

Education for Sustainable Development in Teaching and Learning Settings:

Quantitative Study in the National Monitoring –
Survey of Teaching Staff

Executive Summary

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1 Context

As part of the national monitoring of the chair of the German Scientific Adviser of the UNESCO Global Action Programme "Education for Sustainable Development" (ESD), more than 3,000 people (2,564 young people, 14 – 24 years, and 525 teachers) were interviewed by means of a quantitative survey using an online access panel study. The survey was conducted in March and April 2018. It covered, amongst others, the status of ESD implementation in educational institutions as well as the ESD and sustainability attitudes, emotions, knowledge and behaviour of respondents. In the following, an overview of important study results of the target group teaching staff is presented (for the results of young people see Grund & Brock 2019). Various aspects of the research results will be published in detailed form in national and international scientific articles; and summaries will be provided for a wider circle of addressees. Information on this can be found on the website of Institut Futur¹ or via the German ESD portal².

2 Insights into the state of research

Even before the start of the UN Decade "Education for Sustainable Development" (2005 – 2014), a pattern within the implementation of ESD became apparent which has not yet been overcome in large parts: The majority of teachers were already (highly) motivated to implement ESD at this point and at the same time wished for more support in this process (Rode 2005). In addition, Rieß & Mischo (2008) have shown that teachers give great importance to sustainable development (SD) on the one hand, whilst on the other hand, there is a lack of information amongst teachers and a desire for more relevant materials, for help with

methodological questions and advanced training (ibid. 67). This pattern of great interest in sustainability on the one hand and expertise deficits on the other was later confirmed by Borg et al. (2012; 2014). Here, the majority of teachers felt inadequately prepared for the implementation of ESD (ibid. 2012:199). In another study by Borg et al. (2014), 76 % of teachers stated that SD was not part of their study content and 70 % of these teachers were not appropriately qualified through advanced education (ibid.: 540). Finally, the specialisation on single subjects in teacher trainings influences the type and extent of ESD, whereby the desired interdisciplinary nature of the concept is challenged (cf. Borg et al 2012). In view of the discrepancy between the willingness and implementation, several studies look at the barriers to ESD implementation as perceived by teachers. The most frequently mentioned issues comprise inadequate curricular anchoring and deficits in the availability of relevant materials or support from a management level (see, e. g., Sagdic & Sahin 2016; Buddeberg 2014). At the global level, too, current teacher training is found to be far from having adopted ESD as a standard (Qablan 2018:145 ff.).

3 Description of the sample structure

As part of the online access panel study, teachers from schools of general education ($n = 433$) and vocational schools ($n = 92$) were asked about sustainability and ESD-relevant dimensions using an online questionnaire (25 – 30 minutes processing time). A tendency towards socially desirable response behaviour was also captured in the evaluation using a validated scale (Winkler et al. 2006; cf. also BfN 2015) and controlled for in the calculation.

¹ <http://www.institutfutur.de>

² <https://www.bne-portal.de>

The survey strategy ensured that teachers from all federal states were represented³ and the gender ratio (63 % female, 36.8 % male, 0.2 % “other”) is approaching representativeness for the teaching profession. The professional experience of the teachers was on average 15 years ($SD = 12$ years, $range = 45$ years). Almost one-seventh of the respondents (14 %) have become teachers via lateral entry and almost every fourth of them (24 %) works part-time. With relation to the types of schools that teachers teach at, grammar schools (26.8 %) and primary schools (26.6 %) represent the largest groups of respondents from schools of general education. Furthermore, teachers at comprehensive schools (17 %), middle schools (12 %), secondary schools (7 %) and special schools (5 %) took part in the survey. The most frequently taught subjects of the interviewees are German, mathematics and foreign languages. The group of teachers at vocational schools has been divided into broader occupational groups, of which 34 % belong to the field of teaching and education.

4 Results

4.1 Increased importance of sustainability for almost every second teacher

Nearly half of the teachers (49 %) report that for them as teachers the importance of sustainable development (SD) has increased over the last three years, only 2 % report a decrease. In comparison, however, fewer teachers assume an increase in the importance of SD amongst pupils (40 %), amongst their colleagues (29 %) or the school management (22 %). When asked how often and in what contexts of everyday life teachers have

encountered the topic of sustainability, the average values of the answers range from a slightly higher “I have sometimes come into contact” (corresponds to 3) to “I have rarely come into contact” (corresponds to 2). The most frequent contact with the topic is reported in the context of the family ($M = 3.12$, $SD = 1.01$), followed by books and newspapers ($M = 3.06$) and the internet ($M = 3.02$). The interviewees encountered the topic somewhat less frequently through television ($M = 2.97$), the school, respectively the professional context ($M = 2.93$) and their friends ($M = 2.79$). The lowest points of contact are seen in the context of leisure activities, for example in clubs ($M = 2.38$).

When it comes to how teachers assess their own expertise on SD, they rate it as satisfactory on a basis of German school grades (average grade 3.2 on a range from 1 [very good] to 6 [insufficient]). An equal average result was found in the self-assessment of knowledge in relation to the concept of ESD (also average grade 3.2, although slightly differently distributed). About one third of the teaching staff consider themselves as having a school grade of 4 or below in terms of both knowledge of SD and ESD (36 % each).

4.2 Nearly 70 % of teachers never encountered ESD at university

Against the background of this self-attributed knowledge on ESD and SD: To what extent have teachers so far been enabled to implement the educational concept in their own teaching practice, as it is also aspired in the relevant action areas and objectives of the National Action Plan

³ As expected, larger parts of the sample are fed from the high-population federal states such as North Rhine-Westphalia (22 %), Bavaria (12 %), Baden-Wuerttemberg (10 %) or Lower Saxony (8 %), whereas the lowest numbers of participants come from

Mecklenburg-Western Pomerania and Saarland (1.5 % each) and Bremen (0.4 %). This is close to the overall population distribution across the federal states (cf. Federal Statistical Office 2018).

on ESD (NAP)⁴? It becomes evident that more than two thirds (69 %) of the teachers interviewed stated that ESD⁵ was never an issue during their studies. Other significantly smaller groups indicated that the educational concept was rarely (22 %) or only sometimes (9 %) addressed. The objective of the Global Action Programme on ESD and the NAP, on the other hand, have so far only been achieved in a marginal group: only one out of a hundred teachers reported that ESD was a regular subject in their studies. Only 0.6 % of the respondents stated that it “often” play a role in their studies. Here, differences between the training of teachers in subjects with a high thematic affinity for ESD-issues (“ESD-pertinent subjects”, here: geography, biology and general studies) and all other subjects become evident. Corresponding to the results of Borg et al. (2014:540), the former reported significantly more references to ESD in their studies than the teachers in other subjects. The effect size is $r = .12^*$ and thus corresponds to a small effect⁶.

It was also examined to what extent the age of the teachers and ESD references in their studies correlate. A connection could not be observed for the entire sample of teachers ($r = -.077$, $p = .078$). Thus, when considering all teachers, there is no tendency towards an increasing ESD content in teacher training. The only rather little connection becomes evident in the case of teachers in the general education sector, where there is a small tendency towards younger teachers having come into contact with ESD slightly more often during their studies ($r = -.115^*$). These

results confirm that the political and societal goal of upscaling sustainability efforts that has been pushed more intensively in recent years, has not manifested more strongly in teacher education. These findings are complemented by the situation of in-service teacher training. The question of trainings attended in this subject revealed that, over the last five years, 9 % of teachers have taken part in courses in the field of ESD⁷, 14 % in the context of environmental education and 12 % in global learning, with clear overlaps between the three groups mentioned. Of all teachers who have already attended ESD training, 61 % have also participated in environmental training and 59 % in global learning. A certain concentration of these training courses on a part of the sample of teachers can be linked to the finding that the young people surveyed report a pronounced concentration of ESD on individual committed teachers (Grund & Brock 2018). Overall, the deficits, especially in teacher training, which have already been highlighted by the above-mentioned state of research, are confirmed within the framework of this study. Thus, a large potential and need for further qualifications of teachers in the field of ESD becomes clear.

4.3 Teachers want sustainability in more than 40 % of teaching time

Given these key points on teacher qualification: How is the current implementation of ESD in teaching described? Slightly more than a third (36 %) of the teachers indicated that they were

⁴ See, for example, action field II in the education sector school (National Platform Education for Sustainable Development c/o BMBF 2017:29) and action area V of vocational education and training (ibid.: 49) with the corresponding objectives.

⁵ An understanding of ESD that is based on the UNESCO Roadmap of the Global Action Programme of Action ESD was provided in the questionnaire.

⁶ Here, * corresponds to a $p < .05$, ** corresponds to a $p < .01$, *** corresponds to a $p < .001$.

⁷ For a proposal on how the ESD content of teacher training can be determined and operationalised as an ESD indicator, see Waltner et al. (2018).

already implementing ESD, another 28 % negated this and even the largest group of teachers (36 %) chose the third option "I do not know as it is unclear what belongs to ESD and what does not". In addition to the already existing extent of implementation, this also shows the challenge in the complexity of ESD and the associated need for more detailed definitional clarity and better visibility of sufficiently defined ESD understandings (on the challenges for teachers specialized in subjects to address the different dimensions of sustainability, see, for instance Borg et al. 2014).

Another area of interest was the proportion of teaching time with clear references to SD. According to the teachers, including those who stated that they had not yet implemented any ESD, an average of 16 % ($SD = 21\%$) of all teaching shows these clear references. (If only the group of teachers who already implement ESD is considered here, they stated on average that 29 % ($SD = 20\%$) of the entire teaching is clearly related to ESD.) There was no difference observable in the comparison of teachers from different types of schools ($p = .318$). However, as expected, the share of SD references in teaching is significantly higher* ($M = 21\%$ of teaching) for teachers of ESD-pertinent subjects than for those who do not teach these subjects ($M = 9\%$ of teaching).

Analogous to the survey of young people, there is also a very pronounced discrepancy in the group of teachers between the extent of current and desired SD references in teaching: In a school setting that would fully correspond to the ideas of the teachers, the content of SD would triple (this is also equivalent at pupil level): Accordingly, in an ideal school, an average of 43 % ($SD = 27\%$) of the total

teaching time would have clear references to SD⁸. The 27 % difference between the current teaching time in which SD is dealt with, and the ideal teaching corresponds to a time equivalent of approximately seven lessons per week. At this point, we can speak of the teachers' wish for ESD mainstreaming at the content level. Here, too, a subject-related difference becomes evident: for teachers who teach at least one ESD-pertinent subject, ideal educational settings show clear sustainability references in almost half (48 %) of the teaching time. The average value of teachers without these three subjects lies at 38 %. Another internationally validated scale (Boeve-de Pauw 2015) was used to record both the thematic dimensions of ESD (references between past, present and future, between global and regional issues, and connecting ecological, social and economic perspectives) and its methodological dimensions (e.g. participatory teaching, critical reading of texts, encouragement to form one's own opinion). The calculations clearly show that teachers would like to see both thematic and methodological ESD facets more strongly developed in ideal educational settings.

4.4 Whole-institution approach finds great approval

Another question focused on the nature of ESD implementation, with almost half (49 %) of those teachers who have so far implemented ESD stating that they implement ESD at both thematic and methodological levels. However, there exists an almost equally large group (45 %) which reports that ESD is primarily implemented at a thematic level. This therefore represents a need for and an

⁸For this item, all teachers who stated that they did not know what was meant by ESD were not included in the calculation.

opportunity to deepen the methodological dimension of ESD, the importance of which is, amongst others, underlined by Berglund et al. (2014).

In addition, the implementation conditions of ESD were considered. For the largest group of teachers (42 %), an “appropriate” implementation of ESD means consistently implementing the concept in all subjects, and to shaping everyday school life (e.g. catering, energy supply for the building, waste management, etc.). This corresponds to the whole-institution approach and the holistic transformation of teaching and learning environments as one of the priority areas of action of the UNESCO Roadmap (UNESCO 2014:18 f.). There is fewer support for less holistic ways of implementation, namely an ESD implementation in many disciplines, except for those in which it is difficult to foster ESD references (24 %) or an implementation that is limited to individual subjects with a high thematic proximity to sustainability (16 %). A significant part of the teaching staff therefore already comes from a holistic understanding of ESD.

4.5 Lack of curricular anchoring is the most frequently mentioned hurdle for ESD implementation

The strong contrast between actual and desired extents of ESD underlines the importance of perceived hurdles on the way to a stronger implementation. The greatest agreement among the teachers (80 %) in terms of possible hurdles for ESD is that it is seen as insufficiently anchored in curricula and education plans. Further major hurdles are seen in a lack of teacher training (75 %), a lack of teaching materials and insufficient own knowledge on the implementation of ESD (74 % each). Within the group of teachers who have not yet implemented ESD, a lack of knowledge is

even considered as the greatest hurdle (85 %).

The lowest levels of agreement were found in the statement that ESD is not an effective way to solve sustainability problems (22 % agreement) and that teaching ESD is not considered to be one’s own task (19 % agreement).

The importance of curricular guidelines is also reflected in the reasons mentioned that influence the own teaching design: While the contents of the curricula and education plans are in first place amongst the main influencing factors for their own teaching design, the second most important factors are the contents and methods that teachers personally consider as important to being taught. The focus and profile of a school as well as easily available materials are mentioned slightly less frequently. This shows that, in addition to the importance of legal requirements, the individual teachers’ freedom of designing class time is relevant for ESD-implementation.

Since a successful long-term ESD implementation can only be achieved in a multi-layered setting of structural and individual circumstances and decisions, the question was asked as to whom teachers see the strongest obligation to promote ESD implementation in the education system. The highest approval ratings were given in the appropriate order to the education policy of the federal states, the national education policy, the teachers themselves, followed by the parents and the management level of the educational institutions.

4.6 Desirable futures are less likely, especially in terms of climate change

The evaluation of different possible futures was also part of the study. In this context, teachers rated how desirable and likely six scenarios for the world in 50 years are

for them (three positive and three negative scenarios related to digitalization/technology, climate change and social inequalities, rated on a scale of 10, 1 = “extremely unlikely”, 10 = “highly likely”). Overall, it can be observed that teachers consider positive futures to be less likely ($M = 5.0$, $SD = 1.7$) than a negative one ($M = 6.8$, $SD = 1.6$), with an effect size in the large range ($d = 1.08^{***}$). In addition, the results show that desirable and expected futures diverge strikingly. This is particularly important in relation to one scenario: The most likely of all six scenarios for the teachers surveyed ($M = 6.9$) is that climate change and the associated severe losses for the economy and individual quality of life have not been prevented by timely changes in course for society. However, when it comes to the most desirable future, the positive expression of the climate change scenario, in which the global system could be kept stable after the significance of climate change has been recognised by society, proves the top rank of all six scenarios ($M = 8.2$ on a scale of 10, 1 = “not at all desirable”, 10 = “highly desirable”, $SD = 2.1$). Based on these estimates of futures, it can therefore be assumed that teachers are aware of the problem of climate change, but pessimistic about the future at the same time. This holds not only an enormous potential for an up-scaling of ESD, it also emphasises the challenge of implementing ESD in a way that the future can be shaped in a desirable way both, individually and collectively.

5 Conclusion

The three main issues diagnosed in many places in the discourse on ESD are also clearly visible in the empirical survey presented here: 1.) There exists a qualification deficit on the part of teachers and lecturers which corresponds to the current state of research. Despite these

hurdles, 2.) there is a very pronounced attribution of relevance and a desire to implement ESD on the part of teachers that even exceeds the equally pronounced desire on the part of young people to intensify ESD (see Grund & Brock 2018). The attribution of meaning to SD and ESD by both political and scientific experts and the teachers themselves thus offers good prerequisites for dealing with the 3.) diagnosed implementation deficit of ESD. For this, the educational concept must not only go beyond discursive approval, but has to be implemented especially beyond single subjects and beyond the group of engaged individual teachers. Instead, ESD ought to become a mainstream that is perceived as a benefit for the general teaching practice. The road leading there, and thus a productive handling of the hurdles, was worked out by the National Action Plan (Nationale Plattform Bildung für nachhaltige Entwicklung c/o BMBF 2017). The answers of the teachers show the same priorities and the often mentioned fields of support for ESD as the NAP – e. g., the curricular anchoring and qualification of the multipliers.

The discrepancy between desire and reality both within the future scenarios and in ESD implementation shows that the teachers already have essential conditions for a successful ESD implementation: a pronounced interest in more SD and ESD in schools of general education and vocational schools, as well as the recognition of still existing knowledge deficits in both areas. It is therefore important that this motivation is matched at political and structural levels by the continuation and intensification of concrete promotions of the implementation of ESD – as is the case for the NAP – also and above all at a federal level.

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