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## Demystifying the teacher's attitude towards the attainment of sustainable development through education

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### Abstract

Sustainable Development is development that meets the need of the present without compromising the ability of future generations to meet their own needs. Education for sustainable development that includes key sustainable development issues into teaching and learning and requires participatory teaching and learning methods that motivate and empower learners to change their behavior and promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. Education for Sustainable Development (ESD) is an important issue for the education of students worldwide because it offers knowledge, skills, attitudes and values necessary to ensure a sustainable future for humanity at local and global levels, which is nowadays becoming critical. The decade 2005-2014 called 'Decade of ESD' was an initiative by the United Nations to promote ESD worldwide, followed currently by the Agenda 2030. Teachers are the torch bearers of sustainable development, promoting social change and maintaining balance between two important concepts development and sustainability. They have a pivotal role in promoting education for sustainable development (ESD) perpetuating social change leading to progressive development and a futuristic growth in the society. ESD is one of the millennium development goals acknowledged globally and need to get practiced widely. ESD should be an ongoing subject for students in formal and informal education, at all educational levels, and in life-long learning programs, starting with early childhood education. This paper reports on the knowledge, perceptions and attitudes of pre-service early childhood teachers of the University of Ioannina, Greece, on ESD using a quantitative approach utilizing a questionnaire. Our findings showed that most pre-service teachers had knowledge on environmental aspects but did not consider societal and financial matters to be aspects of ESD. Furthermore, most students had never ESD lessons during their formal education. Our findings depict that pre-service teachers believe that ESD is an important issue, that it should be included in the curricula and that lessons on ESD during their studies would develop their ability to teach ESD to their students.

**Keywords:** Education for sustainable development, male teachers, female teachers, attitudes, teaching approaches of education for sustainable development

### Introduction

The term 'Sustainable Development' was conceived by the United Nations world commission on environment and development in 1987. In consideration of the Food and Agriculture Organization of the United Nations (FAO), sustainable development is the maintenance and fortification of the natural resources and the adaptation of scientific and technological transformation in such a manner to ensure the accomplishment and persistent satisfaction of human needs for existing and upcoming generations Sustainable development goals (SDGs) include the existence and welfare of human beings, all other species on the earth, natural resources, and all factors that upkeep life on earth. Education is a powerful tool in bringing about social changes that result in the sustainable development of a nation. Education for sustainable development (ESD) is a program by the United Nations aiming at an insight into education that empowers individuals of all ages with responsibility for making a sustainable future. Education is the fundamental provision in influencing the approach of the newer generation through ESD by giving prominence to three major aspects of social, environmental, and economic by developing thought for sustainability, which aims to accomplish human needs in the present without disturbing that in the future.

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ESD enables individuals to transform the way they think and act which leads to a sustainable future. The ESD goal should be perceived in the subject matter and how does it is presented before the learners. The socio-emotional learning associated with sustainable transformation gives competencies in higher education to impart sustainable changes. There is a rising global recognition of ESD as a fundamental element of quality education and a strategic catalyst for sustainable development. So, the focus of the research is to determine the attitude of high school teachers concerning ESD. The 2030 agenda of sustainable development stick on the embedded principles of sustainable development which must be promoted to all levels of education from elementary to university level. The goals of sustainable development depend on various factors like population, environment, resources, and development. These goals are adequately understood and appreciated by the people of the country. So, there is a need to create correct perceptions about the various issues related to sustainable development. This is possible through ESD. Education for sustainable development makes awareness and proper understanding of environmental problems and possible solutions. Teachers especially high school teachers should be able to bridge the gap between theory and practice. The attitude of teachers who give ESD plays a crucial role. The World Commission on Environment and Development (WCED) held in 1983, resulted in the publication of a report named 'Our Common Future' or 'Brundtland report', where Sustainable Development (SD) was defined as: 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p43). This definition recognizes the importance of the environment as well as the needs for development for the society (McKeown & Hopkins, 2003) [35]. Thus, the Brundtland report highlighted the three fundamental components of sustainable development, which are protection of the environment, while supporting economic growth and social equity and justice. SD is difficult to define, because it is a complex notion still evolving, the descriptions of ESD are still blurred and the definition of EDS from 'Our common future' depends on the reader as the definition can be understood in many ways (Bursjö, 2011 [7]). This abundance of views leads to different notions and pedagogy of ESD, while some scholars believe that there is not one 'correct' conception of SD. The importance of ESD has been recognized by bodies like UNESCO (2002, 2004), which took a leading role in promoting ESD. UNESCO established the decade 2005-2014 as the Decade of ESD, envisioning a world where everyone had the opportunity to benefit from education and acquire the values, behaviors and lifestyles necessary for a sustainable future and positive social transformations. Education was considered a priority for the Strategy for ESD, because it can develop and strengthen knowledge, skills and values and empower people of all ages to take actions for a sustainable future. Mogensen and Schnack (2010) [38] ascribe the challenge for ESD in identifying the kind of learning that motivates the learners to become active citizens in a complex and uncertain reality, promoting a democratic citizenship, working with conflicting interests and critical thinking, argumentation and alternative actions. Although efforts to introduce ESD in the educational practice worldwide started systematically with the Decade

for ESD in 2004 on a global level, it is still not a common practice in many curricula worldwide. The complex and manifold subject and furthermore its interdisciplinary character are a true challenge for many educators. Furthermore, as McKeown (2014) [34] puts it 'Reorienting education to address sustainability is a deep process that involves changes in programmes, practices, and policy, as well as awareness, knowledge, skills and values and acceptance of the sustainability paradigm. The reorienting process is a reflective process that takes time, intentionality and effort to accomplish. Reorienting teacher education typically takes years of work in teacher education institutions to create deep and enduring changes. To be able to include ESD in their teachings, educators must have knowledge of the subjects that establish ESD and positive attitudes towards it, as well be aware of the appropriate teaching approaches when addressing ESD issues in the classroom. Sustainable development in each and every field is need of the hour. Research and innovation in education for sustainable development is very emerging and important part of education system. When we think of SD, education is an important area which can pave the way to achieve the desired goal of sustainable development. Therefore, education and research and innovation in this area to achieve defined goal of sustainable development is inevitable and can play a great role. Education for Sustainable Development (ESD) has become an important issue in society. The United Nations decade for education (DESD, 2005-2014) has encouraged innovative approaches in education in order to contribute to the societal change towards sustainability through both the formal education, non-formal and informal learning settings. Furthermore, as learning does not take place in separate silos, the interconnection of different stake holders is also seen as a necessity in ESD. During the last decade an abundance of ESD initiatives have grown at all levels in society. Governments have implemented the topic in policy briefings and educators and researchers have developed models for curriculum innovation and the integration of sustainability competences.

### **Knowledge of sustainable development issues**

Education For Sustainable Development examine major environmental issues for local, national, regional and international points of view, so that students receive insights into environmental conditions in other geographical areas, Focus on current and potential environmental situations while taking into account the historical perspective; Promote the value and necessity of local, national and international co-operation in prevention and solution of environmental problems; Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences; Relate environmental sensitivity, knowledge, problem solving skills and value clarification to every age but with special emphasis on environmental sensitivity to the learner's own community in early years; Help learners discover the symptoms and real cause of environmental problems; Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem solving skills; Utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience Education for

Sustainable Development (ESD) is concerned with equipping individuals, communities and governments to live and act sustainably and understand environmental, social, and economic aspects of sustainable development. It focuses on improving the quality of the environment, quality of life, and a more equitable economic growth for sustainability. A sustainable society requires healthy, well-educated, skilled. For teachers to be able to teach their students about SD, they need to be environmentally knowledgeable, because lack of knowledge is a significant inhibiting factor (Hart & Nolan 1999) [27]. The environment, the society and the economy are interrelated, therefore social or economic decisions may cause environmental problems. Furthermore, to fulfill the social and economic needs development is needed to promote environmental conservation. Found that in-service teachers have a good overall knowledge about the three components of ESD but lack the understanding of their interrelatedness, while Borg, Gericke, Höglund and Bergman (2014) [5] observed that teachers are aware of the relevance of the three dimensions of ESD to various degrees, but do not generally have a holistic understanding. Similar results were reported by several studies showing that most teachers do not have a holistic understanding of the SD concepts (Summers & Childs, 2007) [16] and that the ecological perspective is the most commonly recognized (Corney, 2006; Pepper & Wildy, 2008) [13, 39]. Although according to some studies teachers' conceptual understanding varies greatly and that those who have a good knowledge often lack to realize the interrelatedness of the SD components, many studies still point out the deficiency of appropriate training during their studies which results in poor knowledge of sustainability issues (Cordina & Mifsud, 2016; Cutter-Mackenzie & Smith, 2003) [12, 18], hindering significantly the implementation of ESD in the classroom. Kennelly, Taylor and Maxwell (2008b) [31] found that pre-service teachers' confidence to teach about sustainability issues increased after participation in an ESD course during their teacher education program, which resulted in improved knowledge of the environment. While many researchers argue that knowledge and understanding of sustainability may not necessarily lead teachers to action, or to effectively teaching about ESD issues (Cutter-Mackenzie & Smith 2003; Kennelly, Taylor & Maxwell 2008a) [18, 30], it has been suggested that knowledge of sustainability issues in combination with the necessary pedagogical skills, values and attitudes might support teachers' confidence and readiness to implement ESD in the classrooms.

### **Perceptions about Education for Sustainable Development**

Teacher's perceptions of ESD play a major role in the way they teach and prepare learners for the future. The presence of sustainability and ESD in the curriculum varies around the world and the implementation of ESD in schools and universities has been studied in several countries from different continents. People operate by developing personal constructs which enable them to interact with and interpret the world about them. Cognitive, social and personal factors influence these personal constructs, which are continuously revised as a result of new experiences. The terms constructs, beliefs and values are often used interchangeably by those involved in education, while also many scholars refer to them as views or perceptions. Beliefs are often considered to be shared interpretations and in this way the term belief is

used as a social construct. Attribute the ability and capacity of teachers to address sustainability at schools on teachers' knowledge and beliefs about subject matter and pedagogy. Describes self-efficacy as concerned with people's beliefs in their capabilities to produce certain attainments and that efficacy as a belief system is not a global trait, but a differentiated set of self-beliefs linked to distinct realms of functioning. Self-efficacy can thus be used to predict behaviors. Teachers' perceptions of their own understanding of ESD aspects, as well as how they perceive their ability to teach these subjects are important (Borg, Gericke, Höglund & Bergman, 2014; Malandrakis, 2018) [5, 33].

Teachers Attitudes towards Education for Sustainable Development: Teachers play prominent role in inculcating the knowledge, spreading values, and enriching skills that are needed for sustainability to cope with the change in attributes of workplace. The central theme of the study was to determine the attitude of school teachers concerning ESD. For this, the normative survey method (N=150) was used to collect data. The data were collected by an attitude scale entitled "ESD attitude scale". This investigation examined teachers' attitude towards ESD based on teachers' gender, subject of teaching, and type of management of the institution. To achieve the objectives of the study, item-based assessment with percentage analysis, t-values and F-values were calculated. Research findings showed that teachers have a favorable attitude towards ESD. Gender and management of the institution were not found to change attitudes towards ESD of high school teachers, whereas the subject of teaching was found to change the same. With these pieces of evidence from the present study, educationalists can reform the existing high school education system for sustainable development. Many researchers argue that knowledge and understanding of sustainability may not necessarily lead to a responsible behavior, nor to effective teaching of ESD in classrooms (Cutter-Mackenzie & Smith, 2003; Gayford & Dillon, 1995; Kennelly, Taylor, & Maxwell, 2008a) [18, 24, 30]. Nevertheless, it has been suggested that a wide-ranging knowledge of sustainability issues-in addition to the necessary pedagogical skills, values and attitudes-might enhance teachers' confidence and readiness to teach ESD in schools. Karpudewan, Ismail and Roth (2012) [29] suggest that assisting future teachers in changing their attitudes might lead to greater impacts of attitude change once they are in the classroom influencing their students. Many researchers emphasize the importance of attitudes for teaching about ESD (Biasutti & Frata, 2017; Cordina & Mifsud, 2016 [2, 12]. Developing a positive attitude towards sustainability by educating pre-service teachers might promote engagement with ESD (Tomas, Girgenti & Jackson 2017). Furthermore, research related to ESD shows that school education consists of fact-based knowledge as well as moral and value-based issues (Jensen & Schnack, 1997) and that this teaching also deals with attitudes, reasoning and lifestyle issues (Bursjö, 2011; Sund & Wickman, 2007) [7]. Gan and Gal (2018) found that a pre-service teacher with a high level of self-efficacy for promoting ESD exhibited positive attitudes towards the environment and pro-environmental behaviors in the private and public spheres. A positive attitude towards ESD principles was also discovered by Chunteng (2004) [10] when surveying primary and secondary school teachers' teaching competences for EE. Despite this, Chunteng argued that these attitudes were

affected negatively by the participants' lack of knowledge and awareness. Appropriate Teaching Approaches for ESD: In the 2030 Incheon Declaration participants stated that their vision is to transform lives through education, recognizing the important role of education as a main driver of development and in achieving the other proposed Sustainable Development Goals. Furthermore, they committed '...We reaffirm that education is a public good, a fundamental human right and a basis for guaranteeing the realization of other rights. It is essential for peace, tolerance, human fulfilment and sustainable development. Education was always considered a fundamental component of ESD by UNESCO and is a core aspect of Agenda 21 thus '... education is considered crucial for supporting sustainable development and for advancing the ability of the people to address sustainable development issues'. Furthermore, teachers' perceptions on the importance of ESD for their teaching plays also a major role for their attitude towards ESD and their willingness to learn about the subject. Participatory approaches can be seen as tools for developing and sharing knowledge, skills and experiences that lead to cognitive gains, action competence, and community building. Furthermore, participatory approaches can be used to co-determine educational processes and outcomes through interaction of teachers and learners in planning their learning processes. Participatory approaches offer participants various opportunities to exercise their democratic rights to participate in civil society, and in decision-making and actions that promote justice, equality and well-being for all. Engagement in the teaching units was also considered important by Tomas. Teachers need to have subject and pedagogical knowledge to be able to teach about ESD. Scholars agree that the preferred teaching approaches to ESD should be student-centered (McNaughton 2012; Tomas <sup>[36]</sup> experiential, participatory (Lysgaard & Simovska, 2016) <sup>[32]</sup>, praxis-orientated, place-based, interdisciplinary, inquiry-based and transformational (Biasutti, 2015; Biasutti & Frate, 2017; Christie *et al.*, 2013; Corney & Cotton *et al.*, 2009; Tomas, <sup>[1, 2, 9, 15]</sup>. These teaching/learning methods promote changes in behaviors and ways of thinking and relate not only to knowledge but also to processes, because these methods teach learners how to think (Biasutti, 2015) <sup>[1]</sup>. These pedagogies are student-centered, and apply teaching approaches as fieldwork, role plays, debates, reflective accounts, case studies and critical reading and writing activities enquiry-based learning, experiential learning and action competence (Christie, Miller, Cooke, & White, 2013) <sup>[9]</sup>. ESD promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. Therefore, ESD requires far-reaching changes in the way education is often practiced today. Because of the importance of sustainability pedagogies in the teaching

practice, it is necessary to reorient teacher education towards sustainability (UNESCO, 2004, 2005) and adapt more systemic and transdisciplinary models of teaching and learning in higher education, specifically, in teacher education (Firth & Winter, 2007; Hopkins & McKeown, 2005; Summers, Childs & Corney, 2005) <sup>[14]</sup>. These approaches differ from the usual way of teaching and learning in higher education (Sterling, 2012). University teachers become increasingly motivated to include more student-centered approaches in order to include sustainability issues and appropriate approaches in their practice (Christie *et al.*, 2013; Cotton *et al.*, 2009; Tomas, Girgenti, & Jackson, 2017) <sup>[9, 15]</sup>.

**Method:** The researcher employed descriptive research method to carry this research process. The parameters of this research process are as under:

**Sampling process:** Whole sample has been carried out with the help of random sampling technique.

**Tools used:** This study was a result of our stance that ESD should be taught in all educational levels starting from early childhood education. To get an insight on the knowledge, views and attitudes of pre-service teachers since all these aspects influence their teaching practice (Milner, Sondergerd, Demir, Johnson, & Czerniak, 2012) <sup>[37]</sup>, we used a questionnaire with closed ended questions. The questionnaire was completed on-line, anonymously. Students were invited through the closed laboratory's Facebook account to complete the questionnaire. The questionnaire is based on the questionnaire of Cotton and coworkers (2007), which was created to explore the knowledge, beliefs and attitudes of university teachers on SD issues. Cotton *et al.* (2007) had developed questionnaire that appropriate to answer our research questions on knowledge, perceptions and attitudes towards ESD issues and was tested and evaluated.

**Table 1:** Showing the total sample involved in this study

Participants	Male	Female
Teachers	100	100
Total	200	

**Table 2:** Age groups of the participants

Age group	Frequency	Percentage
Under 20	10	5.00
20-24	100	50.00
25-29	10	5.00
30-34	20	10.00
35-40	50	25.00
Over 40	10	5.00
Total	200	

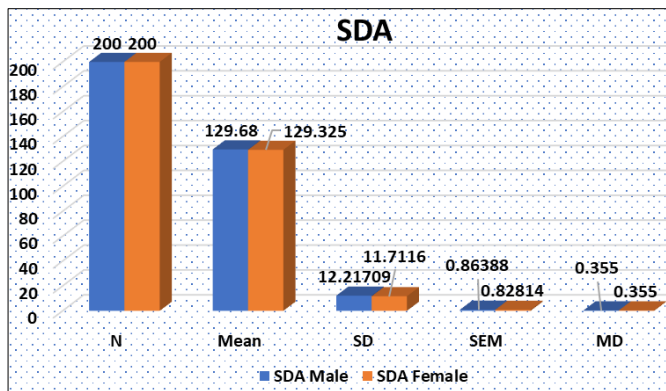


Fig 1: Age Groups of the Participants

Table 2: Age Groups of the Participants

Age Group	Male	Female
Teachers	100	100
Total	200	

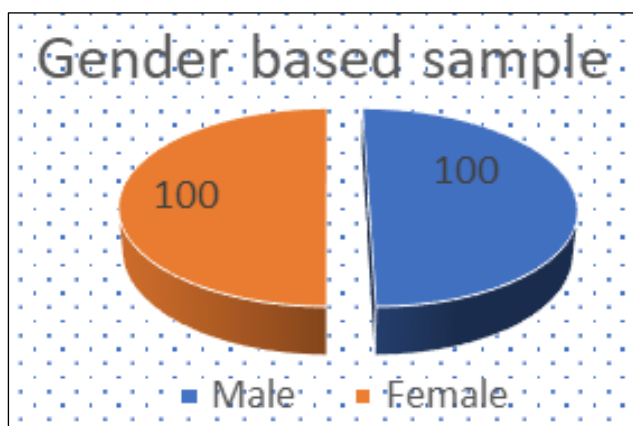


Fig 2: Age Groups of the Participants

**Analysis and Interpretation of the Data:** The data has been analysed with the help of descriptive and comparative analysis. The detailed analysis and interpretation are reported as under:

Table 3: Showing the mean significant difference between male and female teachers on their attitude towards sustainable development (N=200 each)

SDA	C	N	Mean	SD	SEM	MD	t-value
Male	200	200	129.6800	12.21709	.86388	.35500	.297**
Female	200	200	129.3250	11.71160	.82814	.35500	.297**

**Index:**

- \*\*= Not significant to 0.1 level of confidence.

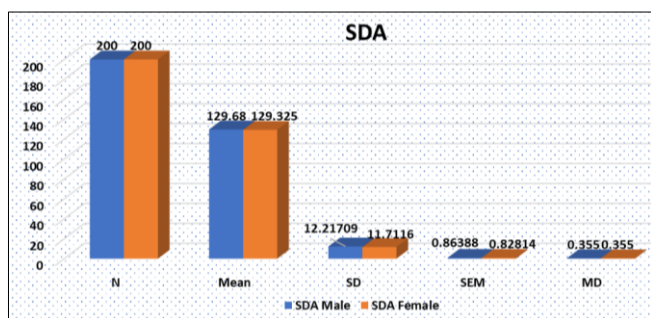


Fig 3: Showing the graphical representation on mean significant difference between government and private college educators on various factors of teaching efficacy. (N=200 each).

The fleeting concentration on the composites score of (Sustainable development) attitude of the and female teacher’s attitude. The mean value of the male teachers has been seen 129.67 and the mean female teacher educators attain the mean value of 129.3150. The results reveal the mean value of female teachers has been seen higher (SD=12.21709) and the standard deviation of government college teacher educators has been seen 129.3150 and SD 11.71160 only. Consequently, the above attained results indicate that there seems no significant difference between male and female teacher’s attitude educators with regard to their sustainable attitude. Henceforth, it may be generalised that the impact gender is not significant on sustainable development attitude of the teachers.

**Conclusion**

The results of the study reveal that there seems no significant difference between government and private teacher male and female teacher’s attitude educators with regard to their sustainable attitude. Henceforth, it may be generalised that the impact gender is not significant on sustainable development attitude of the teachers.

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