these elements being in place, and Packwood teachers confirmed that their experience in school had completely changed. One colleague noted that he was now able to undertake much more in lessons than previously. He recounted that although he had many ideas for activities that would improve learning, he had never dared try them because of how students behaved. Now he could confidently plan and deliver activities, secure in the knowledge that they would run smoothly and that students would gain the experiences he wanted them to. Teachers

recognised that this change was not only within their own lessons but throughout the school, with one teacher stating 'the standard of teaching here is now brilliant, just walking around the school you can see, in classrooms, fantastic lessons happening'. Many staff believed these improvements resulted from the support they now had from the school's senior leaders. They knew they were fully supported both in and out of the classroom; two members of staff stated in their interviews that they felt inspired to achieve more than before, and others added that they found this level of support to be very motivating.

New staff also felt they had made a positive contribution to the school, with some delivering their best practices to other staff and sharing the benefit of their creative classroom ideas. One classroom teacher had initiated a weekly flyer to highlight best practice throughout the school, and she claimed to be inundated with submissions from staff with innovative ideas to share. Another teacher had started an online forum for teachers to discuss creative classroom ideas that they were using and how to implement the topics covered in staff training sessions to maximise impact.

Transformational headteachers are optimistic, excited about goals, have a belief in the future, and a commitment to develop and mentor others (Smith & Bell, 2014). Evidence of all of these characteristics emerged during the interview with the headteacher of Packwood School as he discussed not only his vision of and belief in where the school could go, but also the very challenging goals he had for each department and how excited he was that they were well on the way to achieving them. Encouraging the development of others is said to be one of the main focal points for transformational leaders; support for everyone, and encouraging teachers to support each other are likewise key elements of sustainable leadership. This was another aspect that was mirrored by staff within Packwood School. Heads of Department felt they were now developing the independence of staff within their departments, just as teachers felt they were developing the independence of students; one classroom Science teacher predicted that during the next 12 months 'the teaching in the classrooms is just going to get better and better, and pupils are becoming much more independent'.

In order to be sustainable, leadership should be distributed throughout the school rather than invested in a single figurehead; transformational headteachers also share leadership and empowerment, establishing a partnership that includes aspects of coaching, mentoring and professional learning. This was also a theme that ran through the data from Packwood School. One Head of Department discussed how the headteacher 'supported him in every way possible' which, he felt, made all the difference in enabling him to perform his role. He also described how the headteachers manner, which was always optimistic and creative, produced an environment where people felt they could achieve. Similarly, a Vice-Principal stated that the school was now a great place to work, and accredited this to the headteacher enabling her to lead. Leadership devolved in this way throughout the school will survive changes in headship, as it is not reliant on one 'hero-innovator' leader.

Dr. Hurst argued that, above all, consistency of approach was vital. Interestingly, on the questionnaires returned from governors and staff there were direct references to the level of consistency and how this was one of the leading factors that was

generating and sustaining improvements. Student questionnaires also made indirect references to this level of consistency, stating that lessons were now better, behaviour was dealt with in a better manner and that overall the general environment was better. The headteacher also described how he coached a group of school leaders, who could then generate a greater level of consistency; he stressed how pleased he was that they had started to develop on their own, without the need for continued direction from the headteacher. This reflects another aspect known to emerge both through transformational leadership: that when the leader is transformational, individuals take responsibility for their own actions and want to make a difference; indeed a further finding on transformational leaders is that they are more likely to be successful if they stimulate creativity in followers than if they try themselves to be the source of creativity (Leithwood & Jantzi, 2009; Smith & Bell, 2014). Dr. Hurst drew attention to many examples of this, such as the development of the 'wild-card' system and the greater involvement of students in the life of the school.

It was clear from the evidence that the students themselves felt they had been given more scope to be creative; they had jointly led a range of high-profile events throughout the school including launching an Olympics Day and organising a Jubilee celebration. In addition, students felt they had made significant improvements to the running of the school, quoting changes to the school day as one of their major inputs: they had created a split break time that they felt made the canteen a more pleasant place. Dr. Hurst also acknowledged that students contributed to supporting the changes in the school:

> Students now play a much greater role in the leadership of the school, with Student Voice a prominent feature of the school and at every SLT meeting. The students have implemented many changes, all of which have been given the full backing of the Senior Leadership Team and have happened quickly, providing a momentum where students know they play a role in shaping the development of the school.

Conclusions: Change Through Sustainable Transformational Leadership

It has been argued that school leadership based on business and effective school models has failed to meet two fundamental tests: that it successfully promotes improvement and that it provides sustainable leadership (Donaldson, 2001). Donaldson argues that sustainable leadership and sustainable improvement requires mutual openness, trust, and affirmation sufficient for colleagues to influence and be influenced willingly by each other. It also requires the linking of individual commitment to school-based educational purposes. This must be based on shared belief, reinforced by shared experience and action, that together the members of the school community can act to accomplish goals more successfully than individuals can alone. In other words, transformational or proactive leadership is essential for sustainable leadership and sustained change. Similarly, Jackson (n.d.) identified four key elements of sustainable leadership: establishing a vision; having the drive and

determination to establish and implement the vision; empowering colleagues to facilitate the achievement of the vision; developing a sense of resilience, risk taking and flexibility to deal with the change processes involved in achieving the vision.

The evidence in this case study of a failing school in challenging circumstances demonstrated to a remarkable degree, the positive change that can be brought about following the appointment of a transformational leader. It has become clear that what Dr. Hurst did, based solely on his conception of transformational leadership, also includes almost everything that Donaldson (2001), Jackson (n.d.) and Hargreaves and Fink (2004) argue is necessary for sustainable leadership. The one thing he did not undertake that Hargreaves and Fink (2004) believe is important is succession planning. This is contextual, in that in the UK headteachers do not play any part in planning for their own successors. However, Dr. Hurst goes beyond the sustainability conceptualisations outlined above, with an emphasis on an agreed set of educational values and ensuring that these values shape everything that happens in the school. In direct contrast with the 'hero-innovator' (Georgiades & Philimore, 1975) style of leadership which, while it may bring about change, is not sustainable beyond the tenure of the head, Dr. Hurst devolved responsibility to all school staff, enabling them to play a part in implementing what is effectively the headteachers role.

By 2015 Dr. Hurst's general view was that although there was still some way to go, Packwood School is now a place of learning where students and staff felt safe and were focused on achieving. He described it as a 'calm, peaceful place of learning' and cited many examples of evidence that students and staff were now committed to the process of learning. These included the manner in which students purposefully moved to lessons on the warning-bell, without the need for anyone to instruct them, the fact that there had not been a single fire alarm set off maliciously, or any of the corridor doors kicked off their hinges; indeed, he claimed that the deliberate damage bill had fallen by tens of thousands of pounds. He stated that an even greater indication of the focus on learning was the way that students actively sought out their teachers now, to hand in homework or to share details of something they have achieved. He continued to describe how the quality of what was happening in the classrooms was unrecognisable, and how many visitors had told him this. Dr. Hurst spoke of how when he now walked around the school he could see teachers enjoying teaching and students enjoying learning:

> I often show visitors around the lessons, and they are always amazed. I make the promise that we will go into any lesson at any time and they will not see any misbehaviour of any type, or a child off task. Last week I showed some members of the local authority around, who had previously visited the school. As we walked from exciting lesson to exciting lesson, one of the members of the local authority told me what he saw had given him goosebumps. The other told me it was amazing how students enter and leave the dining hall without the need for supervision any more. Behaviour is now exemplary and students are receiving full hour lessons of learning instead of 10 minutes of learning and 50 minutes of putting up with disruption. Teachers are trying new strategies and taking greater risks, they now state that they can teach again and love it. As a consequence, achievement is increasing and students are starting to take pride in themselves and their accomplishments. Everyone who visits the school states that it is like being in a completely different place; the ethos; the attitudes and the enjoyment are all unrecognisable.

Dr. Hurst sees himself as a change agent. He makes direct and deliberate references to transformational leadership, since he had consciously made a decision to follow this route. Evidence collected from other staff, from governors, students and parents appeared to validate these claims and provide evidence that the school is being led in a style that could be mapped onto signposts of transformational leadership. This has been instrumental in raising aspirations and changing the self-beliefs of both staff and students. More importantly, this model has generated dramatic but sustainable improvements. For Dr. Hurst, the factors that were most influential in establishing and sustaining effective leadership in Packwood School were those derived from transformational leadership. He argued that good leadership is very simple and one should try hard not to overcomplicate it. This is an insight that is surprisingly uncommon in educational institutions.

Summarising his beliefs, Dr. Hurst argued that good leadership relies on a strong, clear vision where the school, and every individual in the school, improves. This vision needs to be shared as often as possible, with as many people as possible, and should centre on a few key words or key phrases that others start to pick up on and carry with them, phrases like 'Connect to the Purpose', 'Students First' or 'Our Journey to Outstanding'. The actions that leaders take must show that the leader believes in the vision and expects it to manifest itself in action. Leaders must invest heavily in people; offering training, support, mentoring and their time. Colleagues must be provided with challenges constantly, pushing them to improve and helping them form their own foundation of values, ones that guide them to becoming the person they were meant to be.

This case study of one headteacher's leadership of a failing school has shown that transformational and sustainable leadership can indeed 'teach the act of order', even in the most challenging of schools. The long term sustainable development of leadership in a school such as Packwood requires leadership that is embedded in a culture focused on clear values and the educational success of all, and is voiced in a vision that is carried by staff, students and members of the community. When a headteacher is concerned about whole-school improvement, that concern can create deep and sustainable changes in culture and ethos. The current case study has demonstrated that when developing long-lasting changes, it is through transformational leadership that the future vision is embraced but, significantly, the evidence also shows that the sustainability of that future is also rooted in such a transformational approach. Indeed, the similarities and parallels between analyses of sustainable leadership and of transformational leadership are such that they could be regarded as two sides of the same coin.

Key Chapter Concepts

1. A strong sense of vision that informs professional practice
2. Effective staff motivation and support
3. Detailed attention to professional development
4. Encouraging innovation in a 'no blame' culture

References

Bass, B., & Riggio, R. (2006). *Transformational leadership* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Bell, L., & Smith, P. (2011). Transactional and transformational leadership in schools in challenging circumstances: A policy paradox. *Management in Education, 25*(2), 58–61.

Day, C. (2009). Building and sustaining successful principalship in England: The importance of trust. *Journal of Educational Administration, 47*(6), 719–730.

Donaldson, G. (2001). *Cultivating leadership in schools: Connecting people, purpose, and practice*. Williston, VT: Teachers College Press.

Eagly, A., Johannesen-Schmidt, M., & van Engen, M. (2003). Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men. *Psychological Bulletin, 129*(4), 569–591.

Georgiades, N., & Philimore, L. (1975). The myth of the hero innovator and other strategies for organizational change. In C. Kieman & F. Woodford (Eds.), *Behaviour modification with the severely retarded*. Amsterdam: Associated Scientific Publications.

Gov. U.K. (2014). *Press release: Academy goes from failing to outstanding in two years*. Department of Education. Retrieved from https://www.gov.uk/government/news/academy-goes-from-failing-to-outstanding-in-just-2-years

Guardian. (2016). *Workshop school in line for top national pupils award*. Retrieved from http://www.worksopguardian.co.uk/news/local/worksop-school-in-line-for-top-national-pupils-award-1-7724996

Hargreaves, A., & Fink, D. (2004). The seven principles of sustainable leadership. *Educational Leadership, 611*(7), 8–13.

Jackson, L. (n.d.). *Leading sustainable schools*. Nottingham: National College for School Leadership. Retrieved from http://www.arcworld.org/downloads/14669_lead_sus_school%20(2).pdf

Leithwood, K., Anderson, S., Mascall, B., & Strauss, T. (2011). School leaders influence on student learning. In T. Bush, L. Bell, & D. Middleton (Eds.), *The principles of educational leadership and management*. London: Sage.

Leithwood, K., & Jantzi, D. (2009). Transformational leadership. In B. Davies (Ed.), *The essentials of school leadership* (2nd ed.). London: Sage.

Liebman, H., Maldonado, N., Lacey, C., & Thompson, S. (2005). *An investigation of leadership in a professional learning community: A case study of a large, suburban, public middle school*. Paper presented at the annual meeting of the Florida Educational Research Association, Miami, FL. Retrieved from http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED494982

Ofsted (2010). https://reports.ofsted.gov.uk/provider/files/963159/urn/122863.pdf (accessed 18 August 2016)

Ofsted (2012). https://reports.ofsted.gov.uk/provider/files/963159/urn/122863.pdf (accessed 18 August 2016)

Ofsted. (2015). *School inspection handbook*. Retrieved from https://www.gov.uk/government/publications/school-inspection-handbook-from-september-2015

Smith, P., & Bell, L. (2014). *Leading schools in challenging circumstances*. London: Bloomsbury.

Verona, G., & Young, J. (2001). *The influence of principal transformational leadership style on high school proficiency test results in New Jersey comprehensive and vocational-technical high schools*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA. Retrieved from http://www.ric.d.ov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED454281

Zelig, D. (2016). Adoption of innovation from the business sector to pot primary education organizations. *Management in Education, 30*(1), 19–28.

Chapter 12
University Education in Developing Economies: Access, Competition, and Neglect

Donald F. Staub

Abstract There is little disputing the link between education and economic development, whether at the level of the nation or the individual. There is abundant support of this tenet. However, at a global level, there appear to be fewer instances where a strategic effort is made by governments to effectively establish and sustain this linkage. This is particularly the case in developing, or emerging economies where governments may have made a commitment to a fully functioning education system—from pre-school through graduate school—yet a gap remains between design and implementation of the education system and realization of economic growth for individuals and the nation. This chapter discusses two critical factors that impede many developing countries from closing the gap. The first is access to quality higher education. The second is the lack of attention in primary and secondary education systems paid to the noncognitive, social, and emotional development of students so that they emerge from their education as healthy, stable, contributing members to the economy of their nation. Access to higher education in many developing countries has increased dramatically since the 1990s, due in large part to the growth in the number of private higher education institutions. Access does not guarantee that it will be a quality experience. Students may graduate only with large debts from tuition loans, yet with no employment to help pay for them. In addition, data clearly shows that affective and non-cognitive traits, which are teachable, can contribute to greater levels of innovation and economic growth, and fewer emotional and disciplinary issues at school and, further on, in the workplace.

Keywords Educational access • Educational equity • Private higher education • Massification • Noncognitive attributes • Social and emotional learning

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Introduction

In principal, the more education acquired by an individual, the greater the number of possibilities for financial and social advancement. Likewise, the more citizens that a nation can educate, the greater the potential for sustained economic and cultural growth. In developing economies, however, it is difficult to identify cases where these two premises logically interact, for the benefit of the individual and the larger society. The more likely scenario, particularly within developing economies, is that a minority of the population possess the means to avail themselves of an education system in which advancement is progressively constrained by demonstrations of academic-cognitive proficiency (i.e. standardized admissions examinations from middle to high school, and high school to university). Traditionally, those lacking the resources to adequately prepare for the next stage in the education system have been shunted out of the system to become laborers or lower-level office staff. This scenario is magnified in developing economies where very small populations have had the wherewithal to progress through the system to the point of being able to access the very small number of higher education institutions. Again, those lacking the means are marginalized. The outcome of this structure is that economic and cultural growth in most developing economies is stifled by the lack of highly trained leaders, innovators, entrepreneurs, and risk takers. That is, there is little hope for development if the majority of citizens are not receiving the education that will provide them with the cognitive-academic *and* noncognitive skills and attributes that are characteristic of leaders, innovators, risk-takers, and socially adept individuals. Establishment and maintenance of an education system that can effectively train these individuals and the country will begin to experience sustained growth. The tertiary education system plays a particularly critical role in this chain of education leading to development.

This chapter discusses two critical factors that impede many developing countries from closing the gap. The first is access to quality higher education. The second is the lack of attention in primary and secondary education systems paid to the noncognitive, social, and emotional development of students so that they emerge from their education as healthy, stable, contributing members to the economy of their nation.

The logical conclusion for developing countries that want to rid themselves of this designation is to establish a viable higher education system. For many of these countries, this has meant turning to massification, or the rapid expansion of access to higher education. While the public sector in many countries has contributed to massification through establishment of additional higher education institutions, the actuality is that private higher education around the globe has filled the vacuum. From the perspective of access, the enormous rapid growth in this sector has been welcomed. The reality is, however, that a large percentage of the private higher education institutions that have been founded in developing countries in recent decades are highly suspect. Their low-quality offerings result in university graduates who lack the skills—especially the noncognitive skills—to make them worthy

employees and viable contributors to the larger society. In order for developing economies to experience sustained, healthy growth, it is critical that they recognize that the answer to development does not lie simply in increased access through an expanded higher education sector. Sustainable individual, economic, and cultural growth will be the outcome of an education system that places equal value on the fostering of cognitive and noncognitive skills in all of its citizens.

Access and Equity in Higher Education

The ever expanding gap between the small minority who control a nation's wealth and power and the vast majority of the society who are living with limited means originates, in most countries, from the lack of a highly trained populace. This is particularly true among emerging economies where development and growth of the economy is inordinately placed on the backs of laborers. This is an unfortunate model as it perpetuates the country's designation as *developing*. There is abundant evidence in support of the notion that the country—as a whole, and as individuals—benefits significantly when a quality, equitable higher education system is within reach, and serves as a viable alternative to labor for secondary school completers. These are the individuals for whom a degree from a tertiary institution brings the opportunity for sustained employment through a reasonable living wage and the chance to pull themselves and their families above poverty (Morley et al., 2008; van Beilen & Hearn, 2013). They may also be innovators and entrepreneurs that collectively play a critical role in the sustained economic development of a country (Araya & Marber, 2013; Atuhene & Owusu-Ansah, 2013; Yusuf et al, 2009) and help generate "unlimited societal progress" (Marber, 2013, p. 13). These individuals are more prone to take financial risks, create jobs, invest, and save. In order to reach this level, however, they require the technical skills and knowledge that come from higher education. It is the "thick profits" of greater, sustainable wealth (Marber, p. 30) that arise from a workforce with higher-level skill sets, such as advanced reasoning skills and the ability to communicate clearly. And there is little doubt that the path to such skill development runs through higher education. Thus, it is critical that emerging economies recognize and adopt a knowledge-intensive approach to development (Yusuf, Saint & Nabeshima, 2009), one that holds a quality tertiary education system as a strategic priority. Without doing so, a country risks underutilizing a greater percentage of its human resource capacity (Atuhene & Owusu-Ansah, 2013; Brunner, 2013). The good news is that in countries around the world improved access to higher education is increasingly recognized as an issue of national importance. The disappointing news is that there remains significant variance between intent and implementation.

The initial response for many countries seeking to improve access has been to turn to massification, which is generally understood as expanding enrollments for higher education by increasing numbers of eligible applicants; i.e. lowering the bar. At first glance, this may be seen as a positive step toward a more highly educated

society. In reality, this rarely is the case. The more likely scenario is that massification plans are not accompanied by a corresponding increase in resources, which adversely affects all aspects of the enterprise, resulting in a "failure in quality" (Yildirim, 2013, p. 44) of facilities, instruction, and students enrolled. This in turn produces a ripple effect of falling expectations and standards (Erguvan, 2013; Kwiek, 2009; Levy, 2008a; Mohamedbhai, 2014; Morley, 2013; Morley et al., 2008). Other unpleasant side effects include graduate unemployment because employers are dissatisfied with the end product (Yusuf, Saint & Nabeshima 2009), or a mismatch between the supply of graduates and labor market demands (Kwiek, 2009). In the end, it must be understood that quantity does not equal quality of graduates. As Marber (2013) asserts, more students with a weaker education does not make a knowledge economy.

Ironically, an additional casualty of massification becomes equity. In principle, greater availability of seats should open the door to more students and more socio-economic diversity on campuses. What appears to be happening is that regardless of the intention to increase access and equity, there remain a finite number of seats in the universities. Bjarnason et al. (2009) notes that in many emerging economies the demand can be 20–50 % higher than places available in public institutions, which naturally leads to highly selective admissions procedures (Atuhene & Owusu-Ansah, 2013). In an analysis of global admissions procedures, Helms (2015) points out that admissions procedures play a critical role in determining who does, and does not, have access to the education and training, and the resulting benefits. In many developing countries, particularly Asia (Reed & Tsaur, 2008), the high-stakes exam becomes the sole, or one of only a few critical determining factors in this cause-effect relationship. The phenomenon of the high -stakes "examination event" is well-researched, causing "discontent and conflict" (Kamyab, 2015, p. 22), and adverse effects in social relations among students (Tansel, 2013). Furthermore, the exams "overshadow" high school education (Gök, 2010, p. 123), and in effect, as Kamyab has found, turn the schools into factories for cramming.

Thus, access to higher education is achieved in large part by those who have the resources to position themselves for a successful admissions effort. On one hand, resources refer to the knowledge, experience, and social networks needed to make rational choices during the higher education admissions process. This is particularly true for students who are among the first in their families to access higher education. As Lemaitre (2009) emphasizes, the cost of a poor choice is high.

Conversely, in the extremely competitive world of university admissions, particularly in developing countries, resources undoubtedly refer to the finances required to afford preparation for an admissions exam. And this is where inequity and stratification become such critical economic and social issues. Inequity, which has its roots in primary and secondary education (Mohamedbhai, 2014), is manifested through the disparity in provision of quality education across all socio-economic levels. Lack of adequate preparation in the lower educational levels may lead to premature departure from the education system, whether at the university entrance exam preparation stage, or once at the university where the students realize they lack the capacity to succeed (Brunner, 2013). Levy (2008a) makes the point that the primary obstacle to higher education for those in the lower socio economic tier is not university tuition,

rather the ability to afford quality university preparation, whether secondary school or additional test preparation support via test prep centers or private tutors (Tansel, 2013); what Gök calls "indispensable intermediary agencies" (2010, p. 124). In the end, those who can afford the best preparation are rewarded through access to the limited seats or academic scholarships, and, ironically, those who do not have the means are penalized (Atuhene & Owusu-Ansah, 2013).

Certainly one of the most visible byproducts of massification has been the enormous growth over the last 20 years in the global private education sector, particularly in developing countries. Ostensibly, this expansion, or increased reliance (Altbach, 2010), is welcomed, as it is seen as an antidote to the access challenge. This may be especially true for those countries enacting neoliberal policies as the burden of massification is shifted from the public to private sectors. From a quantitative perspective, to some degree this seems to be working. That is, wherever one goes, there is clear evidence that private higher education is providing more seats to the higher education sector. Less obvious, however, is whether there is a parallel increase in educational quality. To illustrate, Morley (2014) found that in some African countries, massification has resulted in significant overcrowding (i.e., larger student-teacher ratios) with detrimental outcomes. As she puts it, spatial injustices have led to cognitive injustices. Moreover, when it comes to private higher education the great irony of inequity is perpetuated: Many of those who can least afford private education are the ones left with no choice but to enroll in costly private institutions; schools that may not have the services to support their increasingly diverse student populations. As Altbach (2010) has noted, inequality in higher education is here to stay.

The Privatization of Higher Education

Despite the ills of massification and inequity, the ever-increasing demand for access to higher education is also here to stay. Growth—huge growth—continues mostly unabated (Levy, 2011a). After all, as participants in Morley's (2014) study concluded, any access was better than none at all. This is particularly true in emerging economies where tertiary education is seen as the escape route for individuals as well as the country at large. In many emerging economies the demand can be 20–50 % higher than places available in public institutions (Bjarnason et al., 2009, p. 1). In virtually all top emerging economies around the globe, the private higher education sector has emerged as a means to absorb this demand for higher education. Globally speaking, it is estimated that over 30 % of university students are in private institutions (Levy, 2011a, b; Morley, 2013). In numerous developing economies, reported numbers are substantially higher, with Brazil at 75 % and Mexico at 66 % (Marber, 2013), and several Asian countries above 80 % (Altbach, 2010), where, regionally speaking, there is by far the largest private higher education sector (Levy, 2011a). The upward growth trend can also be exemplified in terms of institutional growth. Guri-Rosenblit (2011) reported that between 1974 and 2011, the

number of higher education institutions in Israel grew from 7 to 64 (Guri-Rosenblit, 2011). In Poland, between 1990 and 2005, the numbers went from 112 to 427 (Sojkin, Bartkowiak, & Skuza, 2012).[1] Between 1999 and 2010, the Turkish private higher education sector grew from 7 to 51 universities (Mizikaci, 2011); in 2016, the count exceeds 80.

Levy (2008b) points to religion, social advantage, and absorption of the accelerated demand as the three basic causes of expansion of the private higher education sector. As already noted, social advantage and massification are intertwined; a developing country wants its economy and society to advance, and access to tertiary education is the key—for both individuals and, in aggregate, the country. Private higher education also opens the door in many countries to a population that may have not had the academic background or ability to access to higher education previously (Altbach, 2010) or for a non-traditional (i.e. beyond university age) population to earn a degree that they had missed earlier on (Duczmal, 2005). While massification may be a reflection of the desire to get ahead by both the country and individuals, it does not directly explain the incredible worldwide growth in the private higher education sector. The most likely cause is the degree of governmental support. In most countries, public funding has not filled the yawning gap between soaring demand and existing supply (Levy, 2011a). In some cases, this may be the result of policies with a more neoliberal approach, permitting the private sector to absorb the demand. In other cases, such as Africa, it is a capacity issue (Morley, 2013), and the state simply cannot keep pace with the demand for greater numbers of adequately equipped facilities, leaving private higher education to take up the slack (Altbach, 2010). One of the outcomes of this scenario has been that in many developing countries, with the exception of the few elite public institutions, faith in public universities has waned. Regardless of reality, a dominant public perception emerges that because of the government's neglect of public higher education, private education is the higher-quality product (e.g., Narodowski & Moschetti, 2015; Yildirim, 2013).

Thus, we arrive at a critical question: In emerging economies, where competition to gain entrance to a limited number of public universities is very high, and where access is largely acquired by those who have the means to effectively prepare for a high-stakes admission exam, what are the outcomes when a private higher education sector emerges to absorb the excess demand? This question can be examined through the issues of access, quality, and ultimately on the degree to which students are effectively prepared for their future work and personal lives.

Increased access is one of the principal reasons for the rapid expansion of the private higher education sector. Looking from the perspective of the student, there have never been so many doors open to higher education; far more than when their parents were of university age. Students, particularly those who do not have the qualifications to gain acceptance to the elite, low-cost public universities, still have many opportunities to continue education beyond secondary school. When one looks

[1] The leading body for research dissemination and advocacy of SEL in the U.S. is the Collaborative for Academic, Social, and Emotional Learning (CASEL) http://www.casel.org/.

at the growth of higher education in many developing economies, as illustrated above through the numbers of institutions in Israel, Poland, and Turkey, the inclination is to believe that private higher education has saved the day for individual and country by raising hope and opportunity through access to tertiary education. After all, when 33 % of all higher education students globally are enrolled in higher education, it can be surmised that many of these students would not have reached this level of education without the presence and prevalence of private higher education.

This is true, to a degree. Levy (2008a), however, argues that just as higher education is not a monolithic entity, neither is private higher education; both can be divided into a variety of sub-types. In the context of access, equity, and quality, it is worth examining Levy's private higher education classification system, which is composed of institutions that are: Elite, semi-elite, and non-elite. Simply put, elite private higher education institutions are quite rare. When Levy took a look at the world's top-200 universities, there were no private elites outside of the U.S. The semi-elites are those institutions where the emphasis is on teaching over research. Limited research output affects international rankings, which is one reason why they remain outside the margins of elite status. The student body of the semi-elites mainly come from higher socio-economic upbringings, with many of them capable of affording the high cost of tuition at these schools. Programming at the semi-elites is somewhat narrow, reduced to a few fields, particularly Business, with a clear focus on employment for graduates.

The non-elite category is characterized by its steep growth curve and its 'demand-absorbing' nature. Of these three groups, it is what is most commonly found worldwide (Levy, 2012). These schools are filling a vacuum created by high demand and nothing in place to meet it. As Levy notes, "In this setting, most students are not choosing their institutions over other institutions as much as choosing them over nothing" (p. 30). He further sub-divides the non-elites into demand absorbers and 'dubious' demand absorbers (2008a). That is, there are those that are serious, well-managed, and job-oriented, and, in contrast, there are those that are "highly problematic in academic quality, seriousness, effort, and transparency. Some family-owned institutions fit here" (Levy, 2008c, p. 31) He also posits that this is probably the larger group. As can be imagined, by providing increased access, both forms of non-elites bring unprivileged groups into the development process. The serious demand absorbers are performing a more useful role in economic advancement for the individual and the economy, whereas the dubious demand absorbers are seen as problematic and driven largely by profit.

Thus, while it appears that students are benefiting from the expansive private sector (30 % globally), scratching beneath the surface exposes a different reality. Altbach (2010) points out that as the number of private institutions increases, so does the gap in quality—whether facilities or faculty—between the few elites and the rest of the institutional population. This is the case in Asia where privates are seen at the low end of the prestige hierarchy (Altbach, 2002), as well as in many other countries such as Pakistan (Halai, 2011), Portugal (Teixeira & Amaral, 2007), or Turkey (Yildirim, 2013). Thus, although those students believe that the private school is the ticket to a better future, what they actually gain access to is "part time

(hired from public universities) and under-qualified instructors, inadequate libraries, inadequate infrastructure, and low student enrollment" (Mizikaci, 2011, p. 17). Indeed, Levy (2012) remarks that such institutions, rather than seeking quality and distinctiveness in order to stand out from the growing crowd, instead work hard at copying the elites in order to appear legitimate. Certainly, this situation has not arisen by accident; it is from an unfortunate mix of tremendous demand and a legacy of little regulation (Altbach, 2010; Levy, 2008b, 2011a). Thus, with limited regard to quality, the non-elite demand-absorbing class of schools are able to charge a premium to the students (and families) who dream of a higher education degree. In many instances, those dreamers are the ones who are without the means to afford adequate preparation for the university admissions process. Ironically, it is this population who must struggle to pay for the high-priced private tuition, as the private school may be their only alternative. Thus, as the appearance of increased access persists, so does the inequity that an expanded tertiary sector was intended to erase (e.g., Altbach, 2010; Mizikaci, 2011; Morley, 2013; Morley et al., 2008). Furthermore, not only are the individuals affected by this system of low-quality education, but there is also a much larger societal expense to be paid. For many emerging economies, the promise of growth and prosperity through a greater population of university-educated citizens goes unfulfilled. As already mentioned, in the case of higher education graduates, quantity does not equal quality. Increased numbers of university graduates receiving low-quality educations will not generate a knowledge economy that results in large-scale innovation, entrepreneurialism, and job creation that is needed to elevate the economy and society to the next level. Moreover, countries must also confront the issue of a population segment that has been twice penalized: once through considerable personal debt brought on by tuition expenses, and again by failing to locate employment because the degree they have received is believed to be inferior and thus they simply have not acquired the skills that make them employable (Mizikaci, 2011; Mohamedbhai, 2014; Yusuf, Saint & Nabeshima, 2009; Yildirim 2013). The widespread negative view of the quality of education received from private institutions found in this rather large category is summed up by Halai, 2011:

> The lack of these two key qualities—the paucity of qualified faculty and limited research and research output—allow private universities to be seen as institutions that encourage rote memorization to pass an examination to obtain degrees rather than providing intellectual growth for students. (p. 3)

Despite this perception, it is the fixation on simply acquiring a degree, rather than paying attention to the quality of the degree, that is detrimental at the level of both the individual and the society. Financial burden at the individual level multiplies to the point of adversely impacting the economy and the society. Meanwhile, significant percentages of university graduates who are unemployed or underemployed as the result of questionable training at the tertiary level, rather than driving growth, are pulling it in the opposite direction. This, of course, can be a vicious cycle perpetuated by large, desperate swaths of the population who believe that a degree—any degree—is the way to a better life, and who are willing to incur the expense for that

degree. While the minority population of serious demand absorbing institutions continues to provide a public good—at a price what should be a worrisome fact is that far greater numbers of students are enrolling in the dubious demand absorbers. Private higher education may increase access to tertiary education, but disproportionate numbers of low-quality institutions are constricting the exit passageway to sustainable employment, innovation, and growth. For any developing economy, this model is unsustainable. Policy makers must understand that in order for their economy and society as a whole to achieve healthy, sustainable growth, a significant change must occur within the primary, secondary, and tertiary educational systems, whose raison d'être appears to be preparation of students who can academically outperform their classmates. Ironically, this is an ability that only serves a purpose to students while they are in these systems, and suddenly becomes an undesirable quality once they become university graduates.

The Promise of Noncognitive Education

For developing nations and societies to sustain economic and cultural stability and growth, there is a good deal of evidence that has emerged over the last two decades suggesting that it is not enough for educational systems to focus only on cognitive-academic development. For educational systems to play a role in the development of the economy, and their students to become contributing members of the society, it is not enough to simply ensure that larger numbers of the populace earn degrees from tertiary institutions. Research carried out around the globe, in many different contexts, has consistently demonstrated that education systems—whether national or local—that integrate programming for the development of so-called noncognitive attributes, as well as social-emotional learning (SEL), experience positive direct and indirect outcomes in the short run and over the long term.

Developing economies where innovation and societal stability are a necessity could benefit greatly from such programs. The irony is that they are often the least likely places where models have been implemented and assessed. Rather, what one finds in such contexts is a race for individual success, where the focus for students and their families becomes access to tertiary education and above all, acceptance to an elite (low-cost) public institution. Thus, in countries with Type 2 admissions systems (Helms, 2008) in place (i.e. high-stakes university entrance exams), there is increased likelihood that there exists a firmly established exam culture, characterized by a thriving private tutor and cram center sector, parents investing substantial sums—sometimes well beyond their means—in their child's exam score aspirations, and a population of physically and emotionally exhausted students who are dragged along by this current.

The students and the families cannot be blamed for buying into this system. They only want what's best for themselves: prestige in the short term, security in the long term. But the price is steep. Parents make a tremendous financial commitment to send their children to the 'best' schools and cram centers; decisions to enlarge a

family often rest on the bottom line of supporting another child in this system. Students sacrifice time (weeknights and weekends, senior year, adolescence), and social and emotional well-being, with problems often manifested during freshman year at the university to which they tried so desperately to gain acceptance. And the society at large reaps what it has sown by disregarding many of the traits that are proven to generate healthy, productive economies and cultures: non-cognitive attributes, and social-emotional skills. Elias made the prescient observation over a decade ago, which perhaps rings louder today, that "there is a danger to each of us—locally and globally—when children grow up with knowledge but without social-emotional skills and a strong moral compass" (2006, p. 4).

Within such contexts, the onus is on the education system to shift the focus from the individual to the society as a whole; from a system that creates individuals who see the next exam and entrance to a particular institution as the end game, to a system where students are constantly encouraged to improve themselves from the cognitive and noncognitive perspectives. Education systems must realize what it is that they provide, and fail to provide, to the larger society, and adopt the changes necessary to shift the balance from an overly cognitive-oriented system to one that gives equal weight to noncognitive and social-emotional attributes. A system where schools provide children with the intellectual and practical tools that they can bring to their classrooms, families, and communities (Elias, 2006, p. 3).

Noncognitive Attributes

In a meta-analysis of 200 studies on the issue, Rosen, Glennie, Dalton, Lennon, and Bozick from the Research Triangle Institute defined noncognitive attributes as those academically and occupationally relevant skills and traits that are not specifically intellectual or analytical in nature (2010, p. 1). As the term suggests, they are the *non*-cognitive skills and characteristics that, when developed and strengthened throughout youth and adolescence, can lead to greater academic achievement and a 'significant and lasting impact' on success in adulthood. Indeed, the authors cite studies concluding that such traits and behaviors may prove better than cognitive skills at determining academic and employment outcomes (e.g. Heckman, Stixrud, & Urzua, 2006). In their meta-analysis, the authors focus on seven noncognitive skills and traits that have been linked to academic success for students in grades pre-kindergarten through their final year in high school.

Motivation—specifically achievement motivation—is the desire to complete academic tasks successfully. Underlying motivation are intrinsic/extrinsic theories, expectancy-value theory, and achievement-goal theory. The intrinsic/extrinsic distinction is further delineated by self-determination theory, which delves into the issue of autonomy and control. For students to develop intrinsic motivation, they must feel a sense of autonomy regarding their learning. Expectancy-value theory looks at motivation from the affective perspective, and whether students view learning as having an intrinsic task value because it is interesting, or resulting from

an external value. Expectations, they point out, influence effort and persistence, and thus academic achievement. Achievement-goal theory is directly related to learning in that it attends to either mastery or demonstration of learning.

Effort pertains to the degree to which students are actively involved in their learning. The authors further define effort as either the 'degree of effort,' such as the amount of energy and work dedicated to a learning task, and 'degree of specificity,' from learning to achieve a specific task to a more general view, such as trying to pass a course.

Self-regulated learning looks at how students approach learning tasks, and how they evaluate their own performance of the learning activity, and finally, what adjustments should be made to improve the learning experience.

Self-efficacy, in an academic sense, is a student's belief in himself or herself to effectively complete a task. It can vary depending on the specific task at hand.

Academic self-concept is similar to self-efficacy, yet it also applies to a more general belief in how the student feels about her or his own ability to succeed academically. It can apply to school in general or a specific academic branch.

Antisocial and prosocial behaviors are viewed in contrast to each other. Antisocial behavior is characterized by physical and verbal aggression and exclusionary tactics, such as rumor spreading. Prosocial behavior includes cooperation, sharing, and encouragement. Hardly surprising is the research finding that both of these behaviors have an impact on academic achievement.

Coping and resilience are a skill and a trait. Coping refers to strategies, such as attitudes, behavior, and relational skills employed to address challenges. Resilience is seen as an outcome of facing adversity, whether demographic, academic, or psychological, particularly in an academic context.

As the authors of this meta-analysis conclude from their synthesis, research consistently demonstrates that motivation and self-efficacy generate the most positive academic outcomes. More specifically, they note that intrinsically motivated students, those with high expectations of success and interest in the subject matter, as opposed to those students who are trying to show competence, stand a better chance of succeeding. In the context of this chapter, one can interpret this as making the point that while students may be extremely motivated to perform well on the university entrance exam, and therefore work very hard to achieve that goal, they may only realize that motivation for the short term. Indeed, one can liken this scenario to a sugar buzz where there is much activity in the beginning, followed by a quick tapering and ultimately lethargy, which is how many students in exam-driven cultures spend their first year at the university.

Two important points are worth noting about the association between noncognitive attributes and academic success. First, the list here is not exhaustive. As interest grows in this area, so does the research. Other attributes garnering increasing interest and operationalization are historically abstract terms such as *conscientiousness*, *gratitude*, *optimism*, and perhaps the one attracting the most attention of late, *grit*, coined by Angela Duckworth and defined as "a passionate commitment to a single mission and an unswerving dedication to achieve that mission" (Tough, 2012, p. 74). Second is that while research has substantiated the value of noncognitive attributes

to academic achievement—in fact, it is suggested that for long term success they hold more weight than cognitive attributes—noncognitive attributes are rarely given the same level of attention as cognitive attributes in primary or secondary education. Schools around the globe are beginning to acknowledge the critical nature of noncognitive attributes, but effective program development and implementation is quite uncommon. This reality should change, particularly in developing economies, as noncognitive attributes have demonstrated a more sustained, positive impact on learning, and ultimately on workplace productivity. Paul Tough's *How Children Succeed* details numerous models implemented in high-risk school districts with the goal of increasing student success. These stories are told in the context of the U.S.; there is scant information published on such programs outside of the U.S.

Social-Emotional Learning

Social-emotional learning (SEL), like noncognitive attributes, takes the approach that there is more to raising and educating a child than simply ensuring the acquisition of academic knowledge; that emphasizing preparation for the next exam at the expense of the social emotional development opportunities are misplaced and do little to serve children (Elias, Zins, Graczyk, & Weissberg, 2003). SEL is the process of acquiring and effectively applying the knowledge, skills and attitudes necessary to recognize and manage emotions, set and achieve positive goals, appreciate the perspectives of others, establish and maintain positive relationships, make responsible decisions, and handle interpersonal situations constructively (Elias et al., 1997; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Five competencies have been identified at the core of SEL (Dymnicki, Sambolt, & Kidron, 2013): Self-awareness, self-management, social awareness, relationship skills, and responsible decision making. While all of these have established connections to school success—a number are critical in facilitating the transition from high school to the university and work life—self-management is perhaps of most relevance to this chapter. Self-management is defined as regulating one's emotions to handle stress, control impulses, and persevere in overcoming obstacles (Dymnicki et al. 2013, p. 3). As a student progresses through secondary education and prepares for the university entrance exam, self-management becomes an increasingly valuable skill.

SEL plays a critical role in the educational ecosystem, evidenced by contexts where it does not exist, leading to students becoming disconnected from school as they transition between levels, with some research showing that 40%–60% of students becoming "chronically disengaged" by the time they reach high school (Durlak et al., 2011, p. 2). Arguing that there is no time like the present for teaching SEL, Borghans, Ter Weel, & Weinberg make the case that the prevalence of technology in the workplace has become a substitute for routine cognitive tasks, resulting in a shrinking workforce, which in turn has increased the need for individuals who are adept at interpersonal interactions; i.e. "people people" (Borghans, Ter Weel, & Weinberg, 2006, p. 5).

The teaching of SEL should be considered the "core task" of school systems, alongside cognitive-academic skills (Sklad, Diekstra, Ritter, Ben, & Gravesteijn, 2012). Elias (2006) refers to SEL as the 'missing piece' in our education systems, as it helps complete the bridge between academic knowledge and the specific skills that help children succeed in their schools, families, communities, workplaces, and life in general. In the context of many of today's education systems, particularly where the exam culture is firmly rooted and the emphasis remains on individual success, Elias et al. posed the question that participants in these cultures ask to one another, but to which few seem to have a response: "What happens when schools are incubators of anxiety, insecurity, and maltreatment?" (2003, p. 305). The solution they provide, while well-accepted in reality, is hardly reasonable: "School psychologists and other student support personnel are asked to fix individuals who are removed from the system, but the system continues to churn out social casualties" (p. 305). Despite this grim portrayal of today's education systems, there is evidence demonstrating the effectiveness of SEL, where it is implemented effectively.

Durlak et al. (2011) found supporting evidence for SEL-related academic outcomes in their meta analysis of the literature. They concluded that SEL leads to improved school performance through: peer and adult norms that establish high expectations and support for academic success, caring student-teacher relationships that strengthen connectivity with the school, engaging instructional contexts, as well as safe, orderly and positive classroom environments. Sklad et al. (2012), in their meta-analysis of the literature, found that effectively implemented universal school-based interventions directly enhance social and emotional competencies and self esteem. Indirect effects were reported in the areas of reduction of anxiety and emotional distress, prevention of conduct problems, improved attitudes toward school and enhanced school achievements, and prevention of aggressive and antisocial behavior along with promotion of positive or prosocial behavior (Sklad et al., 2012). Perhaps of most relevance, they conclude by stating that "effective implementation of such programs that are not limited to children at risk have both immediate and longer term positive effects" (p. 905).

In education systems outside of the U.S.,[2] attention to SEL is increasing. In a 2008 meta-analysis, Diekstra and Gravesteijn reviewed 19 meta-analyses of SEL programs, "comprising many hundreds of effect students and hundreds of thousands of children" (2008, p. 14). Their overall conclusion is that students experience significant improvements in school attitudes, behaviour, and academic performance following participation in SEL programs. Moreover, many of the studies they examined reported that the effects of the SEL programs were still observed beyond posttests. Their analysis also concludes that the majority of studies that they reviewed substantiated the intended outcomes of SEL, namely that as a result of training, the social-emotional skills of children are enhanced, that behavior issues are reduced, that positive attitudes toward the self and others are promoted, and that academic achievement is "significantly enhanced" (p. 15). Finally, their analysis appears to corroborate what numerous other studies have concluded—that regardless of

[2] See footnote 1.

whether the educational setting is urban or rural, SEL programs are effective for all students of all socio-economic backgrounds.

To examine the implementation of SEL programs specifically in a local context, Turkey may provide a useful illustration as it is a developing economy with a well-established exam culture. Arguably, students who must navigate this system are taught to be fiercely individualistic, which leads to many psychological, social, and academic challenges; i.e. high school students who have admission to a university as a goal must focus their efforts on receiving a high score on the centralized university entrance exam. Studies have shown that preparing for the exam, at least the mathematics component, has a negative influence on the students' actual learning of math (Basturk, 2011).

During the last decade, however, recognition of SEL in Turkey has been on the rise. As a developing economy with a well-established exam culture, it is important to help students manage their emotional responses to the learning process (Martin, 2012), and for children to be exposed to an education system that reinforces positive behaviors and reduces the negative ones (Totan, Ozyesil, Deniz, & Kiyar, 2014). In doing so, Kabasakal and Totan argued for the introduction of SEL in elementary schools from the perspective of "preventive guidance" and the "protection of the mental health of students" (2013, p. 7). Kumandas, Kutlu, and Yildirim found that high school students preparing for the university entrance exam disengaged from the broader context of social life and its associated activities, and that "communication skills became weak" (2014, p. 1208). They proposed that the solution to the negative effect of exam preparation lies in implementing educational programs that support social life and guide students. Martin (2012) and Martin and Alacaci (2015) carried out two meta-analyses of SEL-related research in Turkey. In both studies, the authors point to growing evidence that students need support in developing healthy attitudes towards themselves and others, and that there is a substantial need for SEL programs for students in poorer communities and rural areas.

Conclusions

For developing economies to increase and sustain growth, it is critical that their education systems play a central role in the development strategy. Education systems that limit access to higher education, and have university entrance schemes that are stacked in favor of those who have the means to best prepare for the entrance exam, are arguably working at odds with the sustainable development goals of the nation. Restricted access to higher education means a reduced population of highly-trained innovators and leaders. Furthermore, economies where fates are largely determined by a single, extremely competitive university entrance exam tend to devolve into exam cultures where individualistic, win-at-all-cost behaviors prevail, and a blind dedication to exam preparation overshadows the critical need for development of social, emotional, and noncognitive abilities. One solution to this challenge is to simply increase access. In an age of neoliberal economies, this often

translates into the government reducing spending on education, and letting the private sector in to fill the void. In this scenario, it appears that there is more access to education and those with the means—or those who want to make the commitment—end up with the prestige of having attended an elite private institution, and a university diploma. The ultimate result in these contexts, however, is that the society is oftentimes left with a surplus of unemployed university graduates because they lack the social-emotional, noncognitive qualities that are so desperately needed for growth and sustainability in today's economies.

There is abundant research from education systems around the globe that sustainable economic growth and social stability cannot result from an education system that is focused purely on cognitive-academic skills. SEL and noncognitive skills education, along with cognitive-academic skills education should be viewed as two sides of the same coin. Effectively implementing SEL and noncognitive skills training, at a system-level, is not easy. Yet, nor is it easy to pay the price for neglecting the value that these skills and attributes bring to a society and an economy.

Key Chapter Concepts

1. Educational access
2. Private higher education
3. Noncognitive attributes
4. Social and emotional learning

References

Altbach, P. (2002). Asia: Trends and developments in private higher education. *International Higher Education, 29*. Retrieved from http://ejournals.bc.edu/ojs/index.php/ihe/article/view/7009/6226

Altbach, P. G. (2010). Access means inequality. In G. Goastellec (Ed.), *Understanding inequalities in, through and by higher education*. Boston, MA: Sense Publishers.

Araya, D., & Marber, P. (2013). *Higher education in the global age: Policy, practice and promise in emerging societies, 4*. New York: Routledge.

Atuhene, F., & Owusu-Ansah, A. (2013). A descriptive assessment of higher education access, participation, equity, and disparity in Ghana. *SAGE Open*, *3*(3), 2158244013497725.

Basturk, S. (2011). Negative reflections of preparation process to the university entrance exam on students' mathematics learning. *HU Journal of Education, 40*, 69–79.

Bjarnason, S., Cheng, K. M., Fielden, J., Lemaitre, M. J., Levy, D., & Varghese, N. V. (2009). *A new dynamic: Private higher education*. Paris: UNESCO. Retrieved from http://unesdoc.unesco.org/images/0018/001831/183174e.pdf

Borghans, L., Ter Weel, B., & Weinberg, B. A. (2006). *People people: Social capital and the labor-market outcomes of underrepresented groups* (No. w11985). Cambridge, MA: National Bureau of Economic Research.

Brunner, J. J. (2013). New dynamics in Latin America. *International Higher Education, 71*, 20–22.

Diekstra, R. F., & Gravesteijn, C. (2008). Effectiveness of school-based social and emotional education programmes worldwide. In *Social and emotional education: An international analy-*

sis (pp. 255–312). Retrieved from https://www.lions-quest.org/wp-content/uploads/2015/11/EvaluationBotinEnglish.pdf

Duczmal, W. (2005). Polish private higher education: Expanding access. *International Higher Education, 45*, 11–12.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405–432.

Dymnicki, A., Sambolt, M., & Kidron, Y. (2013). *Improving college and career readiness by incorporating social and emotional learning*. Washington, DC: College & Career Readiness & Success Center at American Institutes for Research.

Elias, M. J. (2006). The connection between academic and social-emotional learning. In M. J. Elias & H. Arnold (Eds.), *The educator's guide to emotional intelligence and academic achievement* (pp. 4–14). Thousand Oaks, CA: Corwin Press.

Elias, M. J., Zins, J. E., Graczyk, P. A., & Weissberg, R. P. (2003). Implementation, sustainability, and scaling up of social-emotional and academic innovations in public schools. *School Psychology Review, 32*(3), 303–319.

Elias, M. J., Zins, J. E., Weissberg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., et al. (1997). *Promoting social and emotional learning: Guidelines for educators*. Alexandria, VA: Association for Supervision and Curriculum Development.

Erguvan, D. (2013). Perceptions of academics towards the impact of foundation universities on Turkish higher education. *Educational Sciences: Theory and Practice, 13*(1), 153–160.

Gök, F. (2010). *Marketing hope: Private institutions preparing students for the university entrance examination in turkey* (pp. 123–134). Bingley: Emerald Group. doi:10.1108/S1479-3679(2010)0000012009.

Guri-Rosenblit, S. (2011). Opening up access to higher education: Implications and challenges. In *Freedom, equity, university* (pp. 57–69).

Halai, N. (2011). Private higher education in Pakistan. *International Higher Education, 64*, 21.

Heckman, J. J., Stixrud, J., & Urzua, S. (2006). The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. *Journal of Labor Economics, 24*(3), 411–482.

Helms, R. M. (2008). *University admission worldwide*. New York: World Bank.

Helms, R. M. (2015). University admissions: Practices and procedures worldwide. *International Higher Education, 54*.

Kabasakal, Z., & Totan, T. (2013). The effect of social and emotional learning needs on decreasing the mental symptoms in elementary school students. *Çukurova University. Faculty of Education Journal, 42*(1), 56.

Kamyab, S. (2015). The university entrance exam crisis in Iran. *International Higher Education, 51*, 22–23.

Kumandas, H., Kutlu, O., & Yildirim, O. (2014). Changes in students' social interactions between the period prior to and the period of preparation for the university entrance exam. *Pakistan Journal of Statistics, 30*(6), 1203–1209.

Kwiek, M. (2009). The two decades of privatization in polish higher education. Cost-sharing, equity, and access. Retrieved from: https://repozytorium.amu.edu.pl/bitstream/10593/9955/1/KWIEK_the_two_decades_of_privatization_in_polish_HE.pdf.

Lemaitre, M. J. (2009). Quality assurance for private higher education. In S. Bjarnason, K. M. Cheng, J. Fielden, M. J. Lemaitre, D. Levy, & N. V. Varghese (Eds.), *A new dynamic: Private higher education* (pp. 91–109). Paris: UNESCO.

Levy, D. C. (2008a). *Access through private higher education: Global patterns and Indian illustrations* (Working Paper No. 11). Program for Research on Private Higher Education, University of Albany. Retrieved from http://www.prophe.org/en/working-papers/

Levy, D. C. (2008b). Private higher education: Patterns and trends. *International Higher Education, 50*, 7–9.

Levy, D. C. (2008c). The enlarged expanse of private higher education. *Die Hochscule, 2*, 13–14.

Levy, D. C. (2011a). *The decline of private higher education* (Working Paper No. 16). Program for Research on Private Higher Education, University of Albany. Retrieved from http://www.prophe.org/en/working-papers/

Levy, D. C. (2011b). Public policy for private higher education: A global analysis. *Journal of Comparative Policy Analysis: Research and Practice, 13*(4), 383–396.
Levy, D. C. (2012). How important is private higher education in Europe? A regional analysis in global context1. *European Journal of Education, 47*(2), 178–197.
Marber, P. (2013). Higher education and emerging markets: Opportunity, anxiety, and unintended consequences amid globalization. In D. Araya & P. Marber (Eds.), *Higher education in the global age: Education policy and emerging societies* (pp. 11–44). New York: Routledge.
Martin, R. A. (2012). Social and emotional learning research: Intervention studies for supporting adolescents in Turkey. *Procedia-Social and Behavioral Sciences, 69*, 1469–1476.
Martin, R. A., & Alacaci, C. (2015). Positive youth development in Turkey: A critical review of research on the social and emotional learning needs of Turkish adolescents, 2000–2012. *Research Papers in Education, 30*(3), 327–346.
Mizikaci, F. (2011). *Isomorphic and diverse features of Turkish private higher education* (PROPHE Working Paper Series, WP No. 18). Program for Research on Private Higher Education.
Mohamedbhai, G. (2014). Massification in higher education institutions in Africa: Causes, consequences and responses. *International Journal of African Higher Education, 1*(1), 59–83.
Morley, L. (2013). Inside African private higher education. In D. Araya & P. Marber (Eds.), *Higher education in the global age: Policy, practice and promise in emerging societies* (Vol. 4, Issue 184, pp. 140–159). New York: Routledge.
Morley, L. (2014). Inside African private higher education: Contradictions and challenges. *International Higher Education, 76*, 14–15.
Morley, L., Leach, F., & Lugg, R. (2008). Democratizing higher education in Ghana and Tanzania: Opportunity structures and social inequalities. *International Journal of Educational Development, 29*(1), 56–64.
Narodowski, M., & Moschetti, M. (2015). The growth of private education in Argentina: Evidence and explanations. Compare: *A Journal of Comparative and International Education, 45*(1), 47–69. doi: 10.1080/03057925.2013.829348
Reed, R. R., & Tsaur, J.-R. (2008). *The importance of non-cognitive skills: Observations from Asian educational systems*. Retrieved from econ.sinica.edu.tw
Rosen, J. A., Glennie, E. J., Dalton B. W., Lennon, J. M., & Bozick, R. N. (2010). *Noncognitive skills in the classroom: New perspectives on educational research* (RTI Press publication No. BK-0004-1009). Durham, NC: Research Triangle Park, RTI International. Retrieved from http://www.rti.org/rtipress
Sklad, M., Diekstra, R., Ritter, M. D., Ben, J., & Gravesteijn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment? *Psychology in the Schools, 49*(9), 892–909.
Sojkin, B., Bartkowiak, P., & Skuza, A. (2012). Determinants of higher education choices and student satisfaction: The case of Poland. *Higher Education, 63*(5), 565–581.
Tansel, A. (2013). Private tutoring and inequitable opportunities in Turkey. In *Private tutoring across the Mediterranean* (pp. 177–186). Rotterdam: Sense Publishers.
Teixeira, P. N., & Amaral, A. (2007). Waiting for the tide to change? Strategies for survival of Portuguese private HEIs. *Higher Education Quarterly, 61*(2), 208–222.
Totan, T., Ozyesil, Z., Deniz, M., & Kiyar, F. (2014). The importance of rural, township, and urban life in the interaction between social and emotional learning and social behaviors. *Educational Sciences: Theory and Practice, 14*(1), 41–52.
Tough, P. (2012). *How children succeed*. Boston, MA: Mariner Books.
van Beilen, C., & Hearn, G. (2013). Educating for the creative economy in emerging countries: Challenges and strategies. In D. Araya & P. Marber (Eds.), *Higher education in the global age: Policy, practice and promise in emerging societies* (Vol. 4, Issue 184, pp. 207–225). New York: Routledge.
Yildirim, M. (2013). Effects of privatization on education quality and equity: Comparison of a public and a private primary school in Turkey. *European Journal of Research on Education, 2014, Special Issue: Contemporary Studies in Education*. Retrieved from http://iassr2.org/rs/020407.pdf
Yusuf, S., Saint, W., & Nabeshima, K. (2009). *Accelerating catch-up: Tertiary education for growth in Sub-Saharan Africa*. Washington, DC.

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