UNIVERSAL DESIGN FOR LEARNING IN OUR CLASSROOM

Teachers' experiences:
Austria, Lithuania, Poland, Finland

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UNIVERSAL DESIGN FOR LEARNING AS EDUCATION PREDETRMINING SUCCES FOR ALL

Galkienė, Alvyra

MODELLING OF THE IDEA

Education is one of the most sensitive and rapidly changing areas of social life. Educational goals and ways of their implementation are linked to the value-based attitudes, political preferences and economic goals prevailing in the country. Openness of educational system, assurance of equal rights to quality education and establishment of equal conditions for all students make up an essential goal of contemporary educational system based on democratic foundations. However, namely this goal raises provocative questions: how should the quality of education be approached and equal learning for all students be ensured, when students' interests, needs, cultural, social or educational experiences are so different?

Paradoxically, but it is the educational system, which is organised on the principles of equality when the choice of methods is firstly predetermined by external conditions (the subject learnt, students' age, teacher's preferences and other criteria) and the quality of outcomes is defined by the established standards, that creates the most limiting and discriminating conditions for a big number of students. This was emphasised by David H. Rose and Anna Meyer, the establishers of the approach of Universal Design for Learning.

"These environments blocked learning progress and, more significantly, blocked students from falling in love with learning, engaging with their creativity, and seeing themselves as experts in the making. Many of our early clients were students whose enthusiasm for learning had been overwhelmed by feelings of incompetence and discouragement that had generalized from a few areas of challenge to a sense of being altogether inadequate. This disengagement from the enterprise of school and damage to self-esteem was a pernicious result of a rigid system, one we felt could in fact be made flexible now that digital technologies had emerged." (Meyer, Rose and Gordon 2014, p 4-5)

The ways of implementing educational goals are closely interrelated with the conception of strategy based on them. The conception of the inclusive education strategy has undergone changes in the course of events and in the contexts of national education systems. Although at present some countries have well-developed systems of inclusive education that focus of success of all the learners, the Global Education Monitoring Report 2020 (UNESCO 2020) states that the conception of inclusion prevailing in the world is linked with satisfaction of disabled people's needs. However, inclusion is a phenomenon of a much broader extent. The same practice of education should embrace not only people with disabilities but everybody regardless of their age, gender, race, social status or ethnic origin, living place, language, religion, sexual orientation, migration and other conditions. Including inclusive education for all, it is necessary to acknowledge the signs informing about inequality of people and to take measures to eliminate them. One of them, according to the Report is the concept "special needs" that emphasises the normality of people and differences from the norm. In the conception of inclusion, it is recommended to replace this concept by the concepts "***participation and learning obstacles***".

WHAT IS UNIVERSAL DESIGN FOR LEARNING BASED ON?

Universal Design for Learning is an approach of organising inclusive education constructed on the basis of clearly perceived inclusive values: recognition of all students' diversity, nurturance of equal rights towards all students, creation of conditions for full participation, assurance of equal rights and creation of communal relations. Implementation of inclusive values is oriented not towards certain students but towards all learners and acknowledges all the students' intellectual and cognitive differences as well as their diverse interests and learning styles (Hymel & Katz, 2019; Lee, 2019; Van Boxtel & Sugita, 2019). This approach is based on goals of successful learning for every student, which are pursued through differentiation of education and practices of joint learning (Swanson, Ficarra, & Chapin, 2020); Van Boxtel & Sugita, 2019).

As it has already been mentioned, three decades ago, in 1990, Meyer, Rose & Gordon (2014), creators of UDL approach, made a conclusion that in the system of traditional education learners meet obstacles, which limit their accessibility to curriculum and possibilities of expressing own possessed knowledge. It is even worse when curious and eager to learn students are stigmatized not because of something they are in control of but due to educational environment, which becomes an obstacle to their successful learning. While conducting systemic research on learning barriers, researchers paid attention to solutions offered by the total accessibility architecture, which were modelled applying the principles suggested by Connell et al. (1997): 1) Equitable Use; 2) Flexibility in Use; 3) Simple and Intuitive Use; 4) Perceptible Information; 5) Tolerance for Error; 6) Low Physical Effort; 7) Size and Space for Approach and Use. They can be employed modelling an educational environment as well.

Another criterion for modelling a successful learning environment for every learner embraces two types of reasons defined by Vygotsky (1993), which limit high-quality development of a child with a disability (Fig.1).
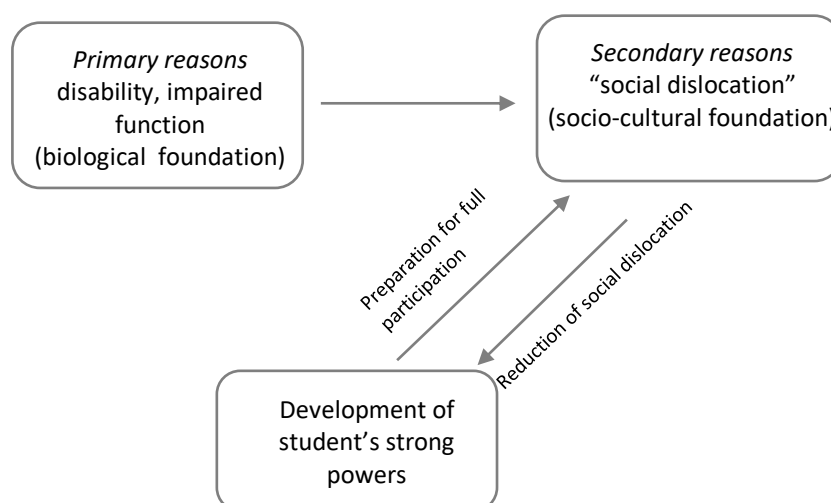
Fig. 1. The reasons restricting the child's social development

Primary reasons are preconditioned by biological changes in the body (sight, hearing or other impairments). Secondary reasons derive from the primary ones due to an unfavourable social cultural context and results in "social dislocation", which limits the child's possibilities for participating and realising own potential. Vygotsky (1924) states that coping with primary, i.e. biological, reasons is a very long process and, in most cases, it is even impossible to do that. However, after recognising the powers of students with disabilities and developing them in the same way as the powers of all the

other students and after tailoring the environment to participation of these individuals, "social dislocation" is reduced and reasons impeding the child's social development are eliminated. Society should create environmental conditions that are favourable for learning and social participation of such students together with others preparing them for the future of a working adult.

"Universal Design for Learning is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn" (Meyer, Rose & Gordon, 2014, p. 3). This approach embraces areas of neurological processes, curriculum, methods and educational means. It is a suggestion of specific guidelines related to implementation of inclusive education for the community of education.

THE DIVERSITY OF LEARNERS IS A NORMAL PHENOMENON

The conducted research proves that there are no two students who think in the same way, posses the same learning styles, abilities and interests. Meyer, Rose, and Gordon (2014) claim that the research carried out by neuroscientists reveal that the structures of brains among students attributed to homogenous groups have individual physiological differences that lead to differences in learning operations. However, these differences are not chaotic, they can be characterised by certain regularities and, therefore, their expression while learning is predictable. On the basis of neuroscientific and psychological research, three nervous components that are closely connected with learning environment are distinguished.
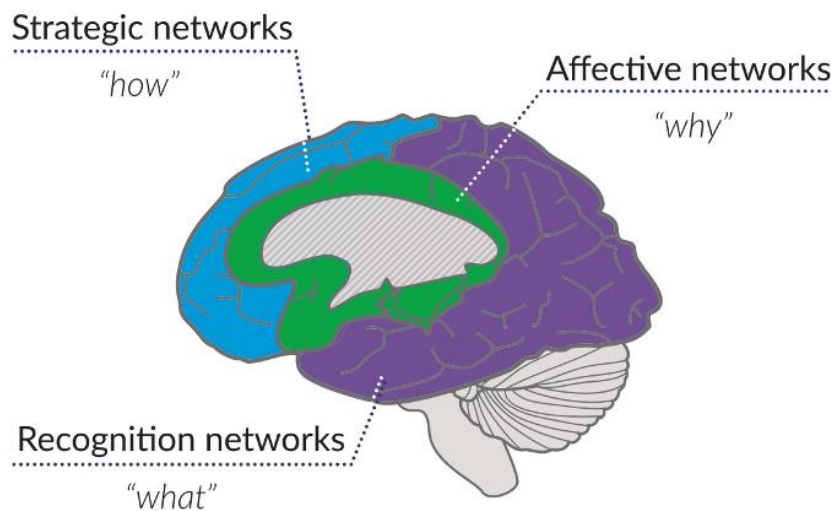
Fig.2. UDL and the learning brain (CAST, 2018a)

The recognition networks identify the analysed models, the strategic networks plan and generate them, the affective ones identify, which model are relevant. Each of these components is related not only to the act of cognition but also to specific functions including memory, language, problem-solving and thinking. These three areas disclose essential differences in learners, which, as it has already been mentioned, can be predetermined by various reasons ranging from individual qualities of cognition, talents, certain impairments or social and educational experience (Rose, & Strangman, 2007). The research studies conducted by neuropsychologists and educational scientists disclose a growing diversity of learning processes in the groups that are considered to be homogenous not only because of differences in cognitive functions but also due to social and cultural conditions. In the 21st century this diversity tends to increase dramatically (Hymel, & Katz, 2019; Lee, 2019, Van Boxtel, & Sugita, 2019; Fontenelle-Tereshchuk 2020). People migrating due to various

reasons introduce changes into homogenous school communities and encourage to discover ways for quality education and for possibility of achieving highest personal results for every learner (Skourtou et al. 2020). Next to the need to introduce variety of educational ways, groups of national minorities also raise the issue of identification (Curcic 2014, Magazzini 2020, Keskitalo and Olsen 2019).

According to Arce-Trigatti & Anderson (2018), the diversity of learners is contribution to development of democracy because it can not only facilitate the dialogue of culture and collaboration but also accelerate the process of social justice providing all learners rather than just "some" of them with equal opportunities to learn, to realize own potential through education and to create more inclusive and just future. Therefore, according to Florian (2019), the problem of focusing on "some" learners can be solved through thinking about and considering the uniqueness of every individual as basis of people's diversity and development of humankind.

EDUCATION DIFFERENTIATION AS A PREREQUISITE FOR FULL PARTICIPATION

Education differentiation is one of the most significant criteria for accessibility of education to everybody. On the other hand, education differentiation is one of the most dangerous components of education as it can contribute to creating inner segregation and stigmatisation of some students.

Version of differentiated instruction. The most prevailing form of differentiation in the educational practice is referred to as differentiated instruction. The basis of the approach of differentiated instruction is adaptation of education to the needs of individual student or a small group of students. The construct of this approach includes four components:

1. "Content – what the student needs to learn or how the student will get access to the information;
2. Process – activities in which the student engages in order to make sense of or master the content;
3. Products – culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit;
4. Learning environment – the way the classroom works and feels".

Tomlinson (2000, p. 2).

Applying differentiated instruction and addressing individual needs of student, the teacher plans favourable curriculum and chooses the most appropriate educational methods and means. The research shows that implementation of education that focuses on separate students in the common learning space within the system of traditional education poses serious challenges to teachers in terms attention distribution, time planning and building students' social links (Kafemanienė 2005, Mills et al. 2014; Aas 2019; Westbroek et al. 2020).

Version of modelling environment and organisation of education. Another approach of education differentiation is constructed following the Vygotsky's theory of proximal development (Vygotsky, 1962), which states that every individual's unique learning zone draws a personal line between his/her used and potential cognitive powers. Posing surmountable challenges to a learner, it is possible to evoke his/her interest in learning and encourage thinking. On the opposite, obstacles that occur due to too serious challenges inhibit students' interest in learning activities. Thus, an educational environment (curriculum, methods and learning aids) plays an essential role in the successful learning experience and simultaneously sets an objective for a teacher to balance the compliance between every student's limits of proximal development and tasks assigned to him/her.

Following the socio-cultural theory and that of proximal development zone suggested by Vygotsky (Vygotsky, 1962, 1978), Meyer, Rose & Gordon (2014) state that in the UDL approach not

satisfaction of separate student's needs but creation of flexible and universal educational environment, when conditions for every learner to function without obstacles are established, becomes the object of differentiation. Therefore, instead of focusing on the individual support to learners with special needs, it is necessary to plan such curriculum and means of its realisation that allow embracing the broad variety of needs and inclinations of the whole group of students creating such an educational plan and educational environment, which enable all the students to reduce the faced learning barriers (Meyer, Rose & Gordon 2014, Sanger 2020). In other words, there is a transition from recognizing individual differences of some students to recognising the diversity of all the learners, from satisfying individual needs to creating a barrier-free educational environment that responds to individual needs of all.

SCAFFOLDING FOR COPING WITH EDUCATIONAL BARRIERS

It is natural that learning in a common educational environment there can appear barriers that prevent some learners from achieving the intended outcomes. However, prioritizing the individuality of every learner, foreseeing the potential barriers and means for their neutralisation, become an essential component of inclusive competence of teachers (Griful-Freixenet et al., 2020). UDL is an approach of implementing inclusive education that focuses on elimination of barriers to students' learning and participation suggesting direct and indirect actions that are used by teachers in different variations (García-Campos, Canabal & Alba-Pastor, 2020). The reasons for obstacles encountered in the educational process may vary. Meier & Rossi (2020) present the following classification of obstacles: 1) skill barriers; 2) curriculum barriers; 3) individual barriers. Planning a specific lesson, teachers device matrixes for neutralisation of potential barriers considering peculiarities of their learners.
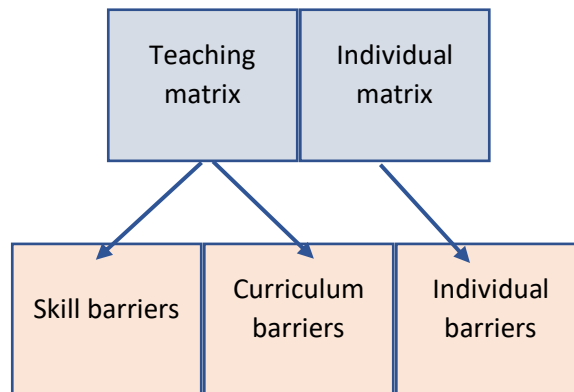
Fig 3. The matrix for neutralisation of barriers (*following Meier & Rossi, 2020*)

While planning the educational process, the "Teaching matrix" is linked to forecasting skill-related barriers and modelling of scaffolds making attempts to avoid possible barriers. The matrix of teaching also relates to barriers that derive from the curriculum requirements, which are unfavourable for the learner. Modelling certain sequences of teaching actions and means, the teacher creates conditions for a student to successfully attain the established goals without minimising them. The "Individual matrix" focuses on prognosing barriers that occur due to individual qualities of learner and scaffolding to satisfy individual needs. Most frequently after successful

application of scaffolds according to the Teaching matrix, the barriers assigned to Individual matrix decrease by themselves.

Al-Azawei, Serenelli & Lundqvist (2016) state that when education is planned considering the diversity of learners applying the UDL approach from the very beginning, barriers are reduced for mainstream and special needs students creating experiences of success for all learners.

IMPLEMENTING UNIVERSAL DESIGN FOR LEARNING

According to Rose and Strangman (2007), the system of organising education withing the UDL approach is grounded on the three human neurocognitive systems that participate in every act of learning.

CAST (2018)

Cognitive networks accept signals received by the sensory organs (sight, hearing, touching, etc.) and through their interpretation enable individuals to recognise objects and their models (letters, mathematical expressions, historical facts, shapes, etc.). Recognition of models embraces all the areas of academic content. Neurological and experiential differences in human cognitive activities result in differences in learning activities. Neurological differences are linked to individual ones in the structure and functions of recognition networks and predetermine different management of cognitive activities. Experiential differences include already possessed experience and information stored in the memory, which allow individuals to recognise again and reconstruct already familiar models. Recognition is the main but not the only component of such cognition. Disorders of neurological or physiological networks may lead to a whole range of learning disorders, e.g. dyslexia, dysgraphia, etc.

CAST (2018)

Strategic networks refer to a set of neuronic networks, which physically and cognitive respond to already recognised information models and manage a complex act of response to the surrounding world. These networks enable people to plan, coordinate, independently observe and carry out physical movements and cognitive actions. Strategic networks are connected to the executive functions of highest level, which take part setting activity goals, strategizing their implementation, observing the progress or, if necessary, making decisions regarding correction of goals. While learning, differences of strategic networks may manifest themselves through differences implementing activities of various levels, i.e., from writing simple texts to planning, organisation, creation of alternative ways and search for help.

CAST (2018)

Affective networks are responsible for a decision how to manipulate models, which are recognized and generated with the help of cognitive and strategic networks. From the neurological perspective, affective networks regulate emotions, activate hormones that have influence on biological response, establish the individual's primary emotional state and form emotional reactions to the surrounding world. The students' emotions and affective regulation are very subjective and depend on biological and environmental factors. All this results in differences how individuals filter the world, make decisions and learn. On the basis of their emotions, motivation and biological response of their body, students set priorities, retain activity if the challenge is motivating and retreat if it seems to be too difficult. Therefore, following the recommendations of Vygotsky (1962), it is very important to consider the borders of every student's proximal development zone because a challenge that is surmountable to the student and an educational

environment that is accessible to him/her evoke motivation and contribute to attainment of good results. Meyer, Rose and Gordon (2014 p. 51) point out that learners' engagement into the learning process is an essential component of efficient learning.

Educational response in the interaction of cognitive, strategic and affective networks is determined through the main three UDL principles:

• Provide multiple means of engagement (the "why" of learning)
• Provide multiple means of representation (the "what" of learning)
• Provide multiple means of action and expression (the "how" of learning).

(Meyer, Rose & Gordon (2014 p. 51)

On the basis of the aforesaid principles, specific guidelines for implementing UDL are formulated (Fig. 4). They consist of three areas assigned to realisation of each principle: Representation, Action and Expression, Engagement. Every area provides three check points, which suggest educational variations for implementation of each principle. Using interactive guidelines for UDL implementation [1], the teacher finds ideas, which can be adapted to specific cases of students' education.
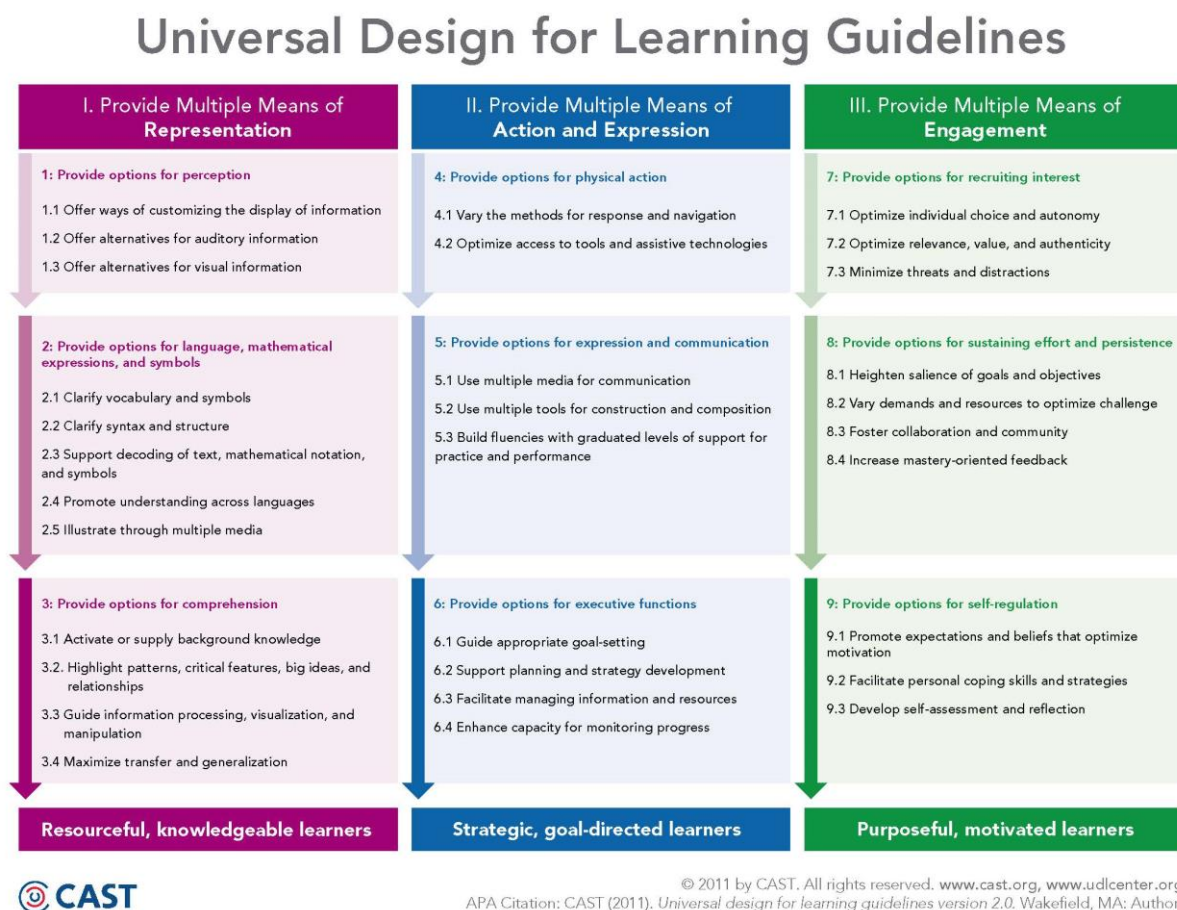
Fig. 4. *Guidelines for Universal Design for Learning* (*CAST, 2018b*)

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[1] Interactive Guidelines of Universal Design for Learning: http://udlguidelines.cast.org

The process of education starts with formulation of a clear goal that determines the intended goal. Considering the differences in students' cognitive processes, the UDL approach requires a flexible goal, which allows attaining it with the help of various learning ways and strategies of assignment solving. Following these guidelines, the teachers model education on the basis of neurocognitive processes.

I. Provide multiple means of representation

As it has been mentioned above, ways of perceiving information and learning differ significantly among students. These changes are preconditioned by basic information already possessed by the student, ability to reproduce this information, to find new information and to use models relevant for its comprehension as well as to employ new ways for modelling new information. Acknowledging the diversity of ways applied by students to comprehend information, a wide range of ways to present information is used varying the text, language, animation, using various means of emphasis and marking, employing IT and other technologies. In some cases it is valuable to present the same information grounding it on different modal qualities of senses, e.g. sound and image, etc. The results of research conducted by Finnegan & Dieker (2019) confirm the significant of methods applied by the teacher on perception of information, e.g., empowerment of learners to collect information from various sources, to interpret it, to organise concept maps and to verbalise them. Proactive activities of learners analysing information result in its deep and rich comprehension.

II. Provide multiple means of action and expression

Boothe et al. (2018), Sanger (2020) emphasise that in the process of successful learning there is an important stage for students to express what they have understood and already know. In the practice two forms of knowledge expression are used – conveyance of thoughts orally and in writing. However, considering differences in students' learning, it is important to provide them with a possibility of demonstrating own knowledge and activity outcomes employing various ways: through physical expression, communication, artistic expression, etc. In the cases, when the teacher creates conditions for students to express themselves employing the favourable ways they choose themselves, not only conditions for efficient application of knowledge and its disclosing are created, but, according to Finnegan et al. (2019), also the teacher is informed how students are learning.

III. Provide multiple means of engagement

Students' engagement into learning activities is encouraged not only by compliance between themes, activities and their interests but also by other learning components. According to Hovey and Ferguson (2014), applying the strategy for research-based learning, the majority of students express a very positive attitude towards learning. They emphasise an active learning in various environments, collaboration with others, possibility of sharing significant ideas. The results of research conducted by Ramdass & Zimmerman (2008) show that next to academic teaching, enabling children to search for various strategies of solving assignment, to self-assess self-efficacy as well as to monitor own progress enhances students' self-regulation and efficiency of their learning. Farmer et al. (2018) argues that social relations that are formed during the situations of joint activities are vital to ensure the learner's success at school. Following Gay (2013), self-confidence of students who possess external differences due to health issues, social or cultural status or race tends to strengthen, when the teacher applies culturally sociable education, when the diversity of learners is discussed as a value and when strengths rather than disadvantages are emphasised referring to the thought that success creates success. This is significant because the research of Farmer et al. (2018) shows that social relations lead to building up the students' personal narrative, which, according to Nieminen and Pesonen (2020), is of paramount importance to students' engagement into learning activities and to coping with educational barriers.

The efficiency of implementing this educational approach developing inclusive education towards successful learning of all students has been proved by results of numerous research (Rao et al. 2020; Katz, 2013; Capp, 2017; Al-Azawei, Serenelli & Lundqvist, 2016). The UDL approach has been broadly applied in the USA. The concept of "Inclusive Design" more widely used in Europe and that of "Design for All" spread in the United Kingdom in the majority of European countries refer to accessibility of environment and information for all and modify thinking about inclusive education and means for its implementation (Clarkson & Coleman 2015).

References

Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal Design for Learning (UDL): A content analysis of peer reviewed journals from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, 16(3), 39-56. https://doi.org/10.14434/josotl.v16i3.19295

Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal design for learning (UDL): A content analysis of peer reviewed journals from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, *16*(3), 39–56. https://doi.org/10.14434/josotl.v16i3.19295

Arce-Trigatti, A. & Anderson, A. (2018). Defining diversity: a critical discourse analysis of public educational texts. *Discourse: Studies in the Cultural Politics of Education*, 41(1). https://doi.org/10.1080/01596306.2018.1462575

Boothe, K. A., Lohmann, M. J., Donnell, K. A., & Hall, D. D. (2018). Applying the principles of universal design for learning (UDL) in the college classroom. *Journal of Special Education Apprenticeship*, 7(3), 1-13. https://files.eric.ed.gov/fulltext/EJ1201588.pdf

Capp, M. J. (2017). The effectiveness of universal design for learning: a meta-analysis of literature between 2013 and 2016. *International Journal of Inclusive Education*, 21(8), 791-807. https://doi.org/10.1080/13603116.2017.1325074

CAST (2018a). *UDL and the learning brain. Wakefield*, MA: Author. Retrieved from http://www.cast.org/products-services/resources/2018/udl-learning-brain-neuroscience

CAST (2018b). *Universal Design for Learning Guidelines version 2.2*. Retrieved from http://udlguidelines.cast.org

Clarkson, P. J., & Coleman, R. (2015). History of inclusive design in the UK. Applied Ergonomics, 46, 235-247. https://doi.org/10.1016/j.apergo.2013.03.002

Connell, B. R., Jones, M., Mace, R., Mueller, J., Mullick, A., Ostroff, E., Sanford, Steinfeld, E., Story, M., & Vanderheiden, G. (1997). *The principles of universal design*. Version 2.0 - 4/1/97. NC State University: The Center for Universal Design. www.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm

Curcic, S., Miskovic, M., Plaut, Sh., & Ceobanu, C. (2014). Inclusion, Integration or Perpetual Exclusion? a Critical Examination of the Decade of Roma Inclusion, 2005–2015. *European Educational Research Journal*, 13(3), 257-267. https://doi.org/10.2304/eerj.2014.13.3.257

Farmer, T. W. Dawes, M., Hamm, J. V., Lee, D., Mehtaji, M., Hoffman, A. S., & Debbie S. Brooks, D. S. (2018). Classroom Social Dynamics Management: Why the Invisible Hand of the Teacher Matters for Special Education. *Remedial and Special Education*, 39(3), 177-192. https://doi.org/10.1177/0741932517718359

Finnegan, L. A., & Dieker, L. A. (2019). Universal design for learning-representation and science content: a pathway to expanding knowledge, understanding, and written explanations. *Science Activities*, 56(1), 11-18. DOI: 10.1080/00368121.2019.1638745

Florian Lani (2019) On the necessary co-existence of special and inclusive education. International Journal of Inclusive Education, 23:7-8, 691-704, https://doi.org/10.1080/13603116.2019.1622801

Fontenelle-Tereshchuk, D. (2020). Diversity in the Classrooms: A Human-Centered Approach to Schools. Interchange, 1-11. https://doi.org/10.1007/s10780-020-09402-4

García-Campos, M. D., Canabal, C., & Alba-Pastor, C. (2020). Executive functions in universal design for learning: moving towards inclusive education. *International Journal of Inclusive Education*, 24(6), 660-674. https://doi.org/10.1080/13603116.2018.1474955

Griful-Freixenet, J., Struyven, K., Vantieghem, W., & Gheyssens, E. (2020). Exploring the interrelationship between Universal Design for Learning (UDL) and Differentiated Instruction (DI): A systematic review. *Educational Research Review*, 29. https://doi.org/10.1016/j.edurev.2019.100306

Hymel, S., & Katz, J. (2019). Designing classrooms for diversity: Fostering social inclusion. *Educational Psychologist*, 54(4), 331-339. https://doi.org/10.1080/00461520.2019.1652098

Hymel, S., & Katz, J. (2019). Designing classrooms for diversity: Fostering social inclusion. *Educational Psychologist*, 54(4), 331-339.

Hovey, K. A., & Ferguson, S. L. (2014). Teacher perspectives and experiences: Using project-based learning with exceptional and diverse students. *Curriculum & Teaching Dialogue*, 16(1/2), 77-90. https://etalpykla.lituanistikadb.lt/object/LT-LDB-0001:J.04~2005~1367151810045

Katz, J. (2013). The three-block model of universal design for learning (UDL): Engaging students in inclusive education. *Canadian Journal of Education*, 36(1)

Lee, B. P. (2019). UDL: A Primer for Community College CTE Instruction. *CTE Journal*, 7(2).

Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and practice*, Wakefield MA: CAS

Meier, B. S., & Rossi, K. A. (2020). Removing Instructional Barriers with UDL. *Kappa Delta Pi Record*, 56(2), 82-88. https://doi.org/10.1080/00228958.2020.1729639

Nieminen, J. H., & Pesonen, H. V. (2020). Taking universal design back to its roots: Perspectives on accessibility and identity in undergraduate mathematics. *Education Sciences*, 10(1), 12. https://doi.org/10.3390/educsci10010012

Ramdass, D., & Zimmerman, B. J. (2008). Effects of self-correction strategy training on middle school students' self-efficacy, self-evaluation, and mathematics division learning. *Journal of advanced academics*, 20(1), 18-41. https://doi.org/10.4219/jaa-2008-869

Rao, K., Ok, M. W., Smith, S. J., Evmenova, A. S., & Edyburn, D. (2020). Validation of the UDL reporting criteria with extant UDL research. *Remedial and Special Education*, 41(4), 219–230. https://doi.org/10.1177/0741932519847755

Rose, D. H., & Strangman, N. (2007). Universal design for learning: Meeting the challenge of individual learning differences through a neurocognitive perspective. *Universal Access in the Information Society*, 5(4), 381-391.

Sanger, C. S. (2020). Inclusive Pedagogy and Universal Design Approaches for Diverse Learning Environments. In *Diversity and Inclusion in Global Higher Education* (31-71). Palgrave Macmillan, Singapore.

Skourtou, E., Kourtis-Kazoullis, V., Aravossitas, T., & Trifonas, P. P. (2020). Language Diversity in Greece: Local Challenges with International Implications. *Multilingual Education* (36). Springer International Publishing.

Swanson, J. A., Ficarra, L. R., & Chapin, D. (2020). Strategies to strengthen differentiation within the common core era: drawing on the expertise from those in the field. *Preventing School Failure: Alternative Education for Children and Youth*, 64(2), 116-127. https://doi.org/10.1080/1045988X.2019.1683802

Tomlinson, C. A. (2000). *Differentiation of Instruction in the Elementary Grades. ERIC Digest*. https://files.eric.ed.gov/fulltext/ED443572.pdf

UNESCO (2020). *Global education monitoring report 2020: inclusion and education: all means all*. https://unesdoc.unesco.org/ark:/48223/pf0000373721/PDF/373721eng.pdf.multi

Van Boxtel, J. M., & Sugita, T. (2019). Exploring the Implementation of Lesson-level UDL Principles through an Observation Protocol. *International Journal of Inclusive Education*, 1-17. https://10.1080/13603116.2019.1655596

Vygotsky, L. S. (1962). Thought and Language. Cambridge, MA, MIT Press.

Vygotsky, L. S. (1978). Mind in Society. London: Harvard University Press.

Vygotsky, L. S. (1993). The collected works of L. S. Vygotsky. Volume 2: The fundamentals of defectology (abnormal psychology and learning disabilities). R. W. Rieber & A. S. Carton, Eds.; J. E. Knox & C. B. Stevens, Trans. New York: Plenum.

Вопросы воспитания слепых, глухонемых и умственно отсталых детей", под ред. Л.С. Выготского. 1924. № 1. С. 112-120 http://dugward.ru/library/vygotskiy/vygotskiy_k_psihologii_i_pedagog.html

EXPERIENCES FROM AUSTRIA:
Practices of UDL-Infused, Inclusive School Development in Secondary School

The Learning Environment at Schulzentrum Donaustadt

Our School and Secondary Education in Austria

Baesch, Sophia; Grath, Johanna; Krischke, Katrin; Messenböck, Gudrun; Wagner, Beatrix

SITUATIONAL CONDITIONS

The year groups are comprised of three concurrently run classes. Those are inclusively run as core groups. Numbers of students per class vary. There are two larger core groups which are formally run as integrative classes and one smaller core group. The purpose of the latter is to provide a safe space for students (still) benefitting from such a setting due to their current social skills and development. For the time being the third smaller core group is composed independently of individually assigned and applicable curricula[2]. The long-term goal over the duration of four years is an assimilation of pupil numbers per class, as a specific safe space for some children and youth is getting obsolete through support and individual growth. Class composition is reviewed every sixth week in cooperation of school principal and a specially trained member of staff[3], which ensures flexibility and fluidity between core groups. However, the ultimate decision on class composition are year-based teams of teachers, which consists of SED-teachers, specialist subject teachers, general secondary school teachers and a specialist member of staff competent in monitoring intersections and junctions.

CONCEPT IDEA

The concept of teaching at LWS-Donaustadt has grown over the last decades and is still a continuously developing one, drawing on experiences and practices established at other schools. Educational institutions inspiring the concept idea of teaching at LWS-Donaustadt were schools such as 'Klex' (Graz, Austria), 'Integrative LWS Brigittenau' (Vienna, Austria), 'Lerngemeinschaft 15' (Vienna, Austria) and 'Evangelischen Schule Berlin Mitte' (Berlin, Germany) to name just a few and encompasses elements of the Dalton Plan[4] and UDL. The latter is understood as an approach to create accessible environments that enable each pupil to learn in an optimised way. In doing so potential limitations are no longer attributed to a pupil but within the given environment. Working with UDL offers strategies, methods and tools for teaching to strengthen the students' competencies. Moreover, UDL is used to foster and facilitate reflection on lesson goals and their potential adaptation ensure successful learning in a very diverse group of students. Main focus of teaching at LWS-Donaustadt, including but not limited to UDL, is an increase of self-responsibility for one's own learning as well as choice and arrangement of individually fit methods and materials in students.

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[2] There are different types of official curricula in Vienna, three of which are in application at the LWS Donaustadt. One curriculum defines subjects, subject matter and lesson allocation for mainstream education in the first four years of secondary school. One curriculum is designed as a framework for pupils studying in general special needs education, outlining a framework for learning for grades one to eight. The third curriculum is addressed to pupils who learn with higher levels of support than outlined in the general special needs education curriculum and covers grades one to nine. Pupils are assigned a curriculum to frame their studies and work. As Assessment of performance is outlined differently in those curricula, too, assignment of a specific curriculum impacts assessment as well.

[3] This member of staff holds a specific professional title ('Psychagogin') with specific professional training. The field of work of such a person with this occupational profile is the intersection of Psychology and Pedagogy, which implies a special focus on social and emotional development, analysis and support if needed. 'Psychagogik' is deeply rooted in Freudian psychoanalysis and is conceptually close to the therapeutic technique of child psychoanalysis. Professional training in this field is mostly a Viennese specificity.

[4] The Dalton Plan refers to a „secondary-education technique" which has been developed by Helen Parkhurst in 1919. The pupils were able to decide on their own schedule, which has been divided into different assignments.(https://www.britannica.com/topic/Dalton-Plan

UDL-INFUSED PRACTICES: EXAMPLES OF TEACHING APPROACHES AND LEARNING OPPORTUNITIES

EDUCATIONAL PRACTICES TO FACILITATE LEARNING

Using UDL for explorative Learning: Project work in the Research-Studio

Explorative learning in the research studio is organised as project work in a form of a three-day, biannual workshop for each grade level. Premises of the research studio are used for Box-Lessons when not occupied by a project specific learning environment setup. Accordingly, students do know the premises of the research studio as part of their weekly school life and know it as place where they are in charge of their own learning. During those biannual research-studio workshops all students work on a set topic, which provides a wide range for individual exploration and curiosity. Topics are *Light and Colour*, *The Four Elements*, *It's All About The Egg*, *Prehistoric Times, Tiny Life on Large Scale* (Insects) and *Marble Runs*, to give just some examples. To facilitate pupil engagement a topic-specific learning environment is set up in the research-studio, with different sites for sub-topics and a lot of scope for imagination and curiosity. The aim is to really capture the pupil's interest through wonder and amazement. To guide this wonder-induced inquisitiveness the three-day workshop follows a certain structure to set a framework in which students can pursue the exploration of the topic through work in groups of two to approximately five students. This structure is made subject of discussion at the very beginning of the research-studio workshop. All students come together at the start of the first day when the topic of the project work is revealed through a centrepiece in the morning circle (see the picture below).

Pic. 1. *Introductory centrepiece in the morning circle kick-starting the research-studio workshop on water*

Subsequently the structural outline of the three days and the way research is done is recalled and outlined through visualising cards by the group:

1. Coming up with a question of personal interest
2. Making and documenting assumptions and ideas
3. developing strategies and methods for answering the question and to find solutions to problems
4. Induce change and action through application and execution of developed strategies and methods (It is time to test one's assumptions hands on!)
5. Observing induced change and/or action closely
6. Documenting the observed process and the execution of strategy application
7. Evaluating, analysing and interpreting the documented process
8. Presenting one's findings to the group

After setting the framework for the entire workshop the day's schedule is discussed and visualised. An example for the schedule of the first day of the research studio workshop is given in the figure below.

<div style="border:1px solid black; padding:1em;">

Welcome to the research studio workshop on water!

  08:00 – 09:40 Planning and discussing the workshop
  09:40 – 10:00 Break
  10:00 – 11:50 Finding and choosing a question to work on
  11:50 – 12:00 Break
  12:00 – 13:00 Clean-up, completing the research diary and coming together in the   group for closure
                Lunch

</div>

Exemplary structure of the first day of explorative learning in the research studio workshop

After each pupil is equipped with a research diary and a notepad, they set out for a first exploration of the assembled, topic-specific learning environment. Students should not talk to each other during this first investigation and are encouraged to take notes about aspects of their own interest. Where necessary students are supported in their exploration and note-taking, but an emphasis on independent, self-determined inquiry within the learning environment is maintained at all times. To illustrate a possible setup for such a learning environment, see the picture below.

After this first round of exploration teachers and students come back together as a group and collect everything that was observable. Students share aspects they noted in the learning environment and topics are collected and clustered on index cards and the blackboard. Individual aspects and subtopics are discussed and connections to prior knowledge are established.

Through this unit students come up with questions of personal interest on those very aspects and subtopics and team up in small groups accordingly. Concerning adequate question pointers are given regarding properties of a good research question, especially with regards to an adequate amount of work indicated by a specific question. Possible questions by students on the workshop topic "water" might be: "How does rainfall come to happen?" or "What creeps and crawls in a pond?" and many other. The groups assembled according to interest constitute research teams for the entire process forthwith.

Subsequently students work on step two and try to make up their own mind on what they decided to find out about, using their existing knowledge. Assisting teachers encourage students to document their ideas in the research diary and to not lose track of their actual question and the time. Having worked out possible explanations and solutions to the groups question or problem students now set out to develop a plan on checking or elaborating those assumptions, by means of coming up with very specific strategies and methods for answering the question and to find solutions to problems. This happens by consulting books, web-information, teachers and other staff, and students' own experiences in day-to-day life as well as ingenious thought. At this step of the research process, assistance by teachers consists mostly in giving pointers regarding prior knowledge or concerning adequate sources for strategy development and in preventing premature embarkment on action before the process is planned properly. Where needed scaffolds and one-to-one support are put in place by teachers to ensure all groups do make progress on their question and every group member can take part to the fullest.

Upon finishing the planning and development phase its hands-on time: steps four to six are a phase of bustling action and activity. Depending on the research question or problem groups gather material, conduct experiments, go on a mini-field-trip/excursion and anything really that they think might lead them to figuring out and checking their question.

Pic. 2. *Exemplary setups for a learning environment on water*

Students can use the entire premises of the research studio, science equipment, tablets, and a variety of everyday objects for their enquiry.
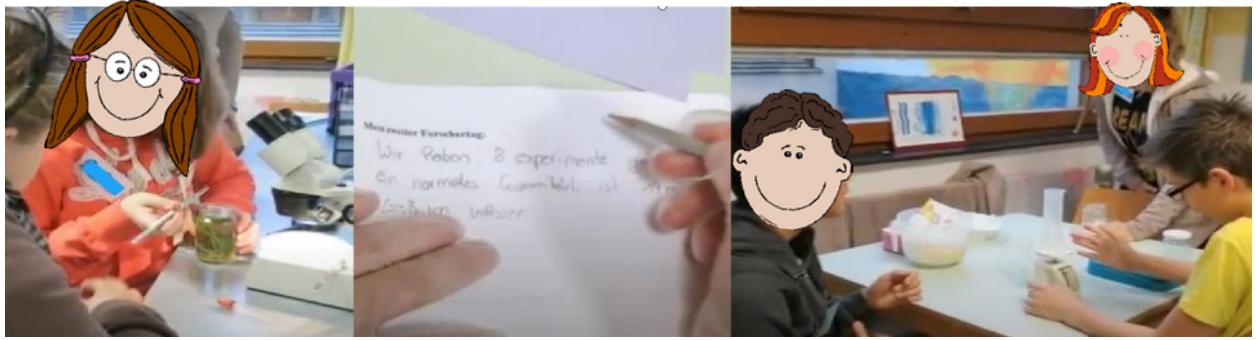
Pic. 3. *Students working on their research questions*

If additional and/or specific material is needed (e.g. a fresh fish to find out about "How do fish live in the water?"), students can put in a request with a teacher, whereupon it is discussed where one might get the necessary material (or whether there might be other ways to figure things out if it were to be a difficult to get material). Some students might reach step four on day one of the research studio workshop, most groups however start to work on this part on day two. Independent of individual process, though, each workshop day ends in communal closure: after dedicated time for clean-up and for catching up with one's research diary (if need be) all groups and teachers come together to wrap up the day, reflect on proceedings and to answer questions concerning the upcoming day. Likewise, each of the subsequent days are started in the same manner in a morning circle.

Pic. 4. *Pupils collecting and clustering aspects of personal interest and deriving questions on those subtopics*

Through the whole process of steps four to seven of the research studio workshop teachers are on hand support and monitor students learning yet try to interfere as little as possible (but of course as much as needed), to allow for independent and actually explorative work. Through this change-inducing and strategy-application phase students are encouraged to observe proceedings very

closely and to document every step of their enquiry in a form that is suitable to them.   Accordingly, the emphasis is on whether students can use their documentation to make sense of   their question and not on spelling or similar. The use of the research diary for documentation is prompted and support given in note-taking or similar if necessary.

Students are reminded of the necessity to present their learning in a way so others can understand too, which incites documenting. During step seven students try to make sense of what they observed and found out which culminates in developing an adequate way to present one's findings to other groups. Teachers are on hand to scaffold interpretation and support students during this vital step by asking questions rather than just giving answers and pointing out possible directions of analysis.

Day three of the research studio workshop is used to wrap up one's research and to work on the presentation of one's results and findings. The amount of time spent on each of the two will vary from group to group, as possible methods of presentation and the general speed of work will differ between groups and topics. Therefore, students might still be concerned with understanding their research problem themselves on day three or might already be working on elaborate presentation techniques or props. After a dedicated time for clean-up of everyone — students and teachers— come together to share the results of their explorative learning. Students do listen to each other very attentively and are reminded of the necessity to respectfully mind what others have to show and say, if need be.

Pic. 5. *Pupils presenting the results of learning process in research groups*

Achievement of students are celebrated in the group and an emphasis is placed on highlighting effort and ingenuity of learning. Students collecting and clustering aspects of personal interest and deriving questions on those subtopics.

USING UDL FOR SELF-DETERMINED LEARNING: SCIENCE BOXES

Developed as a sub element of establishing the research studio, the so-called 'Science Boxes' Lessons take place in the research studio premises themselves. During those lessons, the responsibility for their learning is handed over to students as they are free to choose from a variety of 231 different boxes shelved in the research studio. Drawing from the multitude of interests, materials, and resources within the year-group teams of teachers' topic-specific boxes were developed as materials for students to use independently. Those boxes contain a wide range of topics covering correspondingly various sub-aspects of subject curriculum. To this effect topics range from Electricity, The Sioux Nation of Indians, Picasso, and Healthy Teeth to Cryptography, to give just a few examples. Different levels of difficulty are either indicated through symbols next to the title of the box and/or the respective challenge can be individually varied in interaction with the included materials and content matter. Furthermore, the perceived difficulty of a box can vary due to the utilisation of different methods of teaching and learning in different boxes.

Lessons are organised in double periods to allow necessary time for self-determined, individual learning. During those two conjoint lessons students manage their time mainly themselves, allowing for individually paced learning.

However, students are not expected to manage the set time entirely without help or support: universal rules are set for individually paced work to guide and initiate effective, self-determined time management. Those rules comprise getting organised before setting out for action concerning needed materials and upcoming tasks, reminders to read instructions to end prior to getting into the work process itself and those very instructions on the handling and usage of the specific box.

Furthermore, students keep track of their work by means of a Protocol of Learning, which encompasses their steps and outcomes. At the beginning of the academic year students are instructed on how learning in box-lesson units works by means of a letter. This contains common rules and well as expectations and is discussed and to be kept by students for later consultation. Students are able to self-check their work as answers and solutions are included on a green sheet of paper titled 'Solutions' in every single box. Additionally, individual progress concerning self-determined work in box lessons is discussed and reflected on with a teacher in personal meetings. Those are scheduled once a semester and incorporate the completion of an evaluation form, which is to be signed by pupil and teacher. The individual, self-determined work during the main part of each Box-Lesson is followed by a clearly defined, ritualised closure of the session, during which students present their newly acquired knowledge, skills or experiences of progress to each other in a group setting. Those presentations are framed by teachers and staff as special occasions where "every child is at the centre of attention for a while". Accordingly, students listen to each other very mindfully and focused— something that is Box promoted and enforced by teachers, too, if necessity arises. Furthermore, conspicuous and new aspects are sought to be highlighted in presentations through questions like 'What is special about what you've just learned?'. Students are responsible for having their work accounted for by a teacher at the end of the unit via signature in their Protocol of Learning.

The allocation of time for those lessons is similar to research studio lesson allotments enabled through a creative use of curriculum planning and lesson allocation. The majority of lessons used to cover teaching in Science-Box-Lessons is particularly taken from annual allotments of natural sciences lessons, as many of the covered topics do fall into this curricular sphere. This creative usage is possible because natural sciences operate within a framework curriculum in Vienna, which means that a certain degree of flexibility regarding covered topics is innate to delivering subject matter. In order to keep Boxes in good, ready-to-use order and updated throughout the months and years clearly assigned responsibility for this remit are necessary and a member of staff is accordingly appointed in this function. For a box to be approved for the lessons in the research studio, it needs to meet certain requirements. The box should be designed in a way that:

- …it provides content and material for two lesson units of learning.
- …students can work independently on the topic.
- …allows for different levels of difficulty and differentiation.
- …students who are on either side of the spectrum of individual competences can find boxes to learn with ideal challenge, too.
- …task cards (orange sheets) are phrased precisely, short und understandably so students can understand them.
- …they contain as much of materials and supplies for creative work as possible.
- …they include solution cards (green sheets) for students to check their work themselves or present solutions on the backside of the included material.
- …they include an inventory on the inside of the lid.
- …they include 20 copies of any worksheet in a document sleeve.
- … can be passed on (either digital or in paper) to the members of staff responsible for management and up-keeping of the research studio for replenishment or restoration.

A Letter to You on Lessons in the Research Studio

Dear ……….………………..,

A very warm welcome to the research studio! For two hours a week you are free to learn self-determinedly according to your very own needs and inclinations on topics of your personal choice. The pace of learning is yours to decide on.

How does it work?
The shelves in the research studio contain numbered boxes.
Each box holds one topic for you to learn about.
You choose a topic, get the box from the shelve, open it at your desk and you are ready to go.
You have two hours two lesson units to work on a box.
In each box there is an orange task card, which tells you what to do.
Worksheets and necessary materials are included in the box.
Every completed task can be checked with the green solution card or with a self-check on the back of the material.
You should file results of any tasks you completed in your folder and record the topics you have worked on in your Protocol of Learning.
When the two units are over you take your work to a teacher and have it signed next to the day of completion in your Protocol of Learning.

What is expected from you?
Work quietly and focused while you are learning with a box. If you are stuck on a task or are unsure how to proceed ask a teacher for advise or support. You are expected to return the box you have worked on complete and in order to the shelve you took it from. If you have finished up materials or supplies inside the box you should stock it up or inform a teacher.

We wish you a lot of fun and success in learning with the boxes!

Your Team of Teachers of the Research Studio

Explanatory letter to students on work during Box-Lessons, which is to be kept for future reference

Content:
- 1 pack of sherbet powder
- 1 white saucer
- 1 magnifying glass
- Toothpicks
- 2 drinking glasses
- 1 teaspoon
- 1 pack of baking powder
- Icing sugar
- Citric acid
- 1 task card (orange sheet)
- 3 white index cards with experiment instructions
- 2 solution cards (green sheets)

Learning outcome:
Pupils discover the different constituents of sherbet powder and the taste of each ingredient (sugar, citric acid, sodium hydrogen carbonate). Pupils produce their own sherbet powder with the individual ingredients.

Pic. 6. Science Boxes on the topic: 'Experiments with Sherbet Powder'

USING UDL FOR INDEPENDENT LEARNING: SUBJECT-THEMED CLASSROOMS AS DEDICATED LEARNING ENVIRONMENTS AND WORK WITH ASSIGNMENT PLANS

As a school we decided to use independent learning in differently themed rooms by means of assignment plans, allowing students to work at their own pace within smaller, inclusive groups. Additionally, this concept creates more opportunities for individual and customised support. Concerning the role of a teacher regarding independent learning a shift in focus from instruction to guidance and support is necessary. By having dedicated units for such educational practices, valuable opportunities for focused observation of individual students and groups are unlocked for teachers. Those in turn are the foundation of weekly reviews and discussions within the team of teachers who jointly work with one-year groups, which inform the given support during units of independent learning and beyond. Resulting from the decision for this concept of teaching and learning accessible environments for learning, as sensitive to diversity as possible, were designed in those subject-themed classrooms. Teaching structure and planning concerning independent learning units is build and done comprehensively for *all* students. Through working independently in their learning students can benefit and develop in several areas of competency: independence, self-action, self-assessment, self-organisation, personal initiative, self-responsibility, communication and social skills, developing a sense of tidiness or structuring one's surroundings, tolerance, acceptance and time management, to name just the most important ones. Development of those integral competencies is additionally fostered through intensive work in a close-knit, year-based team of teachers and through project work and other activities across core groups.

The introduction of subject-themed classrooms and the use of assignment plans complement and mutually depend on each other. In addition, independent learning units are intertwined with more conventional instruction and teaching units with mutual dependencies. Therefore, it is necessary to describe those connections beforehand. Despite a relatively high proportion of independent learning units, every school-day starts with a core group unit and an additional lesson in this configuration is planned throughout the day. Those lessons are used to reflect on the previous days' work and plan the next steps of learning, for which students use their individual BuddyBooks (see chapter II.). The particular purpose of those units and lessons in core groups is, apart from organisational functions, to foster the development of social skills. The framework of a set group, which can be seen nest-like within the wider school community, enables students to practice their skills and competencies on a smaller scale in a modestly sized community, rather than having to navigate an entire year group at all times. In addition to independent work units, each core group does have a fixed lesson in each key subject (German, Mathematics and English), which is used to introduce new subject matter communally. Daily study time, part of the setup as a full-day school and used to work on homework, assignments, and prep work for tests, is organised in core groups, too. Organising independent learning units through use of assignment plans and themed classrooms, therefore enables mingling between students of different core groups, allowing them to get to know each other well.

Concerning the environment for individual learning units, by means of assignment plans, a setup of subject-specific themed classrooms was implemented. Students use assignment plans to structure and direct their learning, which operate within a set period that can be individually apportioned. Time for independent learning is structured in fixed, daily lesson units. During this time of the school day core groups dissolve and topics can be worked on in more heterogenous groups within the prepped learning environment. Students are free to choose their environment and can allocate time freely to different tasks, which fosters development of self-organisation skills. Being able to use one's time flexibly, enables students to thoroughly engage with topics or content and to pursue or deepen interests. Assignment plans can be seen as scaffolding and structuring tools to facilitate and initiate the independence in the students' work we strive for. Moreover, the use of assignment plans for

individual learning intend to ensure success and/or development of self-regulation and orientation students and are introduced, discussed, and reviewed extensively. Students are guided to increasingly manage those plans themselves, which is scaffolded through teacher guidance. At the beginning teachers still assign what is to be worked on where and when, modelling and fostering independent management of time and tasks, which is the ultimate goal of this process. Students document their time allotments for work in each learning environment in their BuddyBook. A translated example for an in-use assignment plan is to be found in the figure below.

name:_____

Unit 9 Clothes

What are you doing?	Wich tasks/exercise?	Alone? In pairs? As a group?	What was it like?	Show your completed work to a teacher!
1 Listening	English Book, p. 57/ 6, 58/ 7,8	(alone)	☹😐☺	(a signature is expected)
2 Reading	English Book, p. 57/4.5 English Book, p.59 Grammar: explain the grammar to your teacher!	(alone)	☹😐☺	(a signature is expected)
3 Speaking	English Book, p. 56/1,2,3 English Book, p.58/9 English Book, p.59/11	(pairs)	☹😐☺	(a signature is expected)
4 Writing	Workbook English, p. 75 - 82 Portfolio: My favourite outfit! (English Book, p. 59/10,12) –write 5 sentences into your exercise book!!	(alone)	☹😐☺	(a signature is expected)
5 Computer	Check your words!	(alone)	☹😐☺	(a signature is expected)
6 Quick check	Show what you know!	(alone)	☹😐☺	(a signature is expected)
7 Words U5 Extra	Learn the words by heart! WB.p.82 Take some extra material:	(alone)	☹😐☺	(a signature is expected)

Fig. 1. Exemplary assignment plan used for learning English skills

To ensure the subject-themed room do not get overcrowded a system of passes was put in place. Those passes, that are used like entrance tickets to the different learning environments, are handed out in core group units. After their distribution students are accompanied by teachers to the subject-themed classrooms. To stay on top of things, the distribution of students to different

learning environments is written down for everyone to see. Children with special educational needs are monitored and supported especially intensively in those independent learning units. Preconditions for learning of each child or youth are considered to facilitate individualised work on personal goals. Each classroom has a designated subject or range of content and an assigned colour.

The Red Room: Pupils can work on German, History and Geography in this learning environment.

The Green Room: Pupils can work on Mathematics and Science in this learning environment.

The Yellow Room: Pupils can work on English and Creative Lessons/Art in this learning environment

The Blue Room: Pupils can use this room as an additional environment for aspects of their individual work or to arrange specific environmental conditions for optimised learning.

Several smaller rooms are available for individual learning units as well as a quiet room on ground floor level to accommodate time-outs if needed.

EDUCATIONAL PRACTICES TO REFLECT ON LEARNING

Reflecting the learning process

The before-mentioned aspects about the learning environment provide access to different ways of learning. External influences and approaches get covered by these guidelines. Regarding the choice about the learning environment it is important to let the students try different options and come up with ideas how their learning process could improve. To know what is good for oneself, the children need to know about self-reflection. This is a part of the UDL guideline 9 to "Provide options for self-regulation". This guideline contains "promote expectations and beliefs that optimize motivation", "facilitate personal coping skills and strategies" and develop self-assessment and reflection". To teach kids about these topics, which also represent a very important aspect in interpersonal relationships, different approaches get deployed. One way to reflect one's own learning process is for example the beforementioned documentation of their progress during the box lessons via the Protocol of Learning.

Tools for practicing self-regulation

The students start their day together as a class community. During these hours, the students and their teachers elaborate different social skills concerning social cohesion, learning habits and tools of reflection. One of these tools is the BuddyBook, written by Monika Perkhofer-Czapek, Renate Potzmann and Christa Schubert in 2018, a thin notebook for processing the topics of the week, what has been a success to the students or what they want to do better in the future on one double-pages per week.

The BuddyBook

The first pages of the BuddyBook give the students the opportunity to create their personal profile. They write their name, hobbies, personal traits and add what they do like or do not like about school.

The next pages continue with the reflecting process in the following way: they need to set their goals for the upcoming week and after this week they reflect together, which goals they have reached or what they might need for reaching them. There is space to write for the teachers and parents as well, to catch up with the learning process of the students and comment on it. The BuddyBook gets applied during the first two years to develop understanding of one's learning process. So, week per week they learn more about their own metacognition, which is an important tool for self-regulation. The BuddyBook not only contains tasks concerning the topics which are covered during the lessons but provide space for positive and negative experiences in the class community as well.

Figure 10: Cover of the BuddyBook. Perkhofer-Czapek, Monika. Potzmann, Renate. Schubert, Christa (2018): Mein BuddyBook. Der individuelle Lernwegbegleiter. Wien: Bildungsverlag

The students get the possibility of writing about struggles or how they achieved something together with their classmates. In that way, self- regulation is not only considered as the key for successful learning, but also for balanced relationships in class. At first, it might not seem easy to reflect about all these events occurring during an average school day. To support this process, the help of the teacher is necessary, to frame goals, talk about obstacles and developments. In the Lernwerkstatt Donaustadt, one hour per day is dedicated to discussing the BuddyBooks together in class. A trophy with sweets gets passed around and the students take one after talking about their personal progress. If there is enough time during the day, another option is to individually talk to the children about their notes.

My weekly preview from October 14 to 18	
Monday	*E-Check, workshop, E-plan*
Tuesday	*End of the lesson: 12:50*
Wednesday	*English*
Thursday	*Maths-Check submission*
Friday	*Open day*
Saturday	
Sunday	

My goals for this week		Achievement of goals			
		☹	😐	☺	😊
Goal 1	*do not call out unsolicited*		X		
Goal 2	*be quiet*		X		
Goal 3					

My weekly review

This is what I have learned	*Questions in past tense*
This has been difficult for me	*Add up and subtract fractions*
This is what I want to do better	*Add up fractions*

This is what I am proud of
That I'm finishing and accomplishing my plans
Comments and notes from school
Please try to keep order again and to take an active part in lessons, even if you don't feel like it or it is difficult.
Comments and notes from home
You are really working well on your work plan. Please concentrate better and always read the instructions before you're starting. Try to stop yourself from answering sometimes (if it's provoking)

Weekly preview and review based on the BuddyBook (Perkhofer-Czapek et al. 2018). The pupils can note their tasks for the week and their goals for the weekly preview. Then they can review the week: what has been difficult or easy for them, what they're proud about. On the bottom of the page is some space left for the parents and teachers to comment the pupil's process.

The subject "KoKoKo" (Communication, Cooperation and Conflict Counselling)

As the students talk about their different goals and how to approach them together in the class, they get insight in their mates' focus and learn about diverse learning strategies and how to help each other out, which is an important topic during the KoKoKo-lessons. … hours per week are dedicated to the subject "KoKoKo – Kommunikation, Kooperation und Konfliktberatung" (Communication, Cooperation and Conflict Counselling) in which the students gain knowledge

about social skills. The content of these lessons connects with different aspects of the option to "facilitate personal coping skills and strategies" of the UDL Guideline 9.

Communication between students, parents and teachers

The exchange between the parents and teachers not only happens in the BuddyBooks – the "KEL-Gespräche – Kind-Eltern-Lehrer*innen-Gespräche" (Pupil-Parents-Teachers-Talks) are another strategy to reflect together as the social environment of the pupil about his or her learning process. The following to pages contains the form with questions which the teachers work through with the students and their parents.

Lernwerkstatt Donaustadt
Steinbrechergasse 6
1220 Wien
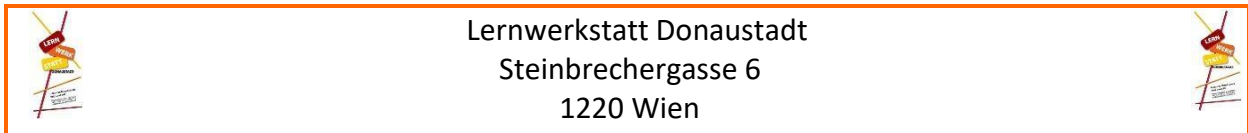
Reflection questions for students' KEL – conversation

Student's name: _____ **class:** _____

Questions focused on subject competence:

Which subjects at school do I like and why? _____

What are my special works/documents? _____

What am I really good at? _____

_____

Where do I still need some help? _____

_____

Lernwerkstatt Donaustadt
Steinbrechergasse 6
1220 Wien

Questions focused on social competence:
What is great about our class and what do I do to make everyone love to come in
our class?_____
What stresses me? What do I not like about our class? _____

_____

How is my behaviour in class/during lessons? _____

_____

I would ask for some help from my teachers and/or parents at/with?_____
In which subject do I want to get better? Remarks:

_____

_____

Signature student	Signature parents	Signature teacher

Progress in the process

The goal of all these strategies for self-reflection is, to enable the students to control their own learning process. If a problem with, e.g. contributing to the topics during the lessons, comes up, the self-monitoring helps to recognize it. The teachers can help to find out, why that might be an issue and how they could solve this problem to improve the learning process of their students. Different steps may be encouraging shy students by telling them about their valuable contributions or writing notes and stick them to the pupil's desk for reminding them to bring in their ideas. But it is important to let the students evaluate their own success. To compare the individual steps during their learning process, it is helpful to let the students record and reflect them with their own words. Teachers can support this process by scaffolding, meaning to help their students fulfilling the necessary steps or finding words to describe certain feelings or circumstances.

Additional Resources

http://udloncampus.cast.org/page/udl_examples

https://www.collegestar.org/universal-design-for-learning: College STAR (Supporting Transition Access and Retention) is a project which helps campuses to become mor inclusive. The category "Instructional Support" on their homepage lists methods and videos about UDL.

https://thinkudl.org/: a podcast about UDL "where we hear from the people who are designing and implementing strategies in post-secondary settings with learner variability in mind"; Additional resources and a transcript for each episode are provided as well.

https://www.understood.org/en/school-learning/for-educators/universal-design-for-learning/lesson-planning-with-universal-design-for-learning-udl : This page guides step by step through planning an UDL-lesson. It also provides a free template for UDL lesson planning.

https://www.thinglink.com/scene/830135641269338112?buttonSource=viewLimits: Free Technology Toolkit for UDL in All Classrooms

https://www.youtube.com/watch?v=PQSAQdxnQBY&ab_channel=YourAlberta: video-introduction to UDL and its principles

https://www.youtube.com/watch?v=B7qYJY62X2s&list=PLLKd3h8UX_F_f0XT9ze59-yl6gOv_obIj&index=20&ab_channel=Understood: video of teacher Eric Crouch explaining and showing how he applies UDL in his classroom.

https://www.youtube.com/c/UdlcenterOrg/videos: Youtube-account of the National Center on UDL, with different videos of UDL-lessons.

https://www.ahead.ie/udl: Explanations and additional resources concerning UDL from AHEAD – an independent non-profit organisation working to create inclusive environments.

https://www.advocacyinstitute.org/resources/ParentUDLGuide.pdf: Parent's Guide for UDL from the National Center for Learning Disabilities.

The pictures used to protect the children's and teachers' identities are provided by www.pixabay.com.

UDL IN TÄHTIKUNNAN KOULU, SODANKYLÄ FINLAND

Neitola, Päivi; Näsi, Auli; Lakkala, Irja-Kaisa

M.Ed., Special class teacher Päivi Neitola
M.Ed., Class teacher Auli Näsi
Ph.D., Vice-principal Irja-Kaisa Lakkala

In cooperation with

Ph.D. Outi Kyrö-Ämmälä and Ph.D. Suvi Lakkala,
*University of Lapland*

INTRODUCTION

The Finnish education system includes early childhood education, preschool education, comprehensive education, upper secondary education and higher education. Attending preschool education has been compulsory since 2015. Preschool education usually starts during the year the child turns six; and it lasts for one year before comprehensive education begins. Preschool education is free of charge and so is comprehensive school.

Earlier comprehensive school has been compulsory for all children aged between 7 and 16 but the extension in compulsory education is due to become effective in 2021. It means that students in the grade nine (approximately 16 years old), having completed their comprehensive school education, will gain an upper secondary qualification. Secondary education that is offered includes high school and vocational school. The youth that require more special support gravitate towards special vocational schools. Those who have severe disabilities are offered daily activities. The minimum school leaving age will be raised to 18 years.

There is a model of **three-step support** for students in Finland. It means that every pupil receives the support for learning they need as soon as possible. The levels of support are: **general**, **intensified** and **special** support. General support is pedagogically the lightest level of support, intensified is little stronger and special support is the strongest support measure. There is a tight cooperation with the pupil's parents at every level. Below you can see the structure of the class we write about in this article.
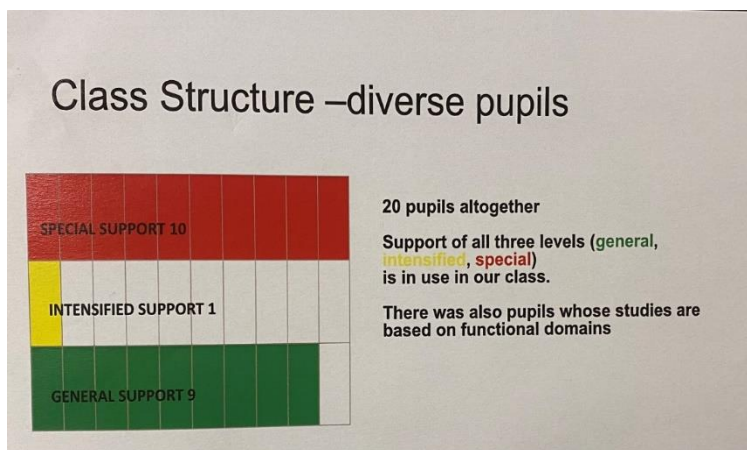
The authors of this article, special class teacher Päivi Neitola, class teacher Auli Näsi and vice-principal Irja-Kaisa Lakkala work at Tähtikunnan koulu. Tähtikunnan koulu, is a single structure comprehensive school. There are 591 students between ages 6-16 in our school. Tähtikunnan koulu is situated in Finnish Lapland, in Sodankylä that belongs to the Sámi region.

In 2017 we (Auli Näsi and Päivi Neitola) started teaching one 1st grade group as an inclusion class: disabled children were placed among age-mates who followed the general education curriculum. (About inclusion, e.g. Florian & Beaton 2017, Haug 2017, Lakkala 2020.) There were 20 students altogether in our class. The students were on every level of support: general, intensified and special, so they had diverse needs.

With the disabled children we had to change our way of thinking about teaching and we familiarized us with Universal Design for Learning, UDL- model. (About UDL, e.g., https://udlguidelines.cast.org/, https://www.inclusive.tki.org.nz/guides/universal-design-for-learning/)

Our group was so heterogeneous that our earlier pedagogical methods or plans did not work in this group. We needed a change and the change was called UDL.

UDL IN OUR CLASSROOM - WHAT DOES IT MEAN FOR US?

UDL is very strongly present in our ordinary school days. It has become a way to work. Each child is guided to find their best way to work so that they could really learn. We have noticed that UDL does not implement itself without any effort. It will not become a part of ordinary school life if you do not consciously work for it. UDL is not a random lesson or a thing. It is a way of thinking and especially the change of the way of thinking. It needs preparations in advance, familiarization and time! Time is needed to think about the tasks, edit and prepare them.

The starting point of everything is knowing the students. What can a pupil do? What are the challenges of each pupil? And what are their strengths? According to our experience in UDL we can say that a teacher as a pedagogue must ask oneself again and again: How can we remove barriers to learning concerning just this pupil? How can we put it into practice? It can be so that the magic does not happen in a moment. We need many trials and errors before we find a correct way to learn and assume. The feeling after hard work is really rewarding when you can see the light in students' eyes when they have learned things and are happy with it.

Human resources in our class were one class teacher, Auli Näsi, one special class teacher, Päivi Neitola, two teaching assistants for the whole group and two personal special needs assistants for certain students. Every adult working in this class has to share the same understanding of the aim, because the students are diverse and they work with different tasks simultaneously during one lesson: the importance of tutoring the pupil and knowing the pupil are emphasized. Every adult supports the learning of every pupil in a similar way. Class assistant supports the teacher´s pedagogical responsibility and decisions in her own job with students. Every adult has to know her place and her pupil during the lesson - therefore, planning the activity in advance together with all adults working in the class is important. "Everybody has to be on the same page all the time".

Pic. 1. Teamwork: planning the next week

In addition to that barrier-free learning is strongly present in our students' ordinary life, UDL is also part of the adults' life in our class. Daily and weekly schedules are given in many different forms: pictures, colours, words and texts can be seen in the classroom. Our team has a meeting to plan every week, so we also speak and listen. Every adult can choose the best channel for them to receive information. - Even here we have managed to remove barriers!

Based on our experience, UDL works best when the learning environment, learning circumstances and group dynamics are reliable and safe. We think that as a process of learning UDL is so demanding that it cannot only be brought into some group. Before we could put UDL in practice in our group we had to build groundwork for learning. The cornerstones were self-direction, sense of togetherness and competence.

Self-Direction - I can focus on the task. Nothing can bother me!

We created a few simple routines to follow daily and during every lesson:

Every lesson starts and ends in a circle: at first to get the instructions and in the end to evaluate. Ringing the bell tells the children to finish the task and come to a circle. Timer defines the working time which changes between 5 to 20 minutes. Working with the given tasks always takes place at everyone's "own" place by a desk.

In order to support our introductions and working we created a structure with pictures: for every day, for every working moment, for working time, for composing the groups. We do not have traditional 45-minute lessons. One lesson usually includes several short study moments that last max 20 minutes.

We obtained a calm learning environment with a few simple and comprehensible routines. Gradually our routines helped the children to become more and more self-directed. They were able to concentrate on their own tasks without reacting to any external distraction. Repeating the explicit routines began to steer our students and their action to the aimed target.

Competence - I have many talents and I can do many things!

With some children it was difficult to get them to find their abilities and skills; positive pedagogy was the solution. (About positive pedagogy e.g. Leskisenoja & Uusiautti 2017.) Some children had an extremely low self-esteem and a twisted

Pic. 2. I can focus on the task. Nothing can bother me!

comprehension of their own abilities. Continuous encouraging and believing in their abilities took us forward.

Material was prepared to meet the needs, that is to say, to help the pupil to feel success in learning. Furthermore, students were occasionally allowed to choose the way and the place for working (UDL). It was vitally important that children experienced success in learning also when working by themselves without a supporting adult. "I can do this myself! I'm good!"
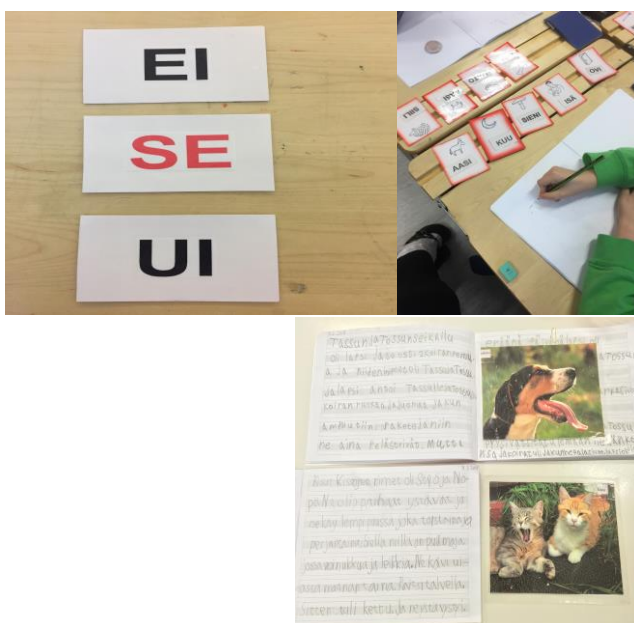
Pic. 3. During the Finnish lesson some children practiced syllables, some words and some already wrote stories.

In the beginning we guided and supported our students to choose things to do once the children had familiarized themselves with the UDL-model. After the students had the ability for self-direction, they were able to make choices:
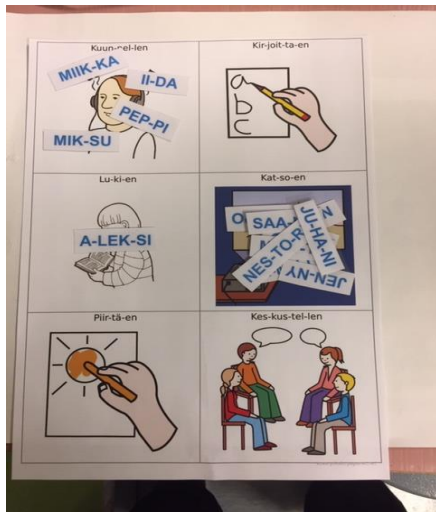
Pic. 4. *How do you want to learn this?*
Do you want to study alone, with a pair or in a group?
Where do you want to study?

Pic. 5. *Sense of togetherness - I´m feeling fine in this group. I´m being heard, accepted and liked as I am, just like me.*

Adults in the class give time for talking. If needed the prepared lessons are put aside. Listening to the children and reacting without a delay is the most imperative.

Pic. 6. UDL lesson: build something with your group and make something with your classmate, use playdough.

Pic. 7. It is important to give attention to one pupil at a time.

When we began in 2017, we had several children who did not say anything, not a word. We gave the students and still give them moments when only this one pupil gets all our attention. The children are encouraged and supported to express their own opinions and accept other opinion that are sometimes different.

Having put our best effort into developing self-direction, competence and togetherness is helping us now and, in the future, to maintain the aimed harmony in class activities.

EXAMPLES OF GOOD UDL-LESSONS

Four pillars of working in our class

1. We do not have actual schoolbooks in our class.

Approximately once every two months we collect students' work and the exercises they have done and put them in folders. So, every pupil can have "an individual schoolbook".

Instead of schoolbooks we use a lot of other literature and ICT. We make the materials ourselves.

Pic. 8. Self-made schoolbooks

2. We have a tight cooperation with libraries, Sompion kirjasto in Sodankylä and Rovaniemi City Library, which is also the Provincial Library of Lapland. Every month they send us a bag or box of books.

3. The structure is always the same according to the daily routines we had made:

We usually start by sitting together in a circle. The teachers explain the things that are going to be studied. The students start working on the topic. Everyone can choose the way they study. The students with special needs are guided by the adults. We finish the work by sitting together in a circle evaluating the students' efforts.

4. Every adult working in the class must share the same understanding of the aim. Every adult supports the learning of every pupil in a similar way. Class assistant supports the teacher's pedagogical responsibility and decisions in her own job with students.

The first UDL-section

During spring 2019 we had many UDL-structured lessons with different themes: Human Body, Children's Book Pate, National Epic Kalevala and the Animals in Lapland. The students loved these kinds of lessons and wanted to have more of them. We present here our first UDL-totality, the plans and reflections.

Topic: Human Body

Why do we study?
What do we study?
How do we study?

The preparations the teachers made beforehand:

First, we discussed choosing the topic. We took a look at the cross-curricular themes we are going to study during the spring semester. After the discussion we chose environmental studies and "Human Body". After choosing the topic we thought about the content of it. We chose three parts:

1) Digestion 2) Respiration and circulation 3) Brain and senses.

Then we discussed the ways of collecting data we give to students. In the beginning we gave them three ways: 1) reading 2) listening, and 3) watching.

The idea was to listen carefully to what they decided and how they worked. We were also ready to change the options. We gathered plenty of literature concerning the topic and other material for learning. We also had 'Once Upon a Time… Man' - video series, books and iPads.

The first teaching episode

Digestion (2 x 45 min)
The students' choices:
I want to study the topic;
by reading (1 pupil), by listening (4 students),
by watching (11 students)

We had a common start and told the students about UDL and described what is going to happen. After that the students were able to choose whether they collect data by reading, listening or watching. One of the students wanted to read, four wanted to listen and 11 wanted to watch. The reader was ready in a few minutes and afterwards she started watching the film among the others.

The teachers' reflection: The students with special needs (we called them The Greens) were not able to start working independently. They pretended to read or to listen to but they did not understand anything. They needed adults to guide them a lot. One reason for the barrier was that The Greens could not read fluently so they did not manage to read independently.

Some of The Greens could not listen properly because they had weak listening comprehension skills. The topic to be learned was quite abstract, which caused problems. Two working lessons were not enough for the students with special needs. Next time we have to plan our cross-curricular theme so that we can better take into account the point of view of the students with special needs.

The second teaching episode

Respiration and circulation (3 x 45 min)
By reading (5), by listening (3), by watching (8)
The teachers' reflection:

The students watched 'Once Upon a Time… Life' - film (25 min) first. The special class teacher and teaching assistant of the group The Greens were wiser than last time and modified the exercises and the subject more suitable for the students with special needs. This time the teacher was leading the lesson.

After the common moment the special class teacher and the assistant started explaining the question in words of one syllable. We had written the text plain language. The text was collected from many different schoolbooks. We read the text aloud together and after each sentence we made sure that everyone had understood it. We also acted out and demonstrated what happens if there is too much carbon dioxide in the human body. Fortunately, we had a paper bag! The exercises were custom made for each child with special needs. Now we had three 45 minutes' timeslots and it was much better than earlier. Now we were not in a hurry! Even the students with special needs learned and we saw that they had understood our task. This was a successful episode!

The third teaching episode

Brain and senses (3 x 45 min)
By discussing

We were satisfied with our successful episode. We decided to use the same method, to explain the subject brain and senses in words of one syllable. The children with special needs were not able to work totally independently then. They had difficulties in executive functions, concentration etc., therefore the special class teacher together with the school assistant of her group tried feverishly to find methods for successful barrier-free learning in this very heterogeneous group of students. There were nine students in this group and two of them were students whose learning was arranged by activity areas.

Again this time we started familiarization of the subject by reading the text written in plain language. The teacher had collected the most important things from different books in plain language on the paper beforehand. After each sentence we read we made sure that the thing was understood. The teacher and the assistant were ready to act again. They had made the exercise handouts by cutting and gluing. Writing was difficult but cutting, gluing and colouring succeeded.

The children need especially concreteness and hence the assistant had made sacks full of different things. When touching these sacks, the students had to use their own senses. The children were very enthusiastic about this. In the end they had an opportunity to watch a film of brain work together with their classmates. The thumbs up assessment showed that everyone had had a fun learning moment and even The Greens remembered many different senses! That was a happy moment!

ASSESSMENT

According to our new curriculum we teachers are bound to evaluate the students from various perspectives. The students practice self-assessment even from the first grade, and the teachers are encouraged to evaluate continuously. We try to work so that the traditional exam is not the only way to do the assessment of competence. In our group we paid special attention to assessment. We tried to make it "child-sized". The characters of The Hundred Acre Wood worked perfectly as indicators of children's self-assessment. After each learning moment the children put their own clothes peg, with their name on it, to a soft toy character that corresponded to their assessment of their success in the previous learning task. For example, if the child put the clothes peg to Eeyore, they had been tired, displeased or felt like they had failed. If the clothes peg was found in Tigger's ear the child said that they had often been restless and had had "a feeling of bouncing up and down".

We evaluated the children's learning in our UDL-moments so that in the beginning we asked them to write, what they already knew, for example, about a human body. In the end of the study

unit we asked it again. There is a picture of one assessment paper in this section. The paper was made in two parts. First the children filled in the "This is what I know now" -side and in the end the "This is what I know after studying" -side. So it was easy to see how the level of learning had increased. The children themselves also could see their development.
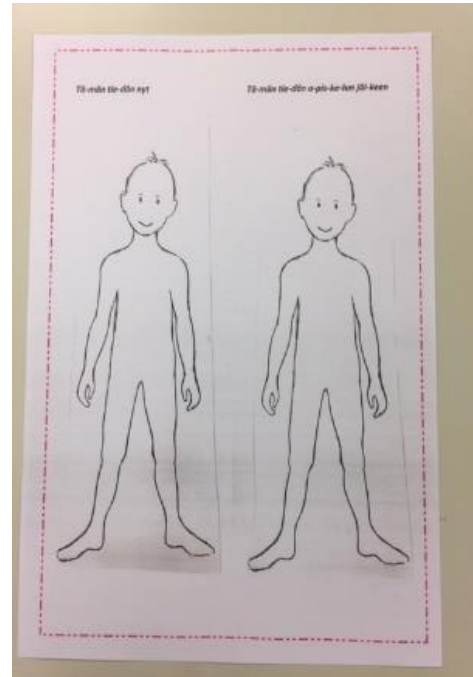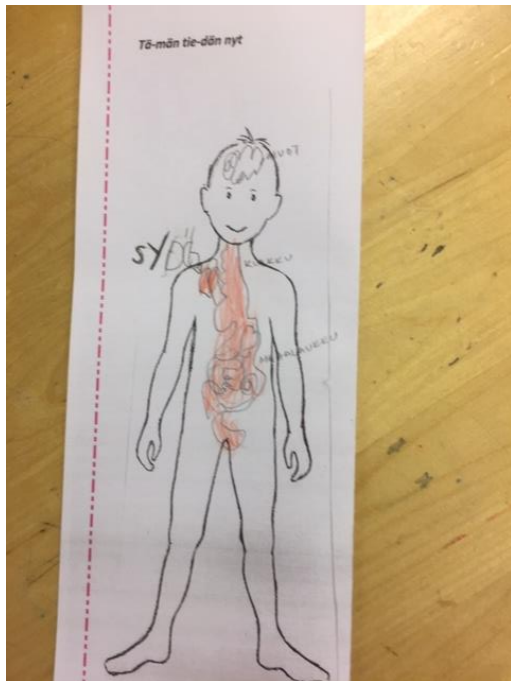
COOPERATION AND SHARING UDL-IDEA IN OUR SCHOOL

In school year 2019-2020 we had set the goal for our work to share information about UDL in our school. First, we asked class teacher Päivi Ahava and her class 1B (students were approximately seven years old) to participate in the project.

Before we could start working with the new students, we had to have plenty of meetings to plan the process with our colleague, Päivi. We spent many hours explaining the UDL-strategy for her. The university researchers were also involved in some of these meetings.

Sometimes the University researchers could help us during our school days

We had carried out three working days to implement UDL in class in 2019-2020. The students and teachers from Auli's and Päivi's class acted as mentors for these little students.

Although the third graders gave very strong support to the students of class 1B, the first-graders' "UDL-path" was only at the beginning; they had walked only the first few meters. They needed a lot of repetition to develop their self-direction at the level the UDL-method needed.

Our students with the first graders made little studies about animals in Lapland.

We set a three-year schedule for our teaching cooperation and inclusivity experiment in the year 2017. In the beginning three years felt like a short time but in practice it was very suitable. Every year new students with special needs who started their studies joined our group. This brought along challenges. The age difference between students grew all the time. The skill-set of the students became more heterogeneous once new students joined the group.

After three wonderful years we decided that our paths would separate. In our opinion the system did not support the learning of our students. In the autumn of 2020 our groups continued their studies separately. New students joined both groups. During these three years the things we experienced

and tried out have become routine for us. Even though we work separately nowadays we both implement UDL-principles.

In two years when Auli's students go into junior high school she will start teaching the first grade. It is highly likely that we will start our inclusivity project again. It would be interesting and rewarding. Then we would be able to avoid the mistakes that we made previously. These three years have given us pedagogical wisdom to see our students through their challenges. These years have given us trust and bravery to implement other teaching methods (e.g. UDL) than traditional teacher-leader model. Now and in the future nothing is more important than a pupil as an individual with their strengths and challenges. Our task as teachers is to find the ways that help these students to develop with their strengths and weaknesses. This is what UDL is all about!

RESEARCH FINDINGS

The UDL method as such has been studied only a little in Finland. As an idea of teaching, the UDL is strongly linked to inclusive education and that has been studied more in Finland. Our group has been the subject of two master's theses. They are the following:

Alaviippola Anna, 2019. "Erilaisuus tuoda sellaiseksi luontevaksi suhtautumistavaksi" Etnografinen tutkimus alkuopetusluokan toimintakulttuurin rakentumisesta inklusiivisissa käytänteissä. Pro gradu- tutkielma, Lapin yliopisto. (Free translation: *"Diversity to be brought into such a familiar attitude" Ethnographic research on the construction of a functional culture in primary education class in inclusive practices.* Master's thesis, University of Lapland.)

Juurinen Joel, 2019. Positiivinen pedagogiikka alkuopetuksen luokassa. Etnografinen tutkimus pedagogisesta oppimisympäristöstä. Pro gradu- tutkielma, Lapin yliopisto. (Free translation: *Positive pedagogy in primary school class. Ethnographic research on the pedagogical learning environment.* Master's thesis, University of Lapland.)

In addition, Ph.D., University Lecturer Outi Kyrö-Ämmälä and Ph.D., University Lecturer Suvi Lakkala from the University of Lapland have been involved in our UDL- project from the very beginning. In 2020 Suvi Lakkala has submitted a book 'Mahdoton Inkluusio? Tunnista haasteet ja mahdollisuudet' PS-kustannus together with Ph.D. Marjatta Takala and Ph.D. Aino Äikäs. In that research they also mention our work. Free translation of the title is 'Impossible Inclusion? Identify Challenges and Opportunities'.

References

Florian Lani & Beaton Mhairi. 2017. Inclusive pedagogy in action: getting it right for every child. *International Journal of Inclusive Education*. Pages 870-884.

Haug, Peder. 2017. Understanding inclusive education: ideals and reality. *Scandinavian Journal of Disability Research*, 19(3), pp.206–217. DOI: http://doi.org/10.1080/15017419.2016.1224778

Lakkala, Suvi, Uusiautti Satu, Kyrö-Ämmälä Outi and Grönfors Perttu. 2020. Students' social self-image and engagement with studies within the classroom: A qualitative multimethod research on teachers' pedagogical activities in inclusive education. *International journal of Whole Schooling* 16 (1), 35-60, The Contents and Methods of Inclusive Pedagogy. 2020. University of Lapland.

Lakkala, Suvi. 2020. The Contents and Methods of Inclusive Pedagogy. Guide to culturally responsive teaching and diverse learners in the daily life of schools. Paksuniemi, M., Körkkö, M., Keskitalo, P. & Norvapalo, K. (ed.). Turku: Siirtolaisuusinstituutti, 2020 pages 33-40 (Julkaisuja / Publikationer / Publications (Siirtolaisuusinstituutti); No 36)

Leskisenoja, Eliisa M., & Uusiautti, Satu. 2017. How to Increase Joy at School? Findings from a Positive-Psychological Intervention at a Northern-Finnish School. *Education in the North*, *24*(2), 36-55. https://www.abdn.ac.uk/eitn/journal/534/

The UDL Guidelines https://udlguidelines.cast.org/ (2nd February 2021.)

UDL. Design learning to meet the diverse and variable needs of all students in your classroom https://www.inclusive.tki.org.nz/guides/universal-design-for-learning/ (15th February 2021.)

Patterns of Successful UDL-Based Lessons
in Vilnius Balsiai School,
Lithuania

Antulienė, Asta; Vaišnoraitė, Giedrė

INTRODUCTION

Vilnius Balsiai School is very young, established in 2011. This is the first school built in the capital city after the restoration of independence of the State of Lithuania. Moreover, in 2020 the new branch of expanded institution was built. Therefore, we are going to celebrate the 10th anniversary of still expanding school in September 2021.

Both school buildings are brand new, modern, comfortable, equipped with modern technologies and tools. They serve as a work and activity place for 1240 students. There are 632 students, 26 classes in primary education program (1–4 grades), 608 students, and 23 classes in lower secondary education program (5–8 grades). We have 71 students with special educational needs: 19 of them having severe and 45 students with mild disorders, as well as 7 students with low educational needs. All the students with special educational needs are taught in mainstream classes.

Eighty-three teachers work at our school, following formal and informal programs. Also, we have nine support professionals who take care of students with special needs and help with learning or behaviour problems. In our classes, 12 teacher assistants assist teachers and help them to deal with problems in the classroom.

The school is managed by the administrative team, i.e. the headmaster and 4 deputies, moreover, 4 persons work in the office and libraries. The team of school administration collaborates with the School board – the main community institution.

51 informal clubs and studios work at school after lessons for developing different competences and personal skills of students. Some of them offer ethno-cultural activities – exclusiveness of our school.23 clubs and studios are supported by the government funds and 31 paid by the parents of the students.

Vilnius Balsiai School is situated in a very beautiful place surrounded by the territories of the Green Lakes and Verkiai Regional Park. By exploring these territories, the curriculum has been enriched with attractive forms of education. The school encourages the organizing of contextual lessons and the development of outdoor learning strategies. One of our successes is the organization of integrated educational activities in outdoor spaces. By performing individual and team tasks in other educational environments and reflecting on their activities, students have the opportunity to apply practical and theoretical knowledge, get to know, discover, research, make decisions, experiment, observe and develop general competencies. Cross-learning strategies improve learning outcomes, individual student progress, and overall progress of school.

The priority of the school's activities is improvement of microclimate and strengthening of independent (conscious) learning, therefore the school participates in various projects that correspond to implementation of the school's priorities. One of the important projects for our school was "Preconditions of Transformation of Education Process in Different Educational Contexts by Applying Inclusive Education Strategies". We were very pleased that teachers had the opportunity to gain international experience through an inclusive education methodology that had an impact on improving students' achievement and overall school progress.

Our school joined this UDL implementation project in 2018. Two classes and the English and Lithuanian language teachers have been participating in it for three years. The headmistress supported participants and fostered spread of UDL practices among our school teachers.

We hope that this booklet, based on our findings, while implementing elements of UDL into our practice, will be accepted by teachers-practitioners as scaffolds for a start, and help with some insights and practical hints that could be easily adapted in any classroom by a novice or even an expert. Common principles of UDL encourage teachers to design a curriculum that is flexible and adaptable to multiple forms of learning and engagement to facilitate the learning of all students (Lancaster 2008). Due to the fact that each class contains different students with different backgrounds and abilities, there is not always a one size fits all lesson. So, those found inconsistencies may serve as learning experiences as those UDL principles can be intermixed. We have to admit that UDL plans may prove difficult to incorporate in all classrooms, but we do believe that they help students of all abilities and potentials to achieve their best and help with establishing a growth mindset.

GLOSSARY

CAST is a non-profit education research and development organization that created the Universal Design for Learning framework and UDL Guidelines, now used the world over to make learning more inclusive. The acronym "CAST" derives from the original name of the organization – Center for Applied Special Technology.

Universal Design for Learning (UDL) is a way of thinking about teaching and learning that helps give all students an equal opportunity to succeed. This approach offers flexibility in the ways students access material, engage with it and show what they know.
For more information look: https://udlguidelines.cast.org/

Distance learning, also called *distance education* form of education in which the main elements include physical separation of teachers and students during instruction and the use of various technologies to facilitate student-teacher and student-student communication.

Synchronous, on-line lessons – live on-line meetings when the whole class or smaller groups get together with a set schedule and required login times.

Google Classroom – an educational platform used by our school for distant learning and teaching.

AT – Assistive Technologies.

We strongly believe that only an inspired student can reach his full potential, so we found UDL as the framework that is a powerful source not only to fulfil that, but also helps a student to develop as an expert of his own learning. It becomes much easier to support students with learning and thinking differences, to remove any barriers to learning and give all students equal opportunities to succeed.

We tried to follow these general guidelines for each lesson:

- To motivate each student on a personal level.
  Using guided partners and group projects in the classroom was helpful. We understood that such external motivators as credits or stars were not enough. Developing their intrinsic motivation was of more importance while trying to change their mindset.
- To teach a student to set personal goals (a short-term goal for every lesson and a long-term goal at the beginning of each period).
- To organize lessons that relate to students' life as then they are more intrinsically motivated to learn and excel.
- Finding what students enjoy was not an issue but teaching around those specific topics for each single student was a challenge.
- To offer multiple means of materials to explore a new theme and a variety of ways to express what they have learnt, demanded a shift from a teacher centred to students centred learning.
- To ensure a fruitful reflection in the end of the lesson/unit.

We would like to look at different aspects of implementation and applicability of UDL in our Lithuanian classrooms, organising our findings in such sections:

1. SETTING GOALS

2. ENGAGEMENT

3. REPRESENTATION

4. ACTION AND EXPRESSION

5. REFLECTION AND FEEDBACK

UDL system encourages students to learn to formulate their own goals, though we cannot expect that they will set their goals naturally, as it requires training. We see the need of effective goal setting skills to be developed. So, first thing that we started doing in the beginning of each lesson was teaching to formulate goals of the lesson.

Learning goals, oriented towards growth, provide scaffolds to success, and teach time management, while giving focus and self-confidence boost when achieved.

"Arriving at one goal is the starting point to another." John Dewey

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Key Takeaway

5 Rules for setting SMART goals
- *S = specific. Your goal should include details of what you want to accomplish.*
- *M = measurable. You should be able to measure your progress and accurately determine whether you've accomplished it.*
- *A = attainable. They should not be too easy or too hard.*
- *R = realistic. You should be able to reach your goal if you devote your time and effort and have the necessary resources.*
- *T = timely.*

Adapted from us.humankinetics.com

Our English language books offer a wide possibility of reflecting on achievements (students fill in rather explicit tables, evaluating their performance on 4 skills, grammar and vocabulary items leant at the end of each unit), but they do not offer a chance to set their goals. Problem of not having a culture of setting a personal goal in Lithuanian educational system is started being addressed only over the past years.

From a UDL perspective, goals and objectives should be attainable by different learners in different ways. Big, long-term goals seem too overwhelming for our students, so we start teaching setting short-term goals first. When a student says "I want to speak good English" we try to specify what it means to speak "good English" looking from the perspective of one lesson. Then, that long-term goal is broken into smaller, more manageable steps and can be formulated as "I'd like to know 5 new words/phrases while talking about (theme)…", thus eliminating fear of being discouraged and quit. A very important thing is to reflect if those goals were achieved at the end of the lesson. Strategies how we do that can be found in the "Reflection and Feedback" section.

The goals usually vary from child to child and usually are closely connected with the theme of the lesson: "I'd like to learn 5 new adjectives and use them…", "I would be happy if I understood the difference between these two tenses and could write sentences without mistakes", etc. formulate our students.

We really had difficulties formulating goals at first, as we were asking students to demonstrate their understanding on the matter through one modality, e.g. asking to write a paragraph on some theme instead of giving them opportunity to express what they've learnt in different ways: creating a diagram, making a short video explaining, etc.

What happens if in the end of the lesson a student realises that he did not achieve his goal? We start analysing his goal again. Maybe it was too big to be achieved during one lesson, or maybe we, teachers, did not supply our students with variability of materials and means to achieve them.

We were using various approaches to monitor if goals were achieved:

- conversation at the end of the lesson: sharing in pairs and speaking about it in the group;
- exit slips- when students answer questions given by the teacher;
- completing an activity, giving the chance to implement knowledge, gained during the lesson, showing if the goals were achieved or not;
- "*Refelectus*" – a tool (electronic site) created by Lithuanian educational practitioners that enables teachers to create continuous reflection questionnaires in various formats and helps students to reflect if/how they achieved their goals. More about that in the "Reflection and Feedback" section.

> *Key Takeaway*
>
> *Key characteristics of well-designed goals: to make explicit the desired outcomes, rather than the means of achieving those outcomes.*

We acknowledge that more attention should be devoted to teaching strategies of setting students' own goals in all the lessons at school, thus creating a nice routine to develop their expertise to become independent learners.

ENGAGEMENT

Bearing in mind that learners obviously differ in the ways in which they can be engaged or motivated to learn, we must admit that there is not one means of engagement addressing the needs for all learners in all contexts. So, the only option to meet the needs of all the students in the class is providing multiple options for engagement. Usually, we offer different options in different lessons.

> *Key Takeaway*
> *Educational setting should be relevant and authentic to students*

Considering that individuals are engaged by information and activities that are relevant and valuable to their interests and goals, we try to design each lesson addressing students' interests thematically and adapt them to their age.

Joy of creativity and collaboration

Class/lesson: 8th grade, English lesson. On-line lesson
Lesson theme: Creating a "Help Page"
Aims of the lesson: after analysing the text from Cambridge on-line dictionary to create a "Help Page" for teenagers
Material/representation: text from Cambridge on-line dictionary
Scaffolds: the text to be printed at home and digital format of it on Google Classroom;
on-line dictionaries to check unknown words; students could work in pairs or alone
Homework: to create a "Help Page" for teenagers in a chosen form (a poster, a leaflet, a PPT presentation, a speech or a song)

This lesson is a good example of addressing realia – Covid-19 quarantine in Lithuania. Just after a few months when we started learning online, we noticed that students started feeling low in their spirits. So, for the English language class the text, involving phrasal verbs to work on and revealing how people may feel during a lockdown, was chosen from a Cambridge on-line dictionary. It was available to be printed at home and in digital format on Google Classroom. After, students' interest was recruited, asking them to find the ways to help themselves, and suggesting meaningful activities. Students were asked to create a "Help Page" for teenagers advising their classmates how to survive in a lockdown and given a choice to create a poster, a leaflet, a PPT presentation, a speech or a song. Usage of at least 3-5 phrasal verbs from the text was mandatory.

Though the homework assignment offered a rather wide choice of expression, most students chose to create a poster, some created a leaflet and a PPT and none of them created a speech nor a song. "I do not have a talent for that…", "Singing in front of my classmates is embarrassing…", "I had much homework to do, so have chosen a task that is less time consuming…" commented some students during our reflection.

Class/lesson: 7th grade, Lithuanian lesson. Distance learning
Lesson theme: Journey in time: meeting with the writer
Aims of the lesson: to introduce one of our textbook authors and get to know more about writer's job peculiarities; as well as broader the concept of journey
Material/representation: presentation of writer's books
Scaffolds: individual time at home devoted to read the book and create the questions

After shifting to the distance learning, on the one hand, we tried to make lessons as interesting and engaging as possible in this new and uncertain for teachers and students' situation. On the other hand, some cultural and social figures were eager to share their experience with young generation in this problematical situation. So, we decided to invite "live authors" into Lithuanian literature lessons.

Before the lesson all the students had read the invited author's book and each student had prepared 3–5 questions about everything that interested one. The lesson obtained the structure of a conversation. The writer not only presented his books but also spoke about writing process, its profit, Lithuanian publishing market peculiarities, distance learning and how to "survive" in this Covid-19 situation. The teacher's questions returned to the plot of the discussed book and the guest remembered his childhood in Vilnius centre, time then he started showing interest in Vilnius history, intention to combine educational and intriguing elements in the book, which grew into the main characters' journey in time.

In oral and written reflections students admitted that it was a pleasure to have a conversation with the author. And even the next year, writing a review on the discussed book, they remembered this meeting and noticed the fact that it had increased interest in this book and in reading in general, what had led up in the deeper analysis of books.

Class/lesson: 7th grade, Lithuanian lesson. Distance learning
Lesson theme: Presenting of the project "Mission Siberia": meeting with the participant of the Mission
Aims of the lesson: to introduce the hero of our textbook essays/videos; get to know more about the project "Mission Siberia" aims, history, routes
Material/representation: screened material and presentation about "Mission Siberia", prepared by the guest
Scaffolds: individual time at home devoted to read the book and look through the filmed material

In our understanding, in 2005 Lithuania initiated the unique project "Mission Siberia", which invited Lithuanian youth to visit the cemeteries of Lithuanian deportees and political prisoners located in Siberia, i.e. the Eastern part of contemporary Russia (several decades after occupation of huge country Polish-Lithuanian Commonwealth Russia began to exile Lithuanian elite, and this way of oppression with a short break had been lasting about 200 hundred years up to Soviet Union collapsed). The project, after joining neighbouring countries, became international. The experience of project participants was laid into the book "Misija Sibiras 2006–2015", whose extracts were published in the Lithuanian literature textbook. The teacher decided to invite a young student who was one of the participants of the project "Mission Siberia".

In fact, the topic of the book "Misija Sibiras 2006–2015"' is rather distant from Lithuanian teenagers' experience. But the guest authentic vibrant and powerful narration supplemented with authentic screened extracts and photos helped students to find their own perspectives on this topic ("some interesting angle"). Students in advance had also read the book or watched at least 5 filmed missions, so they were prepared and their questions transformed conversation into the meaningful dialogue.

> *Key Takeaway*
>
> *Invitation of the guest, not very elder than pupils, helps to actualise even alienated topics.*

In oral and written reflections students admitted that meeting was interesting and useful and even encouraged some of them to join the project "Mission Siberia" after several years. The teacher also noticed that in next lessons designed to this topic students were more engaged and relied on more important information.

Creating a safe space for learners helps to minimise threats and distractions

An English Language learner might find language experimentation threatening, so one of the ways helping with this, is creation of class routines. Every English language lesson has more or less the same structure. First, relaxing and up-to-date discussion on news in Lithuania or in the world or "One Minute Challenge" activity (describing a photo, meme or cartoon sequence connected with the theme of the lesson) or a language game, used for consolidation of material of a previous lesson. Then, setting learning goals, introduction of new materials, consolidation through various activities and finally, reflection and setting homework. Knowing this pattern students

> *Key Takeaway*
>
> *Creation of class routines helps to maintain order and helps students feel secure.*

have possibility of feeling safe and concentrate on the process itself. Having a structure of the lesson does not mean that it is a rigid plan. Each following lesson is planned based on analysis of what worked or what did not in the previous lesson.

We also try to vary the length of work sessions, availability of breaks and many more while establishing supportive classroom climate. One of the things to pay attention to is difference in pace of work. On-line learning during Covid-19 pandemic made it easier adaptable to a student. Usage of a flipped classroom allows to plan time individually, as reading and analysis of materials can be

completed at home (at students' own pace), and more time in the classroom is used to explore topics in greater depth and create meaningful learning opportunities.

Finding ways to accept and support all students equal chances to succeed

In the class where UDL principles were implemented we have students of various abilities and facing different problems. There are a few students suffering from dyslexia and dysgraphia, one student has hearing impairment though wearing a cochlear implant. There are several students having psychological problems/ traumas. One student has spent part of his school life abroad. There are also some students with low learning motivation and some gifted ones. Class profile suggests that one way of engagement is not an option. So, first thing what we did was finding out learning styles of our learners and then it got easier to address their needs planning the choice of efficacious materials and activities.

We have to admit that we still struggle with differentiation of degree of the tasks. It is not a problem to prepare them for students with different abilities, but it is always time consuming to give timely feedback on the carried tasks for everyone individually during the class.

Pandemic encouraged usage of IT materials to a great extent. One of the tools which helps a lot allocating tasks according to students' abilities is *Liveworksheets* – an interactive worksheets maker. It is extremely helpful while learning the English grammar. In the English language classroom, we are able to choose a task for different levels from the pool of exercises or create them ourselves. Tasks are allocated to students, corrected automatically and returned them for overview. Then, they can choose to analyse their mistakes and redo an exercise as many times as they wish, until they are satisfied with their answers. In Lithuanian lessons we use a little bit less sophisticated tools "Ema" and "Eduka" for the same purposes. Using them we can assign different level tasks to students and let them to improve their work even several times after checking, however the teacher does a big part of work manually. So, there is a chance to kill two birds with one stone: possibility of differentiating the level of tasks and developing students' persistence in achieving their goals.

> *Key Takeaway*
>
> *Usage of IT technologies helps not only to interest students, but also saves a lot of teacher's time while correcting works.*

> *Key Takeaway*
>
> *Gamification helps to build skills for students, not noticing that they are really learning.*

UDL encouraged us to look for multiple ways to motivate students. Letting them choose and have assignments that feel relevant to their lives helped to sustain students' interest. Gamification was another common strategy that helped skill building. These activities felt like a game and created opportunities for students to move around the classroom. Such games as "Hot Chair", "Running Dictation", "Alias", "Scattegories" helped a lot with revision of vocabulary and spelling; "Auction" with grammar; "Taboo", debates and many more for speaking, were of great help in the English language classroom.

Sometimes engagement can be stimulated and planned in advance. This happens when we use pair work, as it enables all students, whatever the size of your class, to take part in the lesson. We use pair work in our language classes as it is a powerful tool to give all students the opportunity to speak about the topic and share ideas, and to learn from each other. In Lithuanian lessons it is a very useful mean to stimulate ideas, formulate, learn or revise rules, to create or correct texts, to overview books or other written material, to make small or big multidisciplinary projects. It also gives weaker students a degree of privacy and a chance to be corrected by their peers contrary to being listened to in front of all class, what usually makes them embarrassed.

> *Key Takeaway*
>
> *Being able to choose how to work: alone, in pairs or in a group, might lessen students' fear and help evoke communication.*

An excerpt from the English language lesson
Class/lesson: 7th grade, English. Live lesson at school
Lesson theme: Staying Safe
Aims of the lesson: to analyse the works of peers on a Padlet wall (a digital tool, an online notice board) and express your opinion on their advice given about how to survive in the mountains/desert/jungle/ocean
Material/representation: Padlet Wall on computers, offering materials created by classmates including description and videos
Scaffolds: on-line dictionaries to check unknown words and help from students' peers as they could choose working alone or in pairs/small groups

Kotryna, a student with dyslexia, never shows willingness to speak in front of the audience as is embarrassed with the mistakes she makes. But given the chance, she chooses to work together with Izabelė, a bright and supportive classmate. Kotryna gets needed support and writes a few nice comments on classmates' works. When comes time to present a group's opinion, she makes mistakes, but does that without big stumbling.

Pair work is a chance to intervene and help students to increase their knowledge while interacting discreetly, also giving more responsibility for learning to the student himself.

Working in pairs helps to feel safe and get a valuable support from classmates

Class/lesson: 7th grade, English language lesson. The excerpt of the on-line lesson.
Lesson theme: Unit 4 vocabulary revision
The ability of students to use peer support to build common understanding is one of the most relevant skills of a learning expert. We were used to work in pairs and small groups, but after starting on-line learning it became impossible. Our school uses Google Classroom that does not have options to divide students into groups on-line, so we came up to the idea to work in pairs having a designated assistant.

Learners support each other while presenting their work

Students were suggested to revise vocabulary while doing an exercise, in which they needed to add an adjective to describe the main word (noun). One student had to choose the right word and say the phrase, and the other had to watch if the task was done correctly. The first student could ask for help from his facilitator at any time. The help was not used if the student was able to cope with the task on his own. Then another pair would repeat the routine, finding adjectives for nouns. Their joint work was rewarded-both of them received credits.

Working in pairs, students feel safer as they can receive help when needed. They seem to share responsibility. This type of scaffolding is effective for all students and they also learn to evaluate the accuracy of information provided by another student.

One of the techniques, ensuring everyone's engagement, is creating opportunities for learners to teach the class themselves. Teach others if you want to learn yourself – would be a nice paraphrasing of a well-known saying. Time from time we ask volunteers to prepare a short part of the lesson on a chosen vocabulary or grammar topic and introduce it to their peers in front of the class. Of course, a student should not be left alone. His preparation is scaffolded by suggesting a choice of materials and sources, advising on the forms of presentation as well.

> *Key Takeaway*
>
> *Getting the chance to teach other students not only deepens their knowledge, but also sends a message that we trust their ability to teach and lead.*

Fostering collaboration is providing students with one of the essential skills in the 21st century

We still have to work on fostering collaboration and community sense in the classroom as it does not come naturally. We are trying to follow CAST recommendations: organize flexible rather than fixed grouping, allow multiple roles; create expectations for group work (e.g., rubrics, norms, etc.), but still need to work on using cooperative learning groups with clear goals, roles, and responsibilities more often.

**Class/lesson:** 7th grade, Lithuanian lesson. The excerpt of the live lesson at school
Lesson theme: Revision of verb spelling
Aims of the lesson: to revise spelling of ogonek vowels (with a diacritic hook) in verbal roots, to revise verb division into parts of word; to revise appropriate use of verbs
Material/representation: slides, handouts
Scaffolds: information in the book, in exercise books, teacher's and peers' help, informational sheets, computers and mobile phones
Engagement. The teacher showed an amassing video on rules of spelling of ogonek vowels (with a diacritic hook) in verbal roots. When she invited actively participate in this lesson based on collaboration. Students were asked to draw 3 clocks in their exercise books and mark 8, 9, 10 o'clock hands, when they should invite students to become their 8, 9, 10-hour friends who would help to fulfil certain tasks.
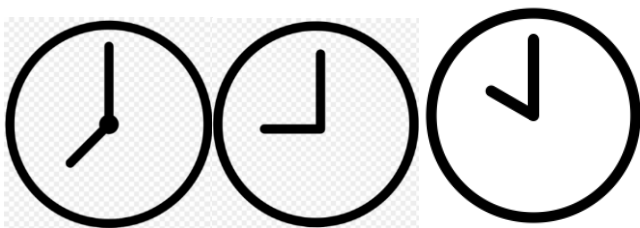
More active and willing, but not necessary very smart students were asked to become expert-consultants and give some advice to the rest during entire lesson. To be noticeable they got the expert card.
Lesson process. The teacher showed slides on rules of spelling of ogonek vowels (with a diacritic hook) in verbal roots and gave informational sheets to all the students. The 8-hour tandems started to revise these rules one taking teacher's, the other learner's position, interchanging their positions at stated intervals. When they finished, the teacher invited to make two circles: those who know the material better formed the inner, so-called expert circle and those who needed some help formed outer, questioning circle. So, students from outer circle could ask anything about rules and spelling of ogonek vowels (with a diacritic hook) in

> *Key Takeaway*
>
> *Combination of different pair work models makes a lesson more dynamic.*

verbal roots. The teacher monitored the situation and gave support if experts needed it.

Later students performed selected tasks designed for grammatical analysis and verb use with 9, 10 o'clock friends. After completing tasks some of them consulted with experts-consultants and got a lot of good advice. Finally, the class checked and corrected mistakes together.

How students' persistence is activated in the learning process

We have noticed that students' persistence can be activated showing them that their study efforts are meaningful. Setting the goal and showing why it matters helps through the process. One of the tools that proved its efficacy during the pandemic in English lessons was *Liveworksheets* site.

Liveworksheets transforms our traditional printable worksheets into self-correcting interactive exercises that students can do online and send back to the teacher. Before sending the answers, students are encouraged to analyse the mistakes they made. We ask them to redo the activity, analysing all the materials they received in the class. So, notes, materials in the books, extra sources given for reference on Google Classroom can be used while correcting the mistakes. Students show their persistence redoing exercises until they are satisfied with their results.

> *Key Takeaway*
>
> *Finding up-to-date tools such as Liveworksheets might helps both students and teachers in developing persistence and saving time on corrections after each delivery of an exercise.*

A good example of helping to develop persistence could be giving students a chance to rewrite a test (if they did poorly or have not reached their goals). During the lesson we would focus on a selection of incorrect students' responses and discuss the "muddiest points". Then, we would let students to revise the theme at home again and retake the test when they are ready. Some of the students would never use this chance for various reasons, but the others would use it every time the chance is given.

Their persistence is also shown while correcting their tests, workbooks, and improving written works. Some students are using such given scaffolds as: rubrics, online dictionaries for checking spelling and pronunciation, teachers' comments of their works, and get extra plusses as extrinsic motivation. The others are not motivated to do their best and we need to find some other ways to evoke their motivation and persistence.

Increasing mastery-oriented feedback helps to sustain student's engagement

Class/lesson: 8th grade, English language lesson. Synchronous, on-line lesson
Lesson theme: Making a Speech
Aims of the lesson: to listen to and analyse the speeches of peers following a rubric, and express your opinion, giving some advice on improvement
Scaffolds: rubrics for evaluation and comments of peers

After a set of lessons introducing the structure, formulation of thesis statement, necessary linking words for paragraphs, etc. students wrote a speech on a freely chosen theme. The only requirement set while choosing it was that it had to be relevant to teenagers. Students followed the rubric, where structure and essential linguistic elements to be used in the speech were included while checking their essays before sending them to the teacher. We agreed together on the evaluation points. Works with comments and suggestions what could be improved were sent them back. So, based on the received feedback, students could improve their essays, correct the mistakes and send them back for a final grade.

Students were provided with timely and specific feedback. They were also encouraged to show their perseverance and acquired skills to use guided support. Emphasis on their effort and

improvement was put while letting them work on their essays for one more time, which, hopefully, triggered their self-awareness of their own results while achieving a standard.

It is important to mention that while listening to the speeches of their peers, students were actively involved in evaluation process as well. They had to fill in the chart with points allocated for correct structure, usage of linking words, grammar, quality of presentation, etc. After asking a presenter to evaluate his own performance, a few students were asked to express their opinion based on agreed rubric and suggesting the steps for future success. Teacher's opinion came in the end, helping to summarise the said points. Each student could notice a significant growth from the first version.

REPRESENTATION

Students in our classrooms have different cultural and language backgrounds, various learning disabilities (e.g., dyslexia), and even sensory disabilities (partial deafness). They are different, so it is not possible that all of them could perceive information in the same way. Therefore, we try to organize lessons that are multi-sensory. Providing different options for perception to all learners is a key to reducing barriers to learning.

So, we strived to implement these key elements into our classroom:

> *Key Takeaway*
>
> *Providing different options for perception to all learners is a key to reducing barriers to learning.*

1. Introduce the same information through different modalities (e.g., through vision, hearing, acting, moving or touch);
2. Provide information in a form that could be adjusted by the user himself (e.g., text that can be enlarged, sounds that can be amplified, etc.).

Following UDL principles we tried to provide learners with the right kinds of resources necessary for successful completion of tasks. Along with textbooks, handouts, we use Power Point presentations. Such tools as Smart Notebook, interactive whiteboards are used on daily basis as well. In the English language lessons, we use the e*books* that already have videos, sounds, interactive games. In Lithuanian lessons we use *eLibrary* that presents information in different formats: MP3, PDF, Word or allows making some notes and registering that part of work, which is done, etc. A wide choice of digital materials is also available, and as it allows user customisations, it is more preferable than print materials while adapting to students' needs and would also serve both visual and auditory learners.

Multiple means of representation of material help to reach all the students

Class/lesson: 7th grade, English lesson. Live lesson at school
Lesson theme: Preparing Food
Aims of the lesson: to learn new vocabulary on food and use it in meaningful conversations; to improve listening and spelling skills
Material/representation: different modalities for representation were used: PPT presentation; video with Jamie Oliver "Recipes for 15-Minutes Meals (with subtitles)"; textbook and eB*ooks* Prime Time

Homework task/aim of the lesson: create a recipe of your favourite meal using new vocabulary
Ways of expression: students can choose from creating a PPT presentation, video, a poster or anything else that could help to convey the meaning
Scaffolds: lists of previously discussed food vocabulary; video: Recipes for 15-Minutes Meals (with subtitles); coursebooks and eBook Prime Time 2; possibility of choosing how to work (individually/ in pairs/ in groups); PPT presentation used in class as a reference to address at home

First, students set short-term goals for the lesson. Some students with low expectations wanted "to learn new words/phrases related to food". After asking to specify they came up with "I'd like to know 5 new words". Other students wished "to learn new words and use them in conversation", "be able to describe how to cook a meal".

After, we had a classic ESL game "Running Diction" in two teams, to revise the vocabulary learnt the previous lesson. Students would pick up a phrase in Lithuanian from the table (e.g., liesa mėsa, sveika mityba, be riebalų…), run to the board and write them in turn in English. Mistakes could be corrected only by a person coming after.

> *Key Takeaway*
>
> *Offering information in various formats enables students to access material in a way that suits best their learning strengths.*

As UDL recommends offering information in more than one format, multiple means of representation of new vocabulary on food and its preparation were empowered. First, students got the task to name and write the right verbs to prepare food, looking at photos on PPT presentation. They could choose how to work: alone or in pairs and were advised to ask for help their peers or use their phones to look up the necessary words.

Using books as the primary source was skipped this time, as they are primarily visual. Instead, a recent video by Jamie Oliver "Recipes for 15-Minutes Meals" to enrich students' English vocabulary was offered. Students could work in two groups of their choice, ones marking the ingredients, whereas the others focusing on actions of cooking. Later the groups made sentences about cooking together. Students explained that the video was helpful for acquisition of new words as they could hear a word and see an object or a performed action at the same time. This "unlocked" the meaning of the words and helped to learn collocations while listening to a native speaker.

What concerns scaffolds to help the students learn spelling of the new words, they are accustomed to check the spelling or look for unknown words on their phones or in on-line dictionaries.

Shifting teacher's role from information provider to a learning coordinator helps students to take more responsibility for their own learning

Introduction of grammar in most cases is a tiring and dull process. Though paper format or PPT presentation may seem the safest way from the first glance but display of information is fixed and permanent. It is a relief to admit that 21st age offers loads of more forceful audio and video tools that are way more effective in conveying the meaning and showing that grammar is used and matters in real life as well.

> *Key Takeaway*
>
> *Educational videos or videos from reality shows used in the class may help to create a real-life atmosphere*

Class/lesson: 7th grade, English lesson. Excerpt from a live lesson at school
Lesson theme: Usage of Past Perfect
Aims of the lesson: to understand usage of Past Perfect
Material/representation: video by BBC English, The Grammar Game Show Episode 13
Scaffolds: funny video imitating Game Show used in the class as a reference, to address at home as well; possibility of choosing how to work (individually/in pairs/in groups); lists with pre-taught vocabulary to reduce barriers of understanding

After getting into small groups (this time shared equally into groups containing strong and weak students) students watched the educational video which imitated Game Show and contained a dosage of humour. While watching they were given the task to find the proof for already known facts about Past Perfect and put notes on its usage into a provided three-grid table (thus, analysing information and splitting it into smaller semantic units). After, each group was asked to explain the

Past Perfect to another group orally, supplementing their information with graphics, real life examples, creating a poster, or using a role-play, imitating the same show. They could check notes on Past Perfect in their books (charts and description with examples were provided there as well).

Video provided the students with information on a difficult tense, and they were encouraged to seek for the specific information, this time shifting teacher's role from the position of the information provider to the position of the student learning coordinator.

Class/lesson: 7th grade, Lithuanian lesson. Live lesson at school
Lesson theme: Lithuanian World Tree
Aims of the lesson: get to know the features of Lithuanian World Tree; to start a multidisciplinary project.
Material/representation: extracts of videos and photos of Lithuanian World Tree

A big chapter designed for Lithuanian folk songs takes up about one third of 7th grade literature course and, be sincere, it is a very boring topic for teenagers. So, we have not only supplemented lessons designed for this topic with intriguing elements but also found engaging forms of accountability. At the end of this chapter students had to create a temporary folk group and sing the selected song using chosen requisite. The other task was to create a wooden souvenir of depicted Lithuanian World Tree working alone or with selected peer/peers. So, this project was continued in Art, IT, Home Economics lessons. (Due to Covid-19 situation it lasted about a year, longer than it was planned.)

Examples of Lithuanian World Tree souvenirs

At the beginning the teacher showed pictures of the World Tree in different cultures and stated the typical features of a Lithuanian World Tree. After a short discussion with students, we decided what features of Lithuanian World Tree had to and what could be used making a wooden souvenir. The students selected friends to work together and started to discuss how their sketches could look like. The teacher said that this is only the first stop of the long journey of the project, and they would perform even more interesting job in Art, IT, and Home Economics lessons.

> **Key Takeaway**
>
> *Multidisciplinary projects that result in true-life objects increase students' interest.*

Now we have project results made with Fab Lab printer and organized a live exhibition.

Offering alternatives for auditory information and presenting information through multiple means backs up even restricted abilities

As it was mentioned in a previous analysis of the English language lesson, information about a tense was conveyed through the video that had not only visual and sound support, but also subtitles which helped not only learners with hearing disabilities, but also the ones who needed more time to process information or had memory difficulties. Listening itself is a complex strategic skill that must be learned, so scaffolds should be considered in order aural information could reach all the students equally. Students appreciated getting handouts with charts and grammar timelines explaining grammar while listening to explanations by their peers and a teacher.

> **Key Takeaway**
>
> *Providing written transcripts for videos or auditory clips provides help for aural presentations.*
>
> *A choice with printed, ready-made material ensures engagement and success of weaker students as well.*

A good example to support aural presentations is providing written transcripts for videos or auditory clips.

Class/lesson: 7th grade, English lesson. Excerpt from a live lesson at school
Lesson theme: Famous People. Past Simple
Aims of the lesson: to develop listening skills, while watching videos for specific information. To consolidate the use of Past Simple tense and to write 10 sentences including the main facts about one of the famous people in the world
Material/representation: information on the Net, videos by Muffin Stories about famous people (subtitles available) and ready-made handouts for weaker students. Students could use Tablets or their phones
Scaffolds: videos with subtitles; possibility of choosing how to work (individually or in pairs), as well to choose a place (the class, the hall outside the class or the silent library); handouts with the main info (short variant) about famous people to choose from, to reduce barriers of understanding

We developed a set of lessons on famous people. Revision of Past Simple (statements and formation of questions) came along. After a few lessons about famous people, analysing their biographies in the book, students were asked to introduce a famous person of their choice in ten sentences, not mentioning his name, following agreed questions (When did he live? What did he do? What is he famous for?) Mentioning some fun or ambiguous facts was optional. The other students were supposed to ask clarifying questions and guess. Students were given the choice of working alone or in pairs and find information while surfing the Net or watching short YouTube videos.

Maikas (a weak student) stayed in the class and chose to search the Net first. After a few minutes he chose to watch a video, but after some time he got lost and asked to use ready-made printed

materials on famous people. At the end of the lesson, he could introduce Michael Jackson successfully as the other students were able to guess using his hints.

So, offering students a choice gives them the sense of security that backs up even restricted abilities.

Offering alternatives for visual information

The text, as a source of information, prevails in Lithuanian educational system. We often ask students to read a text aloud, thus helping peers to understand it, but when it comes to working at home, alone, then luckily, we have text-to-speech software that transforms text into audio and increases accessibility of information. Digital educational sites offer various possibilities to combine text and audio. We like using *Wonderopolis.org* in our English language classes, as besides answering almost any question you have, it also provides opportunity to listen to the text (changing the voice (male or female) and speed as well) and get a definition of highlighted words.

All students in the class will benefit if access to text-to-speech software is provided. Students in the English language classroom are suggested to use Read Aloud function found in Word on daily basis not only to support understanding, but also to improve their pronunciation.

Students in Lithuanian literature lessons use two *eLibraries* where they can find audio alternatives for texts as well as national television and radio digital funds where students can find texts re-created into radio or television plays or movies. Sometimes while analysing foreign

Key Takeaway
Providing access to text-to-speech software can strengthen perception of written information.

authors the teacher uses authentic video material in different languages, for example English, Swedish of French. Besides, the teacher and students take part in educational animation programmes and learn how to animate Lithuanian literature pieces.

Clarifying vocabulary and symbols enable easier transmission of information

Learners differ in their ability to access information because of different reasons discussed above. Students should be provided with alternative representations of semantic elements. In the language classrooms, we try to link key vocabulary to what is already known, make associations, use mnemonic.

Students are encouraged to make flashcards, create, and use acronyms. In the English language classroom, they are also provided with printed glossaries with definitions at the back of each unit in their books and a vocabulary book with Lithuanian translation of words for each unit as well. Vocabulary is pre-taught, promoting connection with the learners' prior knowledge. Texts, containing hyperlinks to definitions are chosen over those having no help. Idioms, archaic expressions, and slang are translated or images, pictures are used to help to convey the meaning.

Using digital text with an accompanying human voice recording (already mentioned *Wonderopolis* site, https://www.storynory.com) will help with understanding, acquiring correct pronunciation and ensures easier transmission of information.

Graphic organizers as a set of helpful tools for teaching and learning

We try to use graphic organizers in our classes as they integrate both text and visuals. *App.creately.com* has a variety of templates to choose from and offers them online, though graphic organizers can be used without any apps, straight on the board or into our notes. Using them is helpful for both teachers and students as they make lessons more engaging as well as easily comprehensible. Story Maps, KWL (know, want to know, have learnt) charts, Vocabulary Learning organizers (word, definition, synonym, example sentence), Timeline graphic organizers (for planning compositions, highlighting grammar points), T charts (advantages and disadvantages, pros and cons,

differences and similarities, etc.), organizers for brainstorming (cluster diagrams), mind maps are extremely helpful while teaching languages. These graphic organizers are of great value for us and our students, so are used on a daily basis when needed.

<div align="right">

ACTION AND EXPRESSION

</div>

As discussed above, students in our classes are different in their capacities to cope with learning material. Their organizational and strategic abilities differ as well. Some have language barriers caused by disability (hearing loss, dyslexia). It is clear then, that action and expression require different strategies, practice, and organization, and this is again the field where learners can be different. We have to bear in mind that only one method of action and expression will not be suitable for all learners.

Over the past several decades there is a recognizable shift from teacher-orientated to student-orientated educational approach in Lithuanian schools. "Sage on the stage" approach in teaching is gradually changing to "guide on the side" model that builds in more equanimity between a teacher and a student, with each playing a role in the learning process. Student's choice and connections among students are encouraged as we do believe, that if we wish a student to truly learn, they must be actively involved in the process.

A dialogue "A doctor and a patient"

Trying to give students opportunity to show what they know using other methods aside from paper-and-pencil tasks, providing multiple means of expression

Class/lesson: 7th grade, an excerpt of the live English language lesson at school
Lesson theme: Types of Food Good for your Health
Aims of the lesson: to learn new facts about products beneficial for your health while listening to classmates' presentations
Material/representation: presentations of friends in different modalities: PPT presentations, acted dialogues, posters and videos prepared by students themselves
Homework task was: to prepare a presentation in different modalities on food, beneficial for any part of a body (chosen by students themselves). Students could choose to present their findings through PPT slides, posters, dialogues or video, working alone, in pairs or small groups of their choice
Ways of expression: students could choose from: creating a PPT presentation, video, a poster or anything else that could help to convey the meaning.

Scaffolds: real life brought into the classroom to arise students' interest; suggested sites and video "The Oprah Winfrey show with Dr Oz" on the Net for reference at home

Talking about health is actual for teenagers and it brought a sense of real life into the classroom. We discussed what concerns they have about healthy eating, if it is an issue in their families and then they were free to choose an organ/ body part they would like to write about, finding nutrients that might help to stay healthy and function well. We discussed how they could show what they know, through one of these modalities: creating PPT slides, posters, dialogues or video. First, there were a lot of volunteers to make videos, as it seemed an attractive option to feel like on TV (being inspired of what they've seen at Oprah Winfrey's show), but then, they came back to the classroom with lots of PPT presentations, one dialogue at the doctor's, one poster and only one video, chosen by Steponas.

Asked about their choice, most of them claimed that choosing a PPT presentation was the quickest, usual and less risky way to achieve success and get good evaluation.

Students were asked to fill in the ready-made table (below) while listening to presentations of their peers individually, evaluating their work according to the discussed criteria. After a short discussion in pairs, a representative would announce the evaluation of the group. The teacher would also express her opinion on presentation, strictly following the agreed criteria.

> *Key Takeaway*
>
> *Students could choose to present their findings through PPT slides, posters, dialogues or video.*

Be an active listener. Fill in the chart, evaluate

Presenter's name	Organ/ Body part	What to eat to keep it healthy/nutrients	Evaluation (up to 10 credits) Info / phrases / grammar / presentation

A chart to fill in while listening to peers' presentations

We hope that this freedom of choice, that students were able to exercise, made them feel respected and they began to take ownership of their learning.

A chance for students to express their knowledge through different activities/ modalities during the lesson

Class/lesson: 7th grade, Lithuanian lesson. Live lesson at school
Lesson theme: Repeating the definition, derivation and usage of participle I and participle II
Aims of the lesson: to repeat the definitions of participle I and participle II, their derivation and usage rules.
Material/representation: handouts, tables with grammar rules, evaluation tables

Scaffolds: information in the book and exercise books, teacher's and peers' help, tables of information, computers and mobile phones, specially prepared game on the smart board On the white board the teacher wrote the lesson aim divided into the smaller parts and invited students to choose the most actual part and to strive to achieve it. Students explained what aspect of the aim they had chosen to achieve. Some stated their individual aims as well.

> **Key Takeaway**
>
> *Teacher should prepare additional tasks, schemes and tables for the lesson in advance.*

Engagement and start. The teacher explained the rules and selected the five leaders revealed according to the results of the last task, i.e. written essay. The leaders were asked to choose their team members giving them candies marked by different colours (otherwise, team members also could show their initiative selecting the team). The heads had to form their teams consisting of both boys and girls and to lead own team to the desk of the prescribed task, where they created original team title. Each team leader also got the complex table of tasks and evaluation.

Lesson process. There were five different task desks with additional material: 1) spelling checking desk, 2) explaining of particle II derivation through acting one, 3) slogan or advertising creation place, 4) definition formulating and grammatical analysis one, 5) ICT game table.

Working in groups and moving as a carousel through different tasks

Teams had to visit all desks and to fulfil all the tasks moving as a carousel. They had approximately five minutes for one task. They could use information in books and textbooks, as well as in phones and five computers in the class. Each member of the team became a leader of the task once, taking the biggest part of responsibility for the certain exercise. The leader of the task wrote the results in the table of tasks and evaluation or all team showed results of their job to the teacher in case they had been asked to do it orally/acting. At the end of each task the leader of the task as well as all team members together evaluated their own performance ascribing marks from 1 up to 10. The team leader returned all results to the teacher, who put the third mark considering team activity, results put down in the table of tasks

> **Key Takeaway**
>
> *Rotation of the task leaders has many advantages: it stimulates motivation of less motivated and increases self-confidence of students having difficulties because everyone can be the task leader having team support.*

and evaluation, ICT game scores and maturity of reflection.

Reflection. Teacher talked to each team after the final task about strong and week points, activities they liked or disliked and considered more useful or less applicable. The table of tasks and evaluation

of each team also gave some reflective information as well as the final short conversation on the aims achieved.

The example of the table of tasks and evaluation
TEAM TITLE
TASK LIST: REVISION OF PARTICIPLE I AND PARTICIPLE II

Name of Task	Task	The Leader of Task		
1 Task Designed for Spelling Checking	*Paprašytas paaiškinti jis sutriko. Vėliau klausimas nieko neatsakė, tik lėtai nuėjo į valgomąjį.* *Naujas daiktas geresnis už puikaus meistro pataisytą.* *Busimas susitikimas jį jaudino.* *Tvarkysimas kambarys man nedavė ramybės.* *Melžiama karvė garsiai sumūkė.* *Tėvo juosta nesujuosiama, brolio žirgas nepavejamas, močios skrynia nepakeliama*	**Name Marks**		
		own	team	teacher's
2. Derivation of particle II (their derivation should be shown thought acting)		**Name Marks**		
		own	team	teacher's
3.Slogan or Advertisement with Participles I, II	....	**Name Marks**		
		own	team	teacher's

4.Revision of Definition of Participles I, II and the Grammatical Analysis Task	**Žodis**	**Kalbos dalis**	**Rūšis**	**Laikas**	**Giminė**	**Skaičius**	**Įvdž.**	**Name Marks**		
								own	team	teacher's
	einamas									
	pervertu									
	būsimais									
	perkamoje									

5. ICT task-game	suvaldytų							Name Marks		
	parašytose									
	Total team result............							o w n	t e a m	t e a c h e r' s

Interaction with accessible contemporary materials and tools enhances chances of students to experience success in their learning

We cannot deny that there is a tendency in schooling to focus on traditional tools rather than contemporary ones. But this has changed a lot with distant learning which started because of the Covid pandemic. In the process of successful English language learning we started encouraging students to use spellcheckers, grammar checkers (*Grammarly* is my favourite desktop App), word prediction software. Finding materials on websites that provide possibilities to use text-to-speech software not only helps those having problems with pronunciation, but support learning of those gifted ones as well, helping to acquire correct pronunciation at once, not wasting time looking for it anywhere else. Such sites as *Wonderopolis.org, Storynory.com*, used in the English language lessons, provide an optimal match between their abilities and the demands of the task. Tasks on *Liveworksheets* enable students to get automatically corrected exercises at the same instance and provide opportunities to enhance students' persistence.

In Lithuanian lessons we use e-sources set http://lkiis.lki.lt/, grammar analysing website created by Vytautas Magnus University https://klc.vdu.lt/, grammar games and other e-sources designed for Lithuanian, as a foreign language, learning, as well as the e-task website prepared by the Institute of Lithuanian Literature and Folklore https://smp2014lt.ugdome.lt/.

Google for Schools software enables us not only to set work for individual student, but also write comments on student's written works at once as they are received. Then, students have possibility of correcting and improving their written works. They can use spellcheckers, have on-line dictionaries and we avoid ambiguities while deciphering illegible writing of our students, as they are typing their works in.

Though we have to admit that we are still trying to find ways to ensure that students had a choice among several tasks simultaneously in all our lessons.

With the integration of all ability students into mainstream education (even those with severe learning disabilities) there should be paid more attention to use of Assistive Technologies (AT)

Key Takeaway
- *The burden of editing and re-writing assignments can be reduced by using computers and spellcheckers*
- *Instead of copying information from a whiteboard – a photo can be taken*
- *Comprehension of a topic can be improved using multimedia and electronic information*
- *Ideas can be recorded helping with short time memory issues*

UDL encourages to provide students with access to common AT, thus helping not to give the student an advantage but rather to reduce some of the burden of lower literacy. As we have some

students with dyslexia, we encourage them using spellcheckers while carrying out written tasks on daily basis. Seating Motiejus (he's wearing a cochlear implant because of hearing loss) in front of the class, ensures that he hears better and can read the teacher's lips, but usage of AT becomes crucial while enabling him to access information. He is advised to use Text to Speech software available on his computer on daily basis which allows for better comprehension of information and helps with development of correct pronunciation as well.

UDL recognizes that if students cannot access information, they cannot learn it. So, variety of educational videos with subtitles (on *Youtube, Wonderopolis* and other sites) help Motiejus' understanding as he is able to stop and rewind the video. This scaffolds his learning and gives him and other students more efficient processing and memory recall. Instead of only giving a handout with grammar explained, we give a video, explaining grammar, structures and vocabulary in Lithuanian or in English. Videos have subtitles, and there are transcripts for audio which scaffolds understanding.

Key Takeaway
Encouraging a low-motivated pupil to improve his work while paying attention to suggestions, helps him to create strategies to improve. Having a growth mindset can help kids build strengths even in areas where they feel less capable.

The visual and auditory nature of videos appeal to a wide audience (students with educational disabilities and those average and gifted ones). The online, asynchronous nature of videos allows them to be shared at any time and on multiple devices (laptops, tablets, and smartphones), and introductory information can be viewed before class, which provides more time for practice and skill-related class activities. Students mention in their reflections that videos increase knowledge retention, as videos can be replayed as many times as needed.

So, looking for materials to feed the needs of weak, low-motivated or students with disabilities we found that other students benefited from AT technologies as well, as it allowed users to process information in a way that's natural to them, not to mention the fact that there were also options for text enlargement, along with choices for screen colour and contrast.

Finding strategies to encourage low-motivated students is a problematic area

Class: 7th graders, an excerpt of the live English language lesson at school
Lesson theme: Fairy Tales
Material/representation: *https://www.storynory.com* (offers a variety of fairy tales with audio version)
Homework task/aim of the lesson: choose to read/listen to a popular fairy tale from a provided pool of fairy tales, and create your own fairy tale based on a well-known story with your own unexpected ending
Ways of expression: students could write into a ready-made document on Google Classroom or retell and film a fairy tale themselves
Scaffolds: fairy tale with audio version to choose from; rubric with a set of earlier discussed requirements on length, style, suggested vocabulary, grammar, strategies of correction, etc.

After a set of lessons analysing typical structure, vocabulary, characters and grammar in fairy tales, students were offered a possibility of creating their own fairy tale, using a well-known beginning and creating their own unexpected ending. They could write into a ready-made document on Google Classroom or film themselves retelling it.

Students were advised to follow requirements set in the rubric (length, style, suggested vocabulary, grammar, strategies of correction, etc.) before handing in the task. First, there were a few students who were willing to make a video while retelling their fairy tale, but after a trial listening to their voice they did not like this idea and chose as they named it "a safer way" to express themselves-writing into a Google Classroom document.

Maikas (a student with low motivations and abilities) volunteered to speak first. His work did not match any agreed criteria: it was mostly copy-paste work, too lengthy, containing lots of spelling mistakes. Then, instead of giving a negative evaluation he was praised for his bravery to be the first and offered a possibility of rewriting his story, paying attention to the set requirements. He was asked to listen attentively to the presentations of his peers and comment on the nice things he noticed in their works. He was able to notice the typical beginning of fairy tales and Past Continuous used for descriptions, so he earned extra credits for his classwork.

The next lesson he presented us with a much-improved work, and it seemed that he paid a lot of attention to the suggestions in the rubric and teacher's comments and improved several things.

It was easy to notice, that believing in improvement of his abilities despite setbacks, paid back. Timely feedback and given chance to learn from his experience helped him to start creating strategies to improve. This, too, is a strength that affects learning.

Praising. Instead of focusing on the person, focus on their work

We also noticed that instead of the flow of excessive and over-the-top praise of a student himself (e.g. "You're great!", "Very good!) it is better to keep a lookout for evidence of quality work, no matter how small, and praise student's work itself (e.g. "That's good work", "That's a well-written sentence", "Your conclusion is spot on."), thus creating opportunity to feel pride and show his/her growth, evoking student's wish to go on. This is not a one-time strategy to get a particular student to finish a particular assignment. It is a long-term approach that gradually draws reluctant students into the joy of concentrated effort, and satisfaction that follows every job well done.

> *Key Takeaway*
>
> *Keeping a lookout for evidence of quality work of a student, no matter how small, is awakening and nurturing of delight in the work itself.*

REFLECTION AND FEEDBACK

Learning, reflection on one's own performance and feedback are interrelated things. Without reflection and feedback, it is not possible to evaluate if learners are making any progress or not. Feedback given in timely manner ensures that learners know what to do differently. Then, they can monitor their own progress and guide their efforts if feedback is being explicit and informative as well.

It became a routine to end our lessons giving corresponding questions for reflection: "Have you achieved your goals? How do you know? What have you learnt today? What help do you still need?" To convert it into a metacognitive reflection we asked questions about self-improvement: "Could this be better? How? What steps should you take?" Students would reflect on their own performance and on teaching methods, materials, etc. naming the most and the least helpful or valuable ones, which would help us, teachers, to improve educational processes.

> *Key Takeaway*
>
> *Ask questions to guide self-monitoring and reflection.*

Sometimes we would use a "Learning thermometer" and ask students to reflect on methods which were used in the lesson in order to analyse what works well for perception or to acquire knowledge. In other words, we gather information and use it to improve our own performance and teaching practices

Such reflections gave us insights for future lessons and helped us plan them more precisely, addressing the needs of our students. Talking if they have achieved their goals, we could see what obstacles they still had and how we could help to cope with them.

"Learning thermometer" to measure methods used in the lesson

Sometimes students were asked to fill in "Exit Ticket" at the end of the lesson, finishing the written sentence. The beginning would be formulated according to what we wanted to clarify (what was learnt, what was not clear, what questions they still had, what helped them to understand or acquire a skill, what help they would have used, etc.) Then, teachers would spend a lot of time on analysis of received answers and use them to improve the learning process.

Reflections after a large theme or set of lessons were also valuable and helped the learners to find means to help them through their future works.

After working on a theme "Food and Healthy Eating" (we had it for 3 weeks), we sat in a circle for reflection with our 7th graders (a filmed excerpt in Lithuanian is available). It was a free talk during which we discussed what activities they liked best, what helped them to learn, to understand the theme and what activities they thought were not so attractive or not helpful at all.

Key Takeaway

"Learning Thermometer", "Exit Ticket", "Reflection Circle" are some examples of handy tools for gathering information about quality of the lesson and students' achievements.

Reflection circle

Justė commented that it helped a lot "when I could talk to my friends…to do it together, not alone…" Gritė told that she liked "practical tasks" (she means possibility of making dialogues, acting).

Augustina added that "I like working in groups". Vaidotas agreed that "work in groups is more interesting". When asked about things they did not like during this period. Augustina answered that "filling into an exercise book was boring", though Gritė admitted that filled exercise book is valuable for her "to open it when needed, look through examples one more time" (as a means of reference). Maikas, a weak student, mentioned that technologies helped him a lot. "Google translator," admitted he (to find out the meanings of words and pronunciation). We used their thoughts planning further lessons, offering different choices to fit their needs and different learning styles.

In our language classrooms students are encouraged to use assessment checklists and scoring rubrics which they can follow for self-check, before handing in their work. Let us give an example from a set of English language lessons devoted to Essay writing. After 8th grade students handed in their typed works on Google Classroom, they received feedback in a form of notes, suggestions, and could correct their works, paying attention to suggested points that could be improved. Marks were offered, but they were not final. This "formative" feedback allowed

> **Key Takeaway**
>
> *Assessment checklists and scoring rubrics help students to evaluate their works according to given criteria and establish a healthy routine for self-evaluation.*

learners to monitor their own progress effectively, show their perseverance while improving their works. Only after getting a chance to work on, they handed in their works again and got a final evaluation.

While talking about feedback, we strive to give mastery-orientated feedback where emphasis is put on student's effort rather than inherited ability to do something or fulfil the task. That guides learners to acquire long-term habits and learning practices. We are still trying to learn ourselves how to provide feedback that models evaluation, turning patterns of errors into positive strategies for future success.

As it was already mentioned in previous chapters, given examples of usage of *Liveworksheets* (a digital tool offering interactive exercises for grammar and vocabulary enrichment) encourages students to use support and strategies in the face of challenge. Students get their works marked (mistakes are highlighted) in the same instance and are encouraged to improve their works as many times as they wish before sending it to a teacher. This way effort and improvement is emphasised not just relative performance.

In Lithuanian educational system we had been taught for a long time to reflect and evaluate somebody's else work only. We are still acquiring skills to reflect on our own performance, though students showed potential of being able to use their friends' pieces of advice and improved their works a lot while working on the theme "Staying Safe" on a *Padlet* wall. After a set of lessons, spent on deepening their knowledge on staying safe in different places while travelling, they worked out advice how to stay safe in the jungle/ desert/ ocean (could choose what to write about). Then, using a flipped classroom method, students had a lot of time to analyse the works of their peers at home, chose the best pieces of advice and left their feedback not only noting things they admired, but also giving suggestions on the areas to be improved or corrected. After, reflecting on the received feedback, they noted that suggestions of their friends were of a great value and could be applied to future settings.

Steponas, working on a video "Food Good for your Health", could reflect on his work, evaluate his work critically, and after watching it at home, he noticed and corrected some mistakes, his pronunciation, changed some irrelevant facts with important ones, thus showing perseverance and proving that he applied his learning and showed a growth mindset.

You would probably agree that sometimes we find it very tiring to administer process of reflection, as analysis of data is really time consuming. We are so happy to have a possibility of using "*Reflectus*". It is a tool (electronic site) created by Lithuanian educational practitioners that enables teachers to create continuous reflection questionnaires in various formats and helps students to reflect if/how they achieved their goals. A pool of reflective tools, which can be transformed according to your own needs, is offered along with the possibility of analysing the progress according to the stored data. Individual answers to open questions help immediately to clarify problems and solve them next lesson. Reflections can be set up to appear on students' phones at the end of each lesson what saves much time.

> *Key Takeaway*
>
> *Taking into consideration that preparation of tools and analysis of data after reflection takes enormous amounts of time why not to use tools developed by professionals (in our case it is "Reflectus").*

INSTEAD OF CONCLUSIONS

Implementation of UDL guidelines and inclusive education practices was useful for both students and teachers. It fostered virtues of a student-expert, i.e. intrinsic motivation, responsibility, creativity, independence, also motivated teachers to revise lesson structure, to learn and apply new methods, techniques and tools in school practise as well as pay more attention to each child.

Besides, UDL guidelines appeared useful even in distance learning. English on-line lessons have been successful during this period perhaps for the variety of digital tools designed for learning English and the teacher's capability to use them productively.

We think that success of implementation of UDL guidelines depends also on the subject at school. In our opinion, it is more suitable for subjects where students' outcome is less restricted by requirements of national exams and tests, where there is no need to solve a mathematical problem directly or apply a formula, at least in Lithuania.

UDL is more benefiting as a unifying systematic approach in the subjects where students can prove what they have learnt in a wide range of ways, for example in foreign languages, Ethics, Art, Home Economics.

Our practice has proved that fruitful UDL implementation into a learning process is not only time consuming but requires constant growth of a teacher and extra recourses as well as consolidated work of concerned professionals on school, municipality and state level.

IMPLEMENTING UNIVERSAL DESIGN FOR LEARNING IN A SCHOOL WITH INTEGRATION CLASSES

Experience of UDL implementation in ZSO nr 9 in Cracow, Poland
Głogowska, Anna; Komenda, Iwona; Łukasik, Beata

INFORMATION ABOUT SCHOOL – ORGANIZATION OF WORK AND FORMS OF HELP FOR STUDENTS WITH SEN

Our school is a group of schools with integration classes. The team means that we have two different school institutions within one organization: a primary school, attended by students aged from 7 to 15, and a general secondary school for young people from 15 to 19. It is a school with integration classes, i.e. we organize education for students with SEN together with other students.[5]

To ensure the best working conditions for all students in our school, we organize work flexibly, using all legal possibilities. For the sake of students with SEN, we create **integration classes** at every level. A maximum of 20 students[6] attend an integration class. These 20 students include a maximum of 5 with a SEN certificate. In our primary school, there are two teachers in all lessons - the subject teacher and the **support teacher**. However, in a general secondary school, as a part of an integration class, we create an **integration group** in which students with certificates have the opportunity to work in comfortable conditions in a group of 4-5 people on selected subjects, e.g. science and foreign languages. In other subjects, students with SEN participate in lessons with the entire class, but they have additional classes in these subjects, i.e. extra lessons for an integration group.

IPET - a multidisciplinary evaluation of the student's functioning at school

Based on the SEN statement and observation of teachers, recommendations are made for work with the student. The student is provided with revalidation assistance i.e. social communication training (e.g. physical, speech therapy, social therapy). During these classes, students go out to public places, e.g. cafe, cinema, theatre, park, bowling. All the activities are monitored and evaluated regularly and verified three times a year during the meeting of parents, teachers, psychologist and special educator. IPET is formulated at the beginning of the school year throughout the entire period of education.

In addition, for both primary school and high school students, if necessary, at the request of a parent, we organize so-called **individual educational path**. This type of classes is intended for an individual student who needs support for health reasons but has no special educational needs statement. The student participates in lessons with the entire class and works individually with the teacher during additional lessons in selected subjects. The aid is granted for one school year with the possibility of continuation.

Another, unique form of supporting students is **individual teaching** based on a medical and psychological opinion at the request of a parent. If the mental or physical condition does not allow for participation in school activities, the student stays at home and each lesson takes place at a

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[5] According to the law, in every school (with or without an integration class), a student with SEN has the right to benefit from education.
[6] The maximum number of pupils per class in primary school is 25, and in secondary school 28-30

student's house. This is an exceptional form of help because it deprives the student of contact with peers. One-to-one tuition is granted on a temporary basis, usually for one year, but may be continued.

In our primary school, we also use the help of **a student assistant**, i.e. a person who is with the student all the time. The assistant was needed by a student with paralysis and motor disability - in this case the assistant helped with learning but also provided care, e.g. moving around the school grounds or feeding. The assistant is also needed when the student cannot speak Polish. When starting school, such a student, apart from an assistant, receives support in the form of additional, individual Polish language lessons. We have had several such cases in our school recently.

We also have **a room for calming** where a student can spend some time when they cannot cope with emotions and cannot control their behaviour - often aggressive. It sometimes happens to a student with autism or Asperger Syndrome that they are extremely aroused and interferes with the work of other students with their behaviour. In this room, they will find a secluded place and psychological help, if it is needed.

Our students benefit from small integration class sizes and modern facilities, e.g. a flight simulator.
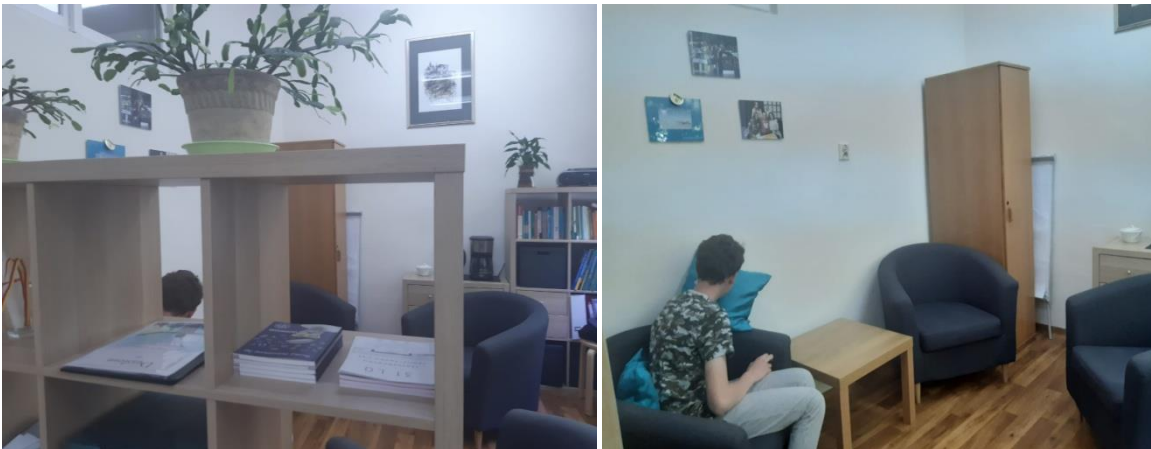
A calming room

In such a quiet room there is a flight simulator. It was bought for students from aviation classes for practising. Shortly we discovered that it is also very useful as a pacifier for agitated students.
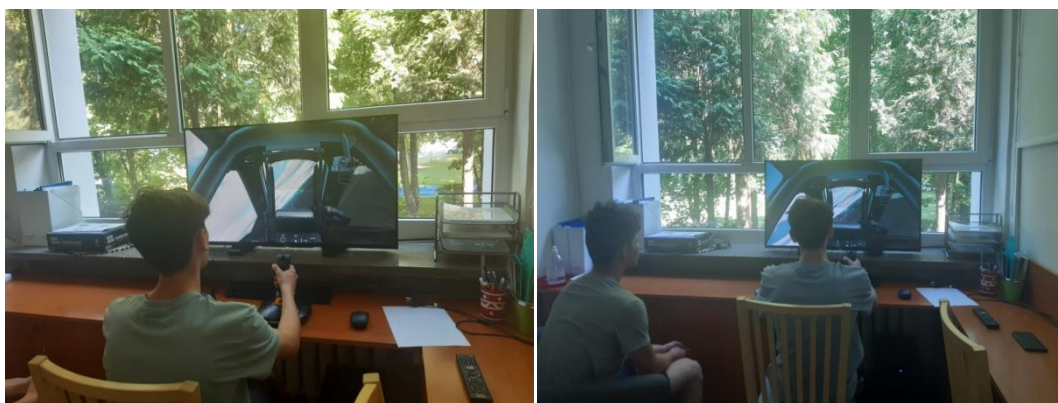
Students using a flight simulator

All the above-mentioned forms of support function within classes and the whole school. The SEN statement is not the only and exclusive criterion for the application of educational support. Our approach is flexible, each student is treated individually. We consider the needs, feelings and abilities of students - in many cases their abilities are outstanding. These students participate in the life of the school equally with others, they are an integral part of it and constitute its great value.

From the use of good integration practices towards UDL

We started integrating with groups of deaf or hard of hearing students. Due to screening tests and the possibility of helping at a very early stage of life, there are now fewer students with this problem, but we have children and adolescents with other disorders, e.g. visually impaired, ADHD, aphasia, intellectual, motor and other disabilities, and in recent years a large group of people with certificates are students on the autism spectrum. When working with students with SEN, we must bear in mind that students have examination sheets adapted to their disabilities. Classroom work often has to be very individualized, although they all follow the same curriculum and use the same textbooks. Therefore, we are constantly learning in these areas, each teacher at school has additional qualifications to work with students with SEN. We have extensive experience in adapting forms of work with children with SEN, but due to the diversity of students in classrooms, we need something more, we need UDL - Universal Design for Learning.

Currently, even small integration groups of 4-5 people are not homogeneous, they are even very diverse, and they often function within one larger team together with other students. The teacher prepares lessons taking into account students' disabilities, adjusting materials and forms of work for them. During the lessons, the teacher is often absorbed in helping selected students and cannot give proper attention to others. This is not a comfortable situation for both students and teachers. Such situations can create tensions in the classroom. Students with SEN are sometimes perceived by others as being favoured, while they themselves may feel uncomfortable being perceived solely by their disability. While teaching in a small or large group, we must not forget about anyone, we must create equal opportunities for all students to achieve success. To use our knowledge and experience in working with students with different needs and capabilities, UDL seems to be the best solution.

Barriers recognised before the project

The most important barriers we perceived in our school before the implementation of UDL were:
- Barriers resulting from disability
- Insufficient involvement of students during the lesson
- Overloaded curricula and high exam requirements, which some students are unable to meet.

We can predict and recognize barriers resulting from disability very well, and we try to overcome them every day. We have substantive preparation, experience, support from psychological and pedagogical counselling centres, school psychologists and parents. We have a developed support system and adapted working methods. A student with hearing loss requires from the teacher clear articulation and constant eye contact. Due to the necessity to read speech from the mouth, such a student takes a place on the desk close to the teacher, and instead of performing listening exercises in foreign language lessons, he receives a recording from the teacher to read. The visually impaired student gets the text in enlarged font. Difficulties in overcoming barriers appear when students with various disabilities are in one group. You cannot devote enough time to everyone.

Lack of students' involvement in the lessons is an obstacle in the implementation of the program and in achieving success in learning. We have been observing this phenomenon for years and there is a visible decrease in motivation with students' age. In the younger grades, involvement in lessons is greater, but gradually students become less active and even passive, reluctant to perform tasks. The passive attitude of students affects the dynamics of the lesson, makes it difficult to move smoothly and achieve the set goal. Such activities are often perceived by students as boring and by teachers as demotivating. Most of us try to motivate and look for ways to involve them in the lessons.

However, we do not have a developed, effective system of motivation and our efforts have different effects.

Teachers of many subjects complain about overloaded curricula. Often, we would like to devote more time to various problems, but due to the amount of material, we move on to the next issues, regardless of the degree of knowledge acquired by students. We- teachers do not have a direct influence on the curricula, so most often we implement the plan adopted at the beginning of the school year.

Barriers identified in the UDL implementation process

- Frontal teaching style - mainly expository methods
- Students and teachers being accustomed to traditional methods
- Reluctance and fear to any change
- Looking for and highlighting elements that are an obstacle in the use of UDL

During the process of implementing UDL in our school, barriers were identified that effectively restrict the teaching / learning process, which in turn hinders the success of our students in acquiring knowledge and skills.

Teachers mainly use the teaching methods and apply a frontal teaching style to most subjects. The leading figure in the lesson is the teacher sitting at the front of the class. The desks are arranged in rows, students usually sit in pairs or individually, facing the teacher. If the student indicates that he or she wants to speak, after raising his/her hand and giving consent from the teacher, he or she may speak in the class forum. The teacher is a teaching expert, but the student is not an expert in learning, most often he is a passive listener and observer. It should be mentioned that this type of work is not specific to our school, it is a traditional model of teaching, commonly used in schools in Poland.

A strong attachment to the traditional way of conducting lessons has been observed among teachers, students and their parents. There is still a belief that the best and most effective lesson is one when there is perfect silence in the classroom and the teacher presents the prepared information. The teacher is expected to deliver knowledge in an interesting way, which is supposed to influence the students' interest in the subject.

Despite the awareness of students and parents that the use of frontal teaching methods results in the maximum involvement and activities of the teacher, while significantly reducing the possibility of students' active participation in the lesson, changes in this state of affairs are not expected. Any attempt to change, e.g. arrangement of the class space, is received with reluctance and fear. Using other methods, even occasionally, is perceived as a waste of valuable time in lessons. The concerns of teachers and parents were about making changes to the way lessons were delivered because they were not convinced of their effectiveness.

The trainings for teachers introducing UDL elements in their lessons, despite noticing the value of UDL assumptions, raised numerous concerns. Teachers were afraid of excessive workload when preparing the lessons, they pointed to waste of time on lessons, as the tasks for students are sometimes time-consuming and the core curriculum cannot be realized. They indicated chaos when working in groups, as students often got up and moved around their group workplaces, complained about students having too loud conversations during work and noise in the classroom.

Traditional class arrangement

Traditional lesson with a support teacher

Implementing UDL- group work

Pilot introduction of UDL

Joining the project, we had a chance to identify and break down barriers that we were not aware of and that hinder or prevent some of our students from achieving success. The project allowed outsiders (i.e. researchers not connected with the school) to look at the work of students and teachers and to identify their strengths and weaknesses. It helped students and teachers to self-evaluate and stimulate reflection. The project-initiated changes in the approach to the learning and teaching process, which have a positive impact on the further activities of the school and on the students' and teachers' development.

UDL assumptions implemented in the work of our school during the pilot project

After identifying the barriers, a group of scientists suggested to teachers that at the beginning they introduce three elements of the UDL strategy by planning and delivering lessons:
- Clearly define the purpose of the lesson
- Give students the choice of carrying out a task leading to the achievement of the goal
- Promote group work

The goal of the lesson, which is what students should learn or do in the lesson, is to be clearly stated and specific. Moreover, the goal should be presented in such a way that was understandable to everyone. The teacher should articulate the purpose of the lesson clearly and present it visually and audibly and leave it visible throughout the lesson. In this way, it will be understandable and

accessible to all students in the class, including students with various learning difficulties. Before starting work, the teacher must be sure that all students understand what the aim of the lesson is.

The second element to be introduced in the lessons is the possibility of choosing the way of performing the task from the options presented by the teacher. Depending on the topic and purpose of the lesson, the options should include written forms (essay, plan, test), oral (answer, story, presentation, recitation), art (comic book, picture story, poster). The choice may also concern the production technique, tools and sources (computer, textbook, Internet). The variants should take into account the abilities and predispositions of students in the class. Students have the opportunity to choose a task that they are able to perform and are more likely to do.

One of the ways of departing from the traditional model of lessons during the implementation of UDL was to impose a form of group work on teachers. Despite their sceptical approach to this type of work, they prepared lessons in this way.

What was put into practice and what was the effect?

Despite the lack of conviction to the new approach and getting used to the traditional way of teaching, teachers prepared lessons in accordance with the assumptions of UDL. They focused on selected three elements of the strategy:

- clearly defined aim of the lesson and different ways of presenting the goal

We used a new approach in presenting the goal. Instead of giving the lesson purpose in a tailored form only for students with SEN, we presented it in different ways for the benefit of other students as well. For example, the text displayed in larger font on the blackboard was helpful to students from back desks or students with a slight visual impairment. We turn to the hearing impaired so that they can read the speech from our lips. For many of the other students, eye contact with the teacher helps keep their attention focused. The teacher had better control over the class and saw how the students reacted to the information provided.

- choosing the way of performing the task and presenting a completed task or the acquired knowledge

Choosing the method of performing the task and presenting the effects of work was closely related to the aim of the lesson and took into account the competences and preferences of the student. The options were to break down barriers resulting from disabilities of individual students in the class. The students could choose a task that they were able to do. Talented students had the opportunity to show their abilities, which strengthened their self-esteem. Tasks related to everyday life, topics related to students' life, appearing in the options aroused and maintained their interest. Among the options that appeared during the implementation, the art works were more frequently chosen by the students.

- work in groups

The teachers planned to work in groups despite getting used to the traditional model of teaching. The students accepted the work in groups but at the beginning they preferred cooperation with the same classmates. The role of the teacher was to change the line-up of the groups. Over time, group work has become a favourite form of work and a frequent criterion for creating a group was the chosen way the task was performed. Everyone began to see the value of these changes. Students acquired and developed cooperation and mutual help. Moreover, they perceived this form of work as fun, and therefore they were willing to take up work. Teachers noticed a much greater involvement of students in the lesson and the possibility of students interacting during the lesson, the possibility of getting to know each other and understanding each other better. Even the emerging minor conflicts and the necessity to resolve them, served to develop students' social competences. All this contributed to the involvement in the lesson and better results of their work.

Below we present a few selected lesson plans prepared and conducted according to UDL principles described above together with teachers' reflections after the lesson done. We also present samples of students' works from these classes.

When preparing lessons in accordance with the UDL, we are happy to use the Lesson Creator available in the UDL Lesson Plan Creator and the UDL Guidelines Checklist.

Examples of lessons with the use of UDL
a. Art lesson
Lesson Overview
Title: Baroque culture- clothes
Subject: Art
Level: primary school
Lesson goal: Students will recognize baroque style of clothing
Choices: students can use different techniques to present a baroque dress; students can choose a dress from the many designs presented to them
Form of work: individual work, class discussion
Reflections: An introduction by the teacher about historical costumes and a short conversation about fashion made the students involved in this lesson from the beginning, because they found baroque costumes funny, strange and amazing. The most amazing idea was to wear such clothes on a daily basis. The choice of design and technique made it possible for students with weaker artistic skills to complete the task.

Students' works

b. Mathematics lessons (two lessons)
Unit Description
This unit is designed as a UDL approach to enable students to learn about flat geometric figures and to teach them to calculate the area of single and multiple figures.

First, students receive basic information about geometric figures and formulas for calculations. The material is presented in an attractive colour version in various ways. Art activities were used to involve all students. Creating various geometric figures from coloured sheets of paper. In the next lesson, these figures will be used for calculations.

Lesson 1 Overview

Title: Calculations of surface area
Subject: Mathematics
Level(s): primary school
Lesson goal: students will be able to recognize geometric shapes, students will know that there are formulas for calculating surface areas
Choices: select the item in the class, name its shape e.g. books, desks, chairs, choose the colour and shape you want to cut from the paper
Form of work: individual work, pair work, group work
Lesson description: Teacher presents all the geometric shapes, names them and shows that each of them has a formula for calculating the area. Teacher represents information in multiple media and formats: indicating the appropriate page in the coursebook, presenting the material with the use of an interactive board, hanging posters on the walls in places visible to students.
In the classroom, students look for objects in these shapes and name them. Teacher introduces a game: find the object in the class, e.g. it is a rectangle, it hangs on the wall and it is expensive - a multimedia board. Teacher asks students if it could be useful in their lives and allows the discussion in pairs. Then, divided into groups, they cut out selected geometric shapes from coloured papers.

Lesson 2 Overview

Title: Calculations of surface area
Subject: Mathematics
Level(s): primary school
Lesson goal: Students will know how to calculate a surface area
Choices: choose different shapes, create a character, name her/him and then calculate a surface area
**Form of work**: individual work, group work
Reflections: Teacher tries to convey information to each student, leaves visual material available throughout the lesson (posters) to be helpful at every stage of the lesson for everyone. It provides students with a sense of security and increases their self-confidence. It enables students to get help without asking others, students with less background knowledge will feel more comfort. It also helps talented ones who, for example, have weaker concentration on that day. Asking students to prepare materials for the next lesson makes students feel needed and motivated.
Introducing the element of fun increases students' involvement. Dividing the class into groups of 3-4 people will give the impression of a relaxed lesson. Although the task should be done independently by the student, working in a group will enable cooperation and mutual help.
By situating mathematical calculations in a different learning context (art), teacher intends to engage learners. As the art element in this lesson does not require artistic skills, all students will feel comfortable.
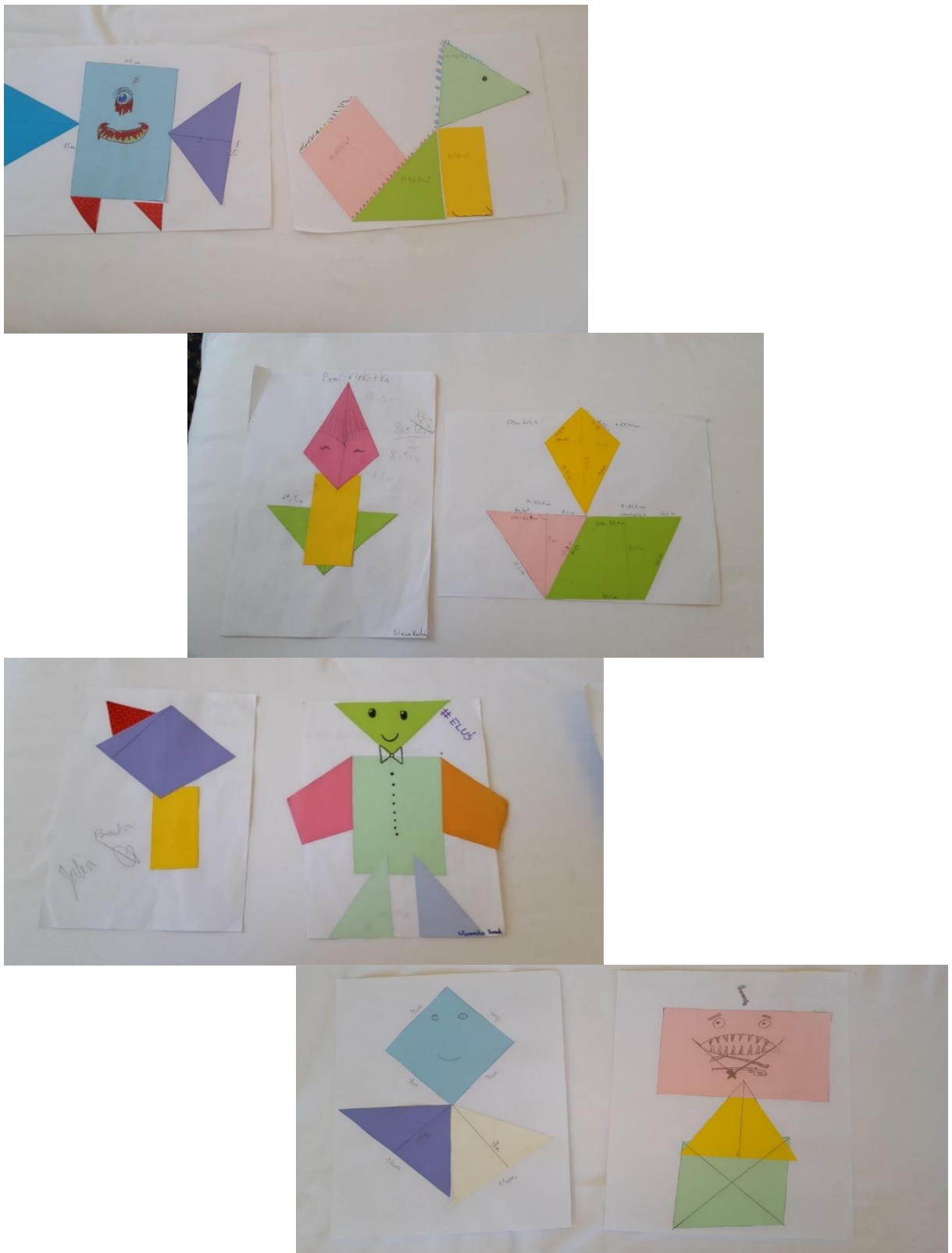
Examples of students' output

c. Lessons of Polish language and literature
Lesson Overview
Title: Motive of a garden in the novel *Secret Garden* by Frances Hodgson Burnett
Subject: Polish
Level: primary school
Lesson goal: Students will understand the representation (symbolic meaning)of a garden:

1. summer garden – representation
2. winter garden – representation
3. spring garden – representation

Choices: Create a picture of a seasonal garden – any art technique

Give an oral description of a chosen garden

Give a written description of a chosen garden

Forms of work: discussion, group work

Lesson description for day

Students explain literal and figurative meanings in texts; present their own understanding of the work and justify it.

Anticipatory set: The teacher asks the students to briefly characterize the garden during the four seasons, then asks the students about the symbolic meaning of the various images. Then, teacher asks students to discuss their ideas in groups and present them in a picture, description or orally.

Students form groups of 3-4 people depending on the form of presentation.

Reflections: Teacher provides flexible opportunities for demonstrating skill, e.g., written, oral, or visual presentation, explanations. She gives a choice and motivates to action, enables everyone to do the task and working in groups enables the exchange of thoughts, organizes discussions, gives the opportunity to cooperate, share tasks to achieve the goal.
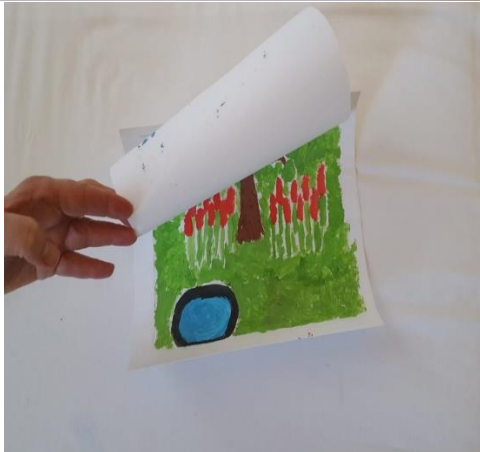
Students' works

d. Lessons of Polish language and literature
Lesson Overview
Title: The meaning of epigrams – e.g. *Health* by Jan Kochanowski
Subject: Polish
Level: primary school
Lesson goal: Students will list and number the values in human life; students will know the literary genre - epigram
Choices: 1. illustrate importance of values - use a scale to evaluate
     2. interpret stylistic devices
     3.use the dictionary, explain meaning of words: epigram, health, value
   4.sing an epigram (use any kind of music rap, rock, folk etc.)
     5.recite the epigram with your own interpretation
**Forms of work:** group work, individual work
Lesson description:
Anticipatory set: Teacher shares lesson goals and objectives with students: that they will read *To Health* by Jan Kochanowski and will asks students what in their opinion, the most important things in their life are. Teacher summarizes the discussion and writes down the students' ideas on the board (*health, money, friends, family, success, fame, love*). Teacher gives the students the text of the epigram with a big font, and then plays the recording of that text (https://www.youtube.com/watch?v=cIjWLYh8RdA) read by a famous actor Sławomir Maciejewski.
**Reflections:** The material for the purpose of the lesson was presented in two ways, in visual and auditory form. The recording and the text in larger type took into account the disability of one of the students (a visually impaired student), for the others it was an attractive form and they listened to the recording with pleasure. Most of the students chose the art form One student sang the epigram to her favourite melody (from the film Titanic). Two boys presented the epigram as a rap song. Working in groups increased students' motivation and commitment, as they treated it as a form of fun. The end result and the students' presentations turned out to be an attractive element of the lesson for students and the teacher.
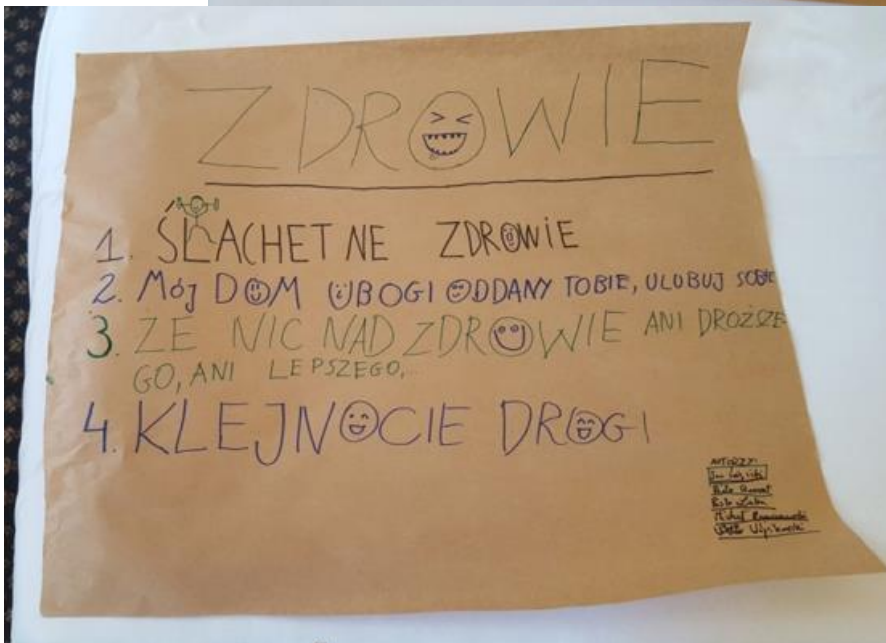
Descriptions of the word 'health" in the epigram.
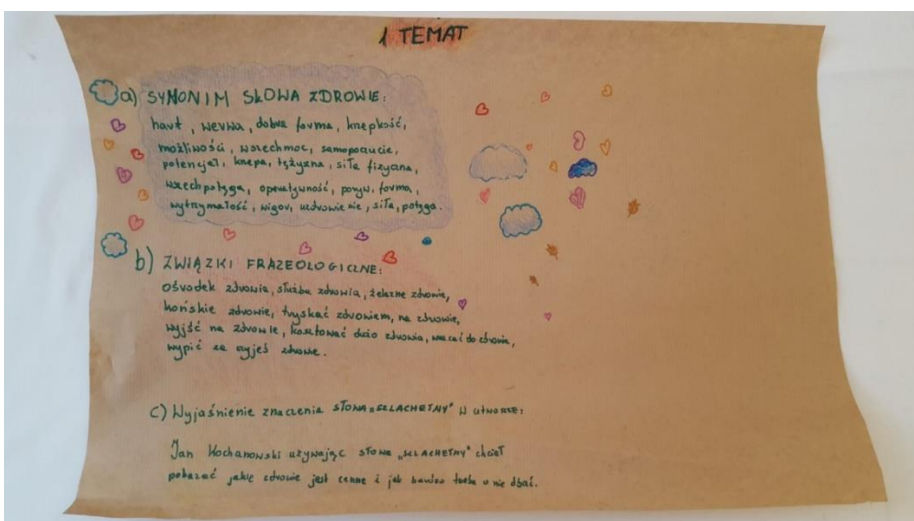
Synonyms of the word 'health', expressions with the word 'health', the meaning of the word 'grant' in the epigram.
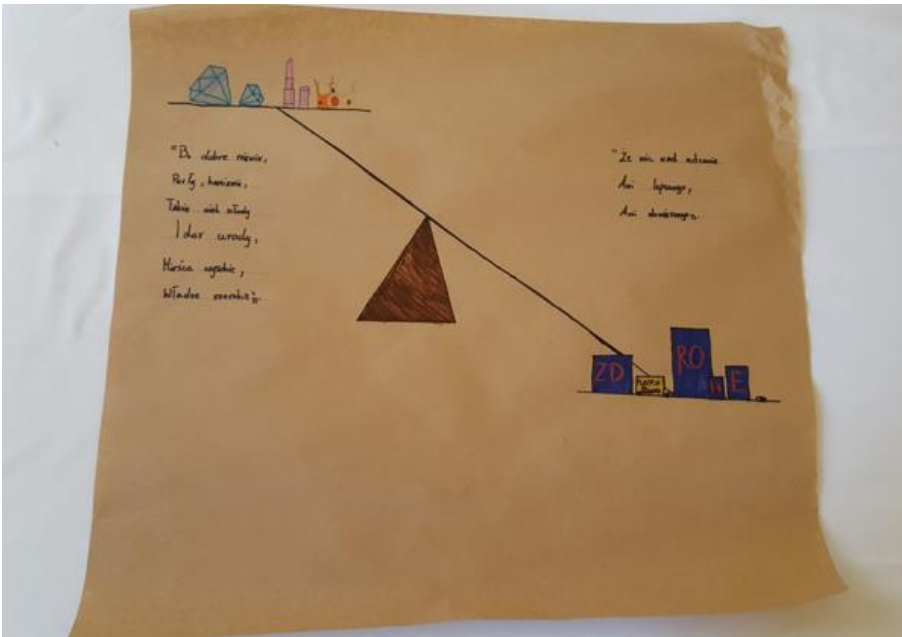
The scales show what really matters in people's life.

Changes and reflections after the UDL project

While introducing three selected UDL principles

- Clearly define the purpose of the lesson
- Give students the choice of carrying out a task leading to the achievement of the goal
- Promote group work

We made it possible for all students in the class to achieve their goal and success in the lesson. UDL principles, which fully meet our needs in working with a diverse group of students, including students with SEN, have proved extremely useful in breaking barriers that have hampered work and success. This had a positive effect on the dynamics of work, students' involvement, effective implementation of the lesson goal and motivation to study a subject in general. The implementation of the UDL resulted in a variety of forms of work and, at the same time, limited expository methods. Students found the lessons attractive and did not want to return to the traditional form. Mutual help and cooperation have been of great value. During online education, these skills proved helpful. After lessons students on their own initiatives, organized groups and created meetings to work together and maintain social bonds. Teachers have recognized the value of UDL and their concerns about applying its principles in the classroom have diminished. The new approach broke the learning routine and introduced greater learner responsibility for his/her success. Despite the much greater involvement of students in the lesson, teachers still have concerns about following the curriculum in full. Working in a traditional way, the teacher is able to convey a greater amount of information whereas working according to UDL, students spend more time doing one task. They also consider the preparation of lessons and the implementation of the program using UDL to be time-consuming. However, they do not exclude possibility of applying the UDL approach on a daily basis.

The future of UDL in our school

The implementation of UDL in our school in the form of a project was a scientific experiment addressed to several teachers and a selected class. It made it possible to observe changes and learn about the results of activities that were positively assessed.

The beneficial effects of work in one class encourage us to use UDL in our school by all teachers. Project activities were noticed by other students and teachers in our school. Some teachers wish to

learn about UDL and incorporate this approach into their workshop. We provide training, workshops and help for everyone. Gradually, we will implement other elements of UDL to help students with SEN in heterogeneous groups more effectively. Simultaneously, we will make use of our extensive experience in work with SEN students and maintain forms of help developed over the years.

Working in diverse groups, we particularly care to motivate and activate students to work and make them responsible for their learning, so that they become expert learners.

References

UDL Lesson Plan Builder: http://lessonbuilder.cast.org/
UDL Guidelines Checklist: https://wvde.state.wv.us/osp/UDL/7.%20UDL%20Guidelines%20Checklist.pdf
    https://www.youtube.com/watch?v=cIjWLYh8RdA