School Culture Based on Education for Sustainability & Action Research

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Abstract

A common educational vision does not usually exist in the current educational life in the schools, so many teachers use to follow a lonely route which is limited in their class or in their teaching subjects. In this paper we present the findings of our study, in which we set the question if such lonely routes of the teachers in the same school, could lead to the transformation of the school to a "Sustainable School". Through our study we investigated the transformation of the whole school culture trough the implementation of an educational project in the field of Education for Environment and Sustainability. We decided to use "Action Research" as the most appropriate methodological research approach for our study, as we had as main goal to change a difficult situation in our school where the teachers were working lonely, each of them in its own path. The results of our study showed that this educational intervention, through the procedure of participatory planning, reflection and re-planning, led to the awareness of the whole school community and the transformation of the whole school culture. The teachers changed their personal educational theories and their teaching practices regarding the educational approach of Education for Sustainability and also their collaboration framework. Through our overall refection combining with findings of similar studies we were led to the major conclusion that the transformation of the culture in a school is difficult to be succeed due to the fact that continuous and daily participatory work is needed.

Keywords

Education for Sustainability, Educational Action Research, School Community Culture, Transformation of School Culture, Participatory Planning

1. Introduction

Barrett & Sutter (2006) argue that the promotion of Sustainability through edu-

cation is a complex process which, in order to promote it, requires the training of teachers. Teachers must understand in depth the principles, values and characteristics of Education for Sustainability (EfS), so that to be able to implement EfS projects in their schools through interdisciplinary approaches. Witta et al. (2012) argue that there is no satisfying formal support to the teachers by providing them real world practices to succeed the interdisciplinarity in their teaching. After all, UNESCO (2005, 2016) focuses its interest on concepts such as "interdisciplinarity", "holism", "democracy" and "participatory decision-making". Through these values that are promoted in EfS, the need for a spirit of "community" in the schools arises so that the whole school community is committed to work in this direction. As Kostoulas-Makrakis (2010) argues the developing and applying a critical and transformative model to address education for sustainable development in teachers' education is required.

Teachers should reflect on what is happening today in the field of education, take a self-critical look at their practices and through a common reflective approach, possibly revise some of their pre-existing perceptions and improve their teaching practices (Katsarou, 2016). In the context of such training, teachers should be invited to contribute through their own experiences to a democratic dialogue regarding some expressed teachers' experiences regarding the existing situation in today's schools, such as the following: 1) There is a fragmentation of actions into teaching subjects or scientific fields that are dispersed and studied separately by classes; 2) There is no interdisciplinarity and the functional interconnection of knowledge; 3) There is no overall vision for the school as a school community to ensure the continuity of actions; and 4) As soon as a project finishes, the interest in the subject of the project also ceases (Trikalitis, 2014). She argues that most teachers toil alone in a barren field. Rarely are their efforts embraced by the entire school community and rarely do they pervade school life as a whole, involving all members of the school community and changing the overall school culture. Also Dovors & Makrakis (2012) argue that the transformation of the school into a reflective community is based on blended learning instructional approaches.

From the above reflection, it seems that the training of the teachers and the pedagogical support to them is required towards the Education for Sustainability in their schools. They mainly need training and support in their effort to implement a democratic context for the existence of a the school community and a democratic context in the learning process so that students are able to discover and acquire knowledge by interacting with each other through experiential activities, while teachers from simple transmitters of knowledge to become supporters and coordinators in this process. Unesco (2005) focuses its interest on the concept of "school community" and values related to it, such as democracy and respect for different expressions of view. Liarakou & Flogaiti (2007) partially agree with this point of view, who argues that the dominant approach of EfS focuses on respect, democracy and a sense of justice. In any case, the EfS should

not function as a mechanism for imposing ideas, opinions and values but as a collective effort of participatory planning (Flogaiti, 2011). In addition, the concept of Sustainability achieves a global reading of reality, since it approaches systemic issues of ecology, society, economy and culture which are interdependent and interact. Education is expected to involve social, ecological, cultural and economic approaches, thus achieving interdisciplinarity, interdisciplinarity, but also the shaping of life attitudes, values and ideologies (Flogaiti 2011).

In this context of the whole educational culture's transformation, the Educational Action Research (E.A.R.) is a great tool to achieve a participatory planning culture in the school. Trying to give a broad definition to Educational Action Research, we would say that it is a form of research that focuses on action at school and on the cooperation of the participants involved in the educational process, which is governed by ethical and democratic commitments, while it is oriented towards the change that has importance for the active members of the schools (educators and students) and at the same time for science itself. Indicatively, Katsarou (2016) proposes the definition given by Reason & Bradbury (2001) according to which "*Action Research is a participatory, democratic process that concerns the systematic development of practical knowledge in the pursuit of worthwhile human goals [....]. It attempts to link action with reflection, theory with practice, in a participatory context, in the search for practical solutions to issues of pressing concern to participants and, more generally, solutions that can lead to the flourishing of individuals and their societies*".

In today's school the Educational Action Research has a special value since it does not address the teachers as objects for research, but encourages them to investigate the educational reality that they experience themselves having the aim of changing it in the direction of improvement. Thus, Educational Action Research, according to Katsarou & Tsafos (2003), is a research process that the teachers of the action themselves carry out, with the aim of improving the educational reality in their schools. An important dimension in this effort is the collaboration between the teachers participating in the research in order to understand the educational reality that they experience, to interpret its dysfunctions, to diagnose problems and perspectives and finally to intervene to improve the conditions in which they act as professionals. So, Action Research is a form of collaborative research, which requires the active participation of those involved in the research field which is under investigation. In the context of such an educational research, the contribution of each teacher-researcher, as well as the students, is totally important.

However, while the Educational Action Research has as its ultimate goal the improvement of the educational reality experienced by students and teachers in schools, it is not a form of research that is often chosen by teachers (Styliadis, 2014). Some reasons are that: 1) it is a demanding form of research since it requires close cooperation of all those involved in the educational practice; 2) a lot of time is required for reflection meetings which is not easy to find in conditions

of suffocating time frame that usually applies in schools; 3) the school's curriculum is so inflexible that it leaves no room for innovative interventions aimed at change; and 4) the institutional framework of the school is often so strict and oppressive that it does not favor taking initiatives and actions.

In addition, the Educational Action Research unfortunately it does not find fertile ground to advance in our time, since according to Katsarou (2016) in our time the institutional power imposes an official uniform educational policy (with a research cloak), promoting technocratic forms of research and teaching as well as the manipulation of teachers. In fact, such a policy often uses rhetoric about a democratic school, but in reality it aims to align the school with principles that come from the markets and where individualism and competition ultimately dominate, conditions that are now well known in the modern school.

1.1. The Contribution of Education for Sustainability through the Educational Action Research to the transformation of School Culture

The School that works in the framework of the Education for Sustainability is a visionary school that functions as a community. It is based on the communication and cooperation of all members of the school community and in everyday school life it gives opportunities for everyone (students, teachers, administration, parents, and local community) to deal with the commons and their sustainable management in a team and participative spirit. Such a school serves democracy and human rights, promotes culture and the environment and forms active and creative citizens. It is also important that the school itself is a field of research, of planning and action. Such a philosophy greatly contributes to the improvement of the whole school changing its role, so that it would be able to meet the today's needs of the school itself and broadly of the society (Trikalitis, 2014).

On this point the Educational Action Research (E.A.R.) has to offer a lot in the field of the communication and cooperation between all members of the school community changing the whole culture of the school. According to Katsarou (2006), two of the basic characteristics of E.A.R. are: a) its participative and collaborative character, as well as b) its relationship with the professional development of teachers. The E.A.R. assigns to the teacher a dual role: he is both a teacher and a researcher. That is, he participates in the educational process and at the same time explores it. But the E.A.R. it is not only a participatory form of research. Since the educational process is a form of social action, the research must be carried out in collaboration with other members of the school and wider educational community (colleagues of teachers, students, parents, school counselors, etc.), i.e. it must be collaborative. In other words, participation, which is the basic condition for carrying out the E.A.R., it must be cooperative participation. This means that the participatory E.A.R. could be implemented only in a climate of open honesty and mutual trust between the participants.

Teachers, within this democratic climate of cooperation, trying to understand and at the same time improve their practice, develop professionally. What

mainly strengthens their professionalism is the responsible role they take on, as they open a path of autonomy and broaden the horizons of studying their role and action, thus their professional position. Thus their professional self-image changes, since they realize that there are no general solutions to practical problems that can be sought in theories outside the conditions of practice, but that there can be personal ideas that they can test in practice themselves in order to improve their own educational reality. Given that the E.A.R. involves both action and research, it is both a professional practice and a process of knowledge production. For this the teacher, as a researcher, should possess a series of practical, research and critical skills. Indeed, there is no other role in the social sciences that requires a broader range of problem-solving, analytical thinking, and reflective skills than that of the Action Researcher (Levin, 2008). In addition, teacher-researchers become more responsible through investigating their ideas and practices and is such way improving their overall work (Somekh, 2006).

In addition, as Katsarou (2016) emphasizes, through E.A.R., the teacher-researcher not only seeks personal renewal and professional development but also the achievement of social reformation and justice in the school area. Educators-researchers must raise their voices against policies that they consider inadequate from an educational or ethical point of view. Additionally, the community of educators-researchers must be connected to the struggle to create a world in which every child has the right to a dignified and fulfilling life. The teacher-researchers, through the "collectivity" of the E.A.R., become aware of the effect they can put on the educational process and gradually become emancipated.

1.2. The Difficulties of Teachers' Participation in Building a "Community Culture" in the School - Proposals

Unfortunately, the Education for Sustainability (EfS) and the E.A.R. do not find fertile ground to advance in our time, since teachers hesitate to undertake action for innovative practices in the field of EfS and also in the field of Action Research due to both the lack of relevant training and their general inexperience regarding collaborative forms of teaching and research. But, even if they decide to take the initiative to implement a EfS project or an E.R.A., they are often discouraged from continuing because of the difficulties that arise from the beginning of such an effort. In Kamarinou's (1995) research, who implemented an Environmental Education project trough Action Research, the mentioned difficulties are the following: a) the lack of experience of teachers in Action Research approaches, and b) the institutional framework of the school (pressured syllabus, lack of time, etc.). Garitsis (2016), who also implemented an Environmental Education project trough Action Research approach, mentioned in his research results that the lack of a common school culture is a great difficulty. Nomikou (2017), mentioned in her study results that the difficulty in developing collective systemic thinking, lack of a common vision and sterile attachment to the institutional framework of an educational institute (as a school). In the research study

of the this paper's author (Filippaki, 2021), the main difficulties that were found are the following: 1) the lack of experience of the participating teachers in Action Research procedures; 2) the lack of relevant training of the teachers; 3) the inflexible institutional framework of the school; 4) the rigorous curriculum; and 5) the lack of quality time for teacher reflection meetings.

All of above studies implemented projects in the field of Education for Sustainability trough Action Research approaches. They concluded in specific proposals in their research discussion, which are: 1) Training of teachers (Kamarinou, 1995); 2) strengthening the participatory research school culture (Garitsis, 2016); 3) strengthening the interdisciplinary approach of educational projects (Nomikou, 2017); and 4) change of both the school's institutional framework and the curricular programs (Filippaki, 2021).

2. Methodology-Results

In this paper we will present a part of doctoral thesis's results of the author (Filippaki, 2021), in which the impact (on the whole school community) of the implementation of an educational intervention project, based on the theoretical and practical content of Education for Sustainability, was investigated. Specifically this study was implemented in the School of European Education of Heraklion utilizing the research methodology of Educational Action Research (E.A.R.). In the research team three more teachers as well as the author of this paper, were participated: the physical education teacher (E1), an English class teacher (E2) and a Greek class teacher (E3). In the study of the impact of teachers' participation in E.A.R. on their perceptions for their role towards the formation of a collaborative framework between them, three research tools were selected: 1) their Participatory Observation Journals in which they recorded their observations and thoughts throughout the E.A.R., 2) the Reflection Discussions between them which took place about every two weeks, and 3) the semi-structured Questionnaires in which they were asked to answer at the end of the EfS project. In this paper we will present just the results of the Content Analysis of the answers they gave to 4 relevant questions of the semi-structured Questionnaire, which concerned an overall assessment of their experiences, difficulties and challenges they experienced during their participation in the EfS project trough the E.A.R. procedure, as well as their perceptions regarding their motivations to participate and the effects of the project on their professional self-esteem and development. There was also a question about their perceptions regarding the impact of the EfS project trough the E.A.R. in their relationships. Teachers' perceptions were sought as follows:

Question 5: "*Describe your personal experience from the implementation of the educational intervention in the context of the specific EfS project trough Action Research (knowledge, opinions, thoughts, impressions, feelings and attitudes) before and after the implementation of the project*"

Question 7: "*Do you think that your participation in this EfS project trough*

Action Research affected the image you have for yourself in relation to your position in the existing professional context (opportunities for professional development, redefinition of roles, etc.)

Question 8: "*On the way of the research project, do you think that there was an improvement in the relations between the teachers who participated? If "yes", how would you describe it?*"

In this paper we are interested in seeing the findings that emerged regarding the results after the project (knowledge, opinions, attitudes, etc.). So, based on Content Analysis of their answers to the 5th question we concluded in findings that could be virtually presented in Table 1.

Indicatively, I quote some characteristic passages from teachers' answers:

"It was a fascinating experience, therefore, to participate in a program with an abundance of rich experiences for the children, through which the physical, natural and social aspects of an urban area are studied in depth. It was an eye-opening experience for me to watch the program come alive and to be fully involved in all aspects of it" E2

"After all, taking a general view of the whole process, I feel very much satisfied and even more excited with my decision to participate in such a project, as except the so nice cooperation with my colleagues and the bond with the students and the knowledge I gained, I added another completely new educational approaches to my teaching status" E1

"However, afterwards the way the students responded and their enthusiasm even during the evaluation of the educational activities proved to me that this way of working is much closer to the psychology of children and the pedagogical process in general" E1

"Regarding the research method, I was a little concerned as to what extent useable research data could be collected from 10 and 11 year-olds. I was

Table 1. The impact of teachers' participation in EfS project trough E.A.R. on their experiences.

	TEACHERS		
	E1	E2	E3
FINAL EVALUATION OF THEIR EXPERIENCE regarding their participation	Change of her attitudes towards EfS and E.A.R. after finding that the way of evaluating the project activities (by the students themselves) responded more to their psychology and the pedagogical process	Overcoming their initial hesitations regarding EfS and E.A.R. after realizing that the students themselves had collected enough research data by recording their thoughts and feelings in their personal journal after each activity	Her experience is particularly important since she judged that: a) the coordination process and also the support from the critical friends was very satisfactory, and b) the procedure of "reflection" was very important as it concluded to "adjustment" of the action plan according to the new data that emerged.

very impressed with the "journals", in which students wrote down their thoughts and feelings after each activity. I consider this to be a true indication of the students' attitudes and feelings about the activities and the program in general" E2

"I had no experience of participation in an EfS project and in an Action Research process until now. I just knew some theoretical things. So, it was another motivation for my participation, as I thought it would give us the opportunity to work differently, to engage in interesting activities with students and our colleagues in the school. And that's exactly what happened! It was a great experience on all levels. The research method, or pedagogical approaches, the development of the project and the results confirmed my initial assessments and exceeded my expectations" E3

The 7th question that was addressed to the teachers of the project team in the open-ended Questionnaire was related to the benefits of their participation in the EfS project and E.A.R. process. Based on method of Content Analysis of their answers, some findings emerged that could be presented on Table 2.

Indicatively, I quote some characteristic passages from teachers' answers:

"This project made me redefine my role as an educator but also as an active member of the educational community having the aim of continuous training and information regarding new methods of teaching and research" E1

"Participation in this program provided me with an opportunity to experience new educational approaches first-hand. I was able to witness PBE and UEE in action and not simply study them at a theoretical level. I was

Table 2. Effect of teachers' participation in EfS project and E.A.R. process on their Professional Self-Esteem and their Professional Development.

	TEACHERS		
	E1	E2	E3
Impact on teachers' Professional Development	Awareness of his ignorance in implementation of alternative educational tools Redefinition of his role as an educator and as an active member of the school community Awareness of the obligation for continuous training in new teaching and research methods	Adoption by experiential way of new educational approaches such and teaching new fields such as EfS (not just theoretical study) Awareness of the importance of the students' participation in the decision-making process for the development of an educational project Decision for further efforts in order to overcome the traditional ways of teaching that she applied until then	Setting as an aim to participate in similar collaborations in the future Opening new horizons in the professional field

also witness to a great deal of student participation in deciding where the program was heading and not simply based on teacher decision-making. I believe that this is something which I need to work on, as I still tend to be "old school" in my teaching" E2

"I really liked the methods of working and I will pursue similar collaborations as my participation gave me satisfaction and opened new horizons for me" E3

Finally, the 8th question was related to the effect of teachers' participation in EfS project trough E.A.R. in their relationships. Based on Content Analysis of their responses, some findings emerged that could be schematically depicted in Table 3.

The results of the Content Analysis of the above questions in the open-ended Questionnaires agree with the results of the Thematic Analysis of the Reflection Discussions between teachers. Indicatively, I quote some characteristic passages from teachers' answers:

"One of the most important benefits of the whole process was the teamwork shown not only by the students but also by the teachers during the activities. Difficulties and procedure issues that arose were easily resolved with cooperation and good attitude. This resulted in very good team bonding and the smooth running of the whole process" E1

"Over the course of the program, I gained a great deal of respect and admiration for each of them, not only as professionals but as individuals as well" E2

"However, on the process of the activities' implementation and the discussions that followed, there were opportunities to get to know each other better, to learn more from the experiences of our partners, to learn more about

Table 3. Effect of teachers' participation in EfS project trough E.A.R. process on their collaboration context.

	TEACHERS		
	E1	E2	E3
Impact of teachers' participation on their collaboration context	Creation of a team spirit among them Pleasant communication atmosphere between them and behind the "scene" Consolidation of their relations' improvement even after the completion of the project	Feeling of pride because of the ability she has acquired to work with her colleagues. Opportunity to get to know each other better (understanding each other's strengths and weaknesses) for a more effective cooperation between them as a "team". Acquisition of a sense of respect and admiration for each one of her colleagues	Opportunity to get to know each other better Opportunity for closer interaction among them (utilization of individual experiences, sharing of interests, exchange of ideas) Bonding of teachers as a team

the interests and way of thinking of each of us, to exchange ideas and become more creative through the interaction between us. The team 'tied'!" E3

3. Results-Discussion

Through the overall analysis of all research data regarding the effect of teachers' participation in EfS project trough E.A.R process, it emerged that there was an effect on the cooperation context between the teachers, as well as on the possibilities for their professional development. Specifically, during their participation a framework of cooperation and communication between them was formed, in which the feeling of freedom of expression was strengthened since there were many opportunities for interaction and creative dialogue between them. Within this context, the teachers who participated (as well as the researcher-facilitator) recognized the possibilities of professional development given to them through their participation.

Certainly, the impact on cooperation context between the teachers assumes that through their participation teachers gradually change their theories and their practices. But, as Katsarou (2016) emphasizes, it is not easy at all to occur (either in teachers' practices or in the school more broadly) since teachers tend to show strong resistance to any change. These resistances arise in part from their "implicit" theories. We also saw these resistances in the research of Filippaki (2021), since while the teachers theoretically seemed to support some changes in their teaching practices, in practice it was shown how difficult it was for them to change practices of years and to apply innovative practices that were also related to the principles of the EfS. However, through their effort, their professional empowerment emerged as a result of their participation in. After all, as Katsarou (2016) points out, one of the characteristics of E.A.R. is to enhance the professional development of teachers. Trying to understand and at the same time improve their practice, teachers are developed professionally. Regarding their theories and practices, we should point out that the teachers, who participated in the project we implemented during our educational intervention, faced many difficulties to change both their personal theories and mainly their practices.

Regarding the above mentioned difficulties faced by teachers, Bubura (2010) argues that the participation of a teacher in E.A.R., although it is a real innovation for educational issues in the Greek school, does not cease to involve difficulties and limitations in the effort to implement it since the teachers must implement specific syllabus with clear specifications. What makes things even more difficult is that the teachers in the last decades in Greece were not trained in a cooperative spirit that would allow them to open their traditionally closed door of their classroom, as a result of which he cannot adopt participatory and cooperative approaches. Bubura (2010) also argues that significant difficulties come from the fact that teachers are not familiar with assessment procedures that require self-inquiry and a collective reflective process in the context of a teachers'

group. Practical problems can still be faced by the teachers such as time limitations, reduced mental reserves, insecurity about their abilities and their effective response to a simultaneously dual role: teacher and research.

Furthermore, as Katsarou (2016) argues, the relationships between teachers are not at all an easy task, since they should be transformed hierarchically from vertical to horizontal. According to Stern & Hellquist (2017) in order to transform the relationships of the participants from vertical to horizontal the key is "trust". Thus, when the trust between the participants is achieved, the cooperation between them becomes equal and effective since they feel free to share inner thoughts and talk openly. Such relationships between the teachers in a school (without vertical hierarchy) lead to the development of an open and democratic climate of cooperation in the school, are essential conditions for strengthening their role and their professional development.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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