Acta Universitatis Nicolai Copernici • Pedagogika XXXIX/1/2020
Nauki Humanistyczno-Społeczne • Zeszyt 451

DOI: http://dx.doi.org/10.12775/AUNC_PED.2020.003

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Knowledge and Its Dynamics in the Process of Educational Action Research

Knowledge is a Star of Each Drama
(Hall, Tandon, 2015)

Streszczenie

Action research jest demokratycznym i partycypacyjnym procesem tworzenia wiedzy. Jest przestrzenią działań dotyczących kreowania wiedzy w działaniu, co oznacza operacjonalizację wiedzy jako dynamicznego fenomenu, zapośredniczonego przez bogaty kontekst środowiskowy. Artykuł prezentuje fragment badań w działaniu dotyczących procesu autorefleksji studentów, członków koła naukowego, uczestniczących w projekcie *action research*, zrealizowanym na rzecz dzieci i środowiska lokalnego z trzech podolsztyńskich wsi, w latach 2015–2018. Celem badań była identyfikacja sposobu, w jaki studenci postrzegają swoje intensywne zaangażowanie w pedagogiczną i badawczą działalność, w procesie konstytuowania ich profesjonalnej wiedzy i kompetencji. Badania dotyczą przede wszystkim procesu generowania wiedzy, praktyk epistemicznych i procesów charakteryzujących dynamikę wiedzy konstytuowanej poprzez działanie. Wnioski zawierają stwierdzenia, że *action research* oferuje studentom możliwość uczestnictwa w działaniach do-

tyczących „rozszerzonej" epistemologii, różnorodności epistemicznych praktyk i współistniejących ze sobą procesów dynamiki wiedzy. Z tak kompleksowego uczestnictwa w epistemicznych praktykach i procesach wyłania się wiedza, która jest zmienna, „przepływająca", pulsująca, a także nieprzewidywalna w swej mozaikowej strukturze.

Słowa kluczowe: badania w działaniu, rozszerzona epistemologia, praktyki epistemiczne, wiedza, dynamika wiedzy

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Abstract

Action research is defined as „a democratic and participative orientation to knowledge creation. It is a space for „working with and towards knowledge in action", what means operationalization of knowledge as a dynamic phenomenon, mediated by widely contextual environment. The article presents a fragment of the research based on students' reflective self-investigation process that took place both during the implementation of the project and (mostly) after its completion.

The aim was to identify how students perceived an intensive engagement in pedagogical and research activity in the process of a constitution their professional knowledge(s)' and competences. Special attention was paid on the processes of knowledge generation, the ways of knowing and the processes characterizing the dynamics of knowledge constituted through activity. In a conclusion it is stated that action research is an epistemic process which offers the students the experiences of extended epistemology, epistemic diversity and pluriversality and the interrelated processes of dynamics of knowledge. Such complexity of practices and processes creates knowledge which is emergent in constant flow, alternation and pulsation and unpredictable in its mosaic structure.

Keywords: action research, extended epistemology, epistemic practices, knowledge, knowledge dynamics

Action research – a process of knowledge creation

The announcement of action turn in social sciences underlined the perception and understanding of a human being as an active and

critical subject, social actor creating the world around. Practice was discovered as an essential category "that produce learning and learners, practices that involve agencies of an ontologically diverse kind"[1]. Schatzki stated that "mind, rationality and knowledge are constituted through action and interaction within practices" and through them social life is organized reproduced and transformed[2]. This approach has had some consequences for social sciences' research. According to Reason and Bradbury[3] "the primary purpose of research/practice after action turn is practical knowing embodied in the moment to moment action of each research/practitioner in the service of human flourishing". The purpose of inquiry then is to treat knowledge dynamically, as 'a doer"[4] as „situated, negotiated, emergent and embedded activity"[5], as a tool for improvement the reality investigated and transformed.

Such thinking is represented mostly by the advocates of action research and other active strategies (e.g. action learning) who postulate to include subjective/civic engagement in resolving social problems into a research and educational processes. This way they have opened a broad space for explorations new areas of knowledge and its construction which is strongly connected with practice embedded in a multi-contextual learning environment.

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[1] D. Mulcahy, *Rethinking teacher professional learning. A more than representational account*, in: *Reconceptualising Professional Learning: Sociomaterial Knowledges, Practices, Responsibilities,* eds. T. Fenwick, M. Nerland, London, New York, 2014, p. 53.

[2] T.R. Schatzki, *The practice turn in contemporary theory*, London 2001, p. 2.

[3] P. Reason, H. Bradbury*, Introduction: Inquiry and Participation in Search of a World Worthy of Human Aspiration,* in: *Handbook of Action Research. Participatory Inquiry and Practice,* eds. P. Reason, H. Bradbury, London, Thousand Oaks, New Delhi 2001, p. 7.

[4] K. Jansen, L.Ch. Lahn, M. Nerland, *Professional Learning in a New Knowledge Landscapes: A Cultural Perspective,* in: *Professional learning in the knowledge society*, eds. K. Jansen, L.Ch. Lahn, M. Nerland, Rotterdam Boston Taipei, 2012, p. 1–26.

[5] S. Gerhardi, *Knowing and Learning in Practice-Based Studies: An Introduction*. „The Learning Organization", 2009 no 16(5), p. 1.

Reason and Bradbury[6] stated that action research is "a set of practices that responds to people desire to act creatively in the face of practical and often pressing issues in their lives in organizations and communities". Action research is defined as „a democratic and participative orientation to knowledge creation. It brings together action and reflection, theory and practice, in the pursuit of practical solutions to issues of pressing concern. Action research is a pragmatic co-creation of knowing with, not on, people"[7]. It draws on many ways of knowing, both in the evidence that is generated in inquiry and its expression in diverse forms of presentation[8]. It is a space for „working with and towards knowledge in action"[9], what means operationalization of knowledge as a dynamic phenomenon, mediated by widely contextual environment.

The participants of the (action) research and educational processes are involved in "a pragmatic co-creation of knowing"[10] being the subjects of epistemological, methodological and axiological aspects of complex and differentiated activities. Going through repeated cycles of action and reflection they cooperate as co-researchers and co-subjects[11]. Action research as an emergent and developmental strategy, has a processual and multistage character[12]. The participants' involvement is motivated by the „questions that are professionally or personally developmental, socially controversial or require social healing on

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[6] P. Reason, H. Bradbury, *Introduction*, in: *The Sage Handbook of Action Research. Participative Inquiry and Practice,* eds. P. Reason, H. Bradbury, second edition, Los Angeles, London, 2008, p. 3.

[7] H. Bradbury, *Introduction to the Handbook of Action Research*, in: *The Sage Handbook of Action Research.* eds. H. Bradbury, third edition, Los Angeles, London, 2015, p. 1

[8] P. Reason, H. Bradbury, *Introduction*, op. cit., 2008, p. 4.

[9] H. Bradbury, *Introduction to the Handbook of Action Research*, op. cit., 2015, p. 1.

[10] Ibidem.

[11] L. Yorks, *The Practice of Teaching Co-Operative Inguiry,* in: *The Sage Handbook of Action Research*, eds. H. Bradbury third edition, Los Angeles, London, 2015, p. 256.

[12] P. Reason, H. Bradbury*, Introduction*, op. cit., p. 6.

the part of the co-inquires"[13], it demands being personally „inside the experience"[14]. Such participation is „a direct form of knowledge production, learning and action in situated social contexts"[15] forming a space for reflective engagement for people becoming self-determining social actors and authors of their own lives.

Action research strategy has double objectives. Except from the ones indicated above (leading to gather practical and research experience and knowledge) there is also empowering the participants not only to produce "their own knowledge" but to use it in a "process of self-awareness through collective self-inquiry and reflection"[16]. It means „consciousness raising or conscientization" of the „underprivileged members of our world"[17]. The participants become conscious knowledge creators engaged in many ways of knowledge production, communication and learning from each other. The processes of constructing knowledge are therefore a space for emancipatory experiences and practices of democratic participation of people representing various interestes, proposals, claims and expressions of experience which become an important resource for democratic discussion and decision-making[18].

The differntiation of purposes and methods of knowledge construction in action research is also related to the forms of knowledge created. This was pointed out by Peter Park[19] who distinguished three forms of knowledge: representational, relational and reflective. The author linked the typology of knowledge with three forms of activity „typical"

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[13] L. Yorks, *The Practice of Teaching Co-Operative Inguiry*, op. cit., p. 256.

[14] Ibidem.

[15] B. Percy-Smith, G. McMahon, T. Nigel, *Recognition, inclusion and democracy: learning from action research with young people*, „Educational Action Research", 2019 vol. 27 no 3, p. 349.

[16] P. Reason, H. Bradbury, *Introduction*, op. cit., p. 10.

[17] J. Gaventa, A. Cornwall, *Power and knowledge*, in: *The Handbook of Action Research. Participatory Inquiry and Practice*, eds. P. Reason, H. Bradbury, London, Thousand Oaks, New Delhi 2008, p. 179.

[18] B. Percy-Smith, G. McMahon, T. Nigel, *Recognition, inclusion and democracy: learning from action research with young people*, op. cit., p. 357.

[19] P. Park, *Knowledge and Participatory Research*, in: *Handbook of Action Research. Participatory Inquiry and Practice*, eds. P. Reason, H. Bradbury, London, Thousand Oaks, New Delhi 2001, p. 81.

for action research: gathering and analyzing necessary information, strenghtening community ties and shaping the ability to think and act critically. Park stated that „putting participatory research on an epistemologucal grounding forces us to think of community ties and critical awareness, as well as, objective understanding of reality as forms of knowledge”[20]. This way he underlined the cognitive, social and reflective (critical) aspects of knowledge generation in action research. Another attempt to present knowledge processes in action research was made by Heron and Reason[21] who grounded their research in extended epistemology. It concerns many interconnected ways of knowing which cover various ways of producing, expressing, using and sharing knowledge and holistic understanding the way human beings create their worlds. The extended epistemology includes an integration of four ways of knowing (experimental, presentational, propositional, practical), as complex activities based on evidence generation and expression of different forms of knowledge production. The author stated that everyone naturally integrates these four forms of knowing and „interweaves them in all sorts of ways in everyday life”[22]. The validity of knowing in an action research process demands these four ways of knowing to be congruent and cooperative.

Dynamics of knowledge in (a dynamic) action research process

The process of knowledge generation in action research is based on the participants' common engagement of a different nature: intellectual, artistic, social, emotional. The cycles of action and reflection[23] create a space for knowledge constitution in action through personal and com-

[20] Ibidem, p. 84.

[21] J. Heron, P. Reason, *Extending Epistemology within a Co-operative Inquiry*, in: *The Handbook of Action Research. Participatory Inquiry and Practice*, eds. P. Reason, H. Bradbury, London, Thousand Oaks, New Delhi 2008, p. 366–380.

[22] Ibidem, p. 367.

[23] V. Koshy, *Action Research for Educational Improving Practice: A step by step Guide*, London 2010, p. 4–8.

munal experience of participation in every stage of the process – from problem identification and making its diagnosis by developing a program and putting it into practice. Such extended knowledge resources are enriched by a dynamic character of knowledge itself – it is shaped and changed by learning, experience and various other processes[24]. Knowledge embraces both subjective and objective aspects of reality; it synthesizes thinking and action of people involved in common activity[25]. In action research processes of production and sharing knowledge form new praxis for interactions "that become the basis for generating new knowledge again, through the knowledge creation spiral"[26]. Knowledge then "is not a static substance or thing but an ever- changing process of interaction in ever-expanding field of relations[27]. Knowledge is dynamic, active, engaged and linked to social, political, cultural or sustainable changes[28]. Some action researchers define knowledge „as action that is pragmatic, contextually based and relational"[29].

Understanding the process of knowledge creation is to approve the idea of „a world and all things in it as in continuous flow"[30]. Such dynamics – perceived by the founders of chaos theory – gives rise to new cultures (of knowledge or knolwledges) open for movement and commutation of knowledge, for the processes of knowledge re-de- construc-

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[24] S. Guerriero, *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*, Paris 2017, p. 39.

[25] I. Nonaka, R. Toyama, T. Hirata, *Managing Flow: A Process of the Knowledge-based Firm*, New York 2008, p. 18.

[26] C. Bratianu, *Organizational Knowledge Dynamics: Managing Knowledge Creation, Acquisition, Sharing, and Transformation*. Hershey 2015, p. 2. Available from: https://www.researchgate.net/publication/322235157_Knowledge_Dynamics [accessed Sep 23 2019].

[27] I. Nonaka, R. Toyama,T. Hirata, *Managing Flow: A Process of the Knowledge-based Firm*, op. cit., p. 2.

[28] B. Hall, R. Rajesh, *Are We Killing Knowledge Systems? Knowledge, Democracy and Transformation*, Available from http://www.politicsofevidence.ca/349/ [accessed February 24, 2021].

[29] H. Bradbury, R. Lewis, D.C. Embury, *Education Action Research. With and for the Next Generation,* in*: The Willey Handbook of Action Research in Education,* eds. C.A. Mertler, Medford 2019, p.12.

[30] Ibidem.

tion for new forms of knowledge arrangements and disarrangements, for another, often non-academic methods of knowledge generation[31]. Knowledge is perceived as a pulsating phenomenon, created socially in many daily experiences, rich in meetings, readings, observations, considerations. It all forms a mosaic, the more dynamic and complex the more intense its constructor participates in the world. This dynamic and complex nature of knowledge has been noticed by researchers seeking to understand this phenomenon in the light of a complexity theory. They defined knowledge "as continuous invention and exploration, produced through relations among consciousness, identity, action and interaction, objects and structural dynamics"[32], strongly emphasizing many interactions of human and non-human elements which are always active, always reconstituting themselves, creating assemblages of materials, ideas, symbols, desires, bodies, natural forces[33]. Such sociomaterial research[34] becomes an important area of educational inquiry focusing the researchers' attention to questions about these assemblages' role in knowledge production, dissemination and educational practices.

The complex knowledge dynamics is a broad concept characterizing knowledge that transform, change and evolve as a result of various processes and influences. Researching teachers' knowledge dynamics Guerriero[35] distinguishes three main processes which reveal the complex nature of this phenomenon: the structural, functional and rela-

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[31] M. Adamiec, *Dynamika (nie)wiedzy, chaos kultura,* „Chowanna", 2010 no 2, p. 51–75.

[32] T. Fenwick, R. Edwards, P. Sawchuk, *Emerging Approaches to Educational Research: Tracing the Sociomaterial,* New York, London, 2001, p. 28.

[33] T. Fenwick, P. Landri, *Introduction: Materialities Textures and Pedagogies: Sociomaterial Assemblages* in: *Education, in: Materialities, Textures and Pedagogies*, eds. T. Fenwick, P. Landri, London, New York, 2014, p. 3.

[34] Ibidem. T. Fenwick, R. Edwards, *Performative ontlogies. Sociomaterial approaches to researching adult education and lifelong learning,* „European Journal of Research on the Education and Learning of Adults", 2013 no 4 (1), p. 49–63; D. Mulcahy, *Rethinking teacher professional learning. A more than representational account*, op. cit.

[35] S. Guerriero, *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*, op. cit., p. 38–65.

tional ones. The structural dynamics is connected to the processes of knowledge codification and therefore the relations between tacit and explicit knowledge. It means the dynamics of the relationship between thought and unspeakable knowledge and another one presented in definitions, schemes, theories, taken for granted. Functional dynamics relates to processes of knowledge organization: production, mediation and application. It is combined with many activities of subjects who constitute knowledge, share it and use it in action leading to change. The engagement and cooperation in educational and research communities build social dynamics of knowledge which is based on the "interplay between the various agents of a social-professional field"[36]. These all kinds of knowledge processes: codification, organization, coproduction occur in the process of action research; they coexist, compete, interpenetrate each other and these relationships between them cause intensive dynamics. It is also strengthened by the mutual dependence of educational and research processes managed by the researcher, while being and essential part of them.

Additionally, the processes related to the participants' personal development (cognitive, motivational, reflective, emotional), to social aspects of group dynamics, to the quality of educational methodology are also at play here. These processual interactions create a specific dynamics of the educational and research environment[37] as a space for knowledge constitution through the personal and social (communal) experiences. Being created in such dynamic conditions, knowledge becomes a tool for improving practice and a tool for changes in research and learning cultures[38]. Searching for such knowledge ("practice-based nature of knowledge"[39]) motivates the participants at every stage of the research[40] through activity and reflection leading to a problem solu-

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[36] Ibidem, p. 39.

[37] E. Wołodźko, *Ku autonomii studiowania Procesy Znaczenia Konteksty Zmiana,* Olsztyn 2013, p.142.

[38] E. Wołodźko, *Action Research as a Space for Transforming Learning Cultures*, „Forum Oświatowe", 2015 vol. 27 no 1(53), p. 45–60.

[39] P. Park, *Knowledge and Participatory Action Research*, op. cit., p. 83.

[40] J. Luttenberg at all, *Understanding Complexity of Teacher Reflection in Action Research*, „Educational Action Research", 2017 vol. 25, no 1, p. 88–102.

tion or a continuation of the (re)searching process ("practice – changing practice")[41].

In action research, the knowledge dynamics processes involve also aspects of knowledge democracy. This has been pointed by researchers demanding a re-democratization of education appropriated by the neoliberal discourse and the political marketing management methods. Knowledge democracy is about intentionally linking values of democracy and action to the process of using knowledge[42]. Parallel to the epistemic diversity (an acceptance of multiple epistemologies or ways of knowing and affirmation that knowledge is created and represented in multiple forms, e.g. text, image, numbers, story, music, drama, poetry, ceremony, mediation and more); knowledge is treated as a tool for taking action to create a more socially just and healthy world and for deepening democracy[43].

In action research knowledge democracy is implemented – on the one hand - by a respect for the participants representing various backgrounds in the field of existing knowledge and epistemologies and for their different forms of expression and articulation of values, views and meanings[44].On the other hand, it refers to the basic idea of action research which is "common activity taken to overcome the limitations of the realization of participants' human rights and to find solutions to complex local as well as global problems"[45]. Democracy of knowledge and the role of action research in order to strive it become a significant issue of action researchers' discourse presented in two editions (number 1 and 3) of "Educational Action Research Journal" from 2019.

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[41] O. Zuber-Skerritt, *Action research for sustainable development in a turbulent world*, Bingley 2012.

[42] B. Hall, R. Tandon, *Are We Killing Knowledge Systems? Knowledge, Democracy and Transformation*, op. cit.

[43] Rowell, L., Feldman, A., *Knowledge democracy and action research,* „Educational Action Research", 2019, vol. 27 no 1, p. 1–6.

[44] T. Stern, *Participatory action research and the challenges of knowledge democracy,* „Educational Action Research", 2019, no 3, vol. 27, p. 435.

[45] Ibidem.

Methodological assignments

Re-introduction of democracy in pedagogy, educational research and schooling[46] therefore sets out the contemporary thinking about higher education, after four decades of neoliberal business-oriented education reforms. Such re-democratization requires challenging current hierarchies of knowledge and the democratic transformation of knowledge production, dissemination and educational practice. This movement (turn) challenges traditional methods of education and demands attempts to produce a body of educational knowledge based on teachers' and students' inquiry and their experiences and reflections. Such participative, collaborative, interpretive and dynamic procedures are demonstrated by action researchers[47] who "view knowledge as action that is pragmatic, contextually based and relational[48]. Additionally, action research is not limited to its participants' understanding the world but it can be extended to changing it[49]. The article presents students' and teacher's educational project inscribed in a such educational vision. It was a three years' long action research project conducted by the students-members of Scientific Circle of „Educational Media", from Faculty of Social Sciences UWM in Olsztyn, in years 2015–2018. The research, carried out in three small villages near Olsztyn, was focused on various activities students undertook together with children and the inhabitants (mostly their parents and grandparents). Students were engaged voluntarily in favour of small local societies. During the project they organized weekly meetings with children and participated in intergenerational meetings for celebrating events like: St. Adrew's

[46] E. Katsarou, K. Sipitanos, *Contemporary school knowledge democracy: possible meanings, promissing perspectives and necessary prerequisites*, „Educational Action Research", 2019 vol. 27 no 1, p. 108.

[47] Ibidem, s. 113.

[48] H. Bradbury, R. Lewis, D. C. Embury, *Education Action Research*, in: *The Willey Handbook of Action Research in Education,* eds. C. A. Mertler, Medford 2019, p. 12.

[49] E. Katsarou, K. Sipitanos, *Contemporary school knowledge democracy: possible meanings, promising perspectives and necessary prerequisites*, op. cit., s. 113.

Day, Santa Claus Day, The Grandparents' Day, carnival balls, Easter workshops, Family festivals. For each meeting they prepared scenarios reflecting on the pedagogical purposes they wanted to achieve and the activities adequate for them. The scenarios contained proposals of many activities: plays, competitions, games, quizzes, workshops – aiming to attract the inhabitants by various activities of being, playing and working together. Throuh these ways, students wanted to enhance them to be engaged, to build their integration and readiness to commit to the common good.

According to action research agenda there were various aims of the project. The educational ones concerned on the one side the developmental support for children from small villages, having less chances and possibilities for successfull growth. On the other side – there were aims related to an idea of extending epistemology[50], concerning students' professional development through an experience of various ways of knowing and participating in various epistemic practices. In all activities, through all the research stages students were involved as autonomous and reflective parctitioners, they were the authors and the performers of the project practices. Students were also involved in activities undertaken for local society's animation and integration around common goals. By carrying out pedagogical and social tasks they could build their professional and cultural capital as pedagogues and social animators. The research purposes were very rich, they encompassed (among others) the diagnoses of children's developmental deficits and social situation in the villages, the changes caused by our activities in certain stages of the research in these fields, the students' learning processes.

The article presents a fragment of the research based on students' reflective self-investigation process that took place both during the implementation of the project and (mostly) after its completion. As a researcher examininmg students participation in the project I explored

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[50] J. Heron, P. Reason, *Extending Epistemology within a Co-operative Inquiry*, in: *The Sage Handbook of Action Research. Participative Inquiry and Practice*, eds. P. Reason, H. Bradbury, second edition, Los Angeles – London 2008, 366–380. H. Bradbury, *Introduction to the Handbook of Action Research*, op. cit., p. 5.

the meanings they gave to deep and personal engagement in an action research project and in wider sense, in an activity of scientific circle (which is taken by rather small number of students). My aim was also to identify how students perceived a role of such an intensive engagement in pedagogical and research activity in the process of building their professional knowledge(s) and competences. Special attention was paid on the processes of knowledge generation, the ways of knowing and the processes characterizing the dynamics of knowledge constituted through activity. As a pedagogue training future pedagogues I also wanted to recognize the possibilities of including such "scholarship of engagement"[51] in local society's renewal to educational practices of university.

Data reconstruction and discussion

During the three-year action research process an extensive research material was collected. It included data concerning both research and educational process. There were data gathered by students and me through research and data concerning educational activities students undertook with children and the inhabitants. The article presents a „piece" of the material concerning knowledge processes students were engaged in as pedagogues and researchers. Narrative data obtained by applying a semi-structured interview and particpative observation gave me an opportunity to „catch" a meta-perspective of the students' participation in epistemic practices leading to knowledge constitution, mediation and application. Collecting research material I also included my "own reflective data"[52]. They were a source of the constant reflection on the research and educational processes.

In the course of the data analysis, I identified two main areas of a reconstruction the meanings assigned by the students-co-researchers to undertaken practices. The first one concerned extending/extended

[51] D. Butin, Service Learning in Theory and Practice: The future of community engagement in higher, education, New York 2010, p. XV.

[52] J. Saldana, The coding manual for qualitative research, third edition, London 2016, p. 15.

epistemology which illustrates the various ways of knowing[53] students particpated in. Such an approach grounded knowing in the students' experiences, images, stories and understandings[54]. The participants of the project presented a wide range of epistemic activities, albeit of varied nature and scope. Among them there were practices leading to the constitution of knowledge through personal and communal experiences (experimental knowing), through many forms of artistic activities (presentational knowing), through abstracted, intellectual thoughts (propisitional knowing) and by acquiring the ability to use knowledge in action (practical knowing). The second area that emerged from the data reconstruction was related to the processes of knowledge dynamics, especially in terms of coexisting processes of knowledge codification, organization and social aspects of knowledge constitution. The gathered data indicated students' differential and conscious or unconscious involvement in these processes, both in range of certain ways of knowing and some processes of knowledge dynamics.

Extended epistemology – students' various ways of knowing and being

The extended epistemology, which is placed at the center of action research paradigm[55] means „equal legitimacy of multiple epistemological claims"[56] and ways of knowing. Extended epistemology calls to „go beyond privileging cognitive propositions to acknowledge the importance of experience, artistry, intuition and practical contribution"[57]. These rich and various ways of creating knowledge inspire the action researchers and co-researchers to reconstitute themselves as a whole, following many pathways of knowing[58]. This is an invitation to expe-

[53] *Extended Epistemology*, In *The Sage Encyclopedia of Action Research*, eds. D. Coghlan, M. Brydon-Miller, Los Angeles–London 2014, p. 330.
[54] Ibidem, p. 329.
[55] *Extended epistemology,* op. cit., p. 328.
[56] H. Bradbury, *Introduction to the Handbook of Action Research,* op. cit., p. 5.
[57] Ibidem.
[58] *Extended epistemology,* op. cit., p. 328.

rience an interesting developmental challenge through the openess and engagement in „alternative models for the creation of transformational knowledge"[59].

The students' narratives showed that participation in the action research project was their opportunity to constitute such (self)knowledge, having impact on their ability to critically view the changes perceived within themselves. These constitutive processes took place through a personal, introspective reflection related to the experience of becoming professional and reflective practitioners. The students expressed it in the following sentences:

> *The activity in the project confirmed that I am typical activist, I like to apply in practice what I have learned. By participating in the circle I can find out about my pedagogical skills of working with children and about the mistakes I make. I notice elements that I need to improve* – the student-girl

> *I learned about myself that working with children gives me a lot of satisfaction. I have the right approach that allows me to get closer to them, get to know them better and possibly help if needed* – the student-girl.

> *As for me, I discovered something positive about myself at every step. Initially I prefered my good friend played a main role of our activities with children. But my shyness decreased over time. And I think that in the near future I will dare to get more involved in practices* – the student-boy.

This reflection was deepened by students' appreciation of their active participation in the action research project. It concerned the process of an introduction to the profession regarded as valuable and requiring a responsible commitment. The chosen narrations indicated the students' involvement in epistemic practices – and through them – in the process of the emergence of professional awareness and identity.

> *Pedagogical activity is very important for me as I would love to work in the pedagogical profession. This work brings a lot of joy and satisfaction, but also responsibility* – the student- boy.

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[59] H. Bradbury, *Introduction to the Handbook of Action Research,* op. cit., p. 4.

After an intensive time of working as a pedagogue, I know that this is not an easy job. You need a lot of distance to yourself and other people. You have to be empathetic, but not too much, because you cannot help someone when feelings come into play – the student-girl.

Thanks to this practice, I know what I like, what gives me pleasure and what I want to do in my life – the student-girl.

The strong commitment in the undertaken activities was conducive to students' engangement in many ways of knowing. They attributed the greatest importance to the experiential and practical ones, but less attention was given to the presentational and propositional way of knowing.

Experiential knowing

Experiential knowing is a bedrock of action research, which is grounded in experience, in „direct face-to-face encounter with, person, place or thing"[60]. Heron and Reason stated that „to experience anything is to participate in it and to participate is both to mould and to encounter", so the experimental reality is always relative both to the knower and what is known[61]. Experiential knowing is feeling engaged with what there is, participating, through the perceptual process. It is knowing through immediacy of perceiving, through empathy and resonance[62], through direct engagement in action and reflection, which are intertwined with each other. Such view of knowing was strongly underlined by students - they participated in an education outside university, in the field, in a living contact with people (children, inhabitants) they met in their real world. Presenting their experiences the students told what they had learned about children as persons and what knowledge they had gained about the specificity of working with them. In a direct

[60] J. Heron, P. Reason, *Extending Epistemology within a Co-operative Inquiry*, op. cit., p. 367.
[61] Ibidem.
[62] Ibidem.

contact, in a mutually inspiring presence students constituted knowing which was essentially tacit and pre-verbal.

During our activities, a variety of children's behawior, their personalities and attitudes towards their colleagues were obserwable. I was able to meet children in many situations, e.g. how they cope with group work, how they resolve conflict and crisis – the student-boy.

It allowed me to get to know the children, their interests, predispositions, skills, individual characteristics, the environment in which they are raised. I could recognize their need, afflictions, situations in which they feel less – the student-girl.

The students also pointed out the benefits of learning to work with children „in live", in addressing the challenge of learning in action and by facing their own limitations, by recognizing and overcoming the difficulties experienced.

I have observed the fact that I have problems interesingly conducting activities for children of different ages and genders – the student-girl.

The participation in the scientific circle allowed me mainly to combat the unnecessary stress that appeared in the approach to children, and in adition gave an internal determination to continue education in pedagogical profession – the student-girl.

Students' engagement in experiential knowing involved also meeting and learning from the research team and from the society of the villages. This triggered openess, willingless to learn from each other and from the specificity of different places. It also caused an acceptance of these kinds of diversity.

Except from learning to work with children, the participation in the circle helps to meet new people who, like me, want to prepare very well for the profession of pedagogue in the future – the student- girl.

In addition, I learned that every community in the three villages I worked with was different and differs in needs, capabilities, predispositions and sho-

uld not have been treated in the same categories, but approached in different ways – the student- girl.

Presenting experiential way of knowing students underlined a process of learning by building relations, by observations, common participation and reflection in-action. They could also recognize and overcome their constarints and fears.

Presentational knowing

Presentational knowing in action research is the knowing through artful means, nondiscursively through virtual arts, music, dance and movement, and discursively in poetry, drama and storytelling[63]. All these imaginal means and methods „evoke experience, are the pathway for emotion, clarify and codify experience, and are pivotal in providing access to holistic knowing" [64]. They serve to bring out the thoughts, experiences, reflections, to breake down the expression barriers caused by language constrains. The participants of action research process manifest in space and time their postures, gestures and spatial relationship. They express the reflection in many of its varieties, often in the form of stories which resonate with the co-inquirers[65], activating processes of personal and communal knowledge constitution.

However, when describing their experiences of knowledge constitution during the interview, students spoke very little about presentational way of knowing, as if not appreciating this kind of epistemic practices. One of the students (the girl) mentioned them by presenting how she builds her repertoire of artistic activities, as she prepares for the meeting with children. She said:

In addition to building my experience in practice, I try to read and get familiar – on an ongoing basis – with new games, plays, dances that can be used in working with children and young people – the student-girl.

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[63] Ibidem, p. 371.
[64] Ibidem, p. 372.
[65] Ibidem, p. 372.

She also pointed to the difficulty of recognizing the need of community and children and adapting the games accordingly. This way she demonstrated an understanding of the relationship between the objectives of the activity and the media, artistic means and activities used in their implementation. But the students, generally, did not say anything about how they develop themselves, how they enhance their knowledge and abilities thanks to participation in artistic activity.

From my observations, students focused the most on the action itself, experiencing, experimenting and trying to cope in the work with children. During our project they really gained experiences about media (also electronic ones) that were useful in their work, they created their own repertoire of them, testing the usefulnes of them in specific activities. But they did not realize that the participation in such practices meant their involvement in the processes of knowledge constitution. The presentational way of knowing also occupied little space in their reflections during the talks to summarize the activities. It was the more puzzling as, on one hand, they themselves were involved in the artistic experiences, and on the other, they accompanied the children in them. Often, when organizing, for example, a children's ball, they worked very intensively preparing decorations, materials for games and competitions. In developing them, they also implemented the principle of incorporating various artistic forms – painting, dance, singing, theatre, drama, workshops. And finally they were very active participants of these events, playing as the „real" members of children's group, so – in my view – they learned a lot. But artistic media seemed to befor tchem rather tools to achieve the goals of activities - this knowledge has therefore rather instrumental character.

Practical knowing

The students' narratives were largely concerned with a practical way of knowing, especially the acquired skills and competencies. This knowing is action based[66], it is knowing how to do „both in knowing how

[66] *Extended epistemology*, op. cit., p. 375.

to do co-operative inquiry, and in knowing how to do those transformative actions in the world that the inquiry is engaged with"[67]. First of all students estimated their participation in the scientific circle as a valuable experience and underlined practice as a source of knowledge. The student-boy said:

> I believe I learned a lot during my activity in the scientific circle, and this participation allowed me to broaden my experience and thought horizons Practical activity plays an important role for me and mainly through it I gain knowledge useful in working with children.

Other students' narrations were full of statements concerning the learning process benefits that occur in the course of participation in the action research. Here are examples of some of them presenting varius abilities concerning peadagogical methodics, a group of children leadership and some „technical" skills:

> *The knowledge and pedagogical experience I have gained is primarily the ability to conduct activities with children, regardless of the age and gender of theirs. And to recognize the children's needs that appear during meetings* – the student-girl.

> *While working in the project I acquired a lot of pedagogical knowledge – mostly practical one. I have learned how to use various methods of pedagogical practice and how to take advantages from them in the future as well as modify them* – the student – girl.

> *I learned how to deal with difficult situations, e.g. when several children do not want to take part in the proposed play or task. I have learned the flexibility that I think is essential when working with children* – the student-girl.

> *I know how to create a good scenario that not only relies on fun, but also teaches through plays* – the student-girl.

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[67] J. Heron, P. Reason, *Extending Epistemology within a Co-operative Inquiry*, op. cit., p. 375.

The students also told a lot about methodological competences .They highlighted here not only the acquisition of know-how skills in doing research, but also the ability to disseminate its results and organizational skills related to the scientific events. They talked about it in this way:

> *I learned to do my own research, analyze its findings, prepare presentations and then show them at various conferences, like International Seminar of Student Scientific Circles. Besides, I learn how to coordinate such conferences what gives me the ability to organize them and take responsibility for their course* – the student-girl.

> *As for my scientific activity I have learned a great knowledge about how to do qualitative research, how to read it, how to create a material that I could present at the conference* – the student-girl.

> *By participating in a circle, I acquire knowledge about various research methods and techniques, learn to construct research tools, distinguish qualitative from quantitative research, analyze the findings of my own research and present them at conferences* – the student-girl.

Thus, the practical knowing encompassed both students' knowledge and skills related to pedagogical work in the field, as well as the acquisition of research competences, in a wide range. Students' pride in the acquired competences and a certain exaggeration as much they can already do draws attention here, however, they are young researchers and such enthusiasm is a good sign of their future scientific development.

Propositional knowing

The fourth of the ways of knowing identified by Heron and Reason relates to knowing „about" something in intellectuall terms of ideas and theories[68]. Peter Park calls this knowledge representational and distin-

[68] Ibidem, p. 373.

guishes within it two types: functional and interpretive[69]. In action research „emphasis is placed on the epistemological heterogenity which the whole of the extended epistemology articulates – the mutually enhancing effect between the four ways of knowing – rather than valuing propositional expresision over and above the other forms"[70]. Therefore, none of the ways of knowing in action research process is privileged, but these preferences are decided by the participants. This phenomenon was indicated by the following statement:

> *The knowledge acquired is very diverse. I am getting quite a lot from the literature I study, however, the practical activity greatly prevails in acquiring knowledge* – the student-boy.

Despite these preferences, during the research process, especially after meetings with children and the inhabitants, we undertook epistemic reflection, analyzing the issues both of functional and interpretive type of knowledge. The first one concerned some problems of pedagogical, psychological, sociological knowledge about the educational and research process (a characteristics of pedagogical situations; the participants: children, parents, students, teacher-researcher; the research paradigm, the action research process, its aims, stages, activities, description of the research field, research techniques). Within an interpretive subtype, which answers the questions "why" our discussions focused mainly on two issues. On the one hand we penetrated the problems of children's behavior reasons, conflicts among them, resistance against some tasks, some colleagues, pedagogues; ("how deep the reasons are"). Secondly, we were analyzing the way local society functions (local and wider contexts, local relations, power, conflicts; communication difficulties, reasons of „locals" non-alignment (understanding and interpretation). Such common epistemic reflections gave the students an inspiration to become more and more involved in the work in the circle, in social relations among them, but still these were not

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[69] P. Park, *Knowledge and Participatory Research*, op. cit., p. 82–83.

[70] J. Heron, P. Reason, *Extending Epistemology within a Co-operative Inquiry*, op. cit., p. 374.

their favorite epistemic practices. However, further analysis of the research material revealed many and varied students' views on the propositional ways of knowing, relating to both participation in action research and the educational process in the university. They were the sources of many postulates, contradictions and tensions, which indicated a high dynamics of students' knowledge, especially in this area.

Knowledge dynamics – diversity, complementarity, flow

Dynamics is one of the most distinguishing feature of action research. Here the road is built in the march, there is a movement and an alternation of knowledge, the processes of its construction and deconstruction are present and coexist with each other. Knowledge emerges from disorder, chaos, those who create it construct their personal ways of organizing it[71]. The relationships among different types of knowledge are also dynamic: individual and collective, declarative and procedural, tacit and explicit[72]. Individual knowledge often takes the form of a mosaic – „on the one hand is academic (declarative, explicit) acquired in education and realised in vertical discourse and on the other hand – practical, (procedural, tacit) realized in horizontal discourse[73]. Such a rich construction of knowledge causes many tensions in the process of its constitution. In our research this dynamics was the most pronounced in the structural processes. They were indicated by the relationships between explicit and implicit knowledge constituted by the students. Their voices expressed both criticism of the excesive share of the former and the postulate of extending the possibilities of creating the latter. The most critical position on this matter was presented by the student-boy:

> *I do not diminish the importance of theoretical knowledge. It is important but there is far too much of it in the University – I mean knowledge that can-*

[71] M. Adamiec, *Dynamika (nie)wiedzy, chaos kultura*, op. cit., p. 54–60.

[72] S. Guerriero, *Pedagogical Knowledge and the Changing Nature of the Teaching Profession,* op. cit., p. 42.

[73] Ibidem.

not be used in practice in any way. I would like the study to be useful in practical activities. Today, unfortunately, we have to do with the fact that often the theory taken out from the classes has nothing to do with the possibility of practical application.

However, some students signaled their helplessness and a feeling of lack of knowledge and a necessity to seek it out in difficult situations during the realization of the project. These participants postulated the need not only to start the practices with reliable theoretical preparation, to reach for explicit knowledge, but also they suggested other forms of personal and professional development.

It would be useful to start with some thoeory of how to work with the different children, e.g. with agressive or withdrawn. What should be planned so that it is learning through play. So that the children get more out of the meetings – the student-girl.

I do not know how to approach to agressive children or very shy, fearful. In the future I will definitely want to learn more about children's temperaments, personalities, how to work with tchem and help them – the student-girl.

I would like to participate in various personality shaping workshops that will help me better understand the children, to attend trainings that would teach me how to behave when a child breaks rules or is agressive – the student-girl.

Thus, in the course of the project, an understanding and motivation of knowledge seeking practices were reconstructed, the search for the recognition of difficult situations in the light of explicit knowledge turned to be necessary and sensible. Therefore, the students' participation in action research was conducive to the flow of knowledge from tacit to explicit, from knowledge constituted through experiential and practical knowing to knowledge contained in theories which became useful in illuminating practice (propositional knowing).

These processes of knowledge codification, that is, the mutual relations between implicit and explicit knowledge are supported by social

processes[74] and knowledge social and cultural situatedness[75]. It is related to the social aspects of knowledge dynamics and to processes of knowledge circulation. They occur within a reseach group and out of it, in a wider professional environment. In our research, the student saw the inner movement the most – the interactions between these types of knowledge and the social processes taking part in the research group facilitated knowledge exchange. They were also connected with shaping students' attitudes towards knowledge and its constitution. Dynamics of knowledge is related to the interests, needs in knowledge seeking and the role of knowledge in individual and professional life[76]. The knowledge movement which occured in our research group was an effect of an interplay with each other of individual and group aspects of knowledge constitution. Students talked about it many times paying attention to both interaction among them as co-inquirers and their relations with children. Here are some examples of such statements:

> *Mutual conversation, support, exchange of experiences and sharing with each other various pieces of knowledge about good practices of working with children become a motivation for me to deepen my pedagogical knowledge and continue belonging to the circle* – the student-girl.

> *Children can very quickly turn activities into drama if you have nothing to interest them. I have noticed that cool effects give you how you became a child for a while, a member of a group, then the children are more likely to do the things you have planned, with you* – the student-girl.

The social dimension of knowledge dynamics encompasses not only the interactions between different educational actors but also the complex interactions of the elements of the whole social environment[77].

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[74] Ibidem, p. 56.

[75] S. Gherarardi, *Knowing and Learning in Pracice-based Studies: An Introduction,* „The Learning Organization", 2009 no 16(5), p. 352.

[76] K. Jensen, Ch. Lahn Leif, M. Nerland, *Introduction*, in: *Professional learning in the knowledge society*, eds. K. Jansen, L.Ch. Lahn, M. Nerland, Rotterdam Boston – Taipei 2012, p. 19–20.

[77] S. Guerriero, *Pedagogical Knowledge and the Changing Nature of the Teaching Profession*, op. cit., p. 56.

Such understanding is presented by sociomaterial approach to learning and knowledge. The data presented above, especially concerning the presentational way of knowing showed a lack of students awareness of the assemblage of all the elements, including artistic media used in the process of knowledge constitution. They did not perceive how the texts, stories, paintings, pictures and electric and electronic media (or lack of them) in the specific environment of village common rooms took part in the weave of various ways of knowing.

The functional dynamics of knowledge relates to the processes of production, mediation and use of knowledge – the processes of knowledge-to action[78]. These processes define the knowledge production culture[79]. Such culture is created in action research process in a very specific, dynamic way, through crossing the boundaries of formal education and the opportunity to create more living knowledge. In our research the students worked intensively and autonomously, generated their personal and communal knowledge through practice. Except from rich narratives about experiential and practical ways of knowledge production and use students underlined a mediation of knowledge constituted in the research to practice they expect to perform in the future. It was not only a sum of pedagogical and research competences but also the issues of professional ethos of a pedagogue's occupation.

> *I also learn what the pedagogue should be like and what this work looks like in practice, how the pedagogue should approach the children and how to conduct the activities properly. In addition, I learn what mistakes should not be made by me as a pedagogue and what my relationship with the child should look like* – the student-girl.

> *Pedagogical activity allows me to better preparation for a future job. The acquired knowledge and experience will certainly allow me to fulfill my professional duties better and definitely more reliably* – the student-boy.

[78] Ibidem, p. 50.
[79] Ibidem, p. 52.

The participation in the conferences presenting my own research findings caused my planes to link my future professional job with the scientific field – the student-girl.

Knowledge acquired in the process of action research was the subject of students' various epistemic practices. It was not only actively acquired but also examined, compared, contrasted, transformed, exchanged, negotiated – put through many processes of construction and reconstruction.

Conclusions

Action research is as a space for various epistemic experiences and reflections. Its participants perform knowledge through action in different ways, different contexts and for different purposes[80]. Through such a multiplicity of epistemic practices they can recognize many kinds of knowledge, examine different ways of knowing and involve in dynamics of knowledge, emerging from many interrelated processes. Such ways of knowing „cannot be acquired otherwise", this is the connstruction of knowledge-as-action[81].

These multiple pathways of knowing[82]: through experiences of trials and errors, emotions, ideas, assumptions, theories, exploration through arts and improvement of abilities allowed the participants to „create space for epistemological diversity and pluriversality within their own identities, heritages and practices"[83]. It means that knowledge, known

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[80] B. Percy-Smith, G. McMahon, N. Thomas, *Recognition, inclusion and democracy: learning from action research with young people,* "Educational Action Research", 2019 vol. 27 no 3, p. 349.

[81] J. Bulterman-Bos, *How can a clinical research approach contribute to knowledge building for the teaching profession*, „Eucational Action Research", 2017 vol. 25 no 1, p. 121.

[82] B. Percy-Smith, G. McMahon, N. Thomas, *Recognition, inclusion and democracy: learning from action research with young people*, op. cit., p. 357.

[83] P.C. Gaya, *Towards ever more extended epistemologies: pluriversality and decolonisation of knowledges in participatory inquiry*, in: *Handbook of Participatory Inquiry*, eds. Danny Burn, J. Howard, S. Ospina, Available from https://

and a knower were bound by a mutual relationship, activating not only epistemic processes but also the formative processes of creating an individual's critical subjectivity and personal and professional identity. Thanks to such commitment and the accompanying reflection the participants of our project experienced a transformation from consumers of knowledge into reflective analysts and creators. They took the search up, met contradictions, collisions of varius types of knowledge and irregularities of different ways of knowing. Their understanding of these epistemic phenomena changed and expanded, educational patterns acquired in school and academic socialization were overcome. The students broke their convictions about a lack of sense in applying theoretical knowledge (propositional knowing) and about playing the presentational knowing down, as the epistemic practice. Although they especially appreciated experiential and practical knowing (which is closely related to an idea of action research) they discovered the four ways of knowing to varying degrees and intensity. Each of participants created its own mosaic – thus knowledge constituted in action research is personal, particular, normative and experiential[84]. The process of its generation combines conscious and unconscious commitment in epistemic practices[85]. These disproportions raised my new research questions about learning and epistemic practices to deepen students' awareness of multiple ways of knowing.

Active participation in the action research project enabled the students mostly to constitute implicite knowledge, which is experiential, often reflective and relational[86]. Explicit knowledge was initially perceived as useless, but the incidents demonstrating uncertainty and a lack of knowledge to solve problems with children convinced the students to search for it. Through knowledge codification the students

research-information.bris.ac.uk/en/publications/towards-ever-more-extended epistemologies-pluriversality-and-deco/fingerprints [accessed 15 March, 2021].

[84] J. Bulterman-Bos, *How can a clinical research approach contribute to knowledge building for the teaching profession*, op. cit., p. 122.

[85] B. Percy-Smith, G. McMahon, N. Thomas, *Recognition, inclusion and democracy: learning from action research with young people*, op. cit., p. 371.

[86] P. Park, *Knowledge and Participatory Research*, op. cit.

could understand that tacit and explicit are complementary dimensions of knowledge. They could try how to use both and experienced the difficulties in transfer between them.

Participation in a research process requires the explicit formulation of knowledge[87]. Students' scientific activity (doing a research, analyzing data, presenting findings at the conferences, organizing scientific events) enabled them also to codify knowledge, according to the requirements of scientific community. The dynamics of knowledge also manifested itself in mutual movement and dependencies among the processes of knowledge organization (production, mediation and application) also related to their social and sociomaterial aspects, not always conscious for the particicpants.

The interactions and interdependencies among the ways of knowing (extended epistemology) and the multitude of elements, resources, practices, voices, ideas, processes, interactions and influences (epistemic diversity and pluriversality) and also a weave of the processes of knowlege dynamics (structural, functional, social) encourages an interpretation of the whole process of knowledge constitution in action research in the light of comlexity thinking. Here multiple actors and factors interact at multiple levels and these non-linear interactions and cascading effects create knowledge which is emergent and in constant flow, alternation and pulsation. Here knowing and acting belong together and it is an essence of constructing knowledge via (action) research[88].

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[87] S. Guerriero, *Pedagogical Knowledge and the Changing Nature of the Teaching Profession* op. cit., p. 47.

[88] J. Bulterman-Bos, *How can a clinical research approach contribute to knowledge building for the teaching profession*, op. cit., p. 121.

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