Chapter 12

The Model of UDL Implementation Enabling the Development of Inclusive Education in Different Educational Contexts: Conclusions

Alvyra Galkienė and Ona Monkevičienė

Abstract This chapter presents the conclusions of research carried out by Polish, Lithuanian, Finnish, and Austrian researchers, aimed at providing an answer to the question of ‘How the implementation of Universal Design for Learning (UDL) enriches the practices of inclusive education in different educational contexts.’ The summary of the research results is followed by a model of the application of the UDL approach for the development of inclusive education. In the model, the UDL approach is presented as an approach of transforming the process of education and strengthening teacher inclusive attitudes, as a prerequisite for the pupil’s becoming an expert learner, a means for mobilizing the school community, a tool for reflecting teacher competences, and a new perspective for re-interpreting educational practices. The UDL application model is valuable in terms of developing inclusive education practices, as it allows us to see barriers to pupil education as well as relevant directions for improving education in any educational and cultural context.

Keywords Inclusive education · UDL · Education transformation · Education re-interpretation

The research, which was conducted in four European countries, aimed to reveal the impact of the application of Universal Design for Learning (UDL) for the improvement and re-interpretation of inclusive education in different educational contexts. The research project was implemented in different educational contexts and schools with different experiences in inclusive education. The discourse of the project partners disclosed national priorities for inclusive education implementation, which influence teachers’ dispositions and educational practice at school. Taking into account the priorities of inclusive education improvement, the areas that are relevant

A. Galkienė (✉) · O. Monkevičienė
Educational Academy, Vytautas Magnus University, Kaunas, Lithuania
e-mail: alvyra.galkiene@vdu.lt; ona.monkeviciene@vdu.lt

to the analysis and improvement were distinguished in the discussions of researchers and teachers–practitioners. The Polish research team identified the problem of improving the process of inclusive education in the classroom. The Lithuanian researchers put forward the idea of developing the pupil's becoming an expert learner in the context of inclusive education. The discussion about the improvement of a well-developed system of inclusive education in Finland raised the problem of developing the inclusive competence of teachers. The Austrian researchers emphasised the need to re-interpret the existing high-quality practices of inclusive education from a different perspective, identifying relevant aspects to be improved. Having discussed possible ways to improve inclusive education as a tool of change in inclusive education, the UDL approach was chosen. Scientific research attempts were made not only to improve inclusive education in schools, revealing the peculiarities of UDL application in different cultural educational contexts, but also to identify and ground on research new possibilities of UDL application. The action research was chosen as a methodological approach that allows changing the educational practice and simultaneously developing the theory.

Following the results of research on different cultural educational contexts, a model for applying the UDL approach to improve inclusive education was designed (Fig. 12.1).

UDL as an Approach to Transforming the Process of Education The research results revealed a multi-stage mechanism of change in the process of education in the classroom and school following the UDL approach. The results prove that the application of the UDL approach helps to transition from routine, learning-difficulty-centred teaching to flexible, self-regulating, reflective teacher-moderated learning that is grounded on collaboration of pupils, teachers, and parents and emphasises coping with barriers. The teachers from all the countries in the research, except Finland, doubted the efficiency of applying the UDL approach to the improvement of inclusive education, although the teachers tended to support the introduction of research-based changes at school. Tutoring of researchers initiated and supported the application of the UDL approach in Poland, and it was less and less needed in the process of the action research strategy. In the process of tutoring, teachers were provided with knowledge of UDL, strategies for UDL implementation were modelled, teachers were encouraged and consulted, and their self-assessment was promoted. The observed positive results, such as increasing pupils' motivation, pupils' engagement and growing collaboration abilities, enhanced the self-confidence of teachers and their belief in the efficiency of the UDL approach in the process of action research. Regular discussions with the researchers after the observed lessons, when specific stages in organising education and ways of solving emerging problems were modelled together, enhanced the Lithuanian teachers' attitudes and abilities to apply the UDL. The observed abilities of expert learners, which revealed themselves among pupils even without SEN, promoted a breakthrough in the teachers' attitudes and increased their motivation to apply the UDL approach. The Austrian teachers in the research raised the problem that the UDL guidelines and other related materials should be translated and adapted to the country's context,

Fig. 12.1 Model for applying the UDL approach while developing inclusive education

choosing the equivalents of the concepts used in this country. This would help them achieve better understanding, would save teachers' time, and would increase the convenience of practical application.

The research conducted in the Polish school disclosed that the application of the UDL approach enables teachers to move from the status quo situation when other factors are not efficient. It was established that even when pupils and teachers felt a need to change and had ideas about how to do this, they were stopped by disbelief about the success of possible changes. Application of the UDL approach enabled teachers to begin the process of changes. It was also established that the mastered application of the UDL approach becomes a tool for easy coping with the most unexpected challenges to education organisation. The action research conducted in the Polish school showed that teachers and learners who had previous experience in implementing the UDL approach successfully eliminated distance learning challenges during the Covid-19 pandemic. Motivation and responsibility of pupils and teachers to use distance learning opportunities strengthened, pupils' autonomy as well as creativity increased, and problem-solving abilities improved. Applying the

UDL approach to distance learning led to an unexpected result—to closer collaboration of teachers, pupils, and parents that stimulated a more active engagement of pupils in the process of learning.

UDL as an Approach of Strengthening Teacher Inclusive Attitudes The action research revealed that the teachers' ability to doubt the existing practices, to question and explore them, encourages the improvement of inclusive education practices. The enhancement of teachers' inclusive attitudes was promoted by international collaboration among schools in the participating countries, and this allowed for seeing practical examples of organising inclusive education. School teachers—researchers had an opportunity to act with university researchers on an equal basis while making practice-oriented decisions.

Despite the fact that in the beginning of the project the whole research team (teachers and researchers) together with UDL strategists discussed and analysed the conception, principles, and practices of this approach, in the beginning of action research every teacher possessed own interpretations of the UDL approach, which were successfully conformed through collaboration and constant reflection.

A relevant aspect in the change in teachers' attitudes towards the process of education was revealed. In Lithuania, where the understanding of a class as a homogeneous unit traditionally prevails, teachers have started seeing every pupil in the general context of the class. In Finland, where children are provided with substantial individual support, teachers have started including children with severe special needs in the joint learning process in the classroom. In the Austrian school, a question regarding combining individualised and common environment targeting the same goal remained significant.

UDL Is a Prerequisite for the Pupil's Becoming an Expert Learner The difference between the goals of the UDL approach and those of traditional education striving for the quality of inclusive education is an obvious focus on the education and development of all pupils as expert learners. Application of this approach revealed the processes and factors of pupils' becoming purposeful and motivated, resourceful and knowledgeable, and strategic and goal-directed. The action research showed that the purposefulness of the process of education, which is ensured by the UDL principles, areas of their implementation, and checkpoints, significantly contributes to the development of the pupil's abilities of expert learner. The rate of pupil's becoming expert learners depends on several factors: (a) the depth of understanding the UDL approach and the quality of modelling practices of inclusive education; (b) the compatibility of priorities of education system and UDL principles; and (c) the teacher's belief in the potential of all learners, including those with SEN, to develop the abilities of expert learners.

The action research in the Lithuanian school showed that before the start of the research project, some doubts about the possibilities of applying the UDL approach and disbelief in the powers of certain pupils to become expert learners impeded the identification of barriers and modelling of efficient practices. The situation changed due to constant reflection of the education process directed towards development of qualities and abilities of expert learners, reflections, and identification of some signs

of pupils' success. Achievements were higher in the areas of developing the qualities and abilities of expert learners, which were reflected more actively. Better results were observed in perception of information, use of language and symbols, comprehension, interest, participation, collaboration, search for alternatives and support, meeting goals, and different ways to demonstrate knowledge. Teachers encountered more difficulties reflecting on educational practices and faced more barriers in the areas related to setting personal goals of pupils within the context of common goal, choosing strategies for attainment of goal, as well as in self-assessment of results, self-directed, self-regulated, and reflective learning.

In the context of education systems, differences in developing the qualities and abilities of learning experts emerged. Setting goals following the UDL approach, when the pupil establishes the goal from his or her own perspective in the general process of education, was less expressed in the countries where the action research was carried out in the context of traditional education (Lithuania, Poland). The peculiarities of educational contexts either burdened or facilitated reflection on one's own educational goals and achieved results. Since pupil's reflecting is still regarded only as feedback on pupil's achievements to the teacher in the Lithuanian system of education, slower changes occurred in this particular area in the school that participated in the action research. Reflection on one's own learning is a natural process. Therefore, while improving the quality of inclusive education, the school teachers not only encouraged pupils to reflect on their own learning but also taught them ways of self-evaluation and reflection, which corresponded to their cognitive development. The Austrian teachers used 'Buddy Books,' where pupils reflected on their learning process. This means was also used to document individual learning progress and reflection on it. The contexts of education influenced the pupils' ability to choose different and personally favourable ways to demonstrate achievements. In Lithuania and Poland, where teachers feel the necessity of focusing on pupils' preparation for national and international tests, the development of learners' abilities to strategy their own ways of knowledge demonstration was obstructed.

The action research conducted in the Lithuanian school resulted in the revelation of the new abilities of expert learners among pupils, which were less highlighted within the UDL approach. The pupils' ability to understand how emotions support thinking in the processes of perception and behaviour management was disclosed. This ability is better developed in the favourable emotional learning background, which weakens the pupil's motivation to withdraw from the process of education after encountering certain barriers. The pupil's ability to participate in the process of creating collective comprehension while collaborating in the learning group was one more ability of pupils as expert learners, which was less emphasised in the UDL guidelines but was strongly expressed during the process of action research conducted in the Lithuanian school. The development of this ability was encouraged by the use of cognitive tools, which help to exchange, evaluate, and systemise information, envisaging 'blind' information fields and making endeavours to fill them in. The action research in the Austrian school showed that the reflection of pupils together with teachers on how the former understand their strengths and learning as

well as encountered difficulties encourage learners to become co-creators of a universal learning environment.

The research results obtained in the Finnish school actualised the importance of developing social relations and skills while aiming at improving the quality of inclusive education. In a targeted way, the school teachers taught pupils at their personal level to work together in the group, to maintain positive relations, to reflect on personal and joint learning experiences, and to perceive and reflect on themselves as interacting with the environment. Learning of these skills was promoted, creating conditions for peer learning, that is, for self-evaluation of own experiences, discussing them, and hearing self-evaluation of others.

In the course of action research, the efficiency of certain specific educational methods (previously used in schools or discovered anew in digital environments) for the implementation of UDL principles while striving for enhancement of pupils' self-directed learning was established. For example, 'Box lessons', a method used in the Austrian school, enhances pupils' self-directed learning due to its well-prepared materials. The pupils are provided with instructions for action, materials for activities, and self-directed control of solutions. The Lithuanian teacher of English found 'Live Worksheets' online, which is adapted to self-assessment of conducted work, search for mistakes and their correction until the results, which satisfy the pupil, are achieved.

UDL as a Means for Mobilising School Community The action research in Austrian, Lithuanian, and Polish schools following the new UDL approach for improvement of inclusive education allows stating that introduction of new approaches generates tension in school communities and leads to certain conflicts with traditional values. Although some teachers tended to apply the UDL approach with enthusiasm, others demonstrated certain caution. The research also shows that a sustainable way of consolidating changes includes collaborative research, constant discussions with researchers, and tutoring.

UDL as a Tool for Reflecting Teacher Competences Striving for the quality of inclusive education, it is important for teachers to constantly engage in the improvement of competences that are of significance while organising inclusive education. The action research revealed that the UDL approach can be applied as a tool for reflecting teacher competences.

It was established that UDL implementation to pursue improvement of inclusive education, when the teacher simultaneously reflects on the needed competences, efficiently stimulates transformations in practices and dispositions. The action research disclosed that the application of the UDL approach introduced changes in organising education for pupils with severe educational needs. Before the research, such pupils were grouped into homogenous groups according to their learning needs. After the UDL approach was applied, teachers discovered new methods of composing heterogenous groups. Thus, the conditions within the group were created for gifted learners and pupils with severe educational needs to choose different ways of learning and knowledge construction using peer scaffolding. Reflection on

one's own educational process and the attitude towards possibilities of collaboration among extremely diverse pupils contributed to the changes in the organisation of learning. While using the UDL approach, reflecting on their own attitudes and competences, the teachers created methods of education organisation that enable pupils with very high special needs to participate in the general process of education together with other learners. For example, the possibility of allocating all the learning time or part of the time to common learning experience emerges; when learning assignments are more adapted and specified, more detailed stages for all pupils in the context of general learning are established.

The action research in the Finnish school highlighted the substantial benefit of collaboration among teachers, specialists, parents, and caregivers to inclusive education. According to the researchers, this aspect calls for more elaboration in the recommendations for implementing the UDL approach and guidelines. This would increase the efficiency of the UDL approach, including children with high special needs in the general process of education; as such, children are very frequently excluded due to segregational practices of teachers and lack of scaffolding. The research results in the Austrian school stress the need to devote just as much attention to strengthening links with pupils' environments outside school boundaries as it is allocated to the creation of an educational environment at school. However, according to the research data, the UDL approach encourages constant discourse among pupils, teachers, and parents for the sustainable development of inclusive schools. The research conducted in the Austrian school emphasises the necessity of supplementing the UDL guidelines with recommendations for their implementation, which focus on increased engagement of parents in the process of their children's education because collaboration and support from parents is seen as one of the key factors of a favourable socio-emotional environment.

UDL as a New Perspective for Re-interpreting Educational Practices The UDL approach can be applied for re-interpretation of already existing practices of inclusive education, which makes it possible to approach these practices from the new perspective. The research conducted in the Austrian school revealed that the construct of the UDL approach is valuable for re-interpretation of problems raised at school by teachers, pupils, and parents, as well as for finding solutions to them. In the course of this process, the significance of the interaction of resources, strategies, strengths, and barriers in creating the learning context that empowers the pupil was highlighted. The UDL ideas encouraged teachers to put emphasis on the search for ways to enhance learning success and to focus on pupils' strengths and the emotional context of learning. The UDL approach also gave sense to reflections on the problem of balancing the successful functioning of all learners in a common open environment while searching for practical solutions. After teachers and pupils engage in reflections on the coordinated functioning of an individual pupil and groups of pupils, the issues related to the development of functioning environments, the establishment of new environments, and the rejection of inefficient elements are more successfully reflected on.

The use of the UDL approach for re-interpretation of existing practices enables teachers to test practices that comply with the UDL principles and lead pupils to knowledge of the learning process and its management. The action research showed that the UDL approach helps to reflect on the already-used means and methods in a targeted way and thus puts emphasis on encouraging successful and self-directed learning of all pupils and each pupil individually.

The action research conducted in the Austrian school collates two perspectives—differentiated instructing and proactive creation of environment within the UDL approach, which is based on predictability of the diversity of pupils' peculiarities. The researchers arrived at the conclusion that those perspectives are compatible and supplement each other when an educational environment that is favourable to all is created.

The action research conducted in the Finnish school compared the perspectives of national teacher competences in MAP and those within the UDL approach. It was identified that the cognitive competence of teachers, which is included in the MAP model, resonates with the UDL principle "Provide multiple means of engagement" because it complies with the teacher's reflection on own teaching organised within the diversity of pupils and the development of pupils' skills to engage in the process of learning. Moreover, the teacher's social and communication skills and personal orientations provided for in MAP help to consider the voices of pupils and ensure their well-being and successful learning. The competences referred to as 'knowledge base for teaching and learning' and 'cognitive thinking skills', which are included in MAP, are important to the UDL principle 'Provide multiple means of representation'. Possession of these competences enables teachers to freely model the content and process of education, to foresee different ways of presenting information, taking into account different needs of learners, to apply efficient ways of class management, and to assist pupils in mastering self-directed learning and abilities of learning to learn.

Reflection of functioning practices of inclusive education in the context of UDL allows for identifying the directions and components that are of significance to the development of inclusive education in any educational cultural context. The fact that the results acquired in the countries with different experiences revealed similar tendencies even when the UDL was analysed from different perspectives proves it to be an efficient, universal tool for modelling inclusive culture, teacher's dispositions, and didactic principles. Successful creation of the holistic model for applying the UDL approach was predetermined by engagement and joint efforts of teams of teachers and researchers from different countries who acted in different educational cultural contexts but jointly matured theoretical insights based on practical activities, modelling, and testing of innovative aspects.

International Collaborative Action Research as a Driver for Sustainable Transformation In the research we carried out, international collaborative action research emerged as an efficient way to plan, implement, and reflect on systemic changes covering not only alterations to existing inclusive education practices and

structures in different educational and cultural contexts but also as joint reflections on the processes of change by the researchers in teams from different countries.

Based on the retrospective reflections of the researchers, the joint implementation of the collaborative action research provided conditions to review the national state policies and inclusive education development directions and goals in the context of the education policies and practices of other countries. Sharing deliberations, research results, and practical experience revealed profound insights; for example, even in the same European legal context, where countries set similar goals for inclusive education development, specific inclusive education practices differ greatly as a result of varying historical and cultural contexts of the education systems and the challenges that individual schools face. Taking that into consideration, the goals of the collaborative action research jointly carried out by Poland, Lithuania, Finland, and Austria were set, taking into account the future prospects in the development of inclusive education in each country and their specific challenges and expectations. The researchers, referring to successful inclusive practices in various education systems, engaged in a more thorough analysis and interpretation of the perception of inclusive education, thus developing a more open approach towards the variety of students and the process of their education. The Polish researchers and pedagogues emphasised the following: *‘Because of the new experiences we have begun to see much more that student diversity is a value, which in turn has convinced us even more that inclusion is the right direction for change in education’* (from the reflections of the researcher team).

The experiences of the countries participating in the research showed that when developing inclusive education, the UDL approach must be applied in a flexible manner, taking into consideration the inclusive education practices of specific countries. Already, the first discussions of the researchers with the UDL designers and strategists during the training provided by the specialists of the CAST organization revealed that the Austrian inclusive education practice applies most of the elements of the UDL approach, whereas the Polish and Lithuanian researchers and pedagogues saw the possibility of applying the UDL approach for a more targeted inclusive education practices. The team of Finnish researchers saw the possibility of employing the UDL approach to implement a relevant national goal, namely, developing inclusive teacher competencies. In the opinion of the Lithuanian researchers, the international collaboration confirmed that, with a common direction for change, various courses of movement towards inclusion for all are possible in different educational and cultural contexts. The Austrian researchers noted the value of joining international efforts in pursuing inclusion for all: *‘It was interesting to see how one goal – inclusion for all – shaped our efforts. Learning about different ways to implement and how to deal with barriers towards realising inclusion can guide and inform future research efforts, also on a global scale’* (from the reflections of the researcher team). Austrian researchers and pedagogues saw ideas of how big change can be initiated in the school system in the experiences of Poland, Lithuania, and Finland.

The cooperation between the universities and schools in the four countries, joint discussions, and school visits helped the school teachers to identify barriers in the

inclusive education practices of their own schools and classrooms. It raised motivation and helped develop ideas by overcoming challenges and cultivating resilience. The Lithuanian teachers took idea of well-coordinated teamwork from the Finnish school, which helps ensure the success of inclusive education. According to the teachers from the Austrian school, the teaching process is similar in different education systems, yet what is inspiring is the personal relationships the teachers nurture with the children, through which the students receive the strongest possible support. The Finnish teachers focused on the differing inclusive school culture in the countries, its meaning for the atmosphere in the school community, and its confidence in their activities: *'As teachers from Northern Finland from a little village, we appreciate that our work is seen as so important'* (from the reflections of the researcher team).

The collaboration of researchers and teachers when implementing the action research helped the teachers to understand their own practices more deeply, and to the researchers, it revealed the meaning and significance of the daily educational decisions of the teachers in reaching important change. The Finnish teachers especially underlined the possibility of taking a fresh look at the unity of research and practice: *'Working with the researchers has given us a possibility to see how study and practice can go hand in hand'* (from the reflections of the researcher team). The reflections of the Austrian and Lithuanian teachers revealed the practical value this unity carries of providing a deeper meaning to daily educational actions in the theoretical context. As the researchers participated in the daily life of the schools, new insights were born regarding the school realities, barriers to the students' progress and success, and the needs of the teachers, as ideas for improving work with university students and carrying out future research. The researchers found inspiration in the experiences of the Polish and Lithuanian teachers, showing how they succeeded in managing the processes of double transformation by applying the UDL: to change teaching practices towards inclusion for all and, at the same time, to overcome the barriers of distance learning, turning challenges into success stories.

The results of the research carried out, the joint work experiences of the teachers and researchers, and the changes that took place in school practices encourage further dissemination in the countries' education systems, initiate political decisions of education policymakers, and suggest various ways for UDL application on a global scale to improve inclusive education quality in different educational and cultural contexts. The personal experiences of research participants is a field of ideas valuable for inclusion, which will be expanded into educational micro- and macro-environments through the following professional connections: teacher–teacher, teacher–researcher, and researcher–researcher. The collaboration practices between researchers and teachers that were discovered in the international context ensure the sustainability of the ideas of inclusion as a continuous journey towards its higher quality.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.