

CHAPTER 5: TRANSFORMATIVE PEDAGOGIES - A USEFUL THEORETICAL FRAMEWORK FOR PROMOTING ESD

Charles Bonello¹, Paul Pace²

1: Department of Mathematics & Science Education, Faculty of Education, University of Malta, Malta

2: Centre for Environmental Education and Research, University of Malta, Malta

Abstract

So significant is the contribution that constructivism has made to education, that it has been described by the American Association for the Advancement of Science as a ‘paradigm change’ in science education (Tobin, 1993). Such changes in education raise political, ethical and moral claims that have consequences that directly affect classroom ecology. These claims are intimately linked with issues such as the “emancipation of student learning” (Jenkins, 2000). Besides such issues, constructivism raises fundamental epistemological issues that have been the cause of many debates (Harding et al., 2000; Jenkins, 2000; Millar, 1989; Osborne, 1996; Philips, 1995; Scaife, 2007; Solomon, 1994 & von Glasersfeld, 2000). The first part of this chapter will present a critique of constructivism and some of its exponents.

Following the critique, the manner in which constructivism has linked with critical pedagogy to yield a transformative pedagogy will be discussed. By definition, a transformative pedagogy is an ‘activist pedagogy’ that empowers people to critically examine their beliefs, values, and knowledge with the goal of developing a reflective knowledge base, an appreciation for multiple perspectives, and a sense of critical consciousness and agency (Ukpokodu, 2009). Finally, this contribution will provide some insights on how characteristics of transformative pedagogy have yielded other pedagogies, such as the eco-justice pedagogy. This pedagogy by its very nature addresses social concerns with the intention of promoting change, both on the micro and the macro level.

Introduction

At times, the realities of the classroom provide the painful realisation that teaching and learning are not being significantly affected by contemporary learning theories or by research work published in educational journals. Teachers seem to helplessly succumb to the traditional education system’s demands, and few bother to view these demands with a critical eye so as to question certain practices.

Metaphorically speaking, when students come to class they not only bring their school case, they also bring with them their baggage of experiences, emotions, ideas and values; accumulated during their lives. When the learning process is put under scrutiny, this baggage tends to take centre stage more than the other appendages; digital tools, books, copybooks, pens and pencils. This invisible baggage is part of the picture that many constructivist theoreticians focus on, because it is, or should be, the starting point of any learning process. The old adage of ‘going from the known to the unknown’ is most often quoted on a practical and ‘down to earth’ note, rather than a philosophical one. Today, if quoted in the light of constructivist ideas concerning education, this quote would assume deeper implications about knowledge and learning.

The idea of having knowledge as something there to be ‘discovered’ was challenged at the beginning of the twentieth century (Nussbaum, 1989). This challenge resulted from significant developments in teaching and learning that had shed doubt on the absolute nature of knowledge.

Arguments from the fields of philosophy and psychology provided further views that knowledge is not discovered or objective (Popper, 1959), but it is a human construction. This scenario was catalytic to the introduction of a constructivist era that was to confront the schools of thought of empiricism and rationalism.

Constructivists and their contributions to learning – a critique

So significant is its contribution to education, that constructivism has been described by the American Association for the Advancement of Science as a ‘paradigm change’ in science education (Tobin, 1993). Such changes in education raise political, ethical and moral claims that have consequences that directly affect the classroom ecology. These claims are intimately linked with issues such as the “emancipation of student learning” (Jenkins, 2000) and “democratic constructivist science education” (Bencze, 2000). Besides these issues, constructivism raises fundamental epistemological issues that have been the cause of many debates (Harding and Hare, 2000; Jenkins, 2000; von Glasersfeld, 2000; Osborne, 1996; Philips, 1995; Solomon, 1994; Millar, 1989).

Solomon (1994) argues that many would agree that Piaget’s early book – “The child’s conception of the world” (1929) is an early constructivist text. An aspect of his theory that is relevant to learning is the idea of human adaptation through the processes of assimilation and accommodation. Piaget believed that in an adaptive act, the process of assimilation works for the preservation of already existing structures, while at the same time the process of accommodation works for variability, growth and change. Piaget (1970) contends that any adaptive act includes the occurrence of such processes in different proportions so that “*following on from a state of tension or disequilibrium caused by a change of environment, the organism has invented an original solution in terms of combinations, and thus brought about a new form of equilibrium*” (p. 54).

A key idea that is linked with the adaptive act is that learning is a process of construction. Donaldson (1978) states that Piaget insists:

“Knowledge does not come to us from the outside, ‘ready-made’. It is not a ‘copy’ of reality - not just a matter of receiving impressions, as if our minds are photographic plates. Nor is knowledge something we are born with. We must construct it. We do this slowly, over many years.” (p. 151)

Piaget’s ideas provide food for thought and supports researchers and teachers in understanding the dynamics of the learning process. The fruit of such work is the classroom application of these theoretical insights. One such application is the work done by Duit (2007) who, when systematically studying students’ conceptions, created an awareness of these conceptions and of the students’ learning. Such researchers not only provided strong evidence that students’ conceptions exist and need to be given due consideration when learning is in progress, but they also presented ideas about the cognitive processes that result in a classroom that can support learning.

One frequently quoted criticism of Piaget’s studies is that his research focuses mostly on individual learning. This tends to eclipse the consideration that learning in a classroom setting also occurs through considerable social interaction. This aspect of the learning process was given considerable attention by Vygotsky in his ideas on social constructivism. In his studies, Vygotsky focuses on meaning-making, not in terms of the cognitive processes occurring in an individual, but in individuals as they function in social contexts. Vygotsky (1931) explained his ideas about this passage from a social context, such as the classroom, to individual understanding as follows:

Any function in a child’s cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears as an interpsychological category, and then within the child, as an intrapsychological category. (p. 163)

As with Piaget, Vygotsky’s ideas are theoretical and difficult to grasp. Teachers trying to grapple with this ‘raw material’ would probably not find it easy and relevant to their work. Again, the fruitfulness of such theoretical insights surfaces when researchers adapt them for the classroom. Mortimer and Scott (2003) applied these theoretical ideas for classroom practice in a science classroom by rewording them in a more comprehensible manner: First, the teacher must make the scientific ideas available on the social plane of the classroom.

Second, the teacher needs to assist students in making sense of, and internalising, those ideas. Finally, the teacher needs to support students in applying the scientific ideas, while gradually handing over to the students' responsibility for their use. (p. 17)

This process clarifies the ideas presented by Vygotsky earlier on and introduces a second main point of Vygotsky's work, the concept of the Zone of Proximal Development (ZPD). This concept is defined by Vygotsky (1978) as, "*the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more able peers*" (p. 86).

This definition emphasises the connection mentioned above between the social plane and the individual plane, and links the progress of learning of individual students with the role of the teacher and peers in supporting that learning. Besides introducing the concept of ZPD, Mortimer and Scott's quote also raises the point that the development of concepts normally starts at the social plane of the classroom and then is transferred to the personal plane of the learner.

This constructivist scenario, as viewed through the contributions of Piaget and Vygotsky, places an unbalanced emphasis on the cognitive dimension of the participants and in the process fails to acknowledge the students' affective dimension. The interdependence of these two dimensions is very closely linked but, to date, educational research has predominantly focused on students' cognitive processes. Teaching experience provides enough evidence of the need for teachers to attend to the students' affective side. Ignoring this dimension leaves researchers and teachers with an incomplete and fragmented picture of the classroom scenario and provokes one to question the completeness of research on student learning.

Teaching, learning and constructivism - some issues

Bencze (2000) puts forward a rather negative image of what can happen in a classroom when teachers opt to follow a constructivist pedagogy. In his quasi-caricature of the classroom environment he states:

Although pedagogical approaches drawing on constructivist learning theories often place students in environments that are to resemble professional knowledge-building communities, paradoxically, they also orchestrate students' re-constructions in order to harmonise with canons of Western science. Under the cover of social-constructivist epistemologies and Vygotskian pedagogies, students' prior conceptions are denigrated, their experiences regulated, their investigations shepherded, and their conclusions restricted. (p. 847)

Bencze's (2000) words stems from his apprehension that teachers adopting a constructivist pedagogy might pose a threat to the democracy of the classroom and to students' self-actualisation if they do not approach the class well-prepared to adopt this pedagogy. This apprehension is shared by Wertsch (1991) when he argues that teachers in a constructivist environment may find it very difficult to remain neutral during 'negotiations' that might occur during or after their students' inquiries. One can say that Bencze and Wertsch provide a negative scenario of the constructivist classroom environment, yet it is possible that this can be the case. This 'dark side' of the scenario can arise if a teacher ignores the epistemological challenges embedded in this pedagogy, and does not reflect on these **before** consciously accepting and embracing it. This malaise has been a problem whenever innovations have been presented in education.

Constructivism - a contributor to a transformative pedagogy

Constructivism contributes to transformative pedagogies by proposing that teachers and learners develop skills to help shape the world, as opposed to being passive acceptors of others' knowledge and understanding of the world. As stated earlier, Piaget (1970) believed that the learner's process of assimilation works for the preservation of existing cognitive structures, while at the same time the process of accommodation works for variability, growth and change.

Hence, the learner's cognitive processes contribute not only to valuable teaching and learning experiences, both within and without the classroom, but also to the development of a deeper self-awareness and a capacity to contribute to society by accepting responsibility for shaping the world.

Transformative pedagogy also borrows from constructivist research in the context of collaborative teaching and learning (Vygotsky, 1978). A constructivist pedagogy works at developing classroom scenarios that support learners in constructing meaning through interaction and discourse among teachers and students, and by creating dynamic links between school and society. These links need to be forged during the learning process since one of the implications of embracing a transformative pedagogy includes embracing moral and ethical values that support learners as contributors to the common good of society at large.

Insights from constructivism and their inclusion in a transformative pedagogy reduce the possibility of the situation described by Arnowitz and Giroux (1993) when talking about schooling in the USA: *“During these years the meaning and purpose of schooling at all levels of education were fashioned around the principles of the marketplace and the logic of rampant individualism. Ideologically, this meant abstracting schools from the care of democracy and equity while simultaneously organising education reform around the discourse of choice, reprivatisation, and individual competition.”*

This dated but relevant quote indicates that promoting learners' critical awareness is not always made a priority when constructing one's meanings and making sense of the world. Knowledge construction should always be informed by moral and ethical values and geared towards personal as well as social transformation.

A second contributor to a transformative pedagogy – Critical Pedagogy

“Transformative pedagogy is defined as an activist pedagogy combining the elements of constructivist and critical pedagogy that empowers students to critically examine their beliefs, values and knowledge, with the goal of developing a reflective knowledge base, an appreciation for multiple perspectives and a sense of critical consciousness and agency.” (Khedkar & Nair, 2016)

Combined with constructivism, critical pedagogy is seen as an essential ingredient of a transformative pedagogy. Critical pedagogy aims to analyse knowledge learnt through the lens of diversity and social justice and to prepare students to be agents of change. Teaching and learning processes both within and without formal schooling prompt transformative practices that engage students as active learners and critical thinkers. Furthermore, learners are given the opportunity to become aware of alternative possibilities of social reality.

Freire (1970) and other major contributors to critical pedagogy see it as a pedagogy that supports a person in developing a deeper understanding of the world so that they can see beyond surface level meanings, and perceive contradictions between social and political realities. While content knowledge is important, it has to be actively processed by the students. Freire's notion of joint reflection and action is essential and leads to what one can call 'emancipatory content' presented in a liberatory manner (Freire, 1970). This process would reduce the possibility of learners being presented with empty words that do not challenge them and provide only a standard view of reality. A reality that only encourages the status quo!

Transformative pedagogy – a paradigm shift

Transformative pedagogy has an underlying ethical, moral and social commitment to bring about personal and social transformations by linking teaching, learning and living. It supports learners in developing as whole persons with a sound moral character to uphold democratic ideals and ethical values that sustain humanity. Furthermore, it deconstructs the notion that individualism, money and the values of the marketplace should dictate social and educational discourse and, by inference, what living in today's world means.

A conceptual framework for transformative pedagogy needs to be based on autonomous teaching and learning. In view of its strong social conscience, this pedagogy proposes that more organized and systematic links are created between formal learning in schools and knowledge learnt through interactions in the context of wider society. Furthermore, it argues for the learner's lifestyle to be constantly informed by a moral and ethical stance. In concrete terms, it links teaching and learning processes with living.

Educational programs based on a transformative pedagogy recognize that the challenge in holistic education is more than just instilling new knowledge. Education requires an ongoing process of critical analysis, embracing responsibilities and humane values, and living democratic ideals of equality, freedom, and justice (Greene, 1993). Reflection coupled with dialogue and action can foster a critical awareness by which students and teachers see their experiences situated in historical, cultural and social contexts, and hence recognize opportunities for challenging and changing dominant structures.

Living sustainably involves making daily sustainable choices from the variety of options available, even if it involves going against the grain. Such a radical change in lifestyle requires the development of attitudes and habits that is dependent on adopting critical consciousness as a daily ongoing reality. Based on the characteristics outlined above, a transformative pedagogy can indeed provide a useful theoretical framework for promoting Education for Sustainable Development (ESD), both within and without schools. This theoretical framework which can help support learners in obtaining a deeper understanding of what constitutes sustainable living.

Transformative pedagogy – an essential component for ESD

UNESCO views ESD as a lifelong and life-wide process that “empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity” (UNESCO, nd).

An integral part of quality education (as highlighted in Sustainable Development Goal 4 – particularly Target 4.7), ESD's ultimate goal is to transform society with the active participation of citizens. ESD is essentially “an educational process that is contextually relevant, participatory, emancipatory and leads towards sustainable development” (Pace, 2010). As highlighted above, a transformative pedagogy is the main vehicle through which these characteristics are achieved.

Although they are always a regular feature on the ESD implementation agenda, genuine efforts to formally infuse transformative pedagogies in educational and training programmes in the formal, non-formal and informal sectors have been noticeably lacking. It is quite strange, to say the least, that while educational research and literature laud the benefits for learners, institutions and society in general of a transformative pedagogy, the translation into practice has been very slow. Leal Filho & Pace (2002) identify three possible interrelated reasons for the reluctance to promote this paradigm shift:

Procrastination: based on the false premise that ESD is already being taken care of and therefore there is no real need to change. This reasoning is primarily generated by the misconception that catering for ESD is essentially an issue concerned with which content knowledge is included in learning programmes, and that the skills, attitudes, values and commitment for action are a direct consequence of this increased awareness (Mayo, Pace and Zammit, 2008).

The “better the devil you know” syndrome: educators operating in traditional institutions and structures that are resistant to change develop coping strategies and conform to tried and tested approaches that keep them within the safe confines of the status quo. In that way they can always blame an inflexible system for any criticism that learners are not being prepared for reality.

Threat to authority: with its emphasis on interdisciplinarity and a philosophy of empowerment, ESD can be conceived as a threat to traditional power structures and institutions and to those who ‘profit’ from them (e.g. academics, education authorities and teachers). Attempts to foster a transformative pedagogy can be hindered by endless academic squabbles and conflicts of interest.

In parallel with the official Rio+20 UN Conference on Sustainable Development Summit in (June, 2012), the Rio+20 Education Group – Thematic Social Forum produced a paper that suggests a more sinister reason for the promotion of transformative education. While asserting that education (and hence ESD) is “a human right that promotes the other rights”, the working group claims that:

“We have not only given up training people to be capable of thinking about important political, environmental, economic and social issues of global order, but also education has been stripped of its deep political content and, in particular, its potential to train citizens to imagine a different social and economic order in which it would be possible to overcome the deep and complex crises we are living through. This is reflected in increasing inequality and discrimination and a lack of dignity and justice” (Rio+20 Education Group, 2012).

This implies that the resistance to transformative education is a premeditated attempt by the dominant structures of production, consumption and distribution to prevent active participation by citizens in decision-making that promotes a sustainable future that is more environmentally and socially just.

Conclusion

Upon reflection, the likely mistake in the implementation strategy for transformative education could have been (also a result of the predominant paradigm in educational sectors) that change was expected to come from the top rather than promoting (and facilitating) grassroots initiatives. *“Transforming institutions must be accompanied by efforts to transform people, to create a culture of transformative change”* (UNEP, January, 2016, p.8). Projects such as EduChange that seek to promote change at the level of classroom practice by actively involving and supporting educators and students are a step in the right direction.

References

- Arnowitz, S., & Giroux, H.A. (1993). *Education Still Under Siege*. Greenwood Publishing Group. Westport, USA.
- Bencze, J. L. (2000). Democratic constructivist science education: enabling egalitarian literacy and self-actualization. *Journal of Curriculum Studies*, 32(6), 847–865.
- Donaldson, M. (1978). *Children’s Minds*. New York, W.W.Norton & Company Ltd.
- Duit, R.(2007). Bibliography STCSE, Students’ and teachers’ conceptions and science education. Available from: <http://www.ipn.uni-kiel.de/aktuell/stcse/stcse.html> [Accessed 22 July 2008].
- Freire, P. (1970). *Pedagogy of the Oppressed* (New York, Continuum).
- Greene, M. (1993). The passions of pluralism: multiculturalism and the expanding community, *Educational Researcher*, 22(1), pp. 13–18.
- Harding, P. & Hare, W. (2000). Portraying science accurately in classrooms: emphasizing open-mindedness rather than relativism. *Journal of Research in Science Teaching*, 37(3), 225-236.
- Jenkins, E.W. (2000). Constructivism in school science education: Powerful model or the most dangerous intellectual tendency. *Science & Education*, 9(6), 599-610.
- Khedkar, P.D. and Nair, P. (2016) *Transformative Pedagogy: A Paradigm Shift in Higher Education* 3rd International Conference on Multidisciplinary Research & Practice, p. 2321–2705.
- Leal Filho, W. & Pace, P. (2002). Challenges to environmental education in the 21st century. In M. Alderweireldt (Ed.) *Learning for a sustainable future: The role of communication, ethics and social learning in environmental education*. Gent, Province East Flanders, Belgium.
- Mayo, P., Pace, P. & Zammit, E. (2008). Adult education in small states: the case of Malta. *Comparative Education*, 44(2): 229–246.

- Millar, R. (1989) Constructive criticisms. *International Journal of Science Education*, 11(5), 587–596.
- Mortimer, E. and Scott, P. (2003). *Meaning making in secondary science classrooms*. Maidenhead, Open University Press.
- Nussbaum, J. (1989). Classroom conceptual change: philosophical perspectives. *International Journal of Science Education*, 11(5), 530–540.
- Osborne, J.F. (1996). Beyond constructivism. *Science Education*, 80(1), 53–82.
- Pace, P. (2010). Education for Sustainable Development: current fad or renewed commitment to action? *Journal of Baltic Science Education*. 9(4): 315–323.
- Phillips, D. C. (1995). The Good, the Bad, and the Ugly: The Many Faces of Constructivism. *Educational Researcher*, 24(7), 5-12.
- Piaget, J. (1970). *The principles of genetic epistemology*. New York, Basic Books, Inc., Publishers.
- Popper, K. (1959). *The Logic of Scientific Discovery*. Hutchinson & Co.
- Rio+20 Education Group (2012). *The education we need for the world we want*. <http://rio20.net/en/propuestas/the-education-we-need-for-the-world-we-want/>.
- Scaife, J. A. (2007). Lessons from a decade of constructivist initial teacher education in science. In: Cheah U.H. (eds) *Proceedings of the second international conference on science and mathematics education*. Penang, SEAMEO RECSAM. p. 95–104.
- Solomon, J. (1994). The rise and fall of constructivism. *Studies in Science Education*, 23(1), 1–19.
- Tobin, K. (ed.) (1993). *The Practice of Constructivism in Science Education*. Washington, DC: Association for the Advancement of Science (AAAS) Press.
- Ukpokodu, O. (2009). The Practice of Transformative Pedagogy. *Journal on Excellence in College Teaching*, 20(2), 43–67.
- UNEP (January, 2016). *Background paper: Values-based education for environment and sustainable development*. UNEP Regional Office for Europe (UNEP/ROE).
- UNESCO (nd). *What is Education for Sustainable Development?* <https://en.unesco.org/themes/education-sustainable-development/what-is-esd>.
- von Glasersfeld, E. (2000). “Problems of Constructivism” *Radical constructivism in action: building on the pioneering work of Ernst von Glasersfeld*. London, Routledge, p. 1–9.
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA, Harvard University Press.
- Vygotsky, L. S. (1931). The genesis of higher mental functions. In: J. V. Wertsch (ed.) *The concept of activity in Soviet psychology*. Armonk, NY, M.E.Sarpe.
- Wertsch, J. V. (1991). *Voices of the mind: A sociocultural approach to mediated action*. Cambridge, MA, Harvard University Press.