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## Action Research as a Path to Change in the Teaching/Learning Process

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### Abstract

**Objectives of the research:** The aim of this article is to present the action research method and the methodology for its implementation, using the example of a framework report of research conducted by the author. The research presented herein was designed to capture the changes in the teaching/learning process in a selected classroom following the implementation of the Universal Design for Learning (UDL) approach.

**Research methods:** The method used in the research was the action research method.

**A short description of the context of the issue:** In a rapidly changing world, education researchers face the challenge of how to study and analyze the educational process, which is (and must remain) changeable in order to keep up with the changing reality. Action research is an interesting methodological proposal. Three cycles of research are presented; for each cycle, the planning process (including research questions), actions taken, data collection methods, and results were specified separately.

**Research findings:** The analysis shows that the research and innovative activities resulted in the development of students' skills in planning, organizing, and managing their learning, as well as the development of their independence, responsibility, creativity, and problem-solving skills. Their willingness to cooperate also increased. As a result, they became more

active (self-)learners. At the same time, the teachers shifted from their traditional, central role of teaching others to that of facilitators, creating learning conditions for a diverse group of students.

**Conclusions and recommendations:** It was demonstrated that action research is a valuable way of bringing about reflective change in the teaching/learning process. Action research is worth promoting to teacher-practitioners, as it is an effective way to introduce bottom-up changes that optimize the educational process.

**Keywords:** Action research, universal design in education (UDL), inclusive education, teaching/learning process, change in the educational process

## Introduction

The world today is undergoing extreme changes. Clearly, these changes also affect the educational process, since it is through education alone that a person gets the chance to face the new and diverse challenges of modern times. For all students, school should be not only an environment that stimulates cognitive development and the acquisition of knowledge that meets the needs of the 21st century, but also – and perhaps above all – a place where relationships are established and developed, including the ability to cooperate, solve problems, take responsibility for oneself and others, and be open to diversity and change in the broadest sense.

According to the current regulations (Minister of National Education, 2020) as well as those being prepared, the Polish education system for children and young people with special educational needs should be largely based on mainstream schools and should take the form of *inclusive education*. At the same time, the concept of *students with special educational needs* is changing. This group is no longer limited to students with disabilities, chronic illnesses, or exceptional talents; many other factors are being identified which may cause a present-day student to manifest needs, either permanently or temporarily, which require an individual approach from the teacher. It has been particularly evident since

the early 2020s, when the COVID-19 pandemic first gripped the world; shortly afterwards, a bloody war broke out beyond our eastern border, threatening the security of the entire world, and many Ukrainian children – war refugees – appeared in Polish educational institutions. However, an analysis of the needs and abilities of today's students leads us further: practically every student is – in a certain sense – different, and therefore, everyone's needs can be, and are, different. But how far can individualization go when students are so diverse? Isn't the demand for individualization in this situation illusory and, in fact, impossible to implement (Domagała-Zysk, 2017, p. 14)?

The question arises: Should the direction of change be reversed? Instead of far-reaching individualization, perhaps it is worth focusing on organizing education in a universal manner, so as to provide each student with whatever will enable them to succeed at their own level. One interesting way of optimizing the operation of an inclusive school and preparing students for the challenges of the modern world is to implement solutions based on the idea of Universal Design for Learning (UDL) (Rose, Meyer, & Hitchcock, 2005).

### ***Universal Design for Learning as a concept for optimizing inclusive education***

UDL is a broadly defined model or philosophy of education which, based on psychological, educational, and neuroscientific research, proposes the development of a flexible learning environment to meet the diverse, including special, learning needs of students (Rose, Meyer, & Hitchcock, 2005). By implementing the educational process in accordance with UDL, education at all levels has the potential to become:

- accessible and attractive to all learners, regardless of their difficulties,
- flexible in form and adapted to the learner's preferences and abilities,
- intuitive and accessible to all, including students with limited language or communication skills,

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- perceptually accessible, also to students with visual or hearing difficulties,
  - user-friendly because it is carried out in a space designed according to the needs of the learners (e.g., limiting the number of stimuli and allowing quiet time for those who need it), and
  - uncomplicated thanks to teaching materials that are easy to use (Domagała-Zyśk, 2017, p. 14).

An undeniable value of inclusive education as implemented in the UDL model is that it creates choices for students in many different aspects, such as the specific goals they want to pursue, the form in which they want to learn (individual, pair, or group work), the didactic means they want to use, or the form of expression of the knowledge or skills they learn (Capp, 2017; Rose, Meyer, & Hitchcock, 2005; Rose, Gravel, & Gordon, 2014). Students thus have the opportunity to take responsibility for their own education through authentic engagement, as well as to help their peers through peer tutoring (Nowak, 2009). In this context, the role of the teacher also changes. From the asymmetrical position of one who teaches, they can become a tutor and a partner of the students in their own activity.

The action research method can be considered the most appropriate for tracking the changes in the teaching/learning process influenced by the implementation of the UDL approach (Czerepaniak-Walczak, 2014; Pilch & Bauman, 2010; Sagor, 2011; Szymańska, 2018; Szymańska et al., 2018). Not only does it allow for the realization of change, but at the same time, it facilitates the fullest exploration and understanding of the (changing) object of study.

### **Action research – an introduction to the method**

The concept of action research has not yet been named clearly in the Polish literature on the subject; it is sometimes referred to by different terms, such as *badanie przez działanie* (research through action) (Smolińska-Theiss, 1990; Szmidt, 2001), *badanie przez wspólne doświadczenie* (research

through shared experience) (Wyka, 1993), or very generally, *badanie praktyki oświatowej* (research into educational practice) (Pachociński, 1993). The term *badania w działaniu* (action research) is most often used (Czerepaniak-Walczak, 2014; Pilch & Bauman, 2010; Skulicz, 1998; Szymańska, 2018), and sometimes the original English phrase is retained.

Action research stems from the tradition created by Kurt Lewin (1946, as cited in Smolinska-Theiss, 1990), who was the first to use the term to describe research consisting, in short, of planning, data collection, and analysis. Action research aims to solve real problems of a social nature. It is a form of self-reflective research undertaken by participants in a social situation to improve their own actions and better understand both the social practice and the wider context in which that practice is carried out (Carr & Kemmis, 1997). As Maria Czerepaniak-Walczak (2014) notes, action research

encourages people to organize themselves around jointly identified problems (usually local, experienced here and now) and to work together in the process of solving them. It strengthens bonds and mutual trust and unites the research and action community, thereby contributing to democratic relationships and mutual learning. (p. 185)

This approach coincides with that of Tadeusz Pilch and Teresa Bauman (2010), according to whom

action research is the study of a social situation in which the researcher finds themselves, with the intention of improving it, that is, improving the quality of their actions in the process. This research is the systematic collection of information about phenomena that produce some kind of change, with the researcher as an inspirer and active participant in the events. (p. 307)

Action research thus allows the boundary between theory and practice to become blurred. "Action research is carried out when an opportunity to improve a situation is perceived, a project to improve it is prepared, put into practice, and the outcome is observed" (Pilch & Bauman 2010, p. 307). An undeniable advantage of action research is that its informal

nature facilitates the improvement of the educator's work and serves to improve educational and pedagogical practice (Czerepaniak-Walczak, 2014, p. 185; Pilch & Bauman, 2010, p. 307).

Action research is participatory in nature and requires constant evaluation from the researchers and the adaptation of further stages (called cycles) to the changing research subject. The strengths of educational action research are its focus on innovation in practice and the implementation – by the educators – of reflective intervention in

the educational policy of the institution, in the improvement of curricula, in the evaluation processes of the quality of the school (university) and the conditions it creates for the development of teachers and their students. Educational action research is seen less and less as a research methodology and increasingly as a philosophy of life that supports educational transformation and initiates changes in the consciousness of the action research participants, who become active, reflective subjects striving for personal and social empowerment. (Wołodźko, 2010, p. 118)

### **Methodological assumptions of self-directed action research<sup>1</sup>**

The object<sup>2</sup> of the research presented herein is one class of a primary school in Krakow (19 students and the four teachers who teach in this class) and the process of change taking place in this team following the implementation of the UDL strategy.

<sup>1</sup> The research presented in this article as an example of the action research method was carried out within an international research project entitled *Preconditions of Transformation of Education Process in Different Educational Context by Applying Inclusive Education Strategies*, coordinated by Prof. Alvyra Galkiene from VMU in Kaunas, Lithuania, in which the author worked as a researcher together with Dr. Jolanta Baran, Professor Emeritus of UP, and Dr. Ewa Dyduch, Assistant Professor Emeritus of UP.

<sup>2</sup> The definition of the object of research was taken from Janusz Sztumski (1995, p. 7), according to whom it can be "everything that makes up the so-called social reality, that is, social communities and groups, social institutions, and social processes and phenomena."

When the research began, the study group was in Year 5; the students were then aged 11–12. The study covered three semesters and ended when the students were 13–14. The research was conducted in three cycles; each cycle covered one semester of education (approximately 5 months). According to the current educational legislation in Poland, the class was a so-called “integration class.” Some students had a documented need for special education. The remaining students had not been issued such a document, but this does not mean that they did not have different educational needs, including special needs. To identify them, the strengths and weaknesses of each student in the class were identified before the research.

The community of active researchers consisted of four teachers, three of whom taught individual subjects (Polish, mathematics, and history) and one who acted as a facilitator, accompanying the students in most of the lessons, and three academics from Krakow universities. It allowed for the triangulation of empirical data (Kubinowski, 2010).

The research sought to capture the simultaneous *teaching/learning* process taking place in the study group, which is in line with the understanding of schooling as an interactive relationship between two simultaneous sub-processes: *teaching* (teacher activity and reflexivity) and *learning* (student activity and reflexivity) (Rose, Meyer, & Hitchcock, 2005).

As regards the ethical aspects of the research, before it began, parents were asked to give written consent for their child’s participation, including recording interviews with students and observing them in class. To ensure high ethical standards in the research, efforts were also made to guarantee the anonymity of the research participants by keeping sensitive data confidential.

In the analysis of the empirical material collected during the research, the constant comparative analysis method was applied, which serves to identify themes and threads of detail in the collected data, which was subjected to transcription and coding (Creswell, 2013). To ensure the accuracy and reliability of the analysis, a communicative validation procedure was applied (Szmidt & Modrzejewska-Śmigulska, 2014), which consists of presenting the themes and threads that emerged during the analysis to the research subjects and coordinating the interpretations made with them.

### Action research framework<sup>3</sup> report

The main part of the study is a report containing the framework characteristics of the action research process in the first, second, and third research cycles. For each cycle, in accordance with the action research procedure described in the methodological literature, the research problems, the action plan, a synthetic description of the activities undertaken, the means of data collection, and the main conclusions (reflections) resulting from the given cycle (which formed the basis of the next cycle) were defined in turn.

#### *The first cycle of action research*

The following two research questions were initially formulated:

- Are changes consistent with the UDL philosophy necessary and possible in this class?
- What barriers to implementing UDL strategies in the class can be identified among students and teachers?

The following actions were planned concerning the above research questions:

- Attempts to persuade teachers and students to implement changes, for example, changing individual students' seats and positioning the teacher in the classroom during working time (moving away from frontal teaching to promoting collaboration between students)
- Familiarizing the teachers with the principles of UDL and demonstrating examples of solutions in line with this approach

The following activities were carried out in the first cycle:

- The researchers provided teachers with suggestions on how to give students choices and organize teamwork in a differently structured classroom.

<sup>3</sup> A detailed analysis of selected aspects of the completed research project is included in Galkiene & Monceviciene (2021), which is an open-access publication.

- The students were given a voice through:
  - collaboratively designing an ideal classroom space and
  - encouraging students to reflect on their expectations of the teaching/learning process (free comments to the question, "What would be the ideal lesson you would like to participate in?").
- The students were offered a self-diagnosis for learning to identify their own learning style.
- The teachers were given suggestions on ways to diversify activities in the teaching/learning process, taking into account the different learning styles of students.

The following data collection methods (techniques) were used in the first cycle:

- Observation of teacher and student activities during selected lessons
- Interviews with students on the topic of the ideal lesson they would like to participate in
- Focus group interviews with students in order to identify their own learning style and ability to choose effective learning strategies
- Focus group interviews with teachers about the values of UDL and how they can be implemented in their pedagogical practice and suggestions for teachers on how to diversify activities (choice of objective, working method(s), didactic means, and forms of work) in the teaching/learning process, taking into account the students' different learning styles

The reflections that emerged from the implementation of the first cycle led to the following conclusions:

- The group of students appeared to be very diverse in terms of their motivation to learn, skills, learning styles, and interests.
- The students stated that they liked school and the teachers and that they felt safe at school; at the same time, they showed considerable passivity resulting from the view that it was the teacher's exclusive

role to teach students and that each student should be taught the same thing in the same way.

- The teachers used traditional teaching strategies, although they tried to modify their procedures to take account of the diversity of the students.
- The teachers and students reconciled themselves to continuing traditional, routine ways of teaching/learning and found it very difficult to imagine the possibility of stepping out of the usual patterns.
- The teachers and students signaled their fear of the proposed change or felt anxious about the proposed change.
- The teachers and students perceived many barriers to implementing UDL strategies and did not see the need to overcome them.
- Even when teachers and students, to a small extent, felt the need for change and had ideas for it, they did not see a chance of implementing it.

The teachers' and students' resignation regarding the traditional, routine ways of teaching and learning, their perceived fear of the proposed change, and the many barriers they perceived to implementing UDL strategies became a particular focus for planning further activities and research. Irrespective of the extent, the teachers agreed to continue with the measures to introduce the UDL approach into their work in the second cycle.

### ***The second cycle of action research***

In the next cycle of the action research, a further set of research questions was formulated:

- In what ways have teachers' and students' actions in the Polish, mathematics, and history classes changed as a result of implementing the UDL strategy?
- What changes have occurred in the reflective evaluation of the teaching/learning process experienced by teachers and students since implementing the UDL strategy?

The planned measures included:

- Initiating and encouraging teachers and students to modify existing classroom routines, including
  - Making students aware of the purpose(s) of the lesson and emphasizing the opportunity to apply the knowledge gained in school to real life,
  - Suggesting that the teachers allow the students to choose the form in which they achieve their objectives, act, and express themselves,
  - Giving a choice in the form of work (as individuals, in pairs, or in a small group formed by the students themselves) and encouraging the students to work together, and
  - Initiating reflective evaluation of the teaching/learning process by teachers and students as a result of implementing the UDL strategy.

The measures for the second cycle focused primarily on the teachers' implementation of the selected UDL strategies that were suggested by the researchers, including the following:

- Giving students the lesson objective(s) and demonstrating the lessons' relevance to life
- Giving students a choice of how to achieve a given objective by providing them with a variety of modes of action
- Encouraging students to work collaboratively.

The data in the second cycle was collected using the following techniques:

- Longitudinal, multi-participant observation of teachers' and students' activities (preparing protocols from observations of Polish, math, and history lessons according to a fixed schedule)
- Individual interviews with teachers immediately after the observed lessons
- Interviews with students after each observed lesson
- Questionnaires completed by teachers after each lesson
- Focus group interview with teachers

Some of the reflections that emerged from the implementation and analysis of the second cycle included

- Teachers and students recognizing the value of the change associated with the UDL strategy and the reduced/eliminated anxiety associated with it, including
  - teachers recognizing the value of making students aware of the lesson objectives and the students appreciating the opportunity to put into practice the knowledge and skills acquired in the lesson,
  - teachers noticing that students became more engaged in class, which was related to an increase in students' motivation observed by teachers, and students' expression of satisfaction with the different forms of action and expression available in class, and
  - teachers and students noticing the value of cooperating in class, thanks to which students became more creative, more responsible, and better able to solve problems,
- Teachers and students identifying factors that facilitate the implementation of UDL strategies, and
- Teachers and students continuing to recognize the barriers to change associated with implementing UDL strategies, but taking a proactive stance towards these barriers, seeking to overcome them, including
  - Teachers identifying the following barriers: too short a duration of each unit, fear of not being able to fully implement the core curriculum, time-consuming preparation of lessons according to UDL principles, and fear of pressure from parents who equate their child's educational success with a high score in secondary school exams rather than well-being and
  - Students desiring to always work together in the same group.

The general reflection after the second research cycle took the form of an assertion that it is worth trying and introducing routine-breaking changes in the teaching/learning process.

### ***The third cycle of action research***

The third cycle of action research commenced at the end of February 2020, when the SARS-CoV-2 virus appeared in Europe, including Poland, and the pandemic began. Despite the unexpected situation, the research was able to continue using remote tools. The research problem adopted for the third cycle of research, based on the conclusions of the previous cycle, was initially formulated in the form of a question:

- How does teachers' and students' readiness for changes in the teaching/learning process and the continuation of changes initiated by the project manifest itself?

The initial plan was to

- introduce teachers to different, more innovative ways of assessing students' work,
- introducing students to self-evaluation and self-monitoring (encouraging them to move from extrinsic to intrinsic motivation), and
- co-developing a "Lesson Action Guide" as a tool to activate students and encourage self-reflection (reflective learning).

The pandemic and resulting lockdown, including the closure of schools and the introduction of remote learning, forced a redefinition of the research problems. Ultimately, the research problems for the third cycle took the form of the following questions:

- How and to what extent did teachers and students use their experience and continue to implement UDL strategies into the teaching/learning process during the remote learning period, which was difficult for the course of education?
- Did the experience of applying the UDL strategy positively influence the teaching/learning process during the remote learning period and how?
- Were there difficulties in implementing UDL strategies in the remote teaching/learning process?

The plan of action for the third cycle had to be modified due to the lockdown. The situation was so surprising that the researchers initially feared that the research project would have to be suspended. Polish schools were implementing various forms of remote learning quite quickly. Still, it was an extremely difficult situation for everyone involved in the educational process, from educational authorities to teachers, parents and, above all, students, who were now inevitably expected to be much more involved in their education than ever before. Therefore, the researchers simply assumed that they would remind teachers of the UDL strategies and encourage them to implement them in remote forms of educational work as well.

Thus, the measures taken in the third cycle consisted mainly in:

- Encouraging and mobilizing teachers to plan and implement remote education, taking into account UDL principles, and
- Providing teachers with methodological support and ongoing discussion of issues arising in the course of remote learning.

The methods of data collection for the third cycle came down to:

- Polish, math, and history teachers completing questionnaires about their reflections on the application of UDL principles in their selected, remote lessons,
- One-to-one telephone interviews with teachers,
- One-to-one interviews with students via the Zoom platform about their teaching/learning experiences during remote learning, and
- A focus group interview with teachers via the Zoom platform.

The reflections arising from the implementation of the third cycle of action research can be presented as follows:

- The teachers and students used their previous experience in implementing UDL strategies in the teaching/learning process during the remote learning period, which was difficult for the educational process, although they did not do so as often as in the traditional form of schooling.

- The previous experience of teachers and students in implementing UDL strategies in the teaching/learning process during the remote learning period had a positive impact on the pedagogical and social aspects of teachers' and students' functioning, by
  - Enabling teachers and students to remain highly motivated to continue the teaching/learning process in an e-learning environment,
  - Positively sustaining and even developing cooperation between teachers, students, and parents, as well as among students themselves,
  - Promoting the maintenance of students' autonomy and responsibility for their own and their group's learning outcomes,
  - Promoting the development of creativity and problem-solving of teachers and students in the new experience of remote learning during school closures, mainly through cooperation and mutual support, and
  - Giving teachers the feeling that students – engaged, taking responsibility, and willing to cooperate – would cope with the difficult situation.

## Conclusion

In a rapidly changing world, the educational process must also change, because it is through education that people have the opportunity to meet the new and diverse challenges of today. However, change requires an effort to significantly transform the reality of schooling. At the same time, it is important to recognize that effective and meaningful change in education cannot be top-down or radical. It is necessary to identify existing barriers element by element; to plan, take, and modify actions; to evaluate and reflect on their effects; and to take the next step in the transformation of education.

Action research in education is extremely helpful in this regard, as it allows for a change in the teaching/learning process that is optimally

adapted to the needs of a given environment, provides an opportunity to solve real problems of a social nature (Smolińska-Theiss, 1990), fosters closer ties, unites the researching and acting community (Czerepaniak-Walczak, 2014), and is even formative (Walulik, 2018).

This article presents a framework report of research aimed at capturing the changes that occurred in the teaching/learning process in a selected class following the implementation of a Universal Design for Learning approach. The analysis shows that the research and innovative activities implemented during the study resulted in the development of students' skills in planning, organizing, and managing their learning, as well as the development of their independence, responsibility, creativity, and problem-solving skills. Their willingness to cooperate also increased. As a result, they became more active (self-)learners. At the same time, teachers shifted from their traditional, central role of teaching others to that of facilitators, creating learning conditions for a diverse group of students. The framework report presented herein can provide an example of how to conduct action research; it can also be an incentive for teachers to implement change.

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