



# Response of educational research in Turkey to the UN Decade of Education for Sustainable Development

Mustafa Öztürk<sup>1</sup>

Received: 24 December 2017 / Revised: 4 September 2018 / Accepted: 11 September 2018 / Published online: 8 October 2018  
© Education Research Institute, Seoul National University, Seoul, Korea 2018

## Abstract

With the Decade of Education for Sustainable Development (DESD), nations' engagement with sustainability has differed considerably on the basis of their socio-political priorities. Since reviewing research trends is one way of getting a broad understanding about the value attached to an internationally prioritized issue, such as Education for Sustainable Development (ESD), this study aims to see the coherence and effectiveness of the DESD on the Turkish stakeholders' side and portrays how such a global issue is addressed in educational research by local actors. The study employed a mixed-method design through a two-step process: a quantitative investigation through numbers to assess the level and direction of the attention paid to ESD; and a qualitative examination through content and collocation analyses to identify key dimensions and prevalent themes. As the sample, the papers published with a focus on ESD themes between the years 2005 and 2014 in three high-impact educational journals in Turkey were included. The data analyses were carried out through: (a) descriptive statistics by use of frequency distribution tables and percentages; (b) a content analysis employed with thematic coding and categorization and (c) a collocation analysis done by means of the software *AntConc*. The most prevailing themes emerging from the publications were on environmentalism; human values; gender equality; democratic values; multiculturalism; interculturality; morals and character education; student dropouts and absenteeism; life-long learning; community service and responsibility; human rights; children's rights; citizenship and peace education. All those themes gave crucial hints about the local concerns and socio-cultural priorities of the case of Turkey.

**Keywords** Sustainable development · ESD · Educational research · DESD · Turkey

## Introduction

Sprouting as a target in Brundtland Report entitled *Our Common Future* for the first time (WCED 1987) and emerging as a formal concept globally at the Rio Earth Summit (UN 1992), Education for Sustainable Development (ESD) became a global vision in 2002 when the UN designated 2005–2014 as the United Nations Decade of Education for Sustainable Development. As a UN initiative, the Decade of Education for Sustainable Development (DESD) was associated with a goal “to integrate the values inherent in sustainable development into all aspects of learning to encourage changes in behaviour that allow for a more sustainable and just society for all” (UNESCO 2005a, p. 5).

ESD is roughly defined to be an approach to teaching and learning based on the ideals and principles that underlie sustainability (UNESCO 2005b) and principally promotes social and economic justice; cultural diversity; human rights of future generations and the protection and restoration of the Earth's ecosystems (UNESCO 2005a). Since the beginning of the DESD, nations' engagement with sustainable development differed considerably on the basis of their socio-political priorities, for the reason that educational practices of a particular society might be shaped by the forms of democracy surrounding educational institutions of that society as well as other historical, socio-cultural, political, ecological and economic factors (Kopnina and Meijers 2014). In this sense, social justice, health issues, gender equality or poverty might be prioritized in some circumstances while environmental problems, ecological concerns, or consumption habits might be more appropriate to discuss in other settings. Expecting people, who are cold, hungry, unemployed or unsafe in their local environment, to care

✉ Mustafa Öztürk  
mustafaozturk@hacetepe.edu.tr

<sup>1</sup> Hacettepe University School of Foreign Languages, Beytepe Campus, 06800 Ankara, Turkey

about global warming or biodiversity loss might be quite unrealistic (Bhatti and Dixon 2003). Sometimes poverty or low income might act as a barrier to a proper adoption of green technologies such as solar panels or waste disposal (Crabtree 2005). There might be a tendency to choose social and economic priorities over concerns about environmental protection, which seems to be more distant for some people (Lundmarck 2007). In other words, people might become activists when they are confronted closely with certain threats such as climate change (Booth 2009).

Considering all those points, this study aims to look into a local context, the Turkish case, in relation to a global endeavour, which is promoting the vision of sustainable development in all forms and at all levels of education. Turkey, on the one hand, strives to integrate herself into the EU and get Westernized, and on the other hand asserts a regional role in the Middle East. Plying between the two axes of Western modernism and Eastern heritage and being a transcontinental country in Eurasia, Turkey is thought to be a critical case for such an inquiry. As a UN member state since 1945, Turkey tries to progress in internationally agreed development goals. ESD is one of those globally recognized objectives to which any growing country is expected to attach importance. Since reviewing research trends is one way of getting a broad understanding about the value paid to an internationally prioritized issue, this study aims to see the coherence and effectiveness of the DESD on the Turkish stakeholders' side and portrays how such a global issue is addressed in educational research by local actors, because educational researchers, as local or global actors, are to carry out studies that are of significance to not only educational community but also to whole society. Based on this rationale, this study acknowledges the objectives of: (a) drawing lessons from educational research as a means to communicate societal issues requiring attention; (b) hearing local voices and looking into local cases to address a global phenomenon and (c) choosing the time frame between 2005 and 2014 as a solid way to address the issue under investigation, which is the vision of ESD.

## Conceptual base and historical framework

We hold the future in our hands. Together, we must ensure that our grandchildren will not have to ask why we failed to do the right thing, and let them suffer the consequences.

UN Secretary-General Ban Ki-moon, 2007

This futuristic warning clearly expresses the base of sustainability vision by putting an emphasis on inter-generational concern. Addressing a balance between intra-generational and inter-generational equity, sustainability is

characterized as a development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987, p. 43).

Although definitional roots seem to be rather new, the idea of sustainable development dates back to 1960s when *Silent Spring* touched upon ecological dimensions of sustainability and approaching threats of environmental degradation (Carson 1962). Later, the need for a common outlook and world principles were underpinned during the UN Conference on Human Environment held at Stockholm (UN 1972). The world's first intergovernmental conference on environmental education was convened in 1977 in Tbilisi, and with the Tbilisi Declaration, an environmentalist framework was established for both formal and non-formal education (UNESCO 1978). However, the most remarkable historical point was in 1987 when *Our Common Future* known also as *Brundtland Report* was published to conceptualize sustainable development in its broadest sense (WCED 1987). In this report, social, economic, cultural and environmental issues had a wide coverage together with implications for practice.

In 1992, the Earth Summit was held in Rio de Janeiro with the aim of proposing a comprehensive global action programme in all areas of sustainable development (IISD 2012). This was a call for a long-term development, in which environmental protection is integrated into social and economic progress. Governments, NGOs, international organizations, and corporations are all invited to cooperate towards a common goal of a sustainable future (UN 1992). In 2000, the largest-ever gathering of world leaders took place in New York during the Millennium Summit and a set of measurable goals named as *Millennium Development Goals* were declared to be achieved by 2015. Those goals were related to poverty, hunger, illiteracy, universal primary education, gender equality, women's rights, child mortality, maternal health, diseases, environmental sustainability and global partnership (UN 2000).

Within the historical framework, the most explicit emphasis put on education was during the World Summit on Sustainable Development in Johannesburg in 2002. At the summit, the time line between 2005 and 2014 was recommended to be declared as a decade of Education for Sustainable Development. Subsequently, five major objectives of the decade were proposed: (1) to give an enhanced profile to the crucial role of education and learning in the pursuit of a sustainable lifestyle; (2) to facilitate links and networking, exchange and interaction among all stakeholders in ESD; (3) to provide a space and opportunity for refining and promoting the vision of and the transition to sustainable development—through all forms of learning and public awareness; (4) to foster increased quality of teaching and learning in ESD and (5) to develop strategies at every level to strengthen the capacity in ESD (UNESCO 2005a).

Since the beginning of the decade, a lot of international gatherings repeated the vision of sustainable development and reaffirmed the critical role of education in addressing issues like inter-generational equity, social tolerance, poverty alleviation, environmental preservation and restoration, natural resource conservation, just and peaceable societies, human rights, sustainable livelihoods, gender equality, social responsibility, protection of indigenous cultures and so on (UNESCO 2005c). Consequently, ESD became a well-established field of education (Wals 2009).

There have always been some conceptual, methodological, cultural and ethical challenges of ESD (Kopnina and Meijers 2014); however, ESD is expected, on the whole, to find a balance between social, economic, and environmental dimensions (Stevenson 2006) and promote values of: (1) respect for the dignity and human rights of all people throughout the world and a commitment to social and economic justice for all; (2) respect for the human rights of future generations and a commitment to inter-generational responsibility; (3) respect and care for the greater community of life in all its diversity which involves the protection and restoration of the Earth's ecosystems and (4) respect for cultural diversity and a commitment to build locally and globally a culture of tolerance, non-violence and peace (UNESCO 2005a).

## Reflections of sustainable development in Turkey during the DESD

In the last two decades, comprehensive efforts have been made in Turkey in order to incorporate the vision of sustainable development into local policies and practices in a variety of fields and sectors. According to the report of RTMD (2016), Turkey has been among the top ten performers during the DESD in terms of the achievement in Millennium Development Goals (MDGs), specifically in the targets such as eradicating extreme poverty, reducing child mortality, improving maternal health, and ensuring environmental sustainability. As for the *2030 Agenda for Sustainable Development*, a high level of consistency has been observed between the globally acknowledged Sustainable Development Goals (SDGs) and the most recent National Development Plans (NDPs) of Turkey (RTMD 2012). It is also underlined that Turkey has taken obvious steps for nationalizing both MDGs and SDGs as well as mainstreaming the 2030 Agenda into the upcoming NDPs (RTMD 2016).

Apart from policies and legislations, it is also possible to see the overall reflection on the practices in various areas by looking at the OECD indicators. For instance, environmental indicators show there are not any drastic changes (decrease or increase) during the decade, but Turkey has always been among the countries that are at the

bottom line in terms of GHS (greenhouse gas) emissions (OECD 2018a) and use of forest resources (OECD 2018b). On the other hand, Turkey has been among the top three countries (together with Japan and Mexico) in water withdrawals, which means taking freshwater from ground or surface water sources temporarily or permanently (OECD 2018j).

If we look at the economic indicators, we see that labour productivity in Turkey increases dramatically during the decade. While the GDP per hour worked is below the OECD average at the beginning of the decade, it reaches the average in the mid-decade and eventually Turkey becomes the top country in labour productivity at the end of the decade (OECD 2018c). However, Turkey has always been among the top three- to four-countries with respect to income inequality (OECD 2018d) and poverty rate (OECD 2018f), together with countries such as Chile, Mexico, the US and Israel.

As another significant aspect of sustainability, Turkey's social indicators are not pleasant enough even though social expenditure increases from 10% of GDP (in 2005) to 14% (in 2014) during the decade (OECD 2018h). As a measure of discrimination against women in social institutions, the Social Institutions and Gender Index (SIGI) indicates that Turkey is the number one country among other OECD countries (OECD 2018g). A very similar reflection could also be seen in the percentage of Turkish women who experience physical and/or sexual violence from an intimate partner at some time in their life (OECD 2018i).

In the context of ESD, more concrete examples could be seen about education in Turkey. For instance, population with tertiary education almost doubles during the decade as it increases from 12.5% (in 2005) to 24.8% (in 2014). Even though this percentage is far beyond the average of OECD countries (41.5%), Turkey has made significant progress by outnumbering countries like Mexico and Italy (OECD 2018e). Similarly, the percentage of young people who are not in employment, education or training decreases from 25.8% (in 2005) to 15% (in 2014). Yet, it is still above the OECD average (6.88%) and Turkey, compared to other OECD countries, has the highest percentage of young people who are not in education or employment (OECD 2018k).

From an overall interpretation, it is seen that Turkey follows a policy coherence approach by integrating economic, social and environmental dimensions of sustainable development at diverse stages of policy making. Despite the gaps in practices, Turkey's political ownership and effective coordination among all stakeholders has been a key response in adopting the global vision of sustainable development into national actions. Now, it is time to look into the response of educational research to that globally significant issue.

## Method

This study aimed to: (a) investigate educational research conducted with a focus on ESD themes and published in high-impact journals in Turkey; (b) synthesize the prevailing themes and trends pertaining to the vision of ESD and (c) draw a map of critical issues discussed frequently in the local context. On the basis of those aims, the study employed a mixed-method design through a two-step process:

1. A quantitative investigation through numbers to assess the level and direction of the attention paid to ESD in educational research; if there was an overt increase in the number of studies by year throughout the decade; in what type of papers, educational settings and academic fields there was a frequent touch on ESD themes; and who/what was chosen as the target or the focus of research.
2. A qualitative examination through content and collocation analyses to identify key dimensions of sustainable development and prevalent themes emerging in papers and to portray how global policy doctrines were translated into a specific cultural setting.

A purposive sampling strategy was adopted to determine the sample of the study, and accordingly, the papers published with a focus on ESD themes between the years 2005 and 2014 in three high-impact educational journals in Turkey were included in the study. The three journals were chosen on account of their being the only Turkish educational journals indexed in Social Science Citation Index (SSCI). In line with this criterion, all the papers ( $n = 2320$ ) published in those three journals (*Education and Science*, *Educational Sciences: Theory and Practice* and *Hacettepe University Journal of Education*; 740, 777 and 803 respectively) over the course of a 10-year period were surveyed to identify their focus and scope; and eventually, 153 (6.6%) of them were found to have a direct or indirect focus on the themes referred by the UN as a vision of ESD and included as the sample of the study.

The rationale choosing the time frame from 2005 to 2014 is related to the purpose of the current study. As the DESD was declared by the UN for the years between 2005 and 2014 and the current study focused on the response of Turkish educational research to this declaration, looking back to the decade (2005–2014) is thought to be an effective and solid way of assessing the immediate response to and effect of the decade.

Including only high-impact journals appears to be the major limitation of the study. However, the justification for this decision is two-fold. First of all, there are dozens

of academic journals publishing educational research in Turkey, but they have difficulty to find international readers as they are published in Turkish language and not indexed in international databases; thus, not all of them are read, followed, or reviewed as much as those three high-impact journals. The high-impact journals having higher standards to choose and publish the articles from quality research are indexed in international databases and published bilingually (in Turkish and English). Therefore, they are more possibly read by both international and national readers. As the second point, the reason for the exclusion of other international journals published outside Turkey is related to time, effort, feasibility and practicality concerns. Since there are numerous international journals devoted to papers on educational research around the world, it would not be feasible and practical to include all those journals in this review. Besides, it is supposed that the number of articles pertaining to Turkish context is much limited in those international journals. Scanning all those journals and identifying the papers on Turkish context would take much longer time. Also, those international journals are publishing articles in other languages (not in Turkish), so they are less probable to find local readers in Turkey due to language concerns and accessibility. Considering all those points, those three Turkish educational journals, which are indexed in SSCI and regularly publish bilingual articles, were included as the sample in this study.

The data analyses were carried out in three phases. The first phase was performed through descriptive statistics by use of frequency distribution tables and percentages. This process involved identifying the total number of ESD-themed papers represented within the study; counting the total number of papers within each dimension of ESD; and dividing the number of papers within each dimension by the total number. As effective displays of data that reflect the percentage and relative distribution existing for each dimension, frequency tables, bar graphs, line graphs and pie charts were used.

Secondly, with the purpose of identifying key dimensions and prevalent themes addressed in the papers, a content analysis was employed through thematic coding and categorization on the focus and scope of each paper. The rationale, at this point, was to depict sustainability concerns addressed by educational researchers and to describe the papers' content through an examination of what is said, in what context, to whom, with what purpose and with what effect. To do so, a two-layered thematic coding was performed for each paper, firstly to decide on a pillar of sustainable development (ecology, economy, society, and culture) that can embrace the topic of the paper, and secondly to determine the focus of the paper more specifically. Later in the categorization process, a further classification of the papers on the basis of the SDGs at the Sustainable Development Summit in New

York (UN 2015) was conducted. Through an identification of the themes within the texts, the categorization step was also used to determine the trends and patterns of themes as well as their relationships within dimensions and sub-dimensions of sustainability.

In the final phase, a collocation (co-occurrence) analysis was conducted by means of the software *AntConc*. *AntConc*, as a tool used for concordance and text analysis, enabled the researcher to depict linguistic and cultural connotations of sustainable development in the discourse under examination. As the first step of the analysis, specific keywords were picked from the SDGs. After an in-depth examination, a comprehensive list of keywords was obtained from the specific targets of the SDGs. In order to identify key terms that frequently collocate with sustainable development in Turkish educational research context, all the textual data of the papers were uploaded into the software. Later, all the publications were electronically examined through the software and the most frequently occurring keywords were identified across papers. In the first step, primary key terms or concepts were detected as the most frequently occurring words or phrases within the textual data. In the second step, secondary terms and concepts that collocate with the previously-detected primary words or phrases were examined. In the next step, a concordance list was prepared for each of those frequently occurring keywords. Finally, the most frequent collocations were interpreted to portray what aspects were attributed to sustainable development in the sample discourse.

## Findings

The findings of the study were organized under three sections: (1) response to ESD in numbers; (2) response to ESD in discourse and (3) response to ESD in themes.

### Response to ESD in numbers

When the year-by-year percentage of the ESD-themed publications during the decade were inspected, there seemed to be an increase in the number of the papers addressing an ESD issue towards the end of the decade (see Fig. 1 for the percentages by year); it might be a result of the parallel increase in the total number of publications over a 10-year period, though. In view of the percentages, 2009 (12.4%) and 2012 (28.1%) were the 2 years when ESD-themed publications tended to peak. Quantitatively, ESD seemed to have a response in Turkish educational context more during the second half of the decade as the number of ESD-themed publications doubled in the second half (by increasing from 32 to 68%).

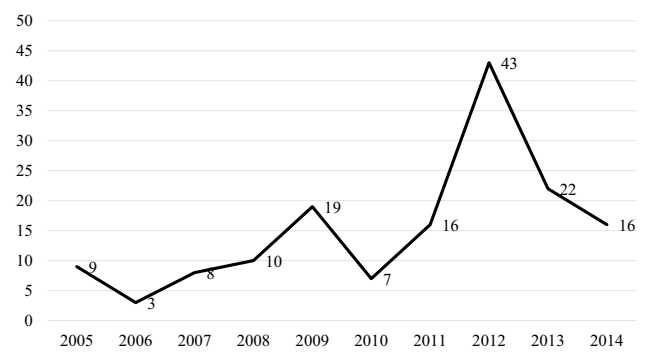


Fig. 1 Number of ESD-themed papers by year

In the second stage, the sample publications were classified in accordance with their strands to see what type of work the papers originated from. As displayed in Fig. 2, a great majority of the publications (78%) comprised of research papers completed either individually or as a collaborative work. The other three categories were theoretical or conceptual reviews (10%); and papers derived from postgraduate theses or dissertations (7%). Very limited number of papers ( $f=8$ ) were published as an output of funded projects (5%) during the decade.

Considering the importance attached to cooperation and collaboration for development by the vision of ESD, another classification was done to see the level of collaboration in publications. Accordingly, a little less than half (48%) of the papers represented single-authored works while the rest (52%) were conducted as collaborative works. Collaborative works examined in more detail put forward that 27% were carried out by contributors from the same institution; 23% by contributors from different institutions in Turkey; and only 2% by contributors from different countries (see Fig. 3). Additionally, the affiliations of the contributors indicated that only 65 of the Turkish higher education institutions, which means 36% of all the Turkish universities or colleges were represented in the educational research on ESD themes during the DESD.

As for the educational setting, in which each study was carried out, majority (47%) of the publications explicitly addressed a research context from primary education level. As the second most frequently studied context, tertiary level education (33%) was predominantly represented by the division of teacher education (22%), because two-thirds of the research conducted in higher education settings addressed ESD themes in teacher education while the rest tended to disperse across different academic programmes. On the other hand, 17% of the studies were from a secondary education setting. Though limited in number, there were publications representing pre-school education (3%), as well (see Fig. 4).

To compare specific academic fields in which there was a frequent touch on ESD themes, a further classification was



Fig. 2 Types of publications

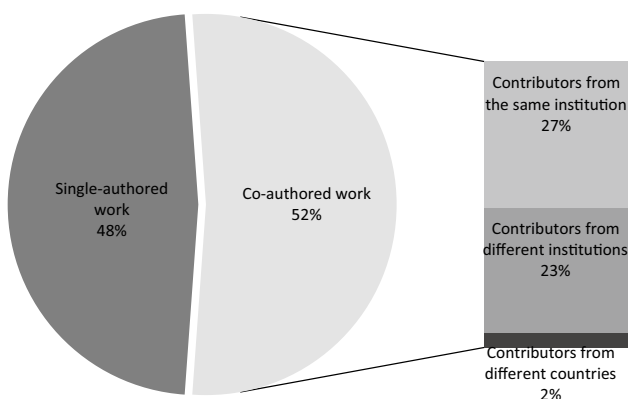
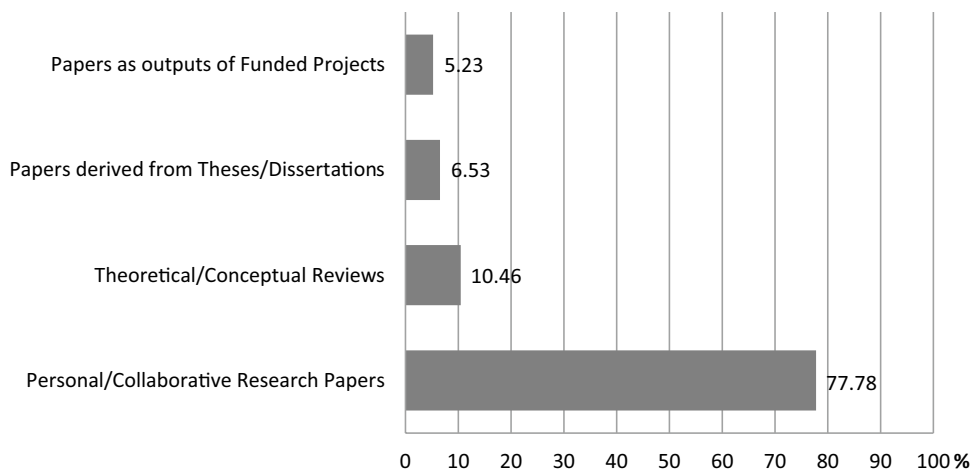


Fig. 3 Collaborations in publications

done. The rationale was to see what different fields and disciplines paid attention to ESD issues and to what extent. The descriptive statistics indicated that ESD issues were mostly studied within the fields of Social Studies Education ( $f=24$ ) and Classroom Teaching ( $f=11$ ). Though limited in number, some papers addressed ESD themes within the bounds of

Science Education ( $f=7$ ) and Early Childhood Education ( $f=6$ ). Very few publications represented other fields of education such as Language Education ( $f=2$ ); Mathematics Education ( $f=2$ ); Physical Education and Sports; ( $f=1$ ) and Vocational Education ( $f=1$ ). There were no publications addressing an ESD theme within the fields of Computer Education and Instructional Technology or Fine Arts Education.

Finally, the sample publications were examined to identify their target or focus either as a party or as a group to see who/what was seen as a respondent or addressee of ESD. As presented in Fig. 5, students were the target of research in most of the papers (39%). Teachers, either as pre-service (20%) or in-service (13%), were the second largest group that were included as the target of publications. Some other publications addressed the Turkish society as a whole (13%); curricula (10%) being implemented at schools; academicians (5%); school principals (3%) and parents (3%).

When the scope of each papers was analysed, it was seen that educational investigations were carried out predominantly through perceptions ( $f=20$ ), attitudes ( $f=18$ ), beliefs or values ( $f=14$ ), views or opinions ( $f=12$ ), skills

Fig. 4 Research settings

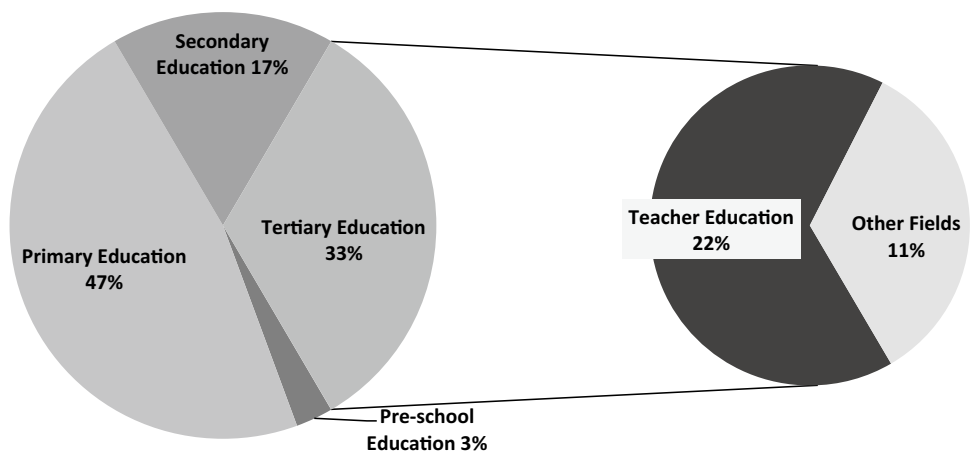
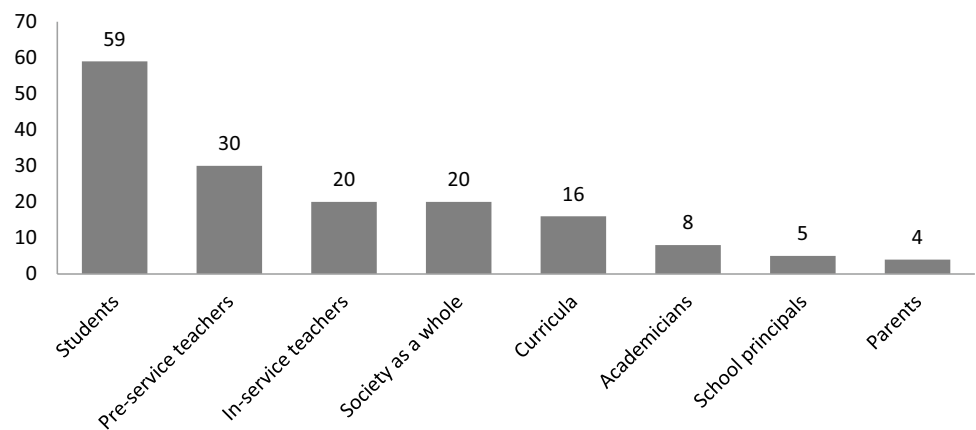


Fig. 5 Target of investigation



or competences ( $f=10$ ), conceptualizations ( $f=8$ ), knowledge ( $f=6$ ), consciousness or awareness ( $f=5$ ), sensitivity or empathy ( $f=5$ ), tendencies ( $f=5$ ), literacy ( $f=1$ ) and resistance ( $f=1$ ). Very few investigations tend to discuss real life practices ( $f=7$ ), behaviours ( $f=6$ ), and approaches ( $f=5$ ).

All those numbers, frequencies and percentages provide a quantitative understanding about the level of research-based response to ESD in Turkish educational context during the decade. The following sections discuss more of the discourse and content of educational research and present a kind of thematic map of the issue.

### Response to ESD in discourse

Educational discourse is usually produced from educational research conducted countrywide and has always been a significant part of a country's policy on education. Therefore, the discourse related to ESD themes was also studied within the scope of this paper through a collocation analysis. As the first step of the analysis, specific keywords were picked from the SDGs declared at the UN Sustainable Development Summit in New York (UN 2015). After an in-depth examination, the following list of keywords was obtained from the specific targets of the SDGs: *child, city, climate, community, consumption, culture, development, ecology, economy, energy, environment, equality, gender, girls, global, growth, health, human, hunger, inequality, justice, land, life, local, partnership, peace, poverty, production, quality, sanitation, society, well-being, water, women and work*. Later, all the publications were electronically examined through *AntConc* software and the most frequently occurring keywords were identified across all the papers. It was seen that not all the keywords were addressed in the publications and some keywords were repeatedly encountered across different papers. For instance, the words 'climate, city, poverty, hunger, land, partnership, sanitation and well-being' were never encountered in any papers (see Table 1).

In the next step, a concordance list was prepared for each of those most frequently occurring keywords. As the first results indicated, the word 'development' was collocated with sustainable, environment, social and education, whereas the word 'growth' was collocated only with economy. The word 'global' was frequently used with environmental problems (specifically global warming, ozone depletion, pollution), deterioration and solution while the word 'local' co-occurred only with values and strains.

In relation to the separate concepts of the pillars of sustainable development, 'environment' was mostly collocated with education, problems, conservation, responsibility, global, nature, future, pollution and risks. 'Economy,' on the other hand, co-occurred with socio-economic status, education, population, politics, income level and family. While 'culture' was collocated with differences, diversity, bias, values, prejudice, interaction and tolerance, 'society' co-occurred only with values, individuals and education.

The word 'human' was predominantly collocated with rights, values, traits, character, respect, dignity, citizenship, empathy and capital. The word 'child' was co-occurred with working, education and protection. While 'gender' was mostly collocated with inequality, equality, discrimination, parity and sensitive, the word 'women' was with status, education, academic, relegated, proportion, participation and law; and the word 'girls' was with schooling, chastity and participation rates. All the other keywords and their collocations are listed in Table 1.

Finally, the results indicated the word 'education' was collocated almost with every single keyword in the list, but it co-occurred more frequently with the words like *values, environmental, social, gender, human rights, democracy, character, peace, moral and multicultural*. The collocation analysis also put forward that the concept of 'sustainable development' was mostly used with the concepts of *environmentalism, environmental education, consumption and future*.

**Table 1** List of keywords and collocations

Keywords	Collocations
Child	Working, education, protection
City	–
Climate	–
Community	Values, service, practice
Consumption	Sustainable, production
Culture	Differences, diversity, bias, values, prejudice, interaction, tolerance
Development	Sustainable, environment, social, education
Ecology	Education, program, nature, global warming, problem, balance
Economy	Socio-economic status, education, population, politics, income level, family
Energy	Renewable, nuclear, knowledge, attitude
Environment	Education, problems, conservation, responsibility, future, pollution, risks
Equality	Gender, students, citizenship, sovereignty, rights
Gender	Inequality, equality, discrimination, parity, sensitive
Girls	Schooling, chastity, participation rates
Global	Warming, ozone depletion, pollution, deterioration, solution
Growth	Economy
Health	Service, improvement, attention, program, future
Human	Rights, values, traits, character, respect, dignity, citizenship, empathy, capital
Hunger	–
Inequality	Gender, education, support, health
Justice	Social, schools, practices
Land	–
Life	Social sciences, daily, quality
Local	Values, strains
Partnership	–
Peace	Education, program, lowest, values, national, individual
Poverty	–
Production	Consumption
Quality	School, education, responsibility, low, life
Sanitation	–
Society	Values, individuals, education
Well-being	–
Water	Pollution, awareness, environmental, education, conservation
Women	Status, education, academic, relegated, proportion, participation, law
Work	Social, children, gender, support, students, schools, justice

## Response to ESD in themes

In the final phase, the sample publications were examined through content analyses with the purpose of identifying key dimensions and prevalent themes addressed in papers. A two-layered thematic coding was performed for each paper, firstly to decide on a pillar of sustainable development (ecology, economy, society and culture) that can embrace the topic of the paper and secondly to determine the specific focus of the paper.

As for the first step, there were a few papers categorized under more than one pillar, because they focused on diverse aspects of sustainable development or dealt with two or more issues at the same time. Accordingly, social pillar was

predominantly represented in more than half of the publications (56%) through a variety of themes. The second biggest group of publications gathered under the environmental pillar (45%). The cultural pillar of sustainable development was addressed in 14% of the papers while the economic pillar comprised only 8% of the papers (Fig. 6).

In the second step, specific themes in each pillar were examined in detail and themes were coded on the basis of the focus of each paper. Among the papers addressing social aspects of sustainable development, human values and values education was the most dominant theme (17%), which was followed by gender inequality (8%); democratic values and democracy education (6%) and character education and moral education (4%). Student dropouts and absenteeism;



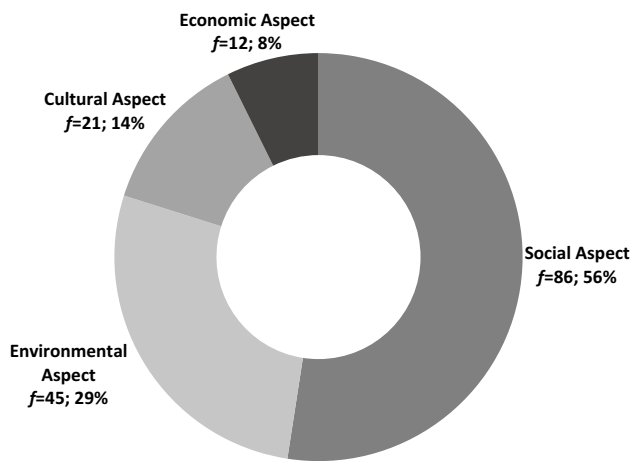


Fig. 6 Distribution of themes by pillars of sustainable development

Table 2 Themes in social pillar

Themes	f	% <sup>a</sup>	% <sup>b</sup>
Human values and values education	26	30.23	16.99
Gender equality in education/society	12	13.95	7.84
Democratic values and democracy education	9	10.47	5.88
Character education and moral education	6	6.98	3.92
Student dropouts/absenteeism	5	5.81	3.27
Life-long learning skills and competences	5	5.81	3.27
Community service and responsibility education	5	5.81	3.27
Human rights and human rights education	4	4.65	2.61
Children's rights	4	4.65	2.61
Citizenship concepts and citizenship education	4	4.65	2.61
Social impacts of globalization	3	3.49	1.96
Health services and healthy life	2	2.33	1.31
Social justice	1	1.16	0.65

<sup>a</sup>Within social pillar

<sup>b</sup>Across all papers

life-long learning skills and competences; community service and responsibility education (3% each) were other significant themes addressed in the publications. The other themes within the social pillar are listed in Table 2.

In relation to the environmental pillar, most of the papers focused on environmentalism (18%) by investigating environmental attitudes, awareness, perceptions, knowledge, behaviour or so on. Other themes were more specific environmental issues such as biodiversity; global warming; air pollution; erosion; nuclear plants; renewable energy and water conservation (see Table 3 for percentages). Environmental education (5%) was also the focus of a few papers.

As for the cultural pillar, most of the papers addressed multiculturalism and multicultural education (5%) and interculturality (4%). Peace education, local-universal

Table 3 Themes in environmental pillar

Themes	f	% <sup>a</sup>	% <sup>b</sup>
Environmentalism (attitude, awareness, knowledge, etc.)	28	62.22	18.30
Environmental education and green curriculum	7	15.56	4.58
Biodiversity	3	6.67	1.96
Global warming	2	4.44	1.31
Air pollution	1	2.22	0.65
Erosion	1	2.22	0.65
Nuclear plants	1	2.22	0.65
Renewable energy	1	2.22	0.65
Water conservation	1	2.22	0.65

<sup>a</sup>Within environmental pillar

<sup>b</sup>Across all papers

Table 4 Themes in cultural pillar

Themes	f	% <sup>a</sup>	% <sup>b</sup>
Multiculturalism and multicultural education	8	38.10	5.23
Interculturality	6	28.57	3.92
Peace education	4	19.05	2.61
Local—universal dilemma	2	9.52	1.31
Rural—urban dilemma	1	4.76	0.65

<sup>a</sup>Within cultural pillar

<sup>b</sup>Across all papers

Table 5 Themes in economic pillar

Themes	f	% <sup>a</sup>	% <sup>b</sup>
Education—economy relationship	3	25	1.96
Impact of SES on education	3	25	1.96
Educational investments	2	16.67	1.31
Educational demands	2	16.67	1.31
Economic concepts	1	8.34	0.65
Conscious consumerism	1	8.34	0.65

<sup>a</sup>Within economic pillar

<sup>b</sup>Across all papers

dilemma and rural—urban dilemma were the other themes within the cultural dimension (see Table 4).

Being the least frequently addressed pillar, economy was mostly discussed through themes of education-economy relationship (2%) and the impact of socio-economic status on education (2%). Other themes were related to educational demands; educational investments; economic concepts and conscious consumerism (see Table 5).

### Themes in social aspects

Portraying what themes emerged from the educational research conducted on social aspects of sustainable development, four major areas appeared frequently in the 55% of the papers: values, democracy, human rights and gender equality. For the values, most (30%) of the discussions in social aspect were on the necessity of a formal educational programme on human values to be implemented at different levels of education, in particular at primary levels. In this line, the studies usually adopted an experimental design or implemented an intervention and consequently asserted that a course or training on values education offered to students, teachers (pre-service or in-service) or school principals would be beneficial to the whole society. Important indicators of the attitudes towards values education in an educational setting were found to be related to teachers' characteristics, such as educational background, level of seniority, experience and gender. Nevertheless, the key responsibility for developing human values in kids were attributed to be of parents, especially mothers, teachers, people in the social circle and the media. The role of hidden curriculum in imposing or promoting certain human values was also underlined in many studies (19%). As for human rights, one of the weaknesses was related to the failure of human rights education in empowering human values among individuals and creating a holistic perception of human rights, because the concepts of peace and rights were encountered more frequently than the concepts of democracy and tolerance in the course books of the Ministry of National Education. Regarding democracy, one basic observation was that there seems to be an overt discrepancy between what people expect from democracy and what actually happens in practice and there are different factors that directly or indirectly influences or correlates with the development of democratic values in individuals. These are father's educational level, level of neurotic tendency, ability to establish and maintain social relationships. The last major area was gender equality (14%), which was once again underlined through the fact that Turkey is still far behind the EU countries in terms of girls' schooling rates and gender parity index at all levels of education despite the fact that Turkey has recently made significant achievements in closing the gender gap in education through various campaigns. The major hindrances for low rates of girls' schooling were transportation challenges, insufficient number of dormitories for girls, economical concerns, conservative stance of the family or the neighbourhood and early marriages. It was indicated that gender discrimination still exists in hidden curricula, in teaching materials or course books and in attitudes of the people in teaching society. Positive effects of courses and materials specifically designed to point out gender

sensitivity and to eliminate prejudices on gender roles were given due consideration in a lot of papers (11%).

### Themes in environmental aspects

The educational research on environmental issues drew attention to the importance of environmental education (16%) in generalizing environmentalism among various populations across the country and discussed the positive effects of courses and trainings about environment. The most common weaknesses in those courses or trainings were related to the curricular issues as the programmes tended to focus more on knowledge, rather than skills, values and perspectives. In a similar vein, a discrepancy between environmental attitudes and behaviours was common in all groups of society; in particular students' environmental sensitivity was hardly reflected on their actions. The factors that influenced environmentalist dispositions among different population groups were found to be geographical region, living area (urban or rural), social and cultural setting, socio-economic status, educational level, gender and parental education, in particular mother's educational level. The most common environmentalist dispositions among Turkish people were anthropocentric, biospheric, ecocentric and altruistic values. It was also highlighted that children in Turkey are becoming more and more pessimistic about the environment and the solution of the environmental problems.

### Themes in cultural aspects

Papers focusing on cultural diversity, multiculturalism, or interculturality all tended to emphasize the positive effects of international projects, internships, trainings and mobility or exchange programmes on national or local stakeholders, because all those initiatives significantly contributed to international goodwill and intercultural understanding among the participants. A striking point in some papers (%14) indicated the religious and ethnical discrimination that Turkish populations experienced in some European countries and the dualistic thinking occurring in the Turkish citizens' mind-set that leads to the categorization of other cultures in the friend–enemy dichotomy on the basis of historical and political knowledge of individuals. The struggle to be more local than to be more global was another dilemma discussed in some papers (10%).

### Themes in economic aspects

The strength of the relationship between education and economic growth was asserted in most (25%) of the papers usually by proposing the importance of increasing the expenditures on public education and increasing the average year of schooling through economic precautions. Compared to many

other EU countries, a substantial gap in the achievement between low and high SES students was apparent in the case of Turkey. The role of economic status and parental income in shaping student dropouts or absenteeism, school adaptation, cognitive development, academic achievement, especially in mathematics achievement, attitude towards social justice and participation in higher education was frequently attached importance. The most urgent need for the whole educational system was reported to be the standardization of the educational opportunities and physical conditions in all regions across the country.

## Discussion and conclusion

As the very first and general finding of the investigation, the response of educational research in Turkey to the UN Decade of Education for Sustainable Development seems to be limited, because only 153 (almost 7%) of the publications during the decade touched upon a critical issue referred by the UN as a vision of ESD and there was not a substantial increase in the number of the publications. This finding could indicate two possible interpretations. One is that educational researchers might not have attached much value to ESD issues in Turkish context. The other is that they might have chosen other national or international academic journals to publish their work. However, it is hard to state that those 153 papers failed to address crucial issues of ESD as every single paper reviewed in this study attempted to bring recent and current educational concerns to light and convey critical messages. What is striking is that only 5% of those 153 papers explicitly used the concept of ESD. This might have resulted from the fact that ESD was not grasped as a comprehensive concept even though its pillars and sub-dimensions received adequate level of attention from educational researchers.

Another striking point was that ESD-themed publications represented only 5% of the funded projects and 7% of the postgraduate theses and dissertations, because a great majority of the publications was the result of personally-initiated research. This point could imply that either ESD did not find enough places among funded projects or postgraduate theses and dissertations or ESD-themed projects, theses or dissertations failed to be transformed into publications.

One of the significant targets of ESD is promoting global and local partnerships and increasing collaboration among stakeholders. In view of this target, half of the publications were identified as co-authored work. However, more than half of this collaboration was achieved within the same institution and the rest were between different institutions of Turkey. Only 2% of all the publications reflected a global collaboration, which could mean that the target of global

partnership was not achieved as expected and initiated by the vision of ESD.

Considering the research settings, the publications revealed that primary education level was highly connected to ESD themes, which seems a plausible trend bearing in mind the significance of primary education in the vision of ESD (UNESCO 2005b, 2007). Another crucial link was forged with teacher education division, which is also repeatedly emphasized as a space to be reoriented to promote the idea of ESD (UNESCO 2005c). However, adult education, which is another key area where ESD is targeted, seemed to be under-researched in Turkish context of ESD. Considering the tertiary level education within the bounds of formal education, there was no single paper focusing on ESD issues in non-formal adult education. In this sense, a big lag appears when ESD issues were only linked to the stakeholders within the formal education context, because ESD aims to engage formal, non-formal and informal education evenly (UNESCO 2012). In the same line, almost three quarters of the publications included students and teachers as the target of research although ESD is not the business of only teachers or students. ESD is promoted as a vision to create locally relevant and culturally appropriate values to be internalized by diverse stakeholders of a community such as teachers, school administrators, pupils, parents of pupils and other community members (UNESCO 2012).

Within the field of education, ESD themes were attached more values in some specific disciplines than in some other disciplines. In this respect, social studies and classroom teaching were the two fields of education where ESD-themed publications outnumbered that in other fields. In some other disciplines, there was not a single paper addressing ESD issues. In view of the fact that ESD is a trans-disciplinary approach that needs to be addressed in all educational settings regardless of any specific field, another limitation appears: ESD in Turkish context failed to be adequately disseminated across various fields. In fact, ESD is recommended to exist not only in core disciplines like Science, Mathematics, Social Studies and Language but also in other adjectival educations (UNESCO 2012).

As the investigations were carried out predominantly through perceptions or attitudes and very few papers focused directly on behaviours or practices, an additional limitation of educational research—putting overemphasis on cognitions and neglecting actions—emerges at this point. Since critical gaps between attitudes and behaviours at individual or collective levels were widely addressed in the literature on sustainable development (Kollmuss and Agyeman 2002; Leiserowitz et al. 2004; Stern 2000), it is particularly essential to go beyond cognitions and investigate real actions at different levels.

The papers, on the whole, emphasized the social aspect of ESD more than all the other aspects. In contrast to the claims

made to underline that social aspects of sustainable development is under-researched, neglected or given less attention (Agyeman 2008; Bostrom 2012; Cuthill 2009; Dillard et al. 2009; Vallance et al. 2011; Vavik and Keitsch 2010), the findings in the current study revealed just the opposite case for educational research in Turkey, because more importance were attached to socio-cultural issues like values, gender, democracy, human rights, multiculturalism, morals, peace and so on.

The second most emphasized dimension of ESD was environment. Aligning with the global trends, environmental sustainability was emphasized in a great number of papers mostly through the investigation of environmental attitudes, awareness, knowledge or behaviours. This point was confirmed also in collocation analysis, which indicated that sustainable development as a concept was associated explicitly with environmentalism. Similarly, there are many other cases in the literature that discuss an enviro-centric bias that sustainability is mainly associated with environmental protection (Aighewi and Osaigbovo 2010; Azapagic et al. 2005; Kagawa 2007; Summers et al. 2004).

Those two points could mean that ESD-themed educational research in Turkey tends to ply between social and environmental edges of sustainable development, and economic pillar seems to be put aside by educational researchers. Why economic pillar received less attention than the others is due perhaps to its more traditional nature and the way educational researchers perceive the contribution of economic values to the notion of sustainable development. They might hold a traditional business perspective that economic development is a corporate activity and companies are specifically accountable for growth and development in a society's economy. However, a 'sustainable value creation' should be considered the first and the foremost role of education not only for societal development and ecological sensitivity, but also for economic development. In fact, all the pillars of sustainability are suggested to receive equal considerations and to be supported in an interconnected way in order to promote sustainable development of a community (Jucker 2002; Klosterman et al. 2012; Leal Filho et al. 2009; Murphy 2012; Stables and Scott 2002; Sterling 2001; Zeegers and Clark 2014). In the same line, four intertwined dimensions are constantly underlined in international reports: society, environment, culture and economy. In the pursuit of a balanced understanding among environmental, societal, economic and cultural considerations, ESD stands for a key paradigm for thinking about the future.

The interpretations that overemphasis was put on social and environmental considerations were also confirmed when the specific themes of the papers were examined. The most prevailing themes emerging from the publications were: environmentalism; human values; gender equality; democratic values; multiculturalism; interculturality; morals and

character education; student dropouts and absenteeism; life-long learning; community service and responsibility; human rights; children's rights; citizenship and peace education. All those themes gave crucial hints about the local concerns and socio-cultural priorities of the case of Turkey. Since examining local considerations on global issues is acknowledged when discussing sustainability (Terry et al. 2006), those themes appear to be precious indicators about the values affecting or reflecting sustainable development contextualized within a local case. Most of those themes also tended to align with the global attitudes towards millennium declaration values, which were predominantly related to freedom and democracy, equality, solidarity, tolerance, respect for nature and shared responsibility (Leiserowitz et al. 2004).

As for the final interpretation, although it seems limited in number (only 7%) compared to other issues in educational research, very significant hints about the current issues in Turkey from the lenses of educational researchers were portrayed in those journal articles. The concept of education was mostly discussed with values education, environmental education, human rights education, democracy education, character education, peace education, moral education and multicultural education. This was an overt map of educational concerns in recent and current Turkish context.

To conclude, the decade offered educational researchers the best chance to enhance research on urgent issues referred by the UN and to convey critical messages to create sustainable communities. Even though the decade ended, sustainable development will remain as a timely topic and an important issue on the global agenda for longer periods (Leal Filho et al. 2015) at least until 2030, which is another vision set by the Post-2015 Development Agenda and the Sustainable Development Goals (UN 2015). In order to understand the values, attitudes and approaches in relation to ESD, much work remains to be done at multiple scales using multiple methodologies in broader contexts. To be able to achieve a happier, healthier and wealthier world community, educational stakeholders' adoption of the 2030 Sustainable Development Agenda in their personal and professional sphere is highly critical. The SDGs are world-changing objectives that require the cooperation among many stakeholders of the society, including educational researchers. At this point, the 'be the change' initiative (UN 2015) provides a valuable opportunity for all of us to participate in this agenda by taking actions for each pillar even through little steps. A big impact would be acquiring more awareness about the economy-education relationship and considering the value in economic development not purely as a priority of business or corporations. Educationalists are to think over the power and contribution of education to economic consciousness and responsibilities. Although it seems difficult to make an impact, it should be noted that the change would start with every single person in education and an educational

researcher would be an integral part of discussion and solution for wicked problems of the society.

## References

- Agyeman, J. (2008). Toward a “just” sustainability? *Continuum: Journal of Media & Cultural Studies*, 22(6), 751–756.
- Aighewi, I. T., & Osaigbovo, U. A. (2010). Students’ perspectives on worldwide ‘greening’ of tertiary education curricula. *Research in Science Education*, 40(5), 625–637.
- Azapagic, A., Perdan, S., & Shallcross, D. (2005). How much do engineering students know about sustainable development? The findings of an international survey and possible implications for the engineering curriculum. *European Journal of Engineering Education*, 30(1), 1–19.
- Bhatti, M., & Dixon, A. (2003). Special focus: Housing, environment and sustainability. *Housing Studies*, 18(4), 501–504.
- Booth, C. (2009). A motivational turn for environmental ethics. *Ethics and Environment*, 14(1), 1–12.
- Bostrom, M. (2012). A missing pillar? Challenges in theorizing and practicing social sustainability: Introduction to the special issue. *Sustainability: Science, Practice, & Policy*, 8(1), 3–14.
- Carson, R. (1962). *Silent spring*. Boston: Houghton Mifflin.
- Crabtree, L. (2005). Sustainable housing development in urban Australia: Exploring obstacles to and opportunities for eco-city efforts. *Australian Geographer*, 36(3), 333–350.
- Cuthill, M. (2009). Strengthening the “social” in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in Australia. *Sustainable Development*, 18(6), 362–373.
- Dillard, J., Dujon, V., & King, M. C. (Eds.). (2009). *Understanding the social dimension of sustainability*. New York: Routledge.
- IISD [The International Institute for Sustainable Development]. (2012). *Sustainable timeline*. Winnipeg: IISD. Retrieved January 15, 2015, from <http://www.iisd.org>.
- Jucker, R. (2002). Sustainability? Never heard of it? Some basics we shouldn’t ignore when engaging in education for sustainability. *International Journal of Sustainability in Higher Education*, 3(1), 8–18.
- Kagawa, F. (2007). Dissonance in students’ perceptions of sustainable development and sustainability. *International Journal of Sustainability in Higher Education*, 8(3), 317–338.
- Klosterman, M., Sadler, T., & Brown, J. (2012). Science teachers use of mass media to address socio-scientific and sustainability issues. *Research in Science Education*, 42(1), 51–74.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3), 239–260.
- Kopnina, H., & Meijers, F. (2014). Education for Sustainable Development (ESD). *International Journal of Sustainability in Higher Education*, 15(2), 188–207.
- Leal Filho, W., Manolas, E., & Pace, P. (2009). Education for Sustainable Development: Current discourses and practices and their relevance to technology education. *International Journal of Technology Design Education*, 19, 149–165.
- Leal Filho, W., Manolas, E., & Pace, P. (2015). The future we want: Key issues on sustainable development in higher education after Rio and the UN decade of Education for Sustainable Development. *International Journal of Sustainability in Higher Education*, 16(1), 112–129.
- Leiserowitz, A. A., Kates, R. W., & Parris, T. M. (2004). *Sustainability values, attitudes, and behaviours: A review of multi-national and global trends*. CID Working Paper No. 113. Cambridge, MA: Science, Environment and Development Group, Centre for International Development, Harvard University.
- Lundmarck, C. (2007). The new ecological paradigm revisited: Anchoring the NEP scale in environmental ethics. *Environmental Education Research*, 13(3), 329–347.
- Murphy, K. (2012). The social pillar of sustainable development: A literature review and framework for policy analysis. *Sustainability: Science, Practice, & Policy*, 8(1), 15–29.
- OECD [Organisation for Economic Co-operation and Development]. (2008). *Promoting sustainable consumption: Good practices in OECD countries*. Danvers, MA: OECD.
- OECD [Organization for Economic Co-operation and Development]. (2018a). *Air and GHG emissions (indicator)*. <https://doi.org/10.1787/93d10cf7-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018b). *Forest resources (indicator)*. <https://doi.org/10.1787/2546ca0a-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018c). *GDP per hour worked (indicator)*. <https://doi.org/10.1787/1439e590-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018d). *Income inequality (indicator)*. <https://doi.org/10.1787/459aa7f1-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018e). *Population with tertiary education (indicator)*. <https://doi.org/10.1787/0b8f90e9-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018f). *Poverty rate (indicator)*. <https://doi.org/10.1787/0fe1315d-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018g). *Social institutions and gender (indicator)*. <https://doi.org/10.1787/7b6cfcf0-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018h). *Social spending (indicator)*. <https://doi.org/10.1787/7497563b-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018i). *Violence against women (indicator)*. <https://doi.org/10.1787/f1eb4876-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018j). *Water withdrawals (indicator)*. <https://doi.org/10.1787/17729979-en>.
- OECD [Organization for Economic Co-operation and Development]. (2018k). *Youth not in employment, education or training (NEET) (indicator)*. <https://doi.org/10.1787/72d1033a-en>.
- RTMD [Republic of Turkey, Ministry of Development]. (2012). *Turkey’s sustainable development report: Claiming the future*. Ankara: Ministry of Development.
- RTMD [Republic of Turkey, Ministry of Development]. (2016). *Report on Turkey’s initial steps towards the implementation of the 2030 agenda for sustainable development*. Ankara: Ministry of Development.
- Stables, A., & Scott, W. (2002). The quest for holism in Education for Sustainable Development. *Environmental Education Research*, 8(1), 53–60.
- Sterling, S. (2001). *Sustainable education: Re-visioning learning and change*. Devon: Green Books.
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, 56(3), 407–424.
- Stevenson, R. (2006). Tensions and transitions in policy discourse: Re-contextualising a de-contextualised EE/ESD debate. *Environmental Education Research*, 12(3/4), 277–290.
- Summers, M., Corney, G., & Ghilds, A. (2004). Student teachers’ conceptions of sustainable development: The starting points of geographers and scientists. *Educational Research*, 46(2), 163–182.



- Terry, A., Hill, J., & Woodland, W. (2006). Uniting national aspirations and local implementation in sustainable development: A introduction. In J. Hill, A. Terry & W. Woodland (Eds.), *Sustainable development: National aspirations, local implementation* (pp. 1–13). Aldershot: Ashgate.
- UN [United Nations]. (1972). *Declaration of the United Nations conference on the human environment*. Retrieved February 1, 2015, from <http://www.unep.org/documents.multilingual/default.asp?documentid=97&articleid=1503>.
- UN [United Nations]. (1992). *Report of the United Nations conference on environment and development*. Retrieved February 1, 2015, from <http://www.un.org/documents/ga/conf151/aconf15126-3.htm>.
- UN [United Nations]. (2000). *United Nations Millennium Declaration*. Retrieved February 1, 2015, from <http://www.un.org/millennium/declaration/ares552e.htm>.
- UN [United Nations]. (2002). *United Nations Decade of Education and Sustainable Development*. Retrieved February 1, 2015, from <http://www.un-documents.net/a57r254.htm>.
- UN [United Nations]. (2015). *Transforming our world: The 2030 agenda for sustainable development*. Retrieved January 6, 2016, from <https://sustainabledevelopment.un.org/post2015>.
- UNESCO [United Nations Educational Scientific and Cultural Organization]. (1978). *Intergovernmental conference on environmental education final report*. Paris: UNESCO.
- UNESCO [United Nations Educational Scientific and Cultural Organization]. (2005a). *United Nations Decade of Education for Sustainable Development (2005–2014): International implementation scheme - Draft*. Paris: UNESCO.
- UNESCO [United Nations Educational Scientific and Cultural Organization]. (2005b). *United Nations Decade of Education for Sustainable Development (2005–2014): International implementation scheme*. Paris: UNESCO.
- UNESCO [United Nations Educational Scientific and Cultural Organization]. (2005c). *United Nations Decade of Education for Sustainable Development (2005–2014): Guidelines and recommendations for reorienting teacher education to address sustainability*. Paris: UNESCO.
- UNESCO [United Nations Educational Scientific and Cultural Organization]. (2007). *The UN Decade of Education for Sustainable Development (DESD 2005–2014): The first two years*. Paris: UNESCO.
- UNESCO [United Nations Educational Scientific and Cultural Organization]. (2012). *Education for Sustainable Development sourcebook*. Paris: UNESCO.
- Vallance, S., Perkins, H. C., & Dixon, J. E. (2011). What is social sustainability? A clarification of concepts. *Geoforum*, 42, 342–348.
- Vavik, T., & Keitsch, M. (2010). Exploring relationships between universal design and social sustainable development: Some methodological aspects to the debate on the sciences of sustainability. *Sustainable Development*, 18(5), 295–305.
- Wals, A. E. J. (2009). A Mid-DESD review: Key findings and ways forward. *Journal of Education for Sustainable Development*, (3)2, 195–204.
- WCED. (1987). *Our common future: The World Commission on Environment and Development's report*. Oxford: Oxford University Press.
- Zeegers, Y., & Clark, I. F. (2014). Students' perceptions of Education for Sustainable Development. *International Journal of Sustainability in Higher Education*, 15(2), 242–253.