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EDUCATIONAL ACTION RESEARCH TO GENERATE ECOLOGICAL WISDOM OF INSIGHT FOR INCLUSION AND SUSTAINABILITY

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Abstract

This study relates the experience of educational action research with pre-service teachers aimed at exploring their views on ecological identity, which is considered the basis for a person's life activity, and its orientation towards inclusion in or exclusion from the global community of life. Through gradual opening of communicative space and participation in critical discourse, research participants became involved in the cycles of reflection on their experiences of interaction with the social and natural world to reveal the features of individual and collective ecological identity that they consider most characteristic for themselves and their community. The present study describes how, through exploration of ecological identity which was found to have four dimensions (cognitive, affective, axiological and conative) as well as a clearly perceived orientation towards apprehended belonging to the community of life and its support system, the participants of educational action research engaged in the process of generating ecological wisdom of insight for sustainability (person's inclusion in the living world based on inclusive interrelations with the global community of life and its support system). We argue that it is a wisdom that pre-service teachers need so as to be able to help their pupils become responsible members of the community of life and actors of change for a sustainable future.

Key words: *educational action research, pre-service teachers, ecological identity, communicative space, ecological wisdom of insight*

Introduction

Contemporary pedagogic and scientific literature highlights the need for a new, meaningful vision of education for the 21st century, which would strengthen the currently broken link between humans and other elements of our world (O'Sullivan, 1999). Civilisation is now facing the inevitable consequences of alienation from nature and disregard for the wellbeing of all life, concern for which is eclipsed by preoccupation with worshiping money.

O'Sullivan (ibid.) argues that humans need to renounce the idea of conquering the world and aim for inclusion in the community of all life on the Earth.

The tendencies towards egoism, possessiveness, ownership, superiority, or what Buber (2002) calls I/it attitude towards the world, can be attributed to the influence of the modernist paradigm. As pointed out by Salīte & Klepere (2003), I/it relationships reflect the ontological structure of fear and disrespect, they are subject/object relations in which everything is considered merely a tool for satisfaction of person's subjective needs. They are characterised by estrangement, anthropocentric and egocentric detachment and existential separation, loss of harmony in the relations with the ecosphere, and ecophobia (ibid.). The current crisis of sustainability is actually brought about by a crisis of the mind (Reason, 2007) – our way of thinking of and perceiving the world which we are part of. Transformative learning theory would call it a crisis in human frames of reference (Cranton, 2000; Mezirow, 2000; Ahteenmaki-Pelkonen, 2002). O'Sullivan (1999) points out that the modernist paradigm with its industrial lifestyle, economic globalisation and spatial and psychological alienation (exclusion) from the Earth has exhausted itself. In his opinion, we are now standing on the threshold of an evolutionary transformation. It has become clear that in order to survive and sustain the planet as a habitat for future generations, we need to change our habits of mind and ensuing life activity. We are in need of a transformation of our frames of reference (Kitchenham, 2008). As O'Sullivan (1999) puts it, life requires something more than mechanics, something more than mere commercial value expressed in terms of profit. It needs inspiration, presence, beauty, care and community. In other words, we need to learn how to live in a mutually complementary rather than destructive way, strive for deeply felt inclusion in the great community of life and its support system, in the social and natural world. We have to become aware of the co-evolutionary relationship between person and nature (Salīte, 1993), our mutual interdependence and inexhaustible need for one another. What we need are subject/subject or I/thou (Buber, 2002) relations, community with the world, a developed ecological "self" and ecological identity (Salīte & Klepere, 2003).

Moore (2005) expresses her concern for the quality of relations between the human and more-than-human world. We have failed to retain awareness of the inextricable links that bind the elements of the ecosphere of which we are part. Such lack of awareness has led us to adopting consumerist frames of reference – personal paradigms for perceiving, making sense of the world and acting within it (Mezirow, 2000). Moore (2005) believes in the potential of transformative learning to highlight the accents of sustainability in education, higher education in particular. In her opinion, transformative learning is the key to developing what she calls ecological literacy. It would permit to replace the dominant market paradigm, which envisages educating for the market, with a sustainability paradigm, which envisages awareness of the mutual interconnectedness of everything in this world and human responsibility for preserving the fragile balance of these interrelations, in line with such core values as life, justice, peace and inclusion.

In the course of history, humanity has been differently interpreted in the context of nations, ethnical groups, international organisations and even a global community; yet the present state of relationships between person and nature requires humans to become aware of themselves as species among other species (O'Sullivan, 1999). The western industrialist tradition highlights the superiority of Man by regarding the Earth as an object detached

from the human "self", which can therefore be manipulated and exploited for satisfaction of our needs (ibid.). Therefore, we now face an urgent need for a new level of relationships between person and nature. We need to achieve a transformation from subject-object relations to subject-subject relations; from what Buber (2002) calls I/it attitude to an I/thou attitude, which is grounded in dialogue, equality, respect and recognising the value and worth of the other (Buber, 2002; DeLue, 2006; Rofrano, 2007; Ashman & Lawler, 2008).
O'Sullivan (1999) speaks of the need to discover our individual 'selves' in close relationship with the 'Great Self' around us. He therefore suggests that education should address such issues as cosmology, wellbeing of humans and Earth in the community of life, because only through the outer world humans can fill their inner world and realise their humanness. A similar position is held by Brereton (2009) who draws on Dewey's pragmatist philosophy and conceives humanness as inextricably linked to experience in and of the social and natural world. In his opinion, experience is the evolutionary, existential, and phenomenological ground of humanness (ibid.). In other words, humanness is the heritage of our evolution in close bondness with nature – the community of life and its support system. Care, love and respect towards it are thus what make us what we are and should be – human and deeply humane in our attitudes towards the world; beings who need to strive for ecological identity.

Macy (1990, as cited in Ryland, 2000) underscores the need for us to extend our ecological self (the wider construct of identity and self-interest) further and further beyond the separate ego to include more and more of the phenomenal world. She believes that this way we may arrive at a deep bondness with the Earth, which becomes a source of deep wisdom and a magic synergy with nature. Such an expanded, encompassing self is considered to help us retain our fortitude in the face of the destructive influences of the world. In fact, this appeal for extension of our identity to include other forms of life and elements of the life support system is a call for seeking ecological wisdom, which lies hidden in our evolutionary experience as human species – what Dewey (1925, as cited in Brereton, 2009) calls prehuman level of experience. Our ecological wisdom which Bateson (1972, as cited in Reason, 2007) describes as wisdom, which the human species has accumulated in the course of its evolution in nature, can be accessed by reviving our evolutionary ties with nature – our true medium of origin. It is a wisdom that we need for sustainable participation in life activity and conscious and responsible citizenship in the global community of life. The following section outlines the theoretically conceptual framework of the present study. It examines the potential of action research in creating spaces for seeking ecological wisdom for inclusion and sustainability through inquiry into our frames of reference with a focus on exploring the issue of ecological identity, which is the aim of the study reported on in the present paper.

Action research as a means to create space for seeking wisdom

A recent study by Salīte, Gedžūne and Gedžūne (2009) focused on the notion of wisdom in the context of educational action research with emphasis on the topics of environmental education – person's attitude towards own and other species, inclusion in or exclusion from

the social and natural world. The authors drew on Aristotle's (1985) concept of phronesis, which has been variously interpreted as moral practical wisdom (Birmingham, 2004; Flyvbjerg, 2004; Grint, 2007), practical judgement (Smith, 1999), also wisdom of insight (Salīte, Gedžūne, & Gedžūne, 2009). To sum up, it is the ability to use experience and reflection for finding ethical solutions to the problems at hand, which would correspond to the overarching idea of doing what is 'good' and beneficial for most people concerned. Salīte, Gedžūne & Gedžūne (2009) argue that discovery of life wisdom in co-action (phronesis) is one of the opportunities offered by educational action research. Phronesis as moral practical activity which is directed towards achieving the collective virtuous good and educational action research as reflective activity for formulation and implementation of shared action goals of mutual concern are complementary in their nature (ibid.).

A similar idea is held by Flyvbjerg (2001) who considers phronesis as practical reasoning, a skilled performance or wise judgment which is gained from an insider's (participant's) perspective in specific situations, as opposed to the epistemic knowledge gained in traditional research by observation from a detached outsider's position. As Caterino (2005) puts it, phronesis implies participation in a web of mutual understanding with others and getting a sense of what is right to do through social inquiry. Grint (2007) explains that phronesis cannot be reduced to simplified rules or truths and cannot be taught in a lecture. In a similar vein, Birmingham (2004) cautions that, because phronesis is explicitly a complex personal virtue bound to the particulars of situations and embedded in a community, it resists being reduced to a concrete measure of certainty. It can only be lived and achieved through action, decision-making, risk-taking and inquiry. These considerations are characteristic of action research. Gravett (2004) points out that action research is aimed at achieving both personal and social good. Similarly, Bradbury and Reason (2003) argue that action research is focused on seeking "collective wisdom" (p. 163) through reflection about participants experiences and practices and aiming for a new and better future. Leitch and Day (2000) and Kinsler (2010) refer to Grundy's (1987, as cited in Kinsler, 2010) typology of action research that distinguishes a particular kind of action research – practical action research that seeks to improve practice through development of personal wisdom that would aid practitioners to make wise and prudent decisions and acquire a disposition towards good rather than correct action (otherwise known as phronesis). It thus follows that collective wisdom achieved through action research as a means to enhance the flourishing of individuals and the community is compatible with the essence of moral practical wisdom enclosed in phronesis.

Arguably, the most popular definition of action research is proposed by Reason and Bradbury (2001) in their "Handbook of Action Research". They define action research as a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview which they believe is emerging at this historical moment. In their opinion, action research seeks to bring together action and reflection, theory and practice in participation with others in the pursuit of practical solutions to the issues of pressing concern to people and, more generally, the flourishing of individual persons and their communities (ibid.). Such an explicitly participatory view on action research underscores the importance of respecting the research partici-

pants' standpoints and the knowledge that the participants have arrived at through reflection on their lived experiences (Brydon-Miller, Greenwood, & Maguire, 2003).

Bradbury (Bradbury Huang, 2010) distinguishes four characteristic features of action research:

- orientation to action – generating new ideas that govern action as reaction to participants' perceived needs;
- reflexivity – 'self' is recognised as the instrument of change;
- significance of research influence – meaning and importance that exceeds the immediate context and supports the flourishing of persons, communities and the broader ecology;
- evolution from partnership to participation with gradual changes in the quality of relations among the participants who become more and more involved in planning and evaluating inquiry and change.

These features permit to conclude that action research is a reaction to an issue that is personally meaningful to all its participants. In mutual partnership and cooperation, action research permits to arrive at new knowledge, or wisdom that is generated trough reflection on the participants' lived experiences (Bradbury & Reason, 2003) and encourages action for change (Price & Valli, 2005). In other words, it is a process where participants work together to create new knowledge, develop new understandings and learn from each other (Oreszczyn & Levidow, 2010), i.e. embark on the way of seeking their personally meaningful wisdom of insight.

How to achieve such cooperation, full participants' engagement and participation in action research? Several authors (Birmingham, 2004; Volk, 2009) believe that it is important to create a space or environment that permits to experience a feeling of community. Birmingham (2004) argues that creating the community in which phronesis may develop (i.e. wisdom may be generated through involvement in action research) requires providing the freedom, security, time, and space to take risks and engage in constructive critical discourse with other co-participants of the process. Volk (2009) argues that creating the environment for sharing insights gained from examination of experience helps develop a culture of collegiality, which is important for the participants' full involvement in inquiry processes of action research. Such culture of collegiality provides research participants with the much needed support from other members of the learning community. Other authors (Gravett, 2004; Ballard, 2005) also indicate that action research should provide a safe, supportive and helping environment for discovering the deeper meaning of our experiences. At the same time, this environment should be challenging (Brydon-Miller, Greenwood, & Maguire, 2003). It means that, ideally, action research environment not only nurtures and gives a sense of safety, but also encourages dialogue, listening to others and engaging in critical reflection of experience and its underlying assumptions, beliefs, values, etc. that constitute our personal frames of reference. As Reason (2007) points out, one of the features of action research is that its cycles provide space for reflection and group learning.

To achieve it, communication is essential. Participation in critical discourse about participants' experiences requires opening communicative space. It is a process by which research participants become fully involved in open interaction and discussion of their di-

verse opinions, which fosters successful generation of personally meaningful insights from inquiry into their experiences (Gayá Wicks & Reason, 2009). Cassell and Johnson (2006) point out that opening of communicative space is achieved by forging dialogical relationships among research participants and researchers in pursuit of shared interests and issues of mutual concern. Buber (2002) also stresses the importance of dialogue and considers I/thou attitude to be the grounds for dialogical relationship, developed on the basis of equality and recognition of the worth of the other. Dialogical relationships between researchers and research participants in action research thus imply a shift from the position of researcher as the omniscient expert to a community of co-researchers who feel deep respect for each other's ways of knowing (Reason, 1999, 2003, 2006; Yorks & Kasl, 2006), interpretations of experience and engagement in personally significant inquiry.

Kemmis (2001, as cited in Reason, 2006) similarly stresses that the first and most crucial step of action research is creation of communicative space in ways that enable people to reach consensus and make sure that every participant's contribution is heard and attended to, thus ensuring the legitimacy of the drawn conclusions. Reason (2006) explains that creation of communicative space in action research entails opening, developing, sustaining and encouraging new and better forms of communication and dialogue, and in some cases it can be even more important than solving immediate practical problems.

Cassell and Johnson (2006) single out a particular type of action research – deconstructive research practices with a postmodern orientation. Such action research projects are focused on opening spaces for engaging participants in sharing alternative stories and deconstructing hegemonic discourses. In other words, people generate new ways of seeing things, interpreting them on the grounds of their personal frames of reference. Such orientation of inquiry is particularly compatible with the basic principle of action research as defined by Bradbury and Reason (2003) – action research develops new ways of seeing/theorising the world.

Reason (2006) posits that action research is concerned with creating a space where people can describe their worlds as they see them. Or, as Gravett (2004) puts it, creating a space where participants, on the grounds of inquiry into their experiences, construct their own versions or interpretations of various phenomena. Thus, through creation and opening of communicative space, action research gives voice to participants, emancipates and empowers them (Kinsler, 2010). In this context, Bradbury and Reason (2003) speak of the so-called double loop learning in action research, which implies opening new spaces for dialogue and conversation. Bradbury and Reason (ibid.) also argue that such type of action research as second person inquiry or cooperative inquiry in small groups emphasises the importance of support, trust, mutual care and collaborative relationships among the participants. According to Bradbury and Reason (ibid.), if inquiry process in action research is organised in this way, groups can work towards discovering new ways of seeing the world, i.e. arrive at transformative changes in research participants' frames of reference.

The necessity for such transformation is underscored by Reason (2007) who believes that the current crisis of sustainability that we are facing is a direct result of a crisis of the mind, our way of thinking of this world and acting within it. Education is seen as the key to ensuring sustainable development of society and our planet. However, it is important to realise that education for sustainability, if implemented in an informative way, is ineffec-

tive. Several studies (Moore, 2005; Reason, 2007) confirm that overwhelming learners with facts about the impending ecological crisis leads to shock, alarm, even paralysis and results in emergence of a culture of fear. Therefore, environmental education and education for sustainable development ought to be implemented so as to encourage a change of mind – a transformation in people's frames of reference from orientation to consumerism, ownership, egocentrism and exclusion to orientation towards a holistic and ecocentric worldview, coexistence in harmony and awareness of inclusion in the community of life and its support system (Salīte, 2002; Salīte & Klepere, 2003; Iliško; 2005; Salīte, 2008). The first step to such transformation is becoming aware of the frames of reference we hold (Cranton, 2000; Mezirow, 2000).

Birmingham (2004) points out that the moral complexity of teaching, especially ESD, which is extremely ethically charged, requires phronesis to achieve moral goodness, promote excellence in teaching and learning, and advance human flourishing. Kelly (2006) seconds this opinion by emphasising that sustainable future of our planet requires more wisdom (phronesis) which differs from knowledge in being ethically charged; hence, learning for sustainability should be oriented to promote a person's intellectual and spiritual development (Belousa, 2002), nurturing a sense of responsibility for the Earth and an ethical perspective that supports assuming such responsibility (Kelly, 2006). Thus, as stated above, society experiences an urgent need for transformative changes in our habits of mind or frames of reference that determine the way we perceive the world and ourselves in interaction with it (Mezirow, 2000). These changes are closely related to our identities. Pipere (2007) conceives of identity as of a manifold and dynamically changing field of personality adaptation and creation that arises from interactions with the world. In the present day, it is hardly disputable that the interaction between humans and the world can be either sustainable or unsustainable (Salīte, 2008). It can therefore be concluded that the identity emerging as a result of these interactions (self image and the idea of being in the world) can likewise be either sustainability or unsustainability oriented (Huebner, 2004, as cited in Pipere, 2007), in other words, ecological or unecological. The present study aims at discerning the features of ecological and unecological identity as perceived by pre-service teachers, emerging from their experience-based individual and dialogical reflections about what being an ecological or unecological person entails. This exploration of pre-service teacher's experience-based views on ecological and unecological identity was organised in a form of educational action research with a meta-aim of searching for ecological wisdom of insight through critical inquiry into participants' frames of reference.

Research design and methodology

The study presented in this paper is part of a broader inquiry related to the implementation of the action research based study course "Environmental Pedagogy" at Daugavpils University. It is a mandatory course taken by all first year students of the bachelor level programmes "Pre-school Teacher" and "Primary School Teacher". In the academic year 2010/2011, 39 students participated in the action-research based study course, with 31 students taking part in the research case described in this paper.

One of the first activities of the study course entailed the students' reflection on the features and manifestations of ecological identity. They were asked to look into their past experiences and think of some features that characterise them as (1) ecological persons and (2) unecological persons and our society as (1) ecological society and (2) unecological society. The research participants were thus evaluating individual and collective ecological identities. The students first reflected on this issue individually; then freely discussed their insights with their peers in pairs or small groups of three. After participation in discourse, which was characterised by sharing of perspectives through open dialogue in a climate of equality and mutual enrichment, the students individually came up with their lists of features. After a week of individual and collective non-formal out-of-class reflections, the group met for the next class, and the students were invited to return to their lists and alter them if they felt that their ideas on the issue had changed. These finalised lists were then submitted to the researchers.

These data were then examined by using the method of qualitative content analysis, following the emergent coding procedure (Stemler, 2001). Observing the suggestions proposed by Granenheim and Lundman (2004), the data were transcribed in Ms Word format, first read for general comprehension and then re-read thoroughly; core meaning units were identified and condensed into categories which, in their turn, gradually converged into emerging themes. To increase the credibility and dependability of the process, the coding was performed independently by two authors of the present paper, then compared and discussed in a team of all four authors. Minor alterations were made to the emergent framework of categories, some of the latter were converged or split. Thus, after analysing qualitatively the results of students' reflections, the researchers came up with four lists of features, respectively – individual ecological identity, individual unecological identity, collective ecological identity and collective unecological identity. Each kind of identity was described by 50 features, which were grouped into categories. The students were then engaged in the next cycle of reflection. They were asked to look through the four lists of features and mark each of them by awarding points from 1 to 4, thus expressing if, in their opinion, this feature characterises them personally to a great extent (4 points), to a considerable extent (3 points), to some extent (2 points) or hardly at all (1 point). The data drawn from this cycle of reflection were processed quantitatively and presented to research participants in a form of tables and diagrams at a later class. After the presentation, the research participants engaged in an open discourse on the findings of the previous cycles and then submitted brief descriptions of ecological person as someone having the characteristics of ecological identity. This final result of reflection was considered by the researchers and the participants to represent the emergent wisdom of insight that the research participants had arrived at through engagement in critical reflection and discourse on their experiences in an open communicative space of action research.

Arguably, the presence of the so-called 'action component' might be questioned in such a format of educational action research. This, however, might be explained by some of the contextual constraints of our study which was conducted during study course acquisition in a university setting with first year students who are now only at the earliest stage of their professional development journey and are hence only just beginning to reflect on what being a sustainability-concerned teacher entails in the present situation of impending eco-

logical and social crisis. Thus, as outlined in the theoretically conceptual framework of our study, the main focus of the present educational action research case was to open spaces for inquiry and dialogue on the deeper meanings of the research participants' lived experiences and the seeds of wisdom enclosed therein. We cherish the hope that the pre-service teachers who participated in our study will yet have the chance and, crucially, the willingness to enact the new perspectives in their pedagogical career, for instance, during their practice placement planned for the two final years of their four years long period of bachelor studies.

The above-described ongoing cycles of reflection in an atmosphere of openness, friendliness, support and mutual learning contributed to a gradual opening of communicative space and increased the students' participation in critical discourse. The research participants gradually came to perceive reflection on their experiences of interaction with the environment as a way towards revealing their ecological identities. Exploration of ecological identity was then regarded as a process of generating ecological wisdom of insight for sustainability (person's inclusion in the life world) or seeking deep wisdom for inclusive interrelations with the global community of life and its support system. The results of all research cycles are presented in the forthcoming section of the paper.

Research findings

(A) Students' views on their individual ecological identity

After analysing qualitatively the features that the research participants listed describing their individual ecological identity, the researchers came up with a list of 50 features which were grouped in 12 categories. The results of the students' repeated evaluation of these features are presented in Table 1.

Table 1. Results of students' experience-based reflections on their individual ecological identity

No.	Categories	No. of features across categories	Value	Mean value/points awarded
1	**Relationship with animals**	**3**	**351**	**117 (3.77)**
	love towards animals, not hurting them		121	
	care for (domestic) animals		121	
	helping wounded, hungry animals		109	
2	**Physical health**	**5**	**573**	**114.6 (3.7)**
	personal hygiene		123	
	care for one's health		119	
	care for one's physical appearance		115	
	avoiding polluting one's organism with bad habits (smoking, alcohol)		114	
	keeping fit (sports)		102	

Sequel to Table 1 see on p. 14.

Sequel to Table 1.

3	**Relationships with people**	**9**	**897**	**112.13 (3.62)**
	love and care for relatives		122	
	care for children		120	
	respect towards people		120	
	valuing friendship		118	
	helping people		111	
	openness and frankness		111	
	charity		104	
	encouraging others to live more ecologically		91	
4	**Personal spiritual development**	**3**	**335**	**111.67 (3.6)**
	love and honesty towards oneself		115	
	inner purity		111	
	care for one's intellectual, spiritual development, self-realisation (through art, music, learning)		109	
5	**Character traits**	**8**	**871**	**108.88 (3.51)**
	politeness		118	
	concern about future		116	
	responsibility		115	
	love towards all living beings		113	
	integrity, keeping one's promises		111	
	hopefulness, optimism		108	
	patience		103	
	ecological consciousness (thinking, values)		87	
6	**Cleanliness of environment as individual's responsibility**	**4**	**435**	**108.75 (3.51)**
	keeping one's living space clean and orderly		118	
	care for nature by participating in keeping it clean (campaigns for collective sprucing up the environment)		109	
	avoiding polluting the environment (e.g. by not throwing waste in inappropriate places)		109	
	avoiding burning plastic and other kinds of waste in forests		99	
7	**Relationship with plants**	**3**	**300**	**100 (3.23)**
	not destroying the plant kingdom (trees, flowers, grass)		113	
	tending flowers (home plants, gardening)		97	
	planting trees		90	
8	**Use of resources (wrapping)**	**3**	**282**	**94 (3.03)**
	repeated use of plastic bags		105	
	use of recycled paper		91	
	use of environmentally friendly package (eco-bags, cloth satchels, paper, „family pack")		86	
9	**Habits of personal life**	**3**	**268**	**89.33 (2.88)**
	spending time in nature (walk in the forest or park)		111	
	limited use of chemicals (for hygiene, domestic activities etc.)		80	

Sequel to Table 1 see on p. 15.

Sequel to Table 1.

	use of natural, ecologically pure products (eco-cosmetics, clothes and furniture from natural fibres and materials)		**77**	
10	**Health related to consumption of foods**	**4**	**350**	**87.5 (2.82)**
	consumption of food grown by oneself (fruit and vegetables from one's own plot)		118	
	avoiding consumption of genetically modified foods		96	
	consumption of ecologically pure foods		95	
	vegetarianism		41	
11	**Use of resources (thrift)**	**3**	**262**	**87.33 (2.82)**
	saving energy		90	
	saving water		88	
	ecologically clean means of transportation (by bicycle, on foot)		84	
12	**Use of resources (recycling)**	**3**	**240**	**80 (2.58)**
	utilisation of electric household appliances		83	
	waste recycling		80	
	recycling paper		77	
Total mean value (points awarded)				**3.26**

As seen from Table 1, the pre-service teachers who participated in the present study relate their individual ecological identity to its manifestation in relationships with own and other species – such relationships that are characterised by love, care and helpfulness. Interestingly, the research participants consider that their ecological identity also reveals itself in the state of their physical health and personal effort contributed to sustaining it, as well as in their character traits and activities undertaken towards personal spiritual development. It thus becomes clear that the research participants' view of their ecological identity is holistic in that it takes into account person as a whole – a physical, emotional, intellectual and spiritual being. The pre-service teachers also believe that their ecological identity is manifested in the actions they take to keep the environment clean and protected from potentially harmful human influences; it is important to note that taking such actions is perceived as a person's responsibility before nature. Finally, the research participants consider that their ecological identity is revealed in their habits of personal life and considerate use of planet's resources. These two are more behaviour-related aspects of identity that pre-service teachers recognise in their experiences.

(B) Students' views on collective ecological identity of their community

After analysing qualitatively the features that the research participants listed as describing their collective ecological identity, the researchers came up with a list of 50 features which were grouped in 12 categories. The results of students' repeated evaluation of these features are presented in Table 2.

Table 2. Results of students' experience-based reflections on collective ecological identity in their community

No.	Categories	No. of features across categories	Value	Mean value/points awarded
1	**Policy and legislation**	**2**	**217**	**108.5 (3.5)**
	penalty for destruction and pollution of nature		114	
	legislation against environmental pollution and for environmental protection		103	
2	**Relationships with people**	**7**	**735**	**105 (3.39)**
	care for family members		114	
	care for children and orphans		109	
	mutual help, sympathy, charity		107	
	friendliness		106	
	cooperation, exchange of experience		105	
	helpfulness		98	
	not dividing people by race or nationality, seeking common grounds		96	
3	**Cleanliness of environment as collective responsibility**	**8**	**808**	**101 (3.26)**
	organisation of/participation in campaigns for environmental protection or collective sprucing up the environment		116	
	planting trees and forests		108	
	activities of nature protection organisations		107	
	creation of natural parks and reservations		105	
	not polluting water		104	
	disposing of waste in the prescribed places		103	
	minding the cleanliness of nature and ecological problems		94	
	decreased use of chemicals in domestic activities		71	
4	**Care about animals**	**6**	**594**	**99 (3.19)**
	love towards animals		112	
	care for domestic animals and pets		112	
	protection of endangered species		105	
	protest against abuse of animals (in science, for furs)		99	
	helping wounded, stray animals		89	
	avoiding killing animals (vegetarianism)		77	
5	**Health related to consumption of foods**	**2**	**192**	**96 (3.10)**
	consumption of foods grown with own hands		106	
	consumption of ecologically pure products		86	
6	**Education and information**	**3**	**284**	**94.67 (3.05)**

Sequel to Table 2 see on p. 17.

Sequel to Table 2.

	commercials that promote ecological attitude and action		96	
	exchange of knowledge and experience on international level		95	
	ecological upbringing at school		93	
7	**Use of resources (recycling)**	**2**	**188**	**94 (3.03)**
	sorting waste		95	
	secondary use of once consumed products		93	
8	**Personal spiritual development**	**3**	**281**	**93.67 (3.02)**
	concern about future		99	
	evaluation of one's actions and behaviour		91	
	strive for spirituality and doing what is good		91	
9	**Use of resources (wrapping)**	**2**	**184**	**92 (2.97)**
	production and use of ecological wrapping		97	
	substitution of cellophane packets with environmentally friendly ones		87	
10	**Physical health**	**2**	**182**	**91 (2.94)**
	care for one's health and fitness		98	
	attempts to fight bad habits (smoking, alcohol)		84	
11	**Resources (green technologies)**	**8**	**727**	**90.88 (2.93)**
	production of ecologically pure foods by bio farming		104	
	invention and production of ecologically pure/environmentally friendly products		94	
	perfection of environmentally friendly production technologies		93	
	use of alternative sources of energy		91	
	creation of biodiesel		90	
	factories concerned for reducing environmental pollution		87	
	creation of nature friendly means of transport		86	
	ecological building, environmentally friendly houses		82	
12	**Use of resources (thrift)**	**5**	**393**	**78.6 (2.54)**
	walking on foot		86	
	using bicycles		82	
	saving electric energy and water		79	
	limited use of natural resources		75	
	reduced use of cars		71	
Total mean value (points awarded)				**3.08**

Table 2 reveals that the pre-service teachers who participated in the given study relate the collective ecological identity of their community to introducing such policy and legislation of environmental protection that enhance external motivation by making pollution of nature a penal offence. Secondly, the research participants link collective ecological identity to people's relationships with own and other species, characterised by care and helpfulness. This tendency is also present in the students' views on their individual ecological identity.

They likewise emphasise taking care of the cleanliness of environment (for instance, participation in campaigns for environmental protection) as a collective responsibility. The pre-service teachers believe that ecological identity of their community is also manifested in the state of physical health of its individuals, which can be kept satisfactory by consuming ecological foods and avoiding bad habits such as drinking, smoking and drug use. The research participants recognise the role of information and communication for spreading the message of ecology as a manifestation of ecological identity in their community. Finally, they mention such behavioural aspects of collective ecological identity as thoughtful use of natural resources, saving them from depletion, advancing green technologies and choosing alternative ways of transport.

(C) Students' views on their individual unecological identity

After analysing qualitatively the features that the research participants listed as describing their individual unecological identity, the researchers came up with a list of 50 features which were grouped in 12 categories. The results of the students' repeated evaluation of these features are presented in Table 3.

Table 3. Results of students' experience-based reflections on their individual unecological identity

No.	Categories	No. of features across categories	Value	Mean value/points awarded
1	**Health related to consumption of foods**	**2**	**174**	**87 (2.81)**
	consuming fish and meat		99	
	consuming unecological and harmful products (fast food, genetically modified food etc.)		75	
2	**Unecological goods**	**3**	**247**	**82.33 (2.66)**
	use of chemical products for washing up and housecleaning		100	
	use of cosmetics and hygiene products that harm the environment		86	
	use of harmful medicines		61	
3	**Ineffective use of resources**	**6**	**460**	**76.67 (2.47)**
	using environmentally unfriendly means of transportation (car)		92	
	using wrapping that harms the environment (plastic bottles, plastic bags etc.)		83	
	failure to save paper		79	
	buying unnecessary goods		73	
	ineffective use of natural resources		67	
	irrational use of water		66	
4	**Not getting involved in sprucing up the environment**	**1**	**75**	**75 (2.42)**

Sequel to Table 3 see on p. 19.

Sequel to Table 3.

	insufficient activity in nature protection (various campaigns)		75	
5	**Personal living environment**	**2**	**136**	**68 (2.19)**
	living in an unecological house (plastic windows, slate roof etc.)		91	
	failing to clean up one's living space		45	
6	**Relationships with self**	**7**	**461**	**65.86 (2.12)**
	infatuation with technologies (computer, internet)		82	
	tendency to perceive negative information		69	
	contaminating one's language		67	
	dominance of material values		63	
	passive lifestyle		60	
	suppressing one's emotions		60	
	unecological thinking and lifestyle		60	
7	**Use of resources (recycling)**	**2**	**122**	**61 (1.97)**
	not sorting waste		77	
	throwing away household appliances in the environment		45	
8	**Relationships with animals**	**3**	**174**	**58 (1.87)**
	not taking care of stray animals (not feeding them)		61	
	destroying insects		58	
	not helping animals if something is wrong with them		55	
9	**Relationships with people**	**10**	**554**	**55.4 (1.79)**
	dominance of technologies in relationships with people (Skype, mobile phones)		92	
	failure to trust people		63	
	not encouraging others to be ecological		61	
	competition among people		57	
	conflicts with people		57	
	lack of tolerance		50	
	reserve		48	
	lies, deceit		47	
	use of others for selfish purposes		43	
	disrespect (to other's opinion and work)		36	
10	**Character traits**	**7**	**362**	**51.71 (1.67)**
	laziness		70	
	malevolence (inability to forgive)		59	
	lack of ecological consciousness (indifference, disinterestedness)		54	
	egoism		52	
	envy		47	
	hypocrisy		41	
	irresponsibility (failing to keep one's promises)		39	
11	**Destructive behaviour**	**4**	**196**	**49 (1.58)**
	burning refuse and last year's dry grass		50	

Sequel to Table 3 see on p. 20.

Sequel to Table 3.

	littering the environment (with papers, rubbish)		49	
	breaking trees and bushes		49	
	picking flowers, destroying endangered species of plants		48	
12	**Physical health**	**3**	**146**	**48.67 (1.57)**
	failure to lead a sportive lifestyle		67	
	failure to take care of personal hygiene		40	
	bad habits (alcohol, smoking)		39	
Total mean value (points awarded)				**2.09**

As depicted in Table 3, the pre-service teachers who participated in the given study primarily relate their individual unecological identity to the consumption of unecological products (household goods and alimentary products) which damage their physical health as well as the 'health' of the ecosystem. Curiously, the students consider that their unecological identity can be manifested in action (notably, ineffective use of resources) as well as in *in*action (failure to become involved in nature protection campaigns). They believe that their unecological identity is reflected in the living environment they create around them, as well as enclosed in their character traits and relationships with the 'self', the surrounding people and other forms of life. The unecological quality of these relationships and, consequently, of the students' individual identity, is exemplified by overreliance on technologies, dominance of material values, pollution of one's language, not taking care of others, competition, conflicts, intolerance etc. Finally, the pre-service teachers consider their unecological identity to be revealed in their destructive behaviour towards nature and its elements, as well as the state of their physical health as a consequence of leading an unecological lifestyle.

(D) Students' views on collective unecological identity of their community

After analysing qualitatively the features that the research participants listed as describing their collective unecological identity, the researchers came up with a list of 50 features which were grouped in 11 categories. The results of the students' repeated evaluation of these features are presented in Table 4.

Table 4. Results of students' experience-based reflections on collective unecological identity in their community

No.	Categories	No. of features across categories	Value	Mean value/points awarded
1	**Destructive behaviour (polluting the environment)**	**11**	**1104**	**100.36 (3.24)**
	use of chemicals for domestic life		110	
	pollution resulting from the use of transport		107	

Sequel to Table 4 see on p. 21.

Sequel to Table 4.

	cutting down and burning forests		107	
	pollution of nature/environment		105	
	contamination of water (with chemicals)		104	
	air pollution via production		101	
	burning waste and last year's dry grass		101	
	disposing of waste in inappropriate places		98	
	depletion of the ozone layer		97	
	increasing number and scale of oil catastrophes		88	
	unecological farming		86	
2	**Health related to consumption of food**	**2**	**196**	**98 (3.16)**
	consumption of unwholesome food (fast food, sweets, food containing chemicals)		103	
	consumption of genetically modified food		93	
3	**Use of resources related to the use of technologies**	**8**	**782**	**97.75 (3.15)**
	excessive use of technologies		106	
	excessive use of non-renewable natural resources		104	
	production of products that decompose slowly/are unecological		101	
	increasing number of factories that pollute the environment		100	
	production and use of chemicals that harm the environment		98	
	insufficiently developed use of alternative sources of energy		93	
	production of genetically modified foods		93	
	new technologies are unecological		87	
4	**Personal characteristics and values**	**7**	**647**	**92.43 (2.98)**
	dominance of money and material values over the spiritual ones		98	
	thoughtlessness, failing to consider the consequences of one's actions		98	
	indifference, gloomy future prospects, lack of future plans		92	
	crisis of spirituality and virtue		92	
	egocentrism, egoism		90	
	lack of respect towards nature		89	
	hopelessness, nostalgia for the past		88	
5	**Relationships with people**	**8**	**724**	**90.5 (2.92)**
	competition and the power of money		104	
	increasing influence of computers and virtual space on humans		103	
	aggressiveness among people (e.g. wars, conflicts)		97	
	envy		89	
	mistrust		88	
	indifference towards others		86	
	disintegration of family ties		81	
	lack of friendship		76	

Sequel to Table 4 see on p. 22.

Sequel to Table 4.

6	**Relationships with animals**	**1**	**90**	**90 (2.9)**
	hunting and destroying endangered species		90	
7	**Physical health**	**4**	**358**	**89.5 (2.89)**
	bad habits (alcohol, smoking, drugs)		104	
	use of harmful medicines		91	
	inactive, unhealthy lifestyle		90	
	failure to take care of personal hygiene		73	
8	**Personal lifestyle and living environment**	**6**	**537**	**89.5 (2.89)**
	use of environmentally unfriendly materials in household activities		101	
	environmentally unfriendly building		91	
	overconsumption		89	
	urbanisation, increasing population of cities		87	
	no concern for saving energy		85	
	alienation from nature		84	
9	**Use of resources (recycling)**	**1**	**88**	**88 (2.84)**
	lack of involvement in recycling		88	
10	**Use of resources (wrapping)**	**1**	**82**	**82 (2.65)**
	use of environmentally unfriendly wrapping (plastic bags, etc.)		82	
11	**Not getting involved in sprucing up the environment**	**1**	**71**	**71 (2.29)**
	lack of participation in campaigns for collective sprucing up the environment		71	
Total mean value (points awarded)				**(2.9)**

Table 4 demonstrates that the pre-service teachers who participated in the given study primarily relate the collective unecological identity of their community to destructive behaviour. It is interesting to observe that the research participants considered destructive behaviour the least prominent trait of their individual unecological identity. This might signify that people are generally blind to their own faults and tend to blame others in bringing about the ecological crisis. The research participants also believe that collective unecological identity is manifested in people's consumption habits – depletion and irresponsible use of natural resources, damaging one's health with harmful foods and overuse of technologies that threatens the environment. Similarly as in the case of examining their individual unecological identity, the pre-service teachers recognise that people's character traits and the quality of relationships with others (including own and other species) is an important indicator of unecological identity. The research participants particularly underscore the dominance of money and material values in our society, which denotes a crisis in spirituality. They also notice people's thoughtlessness, indifference and irresponsibility when interacting with the natural and social world. Finally, the pre-service teachers consider that the state of people's health, their lifestyle, and especially irresponsible use of natural resources are illustrative manifestations of unecological identity in their community. Again, they believe that unecological identity in the entire community can be manifested as both misdirected activity and inactivity (passivity) the same as in the case of separate individuals.

Thus, the research data describing the research participants' individual/collective ecological/unecological identity reveal that, in the pre-service teachers' opinion, their individual identity is less unecological than that of the wider society. In line with that, the pre-service teachers' individual identity in their eyes is more ecological than that of the surrounding community.

(E) Students' final reflections on an ecological person as a bearer of ecological identity

After engaging in open discourse and critical reflection on the findings of the previous cycles, the students came up with brief descriptions of an ecological person who possesses an ecological identity. The qualitative analysis of students' reflections on this issue reveals ecological identity as characterised by the following categories, exemplified by extracts from the students' reflections:

Behavioural aspect

Ecological lifestyle as a key to retaining the health of individuals and the planet:

> *…saves natural resources, energy; lives according to the rules of ecology; has an ecological lifestyle, lives in such a way so as not to harm the environment*

Participation and involvement in nature protection activities:

> *…participates in nature protection organisations, in cleaning up the local environment, supports nature protection; actively participates in the social life of the community with own experience, thinking, feelings; participates in conservation of nature; becomes involved in regeneration of nature; attempts to make his/her surrounding environment more ecological*

Care and considerateness as the guiding motives of one's actions that help to avoid doing harm to the environment:

> *…cares for nature and the surrounding environment; cares for oneself, environment, other people, animals; cares for nature as if for oneself; cares for the future, nature, children, culture, soul; cares for own body, the 'self'*

> *…does not harm the environment or nature with one's life activity; promotes long-term existence of the planet; avoids interfering in natural processes; does not pollute the environment with waste*

Helpful activity for keeping the environment clean and free from the harmful effects of human influence:

...keeps the surrounding environment clean; tries to be useful – do something good for the environment and give one's contribution to the society

Attitudinal and emotional aspect

Sustainability-oriented attitude:

…so that environment is clean and pure for the future generations; recognizing the importance of retaining the riches of nature, passing them on to the future generations; care for the future

Optimistic outlook into the future:

...positive outlook

Inclusion aspect

Feeling of belonging and appreciation of the inextricable link among oneself and all members of the community of life and its support system:

…feels as a part of nature; is closely linked with it; related to other organisms; able to integrate in the society; connection with nature is extremely important; a person is reflection of nature and the environment, draws inspiration from it and has the responsibility to protect it

Accord and harmony as features of relationship between oneself and the world:

...harmony between reason and soul; life in harmony with oneself and others; life in accord with the laws of nature and in accord with the 'self'; good relationships with others

Axiological aspect

Spiritual values such as love, care, respect, unselfishness and honesty:

...respect towards oneself, other people and nature; unselfishness – doing not only what falls into the sphere of own interests; spiritual values; love towards nature and listening to it; honesty towards oneself

'Purity' of thoughts and actions:

…spiritual 'purity'; a 'pure' person who is concerned with hygiene, cleanliness of oneself and the environment; does not pollute one's soul and mind; internally pure personality; both internally and externally pure

Cognitive aspect

Awareness/understanding that enable the evaluation of own and others' activity

> *...thinks about environmental problems; is concerned with environmental problems; considers the environment important*
>
> *...is aware of the positive and negative effects of one's activity and is ready to change things; understands what the environment should be like*
>
> *...teaches others to see nature as part of themselves; teaches not to harm nature*
>
> *...evaluates each taken step; evaluates own activity*

It can thus be concluded that the research participants' view ecological identity holistically as a complex, multi-faceted phenomenon with several characteristic dimensions. An ecological person is perceived as a whole person with characteristic attitudes, values, emotions, thoughts, dispositions and ensuing actions. In fact, through several cycles of reflection, the research participants have arrived at describing an ecological frame of reference (Aalsburg Wiessner & Mezirow, 2000; Cranton, 2002) – a complex phenomenon with cognitive (related to mind), affective (related to emotions) and conative (related to action) dimensions (Mezirow, 2000). In other words, it is a complex structure of assumptions, beliefs, values and expectations which selectively determines individuals' perceptions, inquiry, feelings, dispositions and activities and helps them make meaning of their experiences (ibid.).

This final result of reflection was considered by the researchers and the participants to represent the emergent ecological wisdom of insight that the research participants had arrived at through engagement in critical reflection and discourse on their experiences in open communicative space of action research. As pointed out earlier in this study, wisdom of insight (phronesis) is a complex phenomenon, inextricably linked to the particulars of specific situations and deeply embedded in a community (Birmingham, 2004). It, therefore, cannot be reduced to specific truths, be taught or otherwise transmitted (Grint, 2007). It can only be lived through and gradually achieved through such action research embedded processes as action, choice-making, risk-taking and inquiry. We thus believe that the above-described cycles of action and reflection on the research participants' personal experiences and ecological identity have lead them on the path of slowly and tentatively discovering that their experiences are the source of personal wisdom of insight, which can be applied in their ensuing life activity and integrated in the process of creating their personal practical theories (Gravett, 2004) of environmental pedagogy, as the meta-aim of the study course envisages.

Discussion and conclusions

In this section, the findings of the present study described above will be related to the current discussions in theoretical literature pertaining to the topic under study. As pointed out

by Reason and Bradbury (2003), action researchers increase the quality (reliability and trustworthiness) of their claims which are rooted in the results of their action research by explicitly connecting their own judgements to discussions in current literature.

Goodnaugh (2010) examines teacher identity and the role of action research in transforming it. She believes that teacher identity includes teachers' beliefs, values and emotions related to various aspects of teaching and to what it means to be a teacher. The identity is perceived as incessantly changing and transforming through accumulation of new experience. In Goodnaugh's (ibid.) opinion, teacher identity includes complex interactions with personal experiential, cultural, social and environmental contexts. By extension, we can say that pre-service teachers' ecological identity includes their beliefs, values and emotions related to their experience based assumptions on what being an ecological person entails, as well as their activities or behaviour guided by these assumptions.

In the context of teachers' views on the aim of education for sustainable development, Salīte (2002) distinguishes ecocentric and anthropocentric perspectives. Anthropocentrism is defined as an exaggerated belief of human significance over the non-human world and human ability to control and direct natural processes to our personal advantage (ibid.). Ecocentrism, on the other hand, presupposes attachment, respect, responsibility, cohesion and care in relationships among all forms of life and its support system, viewing them as complementary components within the ecosphere (ibid.). We believe that these notions are applicable to the context of the present study and can be interpreted as orientations of the research participants' identities. Identity that is more ecocentric in its orientation is manifested through caring, respectful relationships with other people and the world at large, responsible action in striving to protect the environment from harmful effects of human life activity, considerate use of natural resources and general awareness of the relatedness and interdependence of all forms of life and its support system on the earth. Conversely, an identity that is more oriented towards anthropocentrism is manifested as irresponsible action, egoism, competition, disregard for the needs of others, alienation from nature, overconsumption, dominance of material values and (self-)destructive behaviour. The present study enabled the pre-service teachers to become aware of the anthropocentric/ecocentric orientations in their individual and collective identities, and this can be considered as one of the first steps in constructing their ecological wisdom and acknowledging the need to strive for inclusion as one of the basic principles of their personal practical pedagogical theories.

In the context of sustainable teacher education, Iliško and Kokina (2003) elaborate on ecofeminism, holism and postmodern spirituality which underscore person's relationship to all creation and call for the development of ecological identity through awareness of self as being deeply connected to the community of life and its support system, as an "embodied spirit that is related to self, others, and the Earth" (p. 12). Thus, ecofeminism is a perspective that emphasises inclusivity, community and spirituality and entails acknowledging diversity and valuing every voice and experience, striving for relatedness, connectedness and interdependence in the world and the classroom as a learning community (ibid.). In the present study, this perspective is discernable in the research participants' ecological identity and can become a reference point for the embodiment of ecological identity in the pre-service teachers' future pedagogical practice and practical wisdom (phronesis).

Salīte and Klepere (2003), in their research aimed at studying the possibilities of action research and transformative learning for reorientation of teacher education towards the strategy of sustainable development, actualised the notions of biotism and abiotism as multi-coloured nuances that characterise in-service teachers' frames of reference. The authors defined biotic attitude as caring interaction between life and its support system and abiotic attitude as reducing the animate to inanimate in relations between people and nature and among people themselves (ibid.). This perspective is close to ecocentric/anthropocentric orientations of teacher identity as previously studied by Salīte (2002). In the context of the present study, the biotic/abiotic nuances can be discerned in the research participants' ecological and unecological identities as care and considerateness in the former case and objectification and inconsiderate use of everyone and everything for the satisfaction of personal needs in the latter case.

The present study describes how, through the exploration of ecological identity, the participants of educational action research became involved in the process of generating ecological wisdom of insight for sustainability (person's inclusion in the life world). It was viewed as seeking deep wisdom for inclusive interrelations with the global community of life and its support system – a wisdom that pre-service teachers need so as to be able to help their pupils become responsible citizens in the community of life and actors of change for a sustainable future. Such (phronetic) wisdom is not quantifiable or expressible in specifically formulated utterances. Yet it transforms something in us; changes the way we see the world around us and make decisions about future course of our activity that are grounded in examination of past experience and oriented towards the virtuous good which would benefit not only us, but also the beings around us. We argue that the way to achieve such wisdom is by seeking it, trying to feel and experience it in the process of participation in open and reflexive dialogue about the deeper meanings of our experiences of interaction with the surrounding world, which is made up by the community of life and its support system. In this case, the focus of reflection was pre-service teacher's ecological identities. By relating the findings of the present study to Mezirow's (2000) suggested discernment of dimensions in a person's frame of reference, we propose that pre-service teachers' ecological/unecological identities (or, in other words, their ecological frames of reference) have the following dimensions – cognitive, attitudinal or emotional (affective), axiological, conative (behavioural), as well as a clearly perceived orientation towards inclusion or apprehended belonging to the community of life and its support system. In the present research, attitudinal and conative dimensions were most pronounced, with cognitive and axiological dimensions being only slightly manifested.

Further research could be undertaken to examine these proposed dimensions of ecological identity more deeply, determining their characteristics and manifestations in each type of identity. It might also be worthwhile to explore other features of ecological person in more detail, for instance, ecological consciousness or attitude towards own and other species as a grounds for seeking ecological wisdom of insight for sustainability. Finally, another implication for further study might be engaging the research participants in another cycle of action and reflection (for instance, during their pedagogical practice placement due two years from now) where they might explore their experiences of teaching for sustainability. Such a study might shed light on the question whether any differences exist between

pre-service teacher's espoused personal practical theories of teaching for inclusion and sustainability and their actual theories-in-use.

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References:

Aalsburg Wiessner, C., & Mezirow, J. (2000). Theory building and the search for common ground. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 329–358). San Francisco, CA: Jossey-Bass.

Ahteenmaki-Pelkonen, L. (2002). Transformative adult learning: A systematic analysis of Jack Mezirow's conceptions. *Thresholds in Education, 28*(3), 2–10.

Aristotelis. (1985). *Nikomaha Ētika* [Nicomachean ethics]. Rīga: Zvaigzne.

Ashman, I., & Lawler, J. (2008). Existential communication and leadership. *Leadership, 4*(3), 253–269. DOI: 10.1177/1742715008092361.

Ballard, D. (2005). Using learning processes to promote change for sustainable development. *Action Research, 3*(2), 135–156. DOI: 10.1177/1476750305052138.

Belousa, I. (2002). Sustainable education and spirituality in the university: Looking for a way of complementation. *Journal of Teacher Education and Training, 1*, 3–12.

Birmingham, C. (2004). Phronesis: A model for pedagogical reflection. *Journal of Teacher Education, 55*(4), 313–324. DOI: 10.1177/0022487104266725.

Bradbury Huang, H. (2010). What is good action research?: Why the resurgent interest? *Action Research, 8*(1), 93–109. DOI: 10.1177/1476750310362435.

Bradbury, H., & Reason, P. (2003). Action research: An opportunity for revitalizing research purpose and practices. *Qualitative Social Work, 2*(2), 155–175. DOI: 10.1177/1473325003002002003.

Brereton, D. P. (2009). Why sociocultural anthropology needs John Dewey's evolutionary model of experience. *Anthropological Theory, 9*(5), 5–32. DOI: 10.1177/1463499609103545.

Brydon-Miller, M., Greenwood, D., & Maguire, P. (2003). Why action research? *Action Research, 1*(1), 9–28. DOI: 10.1177/14767503030011002.

Buber, M. (2002). *Between man and man*. London, New York: Routledge Classics.

Cassell, C., & Johnson, P. (2006). Action research: Explaining the diversity. *Human Relations, 59*(6), 783–814. DOI: 10.1177/18726706067080.

Caterino, B. (2005). Book review: Making social science matter: Why social inquiry fails and how it can succeed again. *Review of Radical Political Economics, 37*, 233–237. DOI: 10.1177/0486613404272696.

Cranton, P. (2000). Individual differences and transformative learning. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 181–204). San Francisco, CA: Jossey-Bass.

Cranton, P. (2002). Teaching for transformation. *New Directions for Adult Continuing Education, 93*, 63–71.

DeLue, S. M. (2006). Martin Buber and Immanuel Kant on mutual respect and the liberal state. *Janus Head, 9*(1), 117–133.

Flyvbjerg, B. (2001). *Making social science matter: Why social science matters and how it can succeed again*. Cambridge, UK: Cambridge University Press.

Flyvbjerg, B. (2004). Phronetic planning research: Theoretical and methodological reflections. *Planning Theory & Practice, 5*(3), 283–306. DOI: 10.1080/14649350420002501 95.

Gayá Wicks, P., & Reason, P. (2009). Initiating action research: Challenges and paradoxes of opening communicative space. *Action Research, 7*(3), 243–262. DOI: 10.1177/1476 750309336715.

Goodnaugh, K. (2010). The role of action research in transforming teacher identity: Modes of belonging and ecological perspectives. *Educational Action Research, 18*(2), 167–182. DOI: 10.1080/09650791003740725.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24*, 105–112.

Gravett, S. (2004). Action research and transformative learning in teacher development. *Educational Action Research, 12*(2), 259–272. DOI: 10.1080/09650790400200248.

Grint, K. (2007). Learning to lead: Can Aristotle help us find the road to wisdom? *Leadership, 3*(2), 231–246. DOI: 10.1177/1742715007076215.

Iliško, Dz. (2005). Pedagogical challenges for implementing holistic curriculum in Latvia. *Journal of Teacher Education and Training, 5*, 28–39.

Iliško, Dz., & Kokina, I. (2003). Ecofeminism as a viable perspective for a sustainable model of education in Latvia. *Journal of Teacher Education and Training, 2*, 3–14.

Kelly, P. (2006). Learning for sustainable futures: One intervention. *Journal of Future Studies, 10*(3), 1–14.

Kinsler, K. (2010). The utility of educational action research for emancipatory change. *Action Research, 8*(2), 171–189. DOI: 10.1177/1476750309351357.

Kitchenham, A. (2008). The evolution of John Mezirow's transformative learning theory. *Journal of Transformative Education, 6*(2), 104–123. DOI: 10.1177/15413446083226 78.

Leitch, R., & Day, C. (2000). Action research and reflective practice: Towards a holistic view. *Educational Action Research, 8*(1), 179–193.

Moore, J. (2005). Is higher education ready for transformative learning? A question explored in the study of sustainability. *Journal of Transformative Education, 3*(1), 76–91. DOI: 10.1177/1541344604270862.

Mezirow, J. (2000). Learning to think like and adult: Core concepts of transformation theory. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 3–34). San Francisco, CA: Jossey-Bass.

O'Sullivan, E. (1999). *Transformative learning: Educational vision for the 21st century*. London, New York: Zed Books. In association with University of Toronto Press, Toronto.

Oreszczyn, S., & Levidow, L. (2010). Call for papers: Action research Journal: Special issue on civil society research for sustainable development. *Action Research, 8*(3), 357–359. DOI: 10.1177/1476750310381915.

Pipere, A. (2007). Becoming a researcher: Interplay of identity and sustainability. In A. Pipere (Ed.), *Education & Sustainable Development: First Steps toward Changes"* (Vol. 2, pp. 241–262). Daugavpils: Daugavpils University Academic Press "Saule".

Price, J. N., & Valli, L. (2005). Preservice teachers becoming agents of change: Pedagogical implications for action research. *Journal of Teacher Education, 56*(1), 57–72. DOI: 10.1177/0022487104272097.

Reason, P. (1999). Integrating action and reflection through co-operative inquiry. *Management Learning, 30*(2), 207–226. DOI: 10.1177/1350507699302007.

Reason, P. (2003). Pragmatist philosophy and action research: Readings and conversation with Richard Rorty. *Action Research, 1*(1), 103–123. DOI: 10.1177/147675030300110 07.

Reason, P. (2006). Choice and quality in action research practice. *Journal of Management Inquiry, 15*(2), 187–203. DOI: 10.1177/1056492606288074.

Reason, P. (2007). Education for ecology: Science, aesthetics, spirit and ceremony. *Management Learning, 38*(1), 27–44. DOI: 10.1177/1350507607073021.

Reason, P., & Bradbury, H. (Eds). (2001). *Handbook of action research: Participative inquiry and practice*. London: Sage Publications.

Rofrano, F. J. (2007). I/Thou-I/Spirit: Martin Buber and the spiritual life of the infant. *Journal of Pastoral Counselling, 42*, 56–69.

Ryland, E. (2000). Gaia rising: A Jungian look at environmental consciousness and sustainable organizations. *Organization & Environment, 13*(4), 381–402. DOI: 10.1177/1086 026600134001.

Salīte, I. (1993). *Studentu profesionālās gatavības paaugstināšana ekoloģiskās audzināšanas darbam skolā* [The raising of students' professional readiness for the ecological education mission at school]. Unpublished doctoral dissertation, University of Latvia, Riga, Latvia.

Salīte, I. (2002). Teachers' views on the aim of education for sustainable development. *Journal of Teacher Education and Training, 1*, 68–80.

Salīte, I. (2008). Educational action research for sustainability: Constructing a vision for the future in teacher education. *Journal of Teacher Education for Sustainability, 10*, 5–16.

Salīte, I., Gedžūne, G., & Gedžūne, I. (2009). Educational action research for sustainability: Seeking wisdom of insight in teacher education. *Journal of Teacher Education for Sustainability, 11*(2), 14–30. DOI: 10.2478/v10099-009-0037-y.

Salīte, I., & Klepere, R. (2003). Biotism as a ground for the education of reflection in teacher education. *Journal of Teacher Education and Training, 3*, 44–58.

Smith, R. (1999). Paths of judgement: The revival of practical wisdom. *Educational Philosophy and Theory, 31*(3), 327–240.

Stemler, S. (2001). An overview of content analysis. *Practical Assessment, Research & Evaluation, 7*(17). Retrieved September 30, 2011, from http://PAREonline.net/getvn.asp?v=7&n=17

Volk, K. S. (2009). Action research as a sustainable endeavor for teachers: Does initial training lead to further action? *Action Research, 8*(3), 315–332. DOI: 10.1177/1476750309351358.

Yorks, L., & Kasl, E. (2006). I know more than I can say: A taxonomy for using expressive ways of knowing to foster transformative learning. *Journal of Transformative Education, 4*(1), 43–64. DOI: 10.1177/1541344605283151.

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