Chapter 9
Environmental Citizenship and Youth Activism

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9.1 Introduction

The exercise of Environmental Citizenship is strongly associated with a citizen's capacity to act in society as an agent of change (ENEC 2018), and this depends on the development of a person's willingness and competence for a critical, active and democratic engagement in preventing and solving environmental problems. There is a call for a citizenry that is well informed and empowered to take appropriate actions on the seriousness of the environmental problems affecting our world (Gray et al. 2009; Hodson 2003). However, many citizens do not feel empowered enough to participate in decision-making processes regarding socio-environmental issues, and, at the same time, the faith and trust in politicians have decreased, and political apathy is gaining ground (Hodson 2014). Throughout the past decade, the surge in authoritarian government practices, the failure of popular movements to replace undemocratic regimes and the increase in populist movements all over the world are fuelling concerns about a possible 'democratic recession' (Diamond 2015). Part of the success of this movement has been credited to the failures in mobilising young people's political participation (Schulz et al. 2018; Jackson et al. 2016).

Civic engagement depends on students and their 'motivation to participate in civic activities, their confidence in the effectiveness of their participation, and their beliefs about their own capacity to become actively involved' (Schulz et al. 2018, p. 72). Research shows that a student's civic engagement can be supported and encouraged by school, with the help of (1) open school climates, (2) democratic structures within schools and (3) early opportunities for active participation, the promotion of students' civic knowledge and the predisposition to engage in civic activities in the future (Schulz et al. 2018; Pancer 2015; Roth and Barton 2004).

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A. Ch. Hadjichambis et al. (eds.), *Conceptualizing Environmental Citizenship for 21st Century Education*, Environmental Discourses in Science Education 4,
https://doi.org/10.1007/978-3-030-20249-1_9

Therefore, education represents a key element in counteracting low levels of civic engagement among young people, namely, through the promotion of democratic activism (Hodson 2014).

9.2 The Concept of Activism

Activism is a problematic concept, often associated with the social imaginaries of (a) radical and sometimes violent actions of fanatical groups, (b) practices of indoctrination that don't respect different points of view (Alsop and Bencze 2009) and (c) the spectacle of police and protesters clashing in public spaces (Calabrese Barton and Tan 2010). In some academic contexts (under the influence of Paulo Freire), the term 'activism' is associated with practice devoid of theory – or action without reflection (Freire 1970/1987). In Freire's opinion, the world's transformation requires a dialectical process between practice and theory (between action and reflection): theory devoid of practice consists of simple verbalism; and practice devoid of theory results in blind activism. However, in this chapter, the 'activism' refers to a process of collective, democratic, research-informed and negotiated problem-solving action on socio-environmental problems.

Community research-informed action is frequently considered to be a major aspect of scientific literacy (Hodson 1998), empowering students as critics and producers of knowledge, instead of placing them in the role of consumers of knowledge as school science practices often appear to encourage (Colucci-Gray and Camino 2014; Reis 2014; Bencze and Sperling 2012). This broader concept of scientific literacy includes students' development as a 'capacity and commitment to take appropriate, responsible and effective action on matters of social, economic, environmental and moral-ethical concern' (Hodson 2003, p. 658). It involves the exercise of students' environmental rights and duties, as well as the identification of the underlying structural causes of environmental degradation and environmental problems, developing the willingness and the competences for critical and active engagement and civic participation to address those structural causes, acting individually and collectively within democratic means and taking into account the inter- and intra-generational justice (ENEC 2018). Current social and environmental problems can only be solved through science curricula oriented towards sociopolitical action in order to 'produce activists: people who will fight for what is right, good and just; people who will work to re-fashion society along more socially just lines; people who will work vigorously in the best interests of the biosphere' (Hodson 2003, p. 645). During the last 15 years, several authors have contributed to the development of this purpose, including Larry Bencze (2008), Jean and Laurence Simonneaux (2012), Steve Alsop and Larry Bencze (2014), Wolff-Michael Roth and Angela Calabrese Barton (2004) and Deborah Tippins et al. (2010).

Activism is frequently associated with a specific type of citizen science initiatives. The term citizen science has been used for decades to describe the participation of the general public in authentic scientific studies (Mueller and Tippins 2015)

with the broad aim of promoting learners' scientific and ecological literacy in formal and extended school settings (Fazio and Karrow 2015). Citizen science has been traditionally characterised as a top-down approach, comprising projects initiated by scientists and government agencies who enlist community members to collect data on issues with little relevance to citizens' lives. However, during last years and under the influence of critical science education, citizen science – combined with activism – was recast as a bottom-up pedagogical approach intended to promote students' interest in the community, the environment, life-long learning, democracy and social justice (Britton and Tippins 2015; Roth and Lee 2002). This approach resorts to education as a context to develop the competencies and community involvement of students, encouraging them to be active citizen scientists who contribute to the well-being of their communities (Britton and Tippins 2015). The ideology behind this combination of citizen science and activism puts an emphasis on learning about the health of the local community, developing socially responsible curricula, blurring the boundaries between subjects and breaking down the walls of the school – facilitating the connection between the school learning and the space outside the school where students and their families live (Britton and Tippins 2015; Rodríguez 2015; Martinez and Alsop 2014). This way, citizen science is not only about collecting and analysing hard data about natural phenomena. Accordingly, students can be active citizens who are critically engaged in learning about eco-socio-scientific issues and are committed to disseminating and denouncing the unscientific basis of prejudice and discrimination (Reis et al. 2015; Mueller and Tippins 2012). Students move from a position of learning to being engaged in acts of citizenship and practices of science through activism (Haverkos 2015).

Citizen science combined with youth activism promotes a deeper comprehension of how science works and represents a powerful catalyst for empowering future citizens with the willingness and the higher-level abilities for participating in the global effort of sustainability and assuming the responsibility for future generations. Youth democratic activism develops young people's critical scientific literacy, allowing people to 'think for themselves and reach their own conclusions about a range of issues that have a scientific, technological and/or environmental dimension' (Hodson 2011, p. 28). Critical scientific literacy allows learners 'to take appropriate, responsible and effective action on matters of social, economic, environmental and moral-ethical concern' (Hodson 2011, p. 28), increasing their capacity to make choices rather than accept the prescriptions of others.

9.3 Supporting Youth Activism

According to Sleeter and Cornbleth (2011), the engagement of young people in democratic activism requires students to feel themselves as having the rights, responsibilities and competencies to participate in complex thinking, decision-making and problem-solving processes. These competencies and inclinations for democratic activism are not promoted through the particular contributions of

curricular units or classroom activities. They are developed over time, through repeated active learning experiences in formal and informal contexts; experiences that go further than 'applying knowledge' to everyday contexts – as many school curriculum documents propose – and supporting learning through sociopolitical action (Alsop and Bencze 2014). Activism requires the development of an atmosphere of shared responsibility and commitment and a collaborative relationship between schools and communities in the attempt to find appropriate solutions for the problems they identify as important and socially relevant (Hodson 2014).

The STEPWISE programme (Science and Technology Education Promoting Well-being for Individuals, Societies and Environments) developed by Larry Bencze offers a framework for curriculum and instruction centred on students' engagement in self-led and open-ended inquiry, based on their own primary (experiments and correlational studies) and secondary (using data collect by others and made available in the Internet) research for developing plans of action to address socio-scientific or socio-environmental issues (Bencze 2013, 2017). The key idea of STEPWISE is to encourage and empower students to use science and technology in actions for helping others and the planet. Under the STEPWISE framework, many activist initiatives have been developed in several countries and educational contexts with a considerable impact on students' active citizenship competences (Alsop and Bencze 2014; Bencze 2017).

Influenced by the STEPWISE framework, the 'WE ACT – Promoting Collective Activism on Socio-Scientific and Socio-Environmental Issues' is another project that has been supporting teachers and students from several countries and school levels in taking informed and negotiated actions to address social and environmental issues (Conceição et al. 2019; Reis and Tinoca 2018; Scheid and Reis 2016; García-Bermúdez et al. 2014, 2017; Reis 2014). It is centred in (1) the promotion of an active inquiry-based learning regarding real-life problems associated with science and technology and (2) the stimulation of students' participation in collective democratic problem-solving action (e.g. through art initiatives and uses of Web 2.0 tools). Baptista et al. (2018) present and discuss an example of youth activism – developed within WE ACT – centred on a specific environmental problem identified by children: the collapse of bee colonies in a rural area in Portugal. The activists were 26 students from an elementary school aged between 8 and 10 years old. During a 2-month period, students were engaged in the identification of possible causes and solutions for the selected problem. The investigations carried out by the students in combination with their knowledge of the agricultural practices used by their families allowed them to recognise the inadequacy of these practices and learn about environmentally sustainable alternative practices. As a way to develop a collective action in their local community, the students wrote a manifesto – using arguments focused in the use of pesticides and exposing some of the local agricultural practices as a possible cause of the bees' disappearance – and asked the local population to subscribe to it. This manifesto was proposed by the students and subscribed by the population during a public session in the school. It worked as a commitment to change agricultural practices that were harmful to the ecosystem, and for the adoption of more environmental and sustainable methodologies. This activist initiative

facilitated the development of scientific knowledge and skills for action, showing the possibility of promoting young students' engagement in collective problem-solving actions on environmental issues.

In both formal and non-formal contexts, there are several possible ways for young people to be involved in activism in the private and public sphere, namely: (1) education initiatives aimed at changing the behaviour of other citizens; (2) the organisation of pressure groups responsible for writing and distributing manifestos/petitions and boycotting certain products developed through controversial practices; (3) volunteer initiatives promoting a more fair, ethical and sustainable world; (4) the proposal of innovative solutions for local, national and/or global problems; and (5) changing their own behaviours (Baptista et al. 2018; ENEC 2018; Bencze 2017; Hodson 2014; Reis 2013).

Art-based approaches and Web 2.0 tools can be quite powerful towards the implementation of collective activism on socio-environmental issues (Reis 2013). The research and the discussion inherent to the development of exhibits and drama activities on socio-environmental issues can be particularly useful, both in terms of learning about the contents, the processes and the nature of science and technology and in terms of the students' cognitive, social, political, moral and ethical development (Reis and Marques 2016; Kolstø 2001). Exhibitions and drama activities about socio-environmental issues, as a dialogical context, can raise questions, elicit personal reflection and stimulate discussions between students and visitors, transforming both of them into learners and political activists (Linhares and Reis 2017; Reis and Marques 2016; Levinson et al. 2008; Braund and Reiss 2004). The development of the exhibits creates an opportunity for students to participate in activism on specific environmental issues, encouraging exhibit visitors to take action (Reis and Marques 2016).

Web 2.0 tools, especially those allowing collective communication (namely, through social networks), can be very useful for activist initiatives (Stegmann et al. 2007), providing all citizens with powerful means to express their voices and visions, fostering independent forms of communication/intervention and a participatory model of democracy (Marques and Reis 2017; Scheid and Reis 2016; García-Bermúdez et al. 2014, 2017; Krstovic 2014; Zoras and Bencze 2014). Through these forms of activism, each student can assume the role of active problem-solver rather than that of a spectator relying on experts to point out directions.

Web 2.0 tools can have a strong impact on citizens' cultural/social/political empowerment (Zoras and Bencze 2014; Kellner and Kim 2010). According to several authors, interactive means of conveying information about social and political issues (e.g. social media) are more effective in promoting civic participation than traditional media (Kahne et al. 2013; Segerberg and Bennett 2011; Bachen et al. 2008).

A great example of youth activism spread by social media was triggered by the Swedish teenager Greta Thunberg. In August 2018 (when she was 15 years old), she planned a strike at school and a protest outside the Swedish parliament, urging politicians to act on global warming in order to avoid its disastrous consequences connected with rising sea levels, extreme weather events, species loss, diminished water

supplies, economic costs and humanitarian crises. Her protests captured attention around the world and inspired a global movement leading to strikes in many different countries and raising peoples' awareness about the climate change and the urgency of action on this issue. Her message, disseminated through social media and presented in international forums, mobilised children, teenagers and adults around the world, demanding immediate climate action from politicians and business leaders. Several teen climate activists like Greta Thunberg are exerting pressure through such initiatives spread and organised through social media.

Research suggests that students' activism on socio-scientific and socio-environmental issues have a positive impact on (a) their knowledge of these issues; (b) their conceptions about the nature of science; (c) their inquiry and citizenship competences; and, eventually, (d) the well-being of individuals, societies and environments (Reis and Tinoca 2018; Bencze 2017; Bader and Laberge 2014; Zoras and Bencze 2014; Bencze and Carter 2011; Roth and Désautels 2002; Roth and Lee 2002). Students' involvement in activism initiatives promotes (a) communication skills through the exchange of arguments for specific actions; (b) scientific inquiry skills during the identification of the causes and possible solutions for problems; (c) critical thinking skills, through complex problem-solving; (d) creativity, during the development of innovative proposals for unique contexts; (d) perseverance, through the understanding that change takes time, effort and commitment; and (e) empowerment, when students realise that their actions can have a positive impact in society (Conceição et al. 2019; Bencze 2017; Marques and Reis 2017; Schusler and Krasny 2015; Carter et al. 2014; Krstovic 2014; Schalk 2008).

9.4 Conclusion

Activism constitutes a major aspect of Environmental Citizenship, allowing citizens to become active problem-solvers instead of simple spectators relying on experts' opinions. Consequently, students' involvement in activism initiatives represents a key element in Education for Environmental Citizenship, creating an excellent context for the development of the knowledge, skills, values and attitudes that empower citizens as agents of change, who are capable of devising and implementing individual and collective actions aimed at solving the contemporary environmental problems (ENEC 2018). Youth activism initiatives allow students to exercise their environmental rights and duties, understand the structural causes of environmental problems and develop the necessary competences to address those causes. Through activism, students move from a position of learning to a new position of engagement in acts of citizenship and practices of scientific inquiry. Students are therefore empowered as producers of contextualised and socially relevant knowledge, instead of being simple consumers of knowledge.

Youth activism initiatives have the potential to strengthen the bonds between school and the communities where students and their families live. Through these initiatives, students develop positive perceptions regarding the importance and

social relevance of a science education with socially responsible curricula, strongly committed with the health of the communities and the environment.

The study of recent young activist movements can shed some light on the factors that are important in mobilising young people into political participation and, consequently, on how schools can counteract the low levels of civic engagement among young people, namely, through the promotion of democratic activism.

The youth activism approach assumes education as a democratising force and a catalyst for individual development and social transformation (Freire 1970/1987; Dewey 1916). Through this approach, school becomes a live forum for liberating dialogue and a real context for the exercise of Environmental Citizenship. There is a global urgency for pedagogical approaches that include youth activism as a core and fundamental step for the promotion of Environmental Citizenship.

Acknowledgments This chapter is based on work from Cost Action ENEC – European Network for Environmental Citizenship (CA16229) supported by COST (European Cooperation in Science and Technology).

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