



Novice teachers' self efficacy and needs for integrating ESD in their teaching practice.

(INDUCTION PROJECT, PHASE 1: NEEDS ASSESSMENT)



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1. Introduction

The induction years pose several challenges to the newly qualified teachers, concerning their basic teaching skills as well as their ability to respond to the need for quality education. Education for Sustainable Development (ESD), despite the difficulties it may pose, can be an ideal framework for novice teachers' induction, since it can provide educational experiences and skills from a broad spectrum of scientific fields and promote the development of social and environmental values and ethos. ESD can also facilitate the achievement of quality education due to the common ground between the two. As a base line for Induction Programmes for Novice teachers, ESD holds a great potential since it can ensure both the integration of sustainable development issues in schools and achieve Quality Education through developing quality teachers.

Based on the rationale above, in Cyprus we are conducting a nationwide research, exploring the potential of Education for Sustainable Development as an induction framework for novice teachers. The first completed phase of the research program, focuses on novice teachers' needs for effective ESD implementation in schools:

- (a) novice teachers' conceptions on SD and ESD¹;
- (b) their self efficacy to implement ESD in school;
- (c) the factors that would encourage them to integrate ESD in school;
- (d) and their needs for the ESD integration in school.

Our objective is to use the outcomes in order to develop an In-service education / Induction program for novice teachers with practical implementation in school via a mentoring system.

During this session we will present and discuss with you the research outcomes of the needs assessment phase and our initial ideas about the teachers' education program.

2. Brief description of the Research

Research on novice teachers needs on ESD, was conducted during October 2010 – February 2011. A questionnaire was post sent to all novice teachers (1-3 years of service) in all schools in Cyprus (N=250 approx) and 173 questionnaires were returned to the researchers. Additional information was obtained through semi structured interviews with novice teachers. Interviewees were randomly selected by one of our partners (Cyprus Pedagogical Institute).

Our sample was representative from all districts of Cyprus and proportionally women were more than men, reflecting the proportion existing within the teaching profession. Novice teachers were graduates from a variety of universities mainly from Cyprus, Greece and the UK.

3. Research Outcomes

Outcomes from interviews and questionnaire first analysis produced information concerning teachers' education with respect to SD – ESD, novice teachers' efficacy, weaknesses and their needs for training. There are also some indications as to which form of training would be more effective and convenient for them.

3.1 Questionnaire outcomes

A. novice teachers' understanding of SD and ESD

Novice teachers appear to be slightly familiar with the term Sustainable Development ($\bar{x}=3.1$; $SD=1$). They were also asked to explain how they perceive the term through an open ended question. Their answers were categorized according to the context and were:

- Related to environment and environmental protection and conservation
- Economic Development that takes into consideration the environmental impact
- Raising Environmental Awareness
- Cover current needs without compromising future generations
- Sustainable use of resources – Use of resources according to the carrying capacity of the environment
- Continuous progress
- Financial Development - Long term development
- Ecological Development
- Reference on SD issues (e.g. social justice)
- Life style

¹ (This aspect of the research is not stressed in this presentation as, at this point, we wish to focus on novice teachers' needs and self efficacy).

- School development

Teachers also appeared to have a rather vague idea about SD issues. Prompted with a list of issues, they were asked to decide if these issues were related to SD and in which extend, by using a 1-5 scale (1:least – 5:most). Novice teachers were able to acknowledge that mainly the environmental issues were connected to SD: e.g. energy issues (4.6; 0.7); depletion of forests (4.6; 0.7); climate change (4.6; 0.7); lack of water (4.4; 0.7); and Biodiversity loss (4.4; 0.8). Highly connected to SD they considered issues related to the economical aspects of SD: the Exhaustion of natural resources (4.7; 0.6); Urban Development (4.1; 0.9); Production and consumption models (3.9; 1.2).

Tourism (3.4; 1.2); Poverty and hunger (3.3; 1.1) and health and nutrition (3.3; 1.1) were moderately connected to SD issues whereas social issues such as discriminations amongst gender, culture, religion was considered to be the issue least related to SD (2.5; 1.2).

University Education

University education offers limited training on SD and SD issues

1. University education is deemed inadequate for transferring skills to implement teaching techniques such as:
 - a. Field studies
 - b. Concept mapping
 - c. Addressing conflict issues and moral dilemmas
 - d. Action research and decision making
 - e. Values clarification / analysis processes
2. University education is inadequate for transferring ESD training on:
 - a. What is ESD (we identified misconceptions / confusion with EE)
 - b. ESD pedagogy
 - c. ESD aspects beyond the environmental ones
 - d. Political / Social / Economical / Moral / Cultural ESD aspects

Novice teachers' conceptions on ESD

Novice teachers appear to mainly connect ESD to EE although they realize that it is not the same term. For example they agree that SD is related to environmental protection and conservation (4.1, 0.9) as well as that SD ensures the balance between environment, economy and society (4.3, 0.8) but at the same time they also agree that ESD is a term equivalent to EE (3.6; 1.0). They appear to be uncertain whether SD issues are political issues or whether ESD is closer to natural sciences or social sciences. Their answers reveal an overall uncertainty and confusion about what SD and ESD are.

B. Teachers' self efficacy

Self efficacy to teach about SD issues

Novice teachers were asked to estimate their self efficacy to teach about a number of SD issues (1: very inefficacious, 2: inefficacious, 3: neither efficacious nor efficacious, 4: efficacious, 5: very efficacious). They appeared to be efficacious about many of the environmental issues related to SD [e.g. Forest management (4.2;0.8); Poverty – Hunger (3.9; 0.8); Environmental Education (3.9; 0.8); Environment and quality of life (3.8; 0.8)] as well as issues that were emphasized within the Cyprus educational system [e.g. Traffic Education (4.0; 0.8); Peace and war (3.9; 0.9); Multicultural society (3.9; 0.8); Health Education issues (3.8; 0.9)]. Although the teachers felt somehow efficacious to

teach sustainable development issues, their uncertainty about the concept of SD was apparent in the fact that they scored the lowest on Education for Sustainable Development (3.0; 1.0), voluntariness, natural resources management, and energy issues. Teachers were also asked to quantify the importance they place on each of the aforementioned issues. In all cases, SD issues were considered to be important – extremely important. Most important SD issues were forest management, peace and war, multicultural society, health education issues and environmental education.

Self efficacy and ESD implementation in school

Teachers were asked to estimate their self efficacy on a number of statements concerning ESD tasks taking place in schools. Their self efficacy on a 5 – degree scale (1 indicating least efficacy and 5 most efficacy) was low average, ranging between 2.3 – 3.4. Novice teachers appeared to have higher self efficacy on tasks connected to general teacher planning: Developing ESD lessons in schools (3.4; 1) and Developing and using teaching material for ESD (3.3; 1). They stated lowest self efficacy on policy (2.4; 0.9), program planning (2.4; 0.9) and leadership issues (2.3; 0.9) connected to ESD.

Research also explored teachers' self efficacy concerning skills required for ESD implementation. Novice teachers appeared to feel efficacious about a number of ESD skills: following democratic processes ($\bar{X}=4.0$, $SD=0.9$); collaborate with others to achieve common goals ($\bar{X}=3.9$, $SD=0.8$), have vision and optimism for a better future ($\bar{X}=3.8$, $SD=0.9$) as well as self education skills and decision making skills ($\bar{X}=3.8$, $SD=0.8$ in both cases). Values clarification and development, systemic thinking and new technologies skills scored lower self efficacy ($\bar{X}=3.5$, $SD=0.9$; $\bar{X}=3.4$, $SD=0.9$; $\bar{X}=3.4$, $SD=0.9$ respectively).

C. Facilitating ESD integration: Identified Needs

Novice teachers were asked to consider a number of suggestions for support and state how helpful they consider them to be. Any action on behalf of the educational authorities was considered to be helpful and supportive although none was identified as extremely supportive. ESD and Induction training as well as other parallel actions were identified as the main areas of support. The following would encourage ESD integration:

ESD training

Attend sample lessons on ESD ($\bar{X}=4.3$, $SD=0.8$)

Attend interdisciplinary INSET on SD ($\bar{X}=4.2$, $SD=0.8$)

Attend INSET on SD issues ($\bar{X}=4.0$, $SD=0.9$)

Attend INSET seminars on SD teaching approaches ($\bar{X}=4.3$, $SD=0.7$)

Participate in collaboration groups for the implementation of ESD with the support of a mentor ($\bar{X}=3.9$, $SD=0.9$)

Attend INSET on classroom management ($\bar{X}=4.2$, $SD=1.0$)

Receive training on using non formal education settings ($\bar{X}=4.0$, $SD=0.9$)

Attend school based INSET on ESD ($\bar{X}=4.1$, $SD=0.8$)

Attend service training on using innovative educational techniques ($\bar{X}=4.1$, $SD=0.8$)

Experiential workshops ($\bar{X}=4.2$, $SD=0.9$)

Attend SD seminars in specialised organisations and institutions ($\bar{X}=3.8$, $SD=1.0$)

Attend programmes for ESD jointly with parents ($\bar{X}=3.6$, $SD=1.0$)

Through other actions

Integrate ESD in textbooks ($\bar{X}=4.1$,SD=0.9)

Reorient Curriculum / Enhance Curriculum ($\bar{X}=3.9$,SD=0.8)

Allocate timetable time for ESD ($\bar{X}=4.1$,SD=0.9)

Mapping SD links with curriculum ($\bar{X}=3.9$, SD=0.9)

Learn to use Curriculum opportunities for ESD ($\bar{X}=3.3$, SD=1.2)

Create a data bank on SD issues ($\bar{X}=4.3$,SD=0.8)

3.2 Interviews Key Outcomes

Interviews were conducted with 16 novice teachers (8 from primary education and 8 from pre-primary education).

A. SD, ESD and university education

Most of the interviewees found it difficult to mention sustainable issues they studied at the university. Sustainable development apparently was not integrated into their programs of study. Eleven of them had attended environmental education modules, where sustainable development was mentioned to them, but they didn't analyse sufficiently the SD threefold: Environment – Economy - Society. Sustainable development was also mentioned in science education courses (one interviewee). Two of the interviewees had never attended any related courses or dealt with SD during their studies. In some cases environmental education modules were offered on an optional basis and therefore it was possible for a student to graduate without having attended EE or ESD.

Most teachers acknowledged their lack of information on the term SD and related issues. They admitted though that through the interview discussion they are somehow familiar with some environmentally oriented issues and mentioned the following as sustainable development issues:

- Renewable energy resources, (solar energy, nat. gas)
- Recycling
- Pollution
- Environmental issues

The issues mentioned highlight a strong orientation towards environmental issues, which in combination with the small reference to sustainable development have apparently caused environmentally oriented understanding of SD.

The interviewees were asked to discuss briefly the content of the SD / EE modules they attended at the university. According to their answers, these modules focused on environmental issues and employed field work (2 interviewees), visits to EE centres (6 interviewees), the use of debate, environmental games (one interviewee) and a cleaning campaign (one interviewee). Even though interviewees were able to mention activities they did within their environmental education modules in previous stages of the interviews, these activities were not linked to ESD.

Teachers had attended general modules on teaching methods. Science modules also offered information on some of the methods also used by ESD (field studies and investigations / inquiries). The teachers that had attended Environmental Education modules, explained that these were mainly oriented towards sensitising the students rather than teaching them how to teach. One of them also mentioned that they were introduced to Environmental Education Methods, but not ESD. Only 2 of the

interviewees mentioned that during their studies they dealt with issues such as collaboration with the community, discussed community's role and school's role.

B. Teachers' perceptions on SD and ESD

Most of the interviewees were not able to provide a solid explanation / definition of what sustainable development is. The answers provided reflected a perception of SD strongly linked to environmental issues. Some of the answers connected SD with life long learning and some teacher's ideas expressed a completely irrelevant perception of SD. Two of the interviewees pointed out the need for sustainable use of natural resources and indicated the existing responsibility towards future generations. Few teachers mentioning social issues (poverty and hunger) and economic issues as part of SD. Overall the environmental aspect of SD prevails, therefore highlighting misconceptions about the term, and clearly identifying SD issues as mainly environmental issues.

They appeared to believe that education for sustainable development is about raising children's awareness and sensitisation about the environment. One of the interviewees mentioned that students can influence their parents and therefore the community as a result of the sensitisation developed in school. According to two of the interviewees, the objective of raising awareness is to protect and conserve the environment. Some of the interviewees also mentioned engaging children in activities such as reusing things to make handcrafts, involving them in conservation actions and explaining environmental issues to them. Only one of the interviewees acknowledged that ESD goes beyond EE although she couldn't specify how the two differ. She nevertheless pointed out that ESD helps children operate and think systemically. Another interviewee highlighted the need for learning to operate in a sustainable way, through the school's example. Therefore she identified the need for developing sustainable schools.

Most of the interviewees acknowledge how important it is to integrate ESD in education. They consider that school (primary and pre-primary) is important for raising children's awareness and acquiring life skills and attitudes. Several of the primary school teachers consider that its implementation currently highly depends on the teachers' willingness to work on these issues. One of the interviewees mentioned that ESD should be compulsory. ESD should find its way in school activities and the curriculum by destining specific time for it in the programme (according to one of the interviewees). Further on, ESD is adequate and necessary for children any age simply by using the appropriate activities and approaches.

ESD integration in the curriculum can take the form of a distinct lesson or follow the multidisciplinary integration model. Some of the interviewees propose the latter approach since it has the potential to devote more time on ESD and take advantage of existing opportunities in science classes, or language classes etc. This model appears to be more appealing to the kindergarten teachers. Nevertheless it is acknowledged that its implementation highly depends on the teacher. One of the interviewees also supported that the current curriculum is not sufficiently "green". Therefore some of the interviewees support curriculum changes that would include ESD as a separate lesson. Two of the interviewees supported that the ideal form of integration would be a combination of the two approaches.

C. ESD practice in school

Each of the interviewees mentioned 1-2 activities that whole school ESD could employ: Collectively they mentioned saving water, paper, keeping school grounds

tidy, reusing things, recycling, tree planting. Some of them (5) insisted on school's opening to society and mentioned collaboration with the local community, the local authorities, informing local community of school actions, and involving parents association. Nevertheless some of the interviewees believed that most of these activities take place superficially in schools and in some cases there is no clear orientation and clear message sent to children. Kindergarten teachers appear to have reservations about whole school activities, because of children's age and principal's willingness to support these actions.

Teachers acknowledged several benefits for:

Students:

- Become better persons
- Acquire values, awareness and respect for the environment
- Change behaviour, develop attitudes and habits that will ensure a better future
- Learn about / become familiar with the environment
- Acquire skills and abilities to think critically, choose, make decisions, become creative, collaborate with others
- Become better citizens and develop voluntariness
- Transfer awareness to family
- Gain simple pleasure of acting in favour of the environment.

Teachers:

- Learn about the environment
- Develop environmental attitudes and respect for the environment
- Become responsible
- Become role models for their students
- Opportunities for enriching / enhancing their teaching practice
- Gain simple pleasure of a positive outcome

Community:

- Children can transfer information and awareness to the community
- Practical input through schools' actions (tree planting / reforestations / community cleaning etc)
- Gain future active, aware citizens.

The interviewees considered collaborative learning one of the teaching approaches necessary for ESD. They also mentioned that activities should be based on active experiential learning and one of the ways to achieve this is outdoor teaching. Specific types of activities mentioned were: Visits to places of environmental interest, environmental education centres, composting, gardening activities, making handcrafts with the use of waste material and recycling.

All teachers were interested in achieving ESD goals in school. They consider ESD very important for developing life styles that will enable and ensure good life quality. On an average, teachers place high priority on ESD although one of them explained that there are other cross curricular issues under emphasis in schools and it depends on teachers, which one to focus on.

D. Self Efficacy to teach ESD

On an average, teachers do not feel efficacious but neither do they feel that they absolutely lack efficacy. They acknowledge they have several limitations, e.g. their understanding and their knowledge of the term SD, and lack of training on the issue. In a great degree they believe that the limitations in their confidence are due to the lack of training during university studies, and part of their confidence is due to

personal interests and study as novice teachers. On an average the overall readiness to teach about SD, of the interviewees was approximately 3 out of 5. Higher readiness was observed within the teachers that had attended environmental education modules during their studies (3 - 4). None of the interviewees, stated readiness level 5.

Very few of the interviewees feel efficacious to implement ESD. They are apparently more confident on skills and teaching issues related to their general knowledge on didactics and pedagogy. The teachers that felt more efficacious were the ones that had either attended or are currently attending postgraduate studies on relevant field (3 teachers).

Most of the interviewees highlighted a need for learning more about the concept of sustainable development and sustainable development issues as well as the teaching methods and didactics of these issues. Beyond these two factors that concern them as teachers, they also appear to feel that they are limited because of the school grounds, the load of the teaching material, time, means, limited educational material available, their limited flexibility in adjusting their teaching about SD to the children's age and the schools management.

Facilitating ESD integration: Difficulties and Identified Needs

Teachers agree that they need training on ESD. They feel that their university studies were not sufficient and were rather theoretical. Retrospectively they consider most of the theories learnt to be useless for their teaching practice. They request training on the content of the concept of sustainable development, as well as training on the teaching methods, activities approaches and the overall pedagogy of ESD. They need to know how to plan teaching about SD, how to integrate it in all lessons and finally how to evaluate the outcomes. Further support of the teacher could be offered in the form of sample classes, the existence of ESD consultants that can visit school, or even located within schools, the development and provision of teaching aids material and handbooks. One of the teachers also suggested the creation of a bank of examples of successful practice from other countries.

Finally one of the teachers mentioned the need for peer interaction, and especially with expert teachers. She found this process useful because it can provide the novice teacher with opportunities for reflection, experimentation and immediate feedback.

As one of the interviewees mentioned, the simple process of planning a lesson is a time consuming task for them, therefore if ESD is to be implemented they need practical support which can be offered in numerous ways. Most of the teachers referred to the creation of an information bank / material bank, which can provide information of SD as well as teaching ideas. This bank could take the form of an on line electronic source. Peer support was also considered to be useful (mentoring).

ESD, according to teachers can also be facilitated if it is allocated time on the timetable. This would require changes on the curriculum which should accommodate therefore ESD as one of the classes offered. Time releases is another motive / supportive factor for the teachers.

Environmental Education centres are seen as places where teachers' tasks can be enhanced, even replaced. Nevertheless, several of the tasks required for ESD, including mobility, require expenses, which is why some of the teachers proposed the existence of a budget for ESD.

School based expert support could also be provided to teachers in order to help them integrate ESD in their teaching practice.

Teachers feel that ESD requires a collective approach, where the support of and collaboration with the school principal as well as the peers is imperative. Teachers proposed the development of training for all teachers and the school principals in order to achieve this ESD alignment within the school staff.

None of the teachers was familiar with the term sustainable school. Some of them could not provide a definition even though they had vaguely heard about the term. The rest of the answers given were rather based on teachers' intuition and the past discussion during the interview, where the interviewee had to become informative so as to enable the dialogue and obtain data. They had different ideas about what sustainable school is, and this was based on their experiences. For some teachers sustainable schools are environmental schools and they specifically mentioned Eco-Schools as examples of sustainable schools. They all agreed that a sustainable school saves resources: energy, paper etc. in order to minimise the impact on the environment. Only one of the teachers also mentioned that a sustainable school seeks to develop critical thinking to their students and encourage them to take up initiatives.

Teachers are the steering force of sustainable schools. They involve children in the tasks undertaken, and guide them. They are expected to be sensitised and informed about the related issues and as the last interviewee mentioned they are role models for their students.

Teachers appear to be very willing to attend training on ESD and find that the offer of ESD training for teachers is necessary. Teachers' needs on ESD can be met through training, which can be offered on an optional or compulsory basis. Some of the interviewees believe that since ESD should be taught by all, all teachers should be trained whereas others explain that ESD should be optional, since it highly depends on teachers interests.

Training on ESD should constitute of a series of seminars and provide a complete training on ESD (compared to the current optional seminars which appear to be non satisfactory). They should combine ESD theoretical framework with practical implementation. Therefore seminars could have the form of workshops and a certificate of attendance should be given to the teachers.

Seminars and workshops, should be according to ESD principles. They need to be experiential, outdoors, participative, action learning - based, in small groups where interaction can be encouraged. They should also provide practical training and transfer skills to the teachers. Additionally, teachers training should be enhanced with training on the use of new technologies that can support ESD. One of the interviewees suggested training via E-Learning. Conferences were also mentioned as a form of training.

One of the interviewees suggested the multiplier effect approach, since well trained teachers can be used for the training of their peers in schools.

Practical issues about the organisation of the training were also raised during discussion. Teachers' opinions varied about whether it was more convenient that the seminars had an intensive form and concentrate training hours in a limited time span, or distribute time within a semester. Finally environmental Education centres were proposed as possible locations for the seminars' delivery.

Summarizing the results analysed above, we identified what the teachers need for their training in terms of content, experiences and skills as well as the forms they suggest this training could have.

A. Training Content

1. Understand SD and SD issues
2. Highlight socio-economic aspects of SD
3. What is ESD? ESD pedagogy, planning ESD teaching, systemic approach and integration in the curriculum
4. Whole school approaches to ESD (especially for kindergarten)
5. Collaboration with the community
6. Sustainable schools
7. ESD and new technologies
8. Overall training on ESD

B. Requested Experiences

1. Model lessons / (δειγματικά μαθήματα)
2. Interaction with peers
3. Experience transfer through interaction with experienced peers
4. Reflection opportunities
5. Experimentation / Teaching with immediate feedback
6. Outdoor teaching

C. Skill Acquisition Requested / needed

1. Social Skills to establish +ve school climate
2. Self evaluation / reflection skills
3. Managing school limitations to ESD (e.g. school grounds, resources, climate, etc)

D. Forms of Support suggested

1. ESD consultants in schools
2. Activities information bank
3. Handbooks
4. Information resources / links
5. Peer support / interaction

E. Forms of training suggested

1. Seminars
2. Workshops / Experiential workshops
3. Outdoors / Field work

F. Training style suggested

1. Practical / Experiential / Participative
2. Action Learning
3. Small groups for better interaction

Overall, the identified needs do not differ from the ones identified by literature. If we consider that we are approaching the end of the Decade for Sustainable Development, this is a frustrating outcome. Teacher education on ESD was emphasised and universities were expected to reorient their modules to promote ESD and SD issues.

Considering that PCK and teaching skills are better developed through teaching practice and work at school, we can understand why novice teachers appear to be in

need of skills and experiences as model lessons on ESD, reflection and experimentation opportunities. Nevertheless, university training would be expected to provide for at least a basic understanding of the term SD and SD issues, highlight the socio-economic aspects of SD and introduce students to what ESD is, which is its characteristics and pedagogy, and what is needed for its implementation in schools.

Based on the above, the induction program we are developing consists of two phases: (A) the teacher training phase and the (B) school implementation phase. During the first phase, novice teachers and expert teachers will receive training on ESD and mentoring respectively. This is expected to take place during the 1st trimester of the school year. An the 2nd trimester novice teachers with the support of their mentors will work in their schools on ESD projects, strictly following a monitoring and evaluation system.

At this point we are proposing a framework for the novice teachers' education program which we would like to discuss over this round table panel.

4. Proposed Framework for the Preparative Induction Program.

INDUCTION PROGRAM FOR NOVICE TEACHERS THROUGH ESD

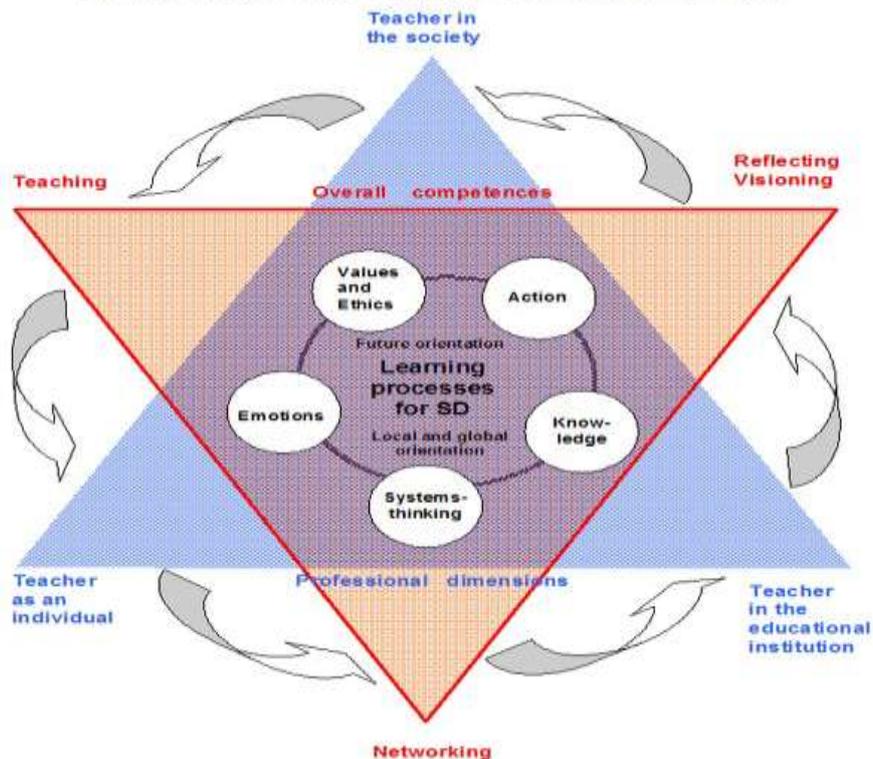
PURPOSE OF THE INDUCTION PREPARATION PROGRAM:

1. To inform the participants (primary and pre-primary novice teachers) about the research program, its aims and purposes as well as their own role in the implementation of the research
2. Help them become competent to promote ESD in all aspects of school life by providing them with the required knowledge, skills and competences.

PROGRAM OBJECTIVES (EXPECTED OUTCOMES)

Teacher education will be based on the dynamic model of ESD competencies development:

Dynamic model for ESD competences in teacher education



The teacher education program aims will be related to the 5 competencies axes: Knowledge, Systemic thinking, Emotions, Values and Ethics and Action.

Through training Novice teachers will:

1. learn and understand contemporary issues of sustainable development (environmental, social, economic) on a global, peripheral and national / local level. They will also develop systemic thinking in order to develop strategies for confronting these issues on a local, peripheral and global level;
2. reflect upon their personal actions, their set of values and their personal ecological footprint in order to identify the changes they have to seek so as to acquire a sustainable lifestyle;
3. become familiar with the content and philosophy of ESD and will understand the causes and processes that lead to ESD;
4. understand that ESD is a lifelong process which surpasses the limits of formal education. They will acquire teaching and learning experiences and become familiar with activities from in-formal and non-formal education which can support and enhance participative and holistic management of policy and decision making concerning environmental and SD issues on a professional and social level.
5. understand that the achievement of SD is the result of collective efforts and participative learning based on intergenerational communication and interaction. Through this understanding novice teachers will become competent on developing and implementing programs / interventions for the environment and SD within their professional space as well as within the local community.
6. develop competences to act and work jointly with local populations, parents, policy makers, NGOs, governmental services.

7. acquire the necessary competences for using a variety of educational methods and approaches in order to achieve all levels of ESD aims (with respect to the curriculum, and the achievement of the sustainable school)
8. become able to use the opportunities provided by non formal and informal education (links with the curriculum, with local community, outdoors activities and other settings).
9. become able to use new technologies, multimedia and other audiovisual and technological aids, for teaching and learning and for facilitating the access to resources and information on ESD.

FORM AND DURATION OF THE INFORMATION – PREPARATION PROGRAM

As agreed with the Research Promotion Foundation the informative – preparative phase will take place through meetings of 15h of duration for the novice teachers and 20h for their mentors. This could take the form of 5 X 3h and 7X3h meetings respectively. These meetings can be distributed during the 1st semester or block one week or 2 weekends of intensive meetings. This is something we intend to discuss with the participants as soon as they are selected. The meetings can take place in Environmental Education Centres as well as Frederick University and the Cyprus Pedagogical Institute.

Mentor's training will consist mainly of ESD training (as the novice teachers) with the additional meetings dedicated on mentoring and their responsibilities for the research.

The program will be based on participative, collaborative learning and will have the form of experiential workshops. The content will stress the skills transfer, competences development and will offer opportunities for reflection and self evaluation.

OVERALL PREPARATIVE PROGRAM STRUCTURE

EESD 5X3h
NOVICE TEACHERS/ (PRIMARY & PREPRIMARY)
Ice breaking meeting & learning about each other Introduction / presentation of the research program <ul style="list-style-type: none"> - aims and objectives - work packages - the role of the NT and the Mentors Introduction / presentation of the information / education program Presentation and explanation of the instruments that they will use for the monitoring and evaluation of the education program they will attend.
THE CONCEPT OF SUSTAINABLE DEVELOPMENT
1. What is sustainable development SD issues Awareness and sensitization around these issues Personal reflection about their interaction with and impact on the environment Reflection and assessment of personal values code
EDUCATION FOR SUSTAINABLE DEVELOPMENT
2. Education for sustainable development The principles, objectives and characteristics of ESD. Its importance in the

achievement of the sought social, economic, political and environmental changes for the achievement of sustainable lifestyles.

ESD in formal education (Pre-Primary and Primary Education): International initiatives and the changes introduced in the Cyprus pedagogical system (the New Curriculum and the National Action plan for ESD).

TEACHING APPROACHES

3. Teaching approaches and

Theoretical and practical introduction of pedagogical strategies and techniques such as problem solving, debate, project implementation, environmental games, moral dilemmas, brainstorming, concept mapping, etc.

Outdoor teaching: Field work, outdoors scientific explorations in nature, outdoor explorations of social and cultural aspects of sustainable development.

Discussion and reflective analysis of some applications of the educational strategies presented.

Implementation of educational strategies and techniques within specific units of the new curriculum (primary and pre-primary level depending on the trainees)

ENVIRONMENTAL ETHICS AND VALUES & ASSESSMENT IN ESD

4. Environmental ethics and values development in ESD

Characteristics of values education and introduction to effective pedagogical techniques for the development of values considering the students' age. Consideration of the ways the formal, informal and null curriculum contribute to the development of the students' values system.

5. Assessment in ESD

Workshop on practical introduction and implementation of targeted pedagogical strategies that can be used for assessing the effectiveness of administered ESD.

NEW TECHNOLOGIES AND ESD/ SUSTAINABLE SCHOOLS

6. NEW TECHNOLOGIES AND ESD

Connecting ICT (information and communication technologies) to ESD. Learn about and use sites as well as multimedia that can contribute to a quality upgrading of ESD programs (both planning and implementation). Development and evaluation of pedagogical tools and programs on ESD with the use of new technologies.

7. THE DEVELOPMENT OF SUSTAINABLE SCHOOLS

Introduction to the theoretical framework, the concept and principles of sustainable schools. Becoming familiar with the sustainable schools' organisation processes concerning the reorientation towards ESD through the curriculum, the school unit and the local community.

