



## English language teachers' beliefs and perceptions on sustainability

Hasan Bedir <sup>a</sup> \*

<sup>a</sup> Cukurova University, Department of English Language Teaching, Adana, 01330 Turkey

---

### Abstract

This paper reports English language teachers' beliefs and perceptions on sustainability concepts as Sustainable Development (SD), Sustainable Development Goals (SDGs), and Education for Sustainable Development (ESD) using both quantitative and qualitative approaches. The data were collected via a questionnaire and semi-structured interview developed by the researcher. The questionnaire was sent to randomly selected teachers, and they responded to the questions online. Likewise, the interview sessions were conducted with volunteered teachers using platforms providing online interaction. The findings showed that the majority of the teachers hold particular perception on environmental aspects but did not consider societal and economic matters to be aspects of SD. Furthermore, the most perceived SDGs are quality of education, no poverty and zero hunger. Most of the teachers rarely had training on ESD during their formal education. The findings also depicted that the participant teachers were of the opinion that SD and ESD were important issues and ESD should be included in the curricula, and developing knowledge and skills on EDS would develop their ability to integrate ESD into their teaching.

**Keywords:** Teachers' perceptions and beliefs, sustainability, sustainable development, sustainable development goals, education for sustainable development

---

© 2016 IJCI & the Authors. Published by *International Journal of Curriculum and Instruction (IJCI)*. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (CC BY-NC-ND) (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

---

\* Corresponding author name. Hasan Bedir Phone.: +90 532 7066611  
E-mail address: [hbedir@cu.edu.tr](mailto:hbedir@cu.edu.tr)

## 1. Introduction

The unusual increase in human population and worldwide impact of the technological boom in the last quarter of 20th century have intrigued the countries interest more on sustainability and education for sustainable development (hereinafter ESD). People became aware that natural resources available to human being were both limited and The concept of sustainable development (hereinafter SD) was first put forward by World Conservation Strategy in 1980 with the simplest definition “the present development of available resources without compromising the ability of future generations to meet their needs” (Palmer 1999, p. 60). SD has taken more interest than other development concepts, and it appears that the interest will gradually increase through the years. (Scopelliti et al., 2018).

The United Nations Conference on Sustainable Development held in Rio de Janeiro in 2012 paved way to the introduction of Sustainable Development Goals (hereinafter SDGs) which aimed to develop a set of universal goals in order to cope with the urgent environmental, political and economic challenges throughout the world. SDGs consist of 17 Goals which are interconnected affecting the success and failure of each. However, of the 17 Goals Education is the key that will allow many other SDGs to be achieved. The success of the SDGs is associated with quality of education resulted from qualified teachers, promising results, quality tools and a quality learning environment.

Education for Sustainable Development (ESG) has replaced Environmental Education in the literature since it refers to “all aspects of public awareness, education and training provided to create or enhance an understanding of the linkages among the issues for sustainable development and to develop the knowledge, skills, perspectives and values that will empower people of all ages to assume responsibility for creating sustainable futures” (Ravindranath, 2007, pp. 191-192). UNESCO’s (2003) reports that

ESD must include four major thrusts (1) the promotion and improvement of basic education; (2) the reorientation of existing education programs in order to include more topic associated with sustainability; (3) the development of public understanding and awareness of sustainability issues to improve knowledge and skills towards the goals; (4) the public training based on the development of specialized training programs to ensure that all sectors of the workforce have the knowledge and skills necessary to perform their work in a sustainable manner” (p. 2).

## 2. Theoretical Framework

### *2.1. Education for Sustainable Development*

Education is a prerequisite for achieving sustainable development since it enables learners to be wiser, more knowledgeable, better informed, ethically responsible, problem solvers and be capable of continuing to learn. However, the curriculums prepared for the past and present can no longer fulfil the pressure coming from the 21st century challenges which require an aspect of interdependence emerging a new generation of “systems citizens.” Thus, the governments have reconstructed their curriculum to shift their education system from teaching to learning to provide learners with modern learning approaches and develop their qualities to be global citizens. The 21st century imperatives, therefore, have changed the scope of education due to increasing concern about global inequities and lack of fairness as demonstrated by the Sustainable Development Goals that governments must provide good quality education and make sure all children can access it. UNESCO (2016) emphasised that;

Education is at the heart of the 2030 Agenda for Sustainable Development and essential for the success of all SDGs. Recognizing the important role of education, the 2030 Agenda for Sustainable Development highlights education as a stand-alone goal (SDG 4) and also includes targets on education under several other SDGs, notably those on health; growth and employment; sustainable consumption and production; and climate change. In fact, education can accelerate progress towards the achievement of all of the SDGs and therefore should be part of the strategies to achieve each of them (p. 24).

The more demands of education the more the higher education institutions and teacher education programs have the role in promoting the basic theme of education for sustainable development. Teacher education institutions, especially, have become fundamental for the development of the skills required in the 21<sup>st</sup> century since teachers must acquire and cultivate the skills into their classes so that they can develop both their and their students’ abilities to fulfil social and community responsibilities as global citizens. It is through becoming aware of global issues and developing the they can face the future with the wise decisions for the challenges they do not know. Thus, teacher education has become key factor the in attainment of sustainability (Rickinson, 2001) since they are in direct contact with students in class and they can provide the learners with sustainability.

The Earth Summit in 1992 is the turning point for the awareness of the issues of sustainability and since then closer attention have been given to ESD. The rapid changes in the global issues and the rapid growing of the terms related to sustainability issues have led to the usage of (ESD). However, both emphasize the transdisciplinary approach encouraging holistic learning which involves the interaction of among many subjects to interface between theory and practice. UNESCO (2007) emphasise that ESD pedagogies must be participatory and reflective approaches and must have the following characteristics

- 1) is based on the principles of intergenerational equity, social justice, fair distribution of resources and community participation that underlie sustainable development;
- 2) promotes a shift in mental models, which inform our environmental, social and economic decisions;
- 3) is locally relevant and culturally appropriate;
- 4) is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences;
- 5) engages formal, non-formal and informal education;
- 6) accommodates the evolving nature of the concept of sustainability;
- 7) promotes life-long learning;
- 8) addresses content, taking into account context, global issues and local priorities;
- 9) builds civil capacity for community-based decision-making, social tolerance, environmental stewardship, adaptable workforce and quality of life;
- 10) is cross-disciplinary. No one discipline can claim ESD as its own, but all disciplines can contribute to ESD;
- 11) uses a variety of pedagogical techniques that promote participatory learning and critical reflective skills (UNESCO 2007 Introductory Note on ESD).

## *2.2. Teacher Professional Development for ESD*

According to McKeown & Hopkins (2014) the integration of ESD into teacher education has taken interest more that it was in previous years, and this has provided teachers with playing a better role in educating the children in classrooms about the concept of ESD. Teacher education programs must consider various aspects to be able to contribute to the teachers' professional learning along with the core courses. Teacher professional development program must enable teachers to acquire knowledge and the skills, perspectives, and confidence with new pedagogical approaches to be prepared for not only present but also future to contribute to sustainable development. It should also build teachers' expertise with new teaching and assessment strategies, including the use of data analytics to improve instruction.

This study is also grounded on the premise that what teachers perceive and believe directly affects their classroom content and pedagogy. In teacher education, teachers' perceptions and beliefs about a content area is vitally important. Sund & Wickman, (2008) emphasised that teachers hold the views guiding their teaching methods and

materials. The beliefs also are also more important than knowledge and play a significant role in making decisions on teaching tasks and framing relevant knowledge and information.

The professional development activities in Turkey occurs at the pre-service level and also in-service though in service professional development is largely voluntary, which does not provide satisfactorily the teachers with the skills of learning for sustainability (Canaran & Mirici, 2020) . Thus, English Language Teaching (ELT) teachers are the focus of this study since language learning and teaching can support the social dimension of sustainability and also offers the greatest opportunity for learning for sustainability which has not been largely tapped in Turkey. However, it is essential that the major tenets of sustainable development be examined to decide on the skills and competences teachers need to improve for sustainable development. Keeping in mind the thrusts and concluding that education is the key led me to wonder what are the beliefs and perceptions of English Language Teaching (ELT) teachers on SD, SDGs and ESD. Sustainable development is not part of national curriculum in Turkey though it has been declared an educational initiative on an international scale (UNESCO, 2003). Thus, the present study seeks answers to the following research questions;

1. What are ELT teachers' beliefs and perceptions on sustainable development?
2. What are ELT teachers' beliefs and perceptions on education for sustainable development?
3. What SDG are they aware of most?
4. What do they think about the integration of ESD into teacher education program?

### **3. Method**

#### *3.1. Research Design*

The methodology of this study followed a descriptive research design approach since the aim was to investigate the pre-service teachers' perception and beliefs about sustainability. In addition, we integrated quantitative and qualitative data collection and analysis to provide a deeper insight into the phenomena we were investigating (Fraenkel, & Wallen, 2010).

#### *3.2. Participants*

A total of 291 English Language Teachers, 77.7 % female and 22.3 % males, mainly belonging to the age group 28-38 (92.6 %), were involved in the study. They were

randomly selected among the teachers teaching at state schools located in different geographical region of Turkey.

### *3.3. Data collection tools and Analysis*

A questionnaire with closed ended questions and semi-structured interview were used for the data collection. In order to accomplish the purpose of the study, reviewing the related literature a questionnaire on sustainability knowledge was developed. In addition, the researcher developed the questionnaire with open ended questions to get an insight on the participants' perceptions and beliefs since these aspects were considered to be effective in teachers' instructional practices (Pajares, 1992; Guerra and Nelson, 2009).

The questionnaire was administered online and the collected data was analyzed using SPSS. The questionnaire was piloted to validate the items and the they were validated by two researchers carrying out interdisciplinary studies. Cronbach's alpha of 0.7856 was obtained which indicates that the reliability of items in the questionnaire were satisfactory.

In order to expand quantitative results to advance the aim of the study, semi-structured interview was conducted with 14 volunteer teachers. The aim of the interviews was to obtain more comprehensible data about the sustainability. Interviewees were asked to speak about their sustainability concepts and experiences during their personal and professional life. They were also encouraged to use their own explanations and definitions, rather than relying on the literature or our understanding. Therefore, the interview questions were open-ended questions that provided teachers with talking freely (Mweti & Van Wyk, 2005)

## **4. Results**

We collected the findings under four categories as what do they think about the terms SD, SDGs, ESD and the ESD policy programs. We thought that the findings about these terms will pave way to the ESD implementation into ELT teacher education.

### *4.1. Perceptions on Sustainable Development (SD)*

Teachers were asked if they heard of sustainable development. Almost half of them 45.7 % with yes and 44.7 % with partially were holding the understanding of sustainable development. As depicted in Figure 1, 9.6 % they don't really know what SD is about,

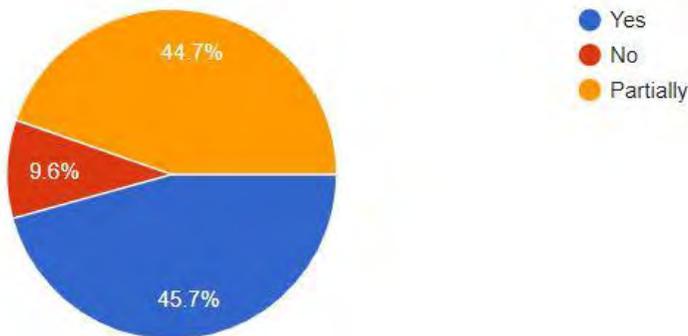


Figure 1. Teachers' perceptions on Sustainable Development

However, the interview findings provided detailed information about their understanding of SD in that almost all of the teachers had similar understanding of SD. The findings indicated that English Language Teachers interpreted sustainable development in general sense, meaning “development for the past, present and future.” In addition, a substantial number of teachers selected the appropriate choice as Economy, Social and Environment to the questions “which three dimensions does sustainable development consist of?” However, overall 82.6 % counting the percentage of strongly agree and agree rated Environment as a key part of SD.

We further inquired about the connections the teachers heard of Sustainable Development (SD). As displayed in Figure 2 the majority of them (85.8 %9) acknowledged the internet sources that paved way to their experiencing of concepts of SD. In addition, as seen in Figure 2 a small number of them accidentally come across SD while they were watching TV and/or while they were using the teaching materials (28.9 %, 24.6 % respectively). In the interview, they mostly said that they SD was something they watched on TV, came across on the Internet, read it in the newspaper and heard it from the latest conferences they attended.

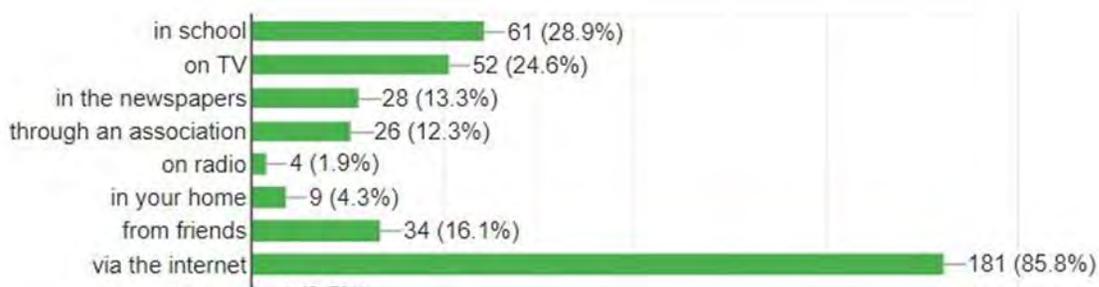


Figure 2. Teachers' heard of Sustainable Development

#### 4.2. Perceptions on Sustainable Development Goals

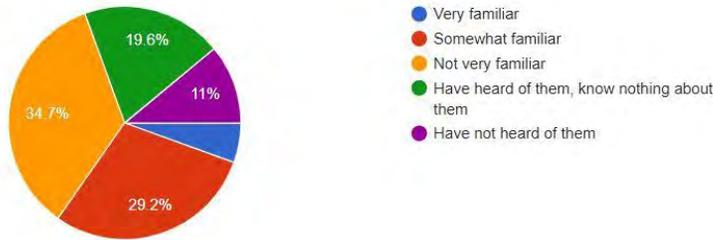


Figure 3. Teachers' familiarity with the Sustainable Development Goals (SDGs) set by the United Nations

The Figure 3 summaries the teachers' lack of knowledge of the SDGs. However, they overwhelmingly rated the appropriate response to the questions "What are the Sustainable Development Goals? Among the four they choice "A universal plan to end poverty, protect our planet and ensure prosperity for all" which can convey the literary meaning of SDGs.

We also wanted to investigate their beliefs about the SDGs they beliefs were mostly within their own work? The most representatives were Goal 4 "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" was the most rated with 61.9 %. The second and third respectfully were GOAL 3: Ensure healthy lives and promote wellbeing for all at all ages and with 45.4%, and GOAL 2: Eradicate hunger, achieve food security and improved nutrition, and promote sustainable agriculture with 37.5 %.

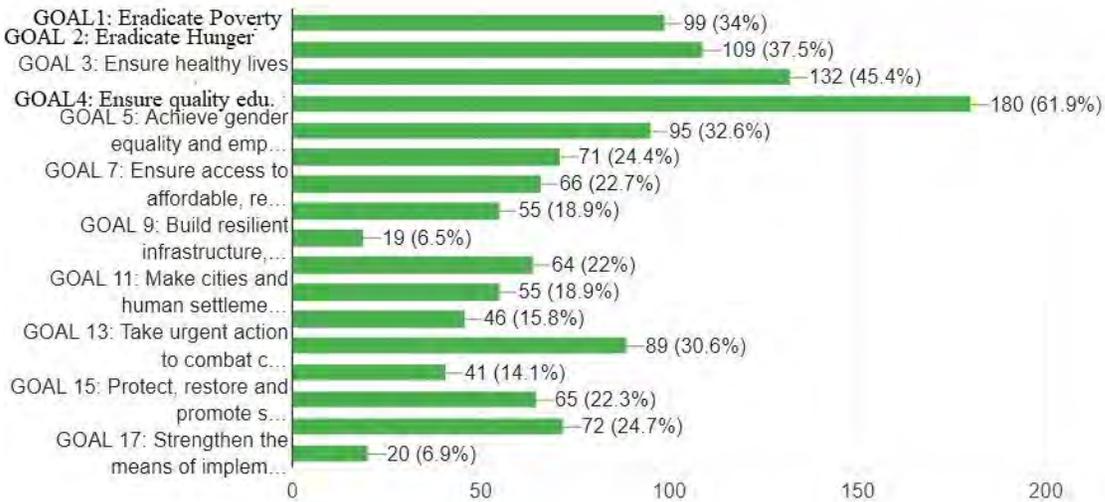


Figure 4. Teachers' ratings of the SDGs

The interview findings indicated that they were aware of environmental issues such as pollution, climate change and social issues as poverty and hunger. They also mentioned the inequality between males and females and inequality in education, which correspond with the Goals set by UN. The most common response was “I have hardly heard of what SDGs are.” However, when they were asked if they could address SDGs while they are teaching English. Almost all of the teachers said that would not be able to address SDGs since they did not get any training in ESD.

#### 4.3. Beliefs about the integration of ESD into existing curriculum

The governments have reconstructed their national policies and gradually more ESD issues are emerging, but it is still lacking in teacher education programs or do not focus directly on teacher education. The majority of the teachers pointed out that “Communities should adopt SD as a national priority.” In addition, they highly agreed that secondary schools and universities should adopt ESD as national priority (92.8 % and 93.8 % respectively). When it was asked, about 74 % of teachers indicated that education played an important role in SD, and approximately 55 % indicated that every individual must be provided with knowledge, skills and values for sustainability. The other half of the teachers stated that the curriculum was less important or not important for their decision to teach ESD relevant topics.

They further indicated that ESD would become the standards of quality education and quality learning, which are necessary for the sustainable future (35.4 strongly agree and 56 % agree). In the interview, many of the teachers talked about the environmental problems and said that ESD could open the mind of the learners' awareness on global issues, which can turn into action. Two of the teachers mentioned that ESD would enhance critical thinking of the learners and they would act wisely.

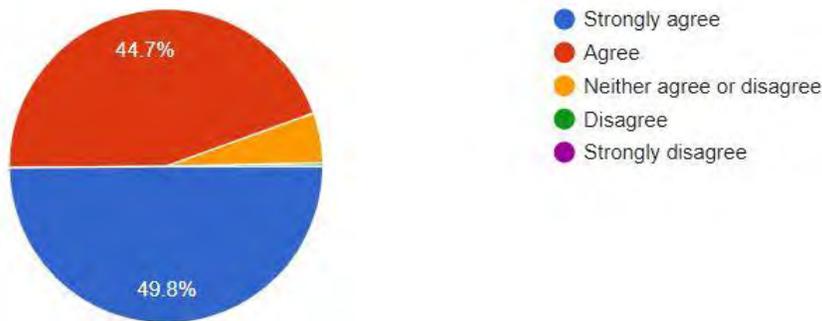


Figure 5. Teachers belief on the integration of ESD into teacher education program

Almost all of the teachers either strongly agree (49.8 %) or agree (44.7 %) indicated that ESD should be integrated into the existing curriculum. In the interview, they complained about having taken any course about ESD or having attended any activity associated with ESD. They were further questioned if there was any relation between ESD and English language teaching. They overwhelmingly agreed that teaching and English could enable both students and teachers to raise their awareness on ESD, it could be a practice of ESD. They also insisted that integration of ESD into the curricula would greatly improve their skills to teach about sustainability to their students.

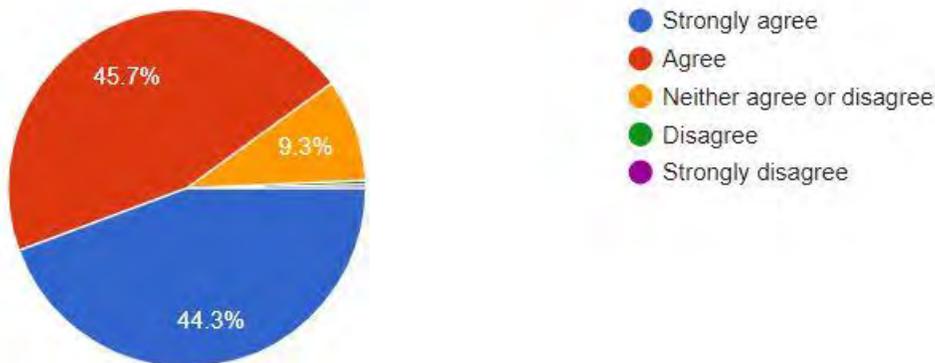


Figure 6. Teachers' beliefs on the association between English Language Teaching and ESD

Teachers (90 %) with either agree or strongly agree) believe that teaching English can improve both teachers' and students' understanding of SD. The interview findings provided further interpretation in that some of the teachers said that they were able to understand ESD issues from the coursebook and other instructional materials they used. One of the teachers said "I like the topic that I taught a week ago about climate change since it is a global problem we are suffering from." Some others talked about the topics which touch on natural resources and how to use them effectively. In addition, they stated that English language teachers can contribute to the ESD through their teaching their subject. They also believe that ESD training should be included in teacher education programs, which improve the quality of teaching English.

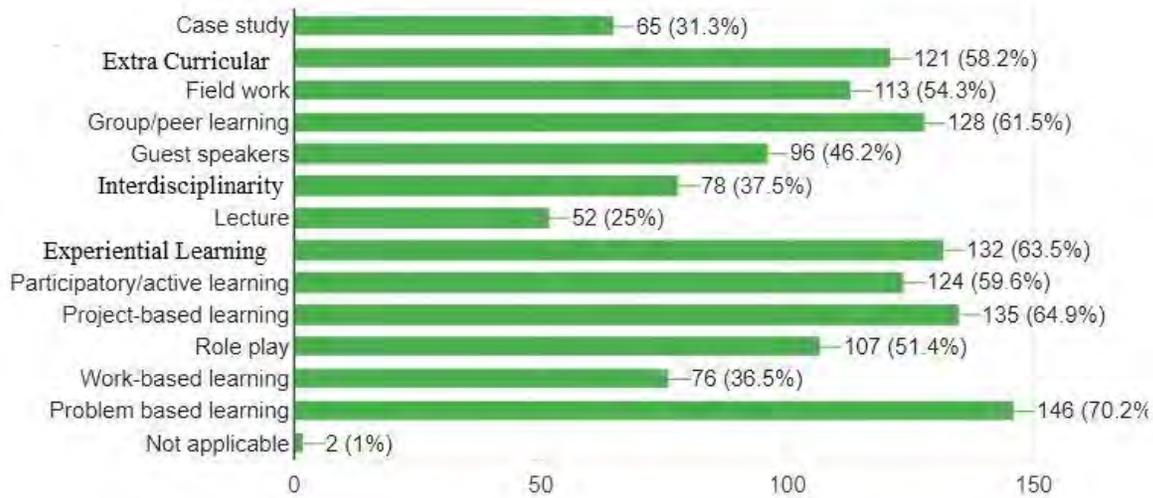


Figure 7. Beliefs about the pedagogical approaches to the ESD

Figure 7 shows that many teachers favored the learner centered approaches more than the non-participatory ones for the ESD in language learning and teaching since they believed ESD could provide learners with opportunity to interact with each other and develop solutions to real life problems. Teachers also believed that the approaches to ESD should not be confined to classrooms. The learners should also be assigned extracurricular activities to familiarize themselves with real life problems. Any of the teachers did not make any reference to the use of teacher centered methods in teaching ESD. From the interview responses, it emerged that they were not in tendency of using the approaches they favored in the questionnaire. They mostly mentioned the traditional methods such as lecture, question and answer, pair work and etc.

## 5. Discussion

The role of the teachers in the 21<sup>st</sup> century has changed into a new paradigm which include interdisciplinary literacies in order to promote understanding in addition to the core subjects. Acquiring both core subject and interdisciplinary literacies enable teachers to be change agents to provide their learners with the unforeseen challenges of the 21<sup>st</sup> century. Guerra and Nelson (2009) claim that improving the quality of education to equip learners with linguistics, cultural, social and economic diversity requires that there must be changes teacher beliefs. In addition, teachers' perceptions and beliefs of sustainability play a key role in the way they teach and prepare their students for the future. Thus, the study aimed at investigating English Language Teachers beliefs and perceptions on sustainability since teachers' beliefs and perceptions shape their classroom practices and their professional development.

The findings indicated that teachers were perceiving sustainable development as “development for the past, present and future” though they pointed out that environment was the key to sustainable development. This corresponds with the findings of Summers, Corney and Childs (2004) who reported that pre-service teachers perceived SD as an issue associated with environmental factors. This also corresponds with what Tuncer et al. (2009) claimed in that teachers must improve their knowledge on environmental issues so that they can teach these issues to their students. Teachers did not mention on the social dimension of SD much though they used very few concepts related to poverty and hunger. Lehtonen (2009) emphasised that the social dimension has been the least recognized pillar of SD.

The aim of ESD for 2030 is to create a fair and sustainable world with increasing the implementation of ESD and encouraging the integration of the 17 SDGs into environmental, economic and social issues to be achieved. It provides a comprehensible framework to be adapted to all the educational subjects. Teachers were expected to indicate their preferences on the Goals they believed that they were the most important in their teaching. Their top three preferences were SDGs 4, 3, and 2. It is assumed that teachers as educators believed that all of the 16 SDGs are associated with education since it is key to the achievement of others towards sustainable development. UNESCO (2017) emphasise that “ESD is explicitly recognized in the SDGs as part of Target 4.7 of the SDG on education, together with Global Citizenship Education (GCED), which UNESCO promotes as a complementary approach”(p. 13).

In addition, teachers believed that ESD is a key to the integration of SDGs into English Language teaching program and it is associated with English Language teaching and learning. UNESCO (2017) suggests that “ESD is holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning

environment. Thus, ESD does not only integrate contents such as climate change, poverty and sustainable consumption into the curriculum; it also creates interactive, learner-centred teaching and learning settings” (p. 7).

Regarding the implementation of ESD, all teachers seemed to be aware that ESD needs specific instructional approaches. Most teachers preferred interactive, hands-on teaching approaches as problem, project based learning experiential learning and the other participatory learning approaches. The contradiction between their perception about ESD and beliefs about the instructional approaches can be attributed to a few facts. First, they took pedagogy courses in which these approaches are given as innovative approaches at the university. Second, they intensively studied for high stake examinations to take a sufficient grade to be appointed as a real teacher. Third, they attend the professional development workshops which focus on the holistic approaches aiming the shift from teaching to learning. Finally, foreign language education which can provide the teachers with experiencing self-directed learning, participation and collaboration, the linking of formal and informal learning. Thus, language education and ESD “creates interactive, learner-centred teaching and learning settings (UNESCO, 2017, p. 7).

## **6. Conclusions**

This study aimed to investigate English language teachers’ perceptions and beliefs on sustainability, which included SD, SDGs and ESD. The findings revealed that teachers lack knowledge, holding an unclear perception of what SD is about. They were quite well about the environmental dimension of SD, but they were not certain about it was also connected with societal and economic issues. However, they believed that SD is important to them and they would like to increase their awareness and their teaching practice integrating SD into English Language Teaching. Their perceptions and interview findings made it clear that almost all of the teachers had never participated in any ESD training during their formal education and their studies, but they were somewhat willing to involve in any ESD training whether formal or informal.

From teaching English perspective, the teachers’ comments lead to the conclusion that English language teachers could well self-evaluate themselves on sustainable issues and though they were uncertain about them, they were well informed about methodological approaches to ESD. In addition, they were showing positive stance on the integration of SDGs through the implementation of ESD methodologies. They also believed that sustainability was one of the most important 21<sup>st</sup> century issues, hence, they need training on ESD, which would enable them to improve knowledge, skills and values to improve the quality of teaching. The results that emerged from the interview findings associated with the overall findings can be promising though the study cannot

discuss the classroom practices of ESD. The last result in particular is noteworthy since the teachers seemed to be motivated to integrate and practice ESD in English language classroom.

As far as the findings are concerned we recommends that similar studies be carried out involving both pre-service and lecturers' views on sustainability in order to collect more data which will guide the reconstruction of teacher education program. In addition, an action research aiming professional development training be conducted with pre-service teachers to develop a framework for the integration of ESD into their practicum. We also suggest that teacher education be multidisciplinary including the blending of different ideas for a certain aim. Cochran-Smith (2005) suggested that "it may be useful to think of teacher education as consisting of plural universes wherein multiple and sometimes even contradictory reforms proceed simultaneously while other aspects of teacher education remain unchanged (p. 4).

## **7. Limitations of the Study**

The main difficulty of this study is to collect data online; physical disconnection with the researchers and uncertainty of the time spend on the completion of the items. According to Hardre, Crowson, & Xie, (2012) physical disconnection may increase the possibility of careless responding. In addition, we were not sure about in what situation the participants were and how much time they spent on the completing items. It is believed that the participants should spent sufficient time on completion, or else they respond hastily which is likely to spoil the validity of data (Ward & Pond, 2015). Regarding the limitations of the online data collection, we also conducted semi-structured interview with a substantial number of teachers to validate the quantitative data (Smith, 2006).

## **Acknowledgements**

The author of this study gratefully acknowledges financial support from the Çukurova University, Scientific Research Project Funding through SBA-2020-12548 project number.

## References

- Canaran, O, Mirici, I. H. (2020). A New Model of Team Teaching for Teacher Professional Development: A Case Study of In-Service English Teachers. *Education and Science*, 45(201), 247-271.
- Fraenkel, J., R., & Wallen, N., E. (2010). *How to design and evaluate research in education. (7th. ed.)*. McGraw-Hill, New York: NY.
- Guerra, P. L., & Nelson, S. W. (2009). Changing professional practice requires changing beliefs. *Phi Delta Kappan*, 90(5), 354-359
- Hardre, P. L., Crowson, H. M., & Xie, K. (2012). Examining Contexts-of-Use for Web-Based and Paper Based Questionnaires. *Educational and Psychological Measurement*, 72(6), 1015–1038
- Ketlhoilwe, M. P. (2010). Education for sustainable development in higher education institutions in southern Africa. *International Journal of Scientific Research in Education*, 3(3), 141-150.
- Lehtonen, M. (2009). OECD Organizational Discourse, Peer reviews and Sustainable Development: An Ecological-institutionalist Perspective. *Ecological Economics*, 69, 389–397.
- McKeown, R. & Hopkins, C. (2014). *Teacher Education and Education for Sustainable Development: Ending the DESD and Beginning the GAP*. Toronto: York University.
- Mweti, I., & van Wyk, H. (2005). *NSSC Development Studies. Module 2*. Cambridge: Cambridge University Press.
- Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307-332.
- Palmer, J. A. & Birch, J. C. (2003). Education for sustainability: The contribution and potential of non-governmental organization. *Environmental Education Research*, 9, 447-460.
- Ravindranath, M. J. (2007). Environmental education in teacher education in India: Experiences and challenges in the United Nation's Decade of Education for Sustainable Development. *Journal of Education for Teaching*, 33, 191-206.
- Rickinson, M. (2001). Learners and learning environmental education: a critical review of evidence. *Environmental Education Research*
- Scopelliti, M., Molinario, E., Bonaiuto, F., Bonnes, M., Cicero, L., De Dominicis, S., & Bonaiuto, M. (2018). What makes you a “hero” for nature? Socio-psychological profiling of leaders committed to nature and biodiversity protection across seven; EU countries. *Journal of Environmental Planning and Management*, 61, 970–993
- Smith, M. L. (2006). Multiple methods in education research. In J. Green, G. Camilli & P. Elmore (Eds.), *Handbook of complementary methods in educational research* (pp. 457-475). Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Sund, P., & Wickman, P.-O. (2008). Teachers' objects of responsibility - something to care about in education for sustainable development? *Environmental Education Research*, 14(2), 145-163
- Summers, M., Corney, G., & Childs, A. (2004). Student Teacher's Conceptions of Sustainable Development: The Starting Points of Geographers and Scientists. *Educational Research*, 46(2), 163-182.
- Tuncer, G., C. Tekkaya, S. Sungur, J. Cakiroglu, H. Ertepinar, and M. Kaplowitz. (2009). Assessing Pre-service Teachers' Environmental Literacy in Turkey as a Mean to Develop

- Teacher Education Programs. *International Journal of Educational Development* 29: 426–436.
- United Nations. Envision 2030: *The 17 sustainable development goals (SDGs) to transform our World*. <https://www.un.org/development/desa/disabilities/envision2030.html>
- UNESCO (2019, November 16). *Education for a sustainable future: A transdisciplinary vision for concerted action*.  
[http://www.unesco.org/education/tlsf/mods/theme\\_a/popups/mod01t05s01.html](http://www.unesco.org/education/tlsf/mods/theme_a/popups/mod01t05s01.html)
- UNESCO, (2017). *Education for Sustainable Development Goals: Learning Objectives*. Paris: France. <https://unesdoc.unesco.org/ark:/48223/pf0000247444>
- UNESCO, (2016). *Education 2030 Incheon Declaration Towards inclusive and equitable quality education and lifelong learning for all*. <http://uis.unesco.org/en/files/education-2030-incheon-framework-action-implementation-sdg4-2016-en-pdf-1>
- UNESCO, (2015). *Global Citizenship Education: Topics and learning objectives*.  
<http://unesdoc.unesco.org/images/0023/002329/232993e.pdf>
- UNESCO, (2007). *Introductory Note on ESD – DESD Monitoring & Evaluation Framework*. UNESCO: Paris.
- UNESCO (2003). *United Nations Decade of Education for Sustainable Development. (2005-2014). Framework for the international implementation scheme*.  
<http://unesdoc.unesco.org/images/0013/001311/131163e.pdf>
- Ward, M. K., & Pond, S. B. (2015). Using virtual presence and survey instructions to minimize careless responding on Internet-based surveys. *Computers in Human Behavior*, 48, 554–568

---

### Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the Journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (CC BY-NC-ND) (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).