Začít spolu

The Step by Step programme and its BENEFITS for primary school pupils in the Czech Republic

Step by Step

NADACE České spořitelny

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The Step by Step programme

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The Step by Step educational programme (link in Czech), internationally known as Step by Step or SbS, is an open didactic concept that offers comprehensive education based on constructivist pedagogy and a child-friendly approach. The licence and distribution rights of the Step by Step programme are held by Step by Step ČR, o.p.s. (link in Czech). The year 2024 marked the 30th year of operation of the Step by Step programme as a part of education in the Czech Republic. More than 180 kindergartens and primary schools are currently registered in the Step by Step network, with almost 20,000 teachers trained by SbS CR since its inception.

The Step by Step programme was founded with the support of the Open Society Foundation, a global organization which supports education through democratic principles and the development of civil society around the world, including in post-communist countries. The comprehensive program of SbS for the education of preschool and younger school-age children was created in collaboration with Children's Resources International Washington, D.C. along with the contributions of numerous experts in the field. SbS CR has carried on and even expanded these traditions to explore ways to link the programme to ISCED Level 1 primary school educational facilities in the Czech Republic.

The Step by Step programme is supported by the International Step by Step Association (ISSA), an international organisation represented in more than 40 countries worldwide. The implementation of the programme within each country varies based on the cultural traditions of the particular region as well as the conditions within its educational and social system. The quality of teaching in the programme is structured according to the standards outlined in the ISSA policy document Competent Educators of the 21st Century: Principles of Quality Pedagogy **(https://www.issa.nl/quality_principles).**

As a result of the positive experiences shared by teachers, parents and children, the concepts of the programme have spread rapidly throughout the Czech Republic. The primary promoters and propagators of these ideas have been teachers who have participated in the programme.

These educators pass on their experience to new teachers, supporting them at every step along the way as they begin to put the programme into practice in their own schools. This initial process is most often carried out through summer orientation programmes in which interested teachers are invited to a classroom at a school at which SbS CR has already been implemented, or, alternatively, consultations are conducted for the teaching staff at their own home school. This model is now being extended to include opportunities for collegial sharing in regional Step by Step methodological centres. These centres play a key role as sites where further training for teachers already working in the Step by Step programme takes place as well as facilitating the expansion of the programme to other schools in the region.

Despite this rich, extensive history of development, very little research has been conducted examining the real impact on children who have been taught in the Step by Step programme in the Czech Republic. Only one research investigation conducted between 2021 and 2023 has explored how life skills children need in life are strengthened and developed by the constructivist approach to teaching within the Step by Step programme. This extensive 2024 study, which involved the fourth and fifth grade in selected elementary schools, involved many different research methods and combined different scientific approaches. For a more detailed introduction, readers can access the full research report here (in Czech).

In this text, we would like to present our main results and findings in an accessible way as well as answer questions that frequently arise in the professional community regarding the Step by Step programme. The research was conducted by Denisa Denglerová and Radim Šíp, academics at Tomas Bata University in Zlín, with the invaluable support of the Česká spořitelna Foundation.

Why has the work of Step by Step been so successful? By fostering an environment that promotes wellbeing and trust

The essence of an environment suitable for effective teaching in any system is that it fosters positive attitudes towards learning in students. Our research study has confirmed that Step by Step classrooms succeed in focusing on the process side of learning by moving away from a basis on merely instructional content (especially in the early years of schooling).

This strategy facilitates the dissolution of the child's cognitive and emotional barriers that inhibit the intake of new experiences. The ultimate goal is to strengthen the young learner's confidence in their own abilities and stimulate their appetite for learning.

In constructivist teaching, students are the main actors within their own learning process. Their activities are guided by their own preferences; they participate in the choice of the learning goals they are working towards, a process which **they experience with pleasure**. Such conditions lead to an unusual degree of independence as well as responsibility among pupils in the Step by Step classes. The specific structuring of the day (community circles, activity centres, etc.) in Step by Step programmes creates many more opportunities for joint reflection and increased awareness of one's own progress or failure with no immediate recriminations from educators. Pupils in Step by Step classes show a high level of self-reflection skills. They are much more capable of estimating their own performance with confidence that mistakes will not only not be negatively evaluated, but are an invaluable part of the learning process.

The research report concludes that as another result of the emphasis of Step by Step on cooperative learning, the individual performance of each student is also valued and enhanced. As is the case with natural social interactions outside the classroom, in Step by Step classrooms peer social interactions are essential to help build successful cognitive structures in children.

The management of the pedagogical process in such an organic way allows for the reinforcement of teaching elements such as rituals, physical activities, time management, dynamic alternation of teaching forms and methods, etc. Nevertheless, rules play a fundamental role, with the active use of clear policies creating an important instrumental background for learning to take place effectively. Thanks to clearly delineated rules, teachers are able to meet the various needs of all the children and also to individualise teaching for particular learners with the goal of achieving successful learning outcomes as well as gratifying experiences for all pupils in the classroom.

Another of the aims of the research was to focus on the classroom climate, which other studies have shown is key to the development of positive attitudes to learning. Our results show that pupils in Step by Step schools simply feel more comfortable in the school setting than do pupils in mainstream schools.

They are less subject to anxiety and they perceive the classroom as a less competitive and confrontational environment which they simply enjoy being in. We also found that pupils in these classes demonstrate higher levels of emotional recognition skills.

Our research report confirms that Step by Step classes are characterised by a particularly calm atmosphere created together by teachers and pupils. A sense of confidence on both sides in their own abilities and a shared desire to 'get it right', is a condition for educational progress. Obviously, such an ambiance does not come automatically, but is a consequence of a series of consistent actions that have brought about a profound transformation in the environment brought about by the pupils and the educators themselves. The entire approach to achieving learning outcomes is thus transformed. Instead of one single outcome that every pupil is required to attain, forming individualised goals and processes for each learner is now the objective. The distinguishing element thus becomes whether a student is achieving the maximum possible for that learner at the particular time. There is more time and space for each pupil to pursue their own specific needs and interests in such a diversified atmosphere, which also results in an increase in each student's confidence in their own abilities.

The research report has gathered abundant evidence that the conditions for the emotional, social and cognitive wellbeing of pupils are met to a greater degree in Step by Step classrooms.

The aforementioned relaxed atmosphere represents a manifestation of a deeper transformation within teachers, one accompanied by the growth and development of their self-assurance. The openness with which teachers are able to self-reflect as well as recognize and work through their own mistakes plays an important role in building up confidence in their own abilities in all areas of education.

All Step by Step schools are supported by a professional network structured through the "Step by Step ČR, o.p.s" organization. The organizational activities include the ongoing development of a system of continuing education, teacher certification modules, the participation and contributions of schools in the "Step by Step Schools Network", along with the establishment and operation of regional methodological centres. All of these initiatives have the goal of establishing and sustaining the highest quality standards in the practical application of the programme, including facilitating the professionalization of teachers. The Step by Step programme greatly simplifies processes involved in acquiring and developing pedagogical competences, an achievement appreciated by all teachers, but welcomed by beginning educators in particular.

Can pupils educated under the Step by Step programme cope with the expected amount of learning?

The essence of an environment suitable for effective teaching in any system is that it fosters positive attitudes towards learning in students. Our research study has confirmed that Step by Step succeed in focusing on the process side of learning by moving away from a basis on merely instructional content (especially in the early years of schooling).

The most common concern of parents of primary school students is whether their children will have mastered all the required knowledge and skills to be sufficiently prepared for their future educational career and beyond. The concern probably stems from the fact that the Step by Step programme places such great emphasis on cooperation and communication among all school actors. Parents understandably have questions as to whether this social approach comes at the expense of meeting academic requirements. Such trepidations are unwarranted, however, as research findings show that at the end of their ISCED Level 1 primary school education, pupils taught according to the Step by Step programme do not in any way lag academically behind their peers in mainstream schools. In fact, our re-analyses data from the Czech National Survey of Fifth Grade Pupil Achievement based on data collected across the country by the Czech School Inspectorate show that for the parameters studied, Step by Step pupils perform as well as or even better than pupils from mainstream schools. These results are included in our research report.

Nevertheless, Step by Step pupils do differ from pupils from mainstream classes/schools in that they are significantly more successful in using metacognitive skills than pupils from mainstream schools. They also perform significantly better in solving mathematical problems of a complex nature.

While the theme of metacognitive skills will be discussed in detail in the third part of this document, here we note merely that those pupils who have developed higher quality metacognitive skills manage their cognitive processes more quickly and effectively, which has a positive impact on their future educational path. It is common for such students to develop enduring positive attitudes towards learning, as they are able to independently manage their own cognitive processes. This phenomenon carries profound implications. In order for metacognitive skills to be developed, conditions must exist within the classroom that enable the learner to engage in processes of forming learning autonomy.

These include the pupil's status in the classroom, perception of safety, development of emotional skills, and development of creativity, all of which enable the young learner to approach problem solving from various angles, sometimes in completely unconventional ways, etc. As mentioned above, our research shows that pupils are significantly more successful in all these parameters. Step by Step pupils indicate that they feel much more comfortable in school than is the case with students in mainstream schools. SbS learners report a higher intellectual and school status, and they are less subject to anxiety about the school environment. They perceive the classroom environment as less competitive or confrontational and they enjoy being at school. Pupils in Step by Step classes show higher levels of emotional ability and higher creative skills. Differences also exist in introjected motivation, as learners in SbS classes fulfil their learning obligations primarily to please themselves, not their parents or teachers.

Parents of pupils in Step by Step classes often find that, especially in the early years of ISCED Level 1 schooling, their children often seem to master less overall educational content than their peers in mainstream classes or schools. It is this detail that often concerns parents, sometimes leading to anxiety regarding whether their children will be sufficiently prepared for further studies. This is only the case, however, at the beginning of the ISCED Level 1 learning cycle (grades 1 and 2). At the end of the cycle (grades 3 to 5), pupils not only do not show knowledge gaps but even outperform their peers in terms of the skills that make learning more successful. This seemingly paradoxical situation arises from the fact that early on mainstream classrooms place far too much emphasis on the acquisition and repetition of expected knowledge, while not enough attention is devoted to the cultivation of abilities and skills that are essential for the long-term development of learning.

The strategic decelerated acquisition of conventional educational content in Step by Step classrooms in grades 1 and 2 is the result of teachers working with their students to create an environment conducive to learning. It is during these key years that the student's ability to manage their own educational development is carefully honed.

This is an investment that pays off many times over in the years of education that follow, and indeed throughout the learner's entire life. As investment in public infrastructure (roads, railways, high-speed internet, etc.) will subsequently bring dividends to the state by making travel and commerce faster and more efficient, thus improving the overall quality of life for citizens, in the same way, investment in building educational infrastructure in Step by Step classrooms will pay off many times over through increases in the quality and speed with which young people master the acquisition of knowledge and skills later in the educational cycle.

Since the essence of this educational infrastructure is that it removes or minimizes emotional and cognitive barriers to learning, to describe it the researchers have coined the term **emotional-cognitive infrastructure (ECI).**

The Step by Step programme is based on a carefully designed and organized education system which our research has analysed through an investigation into **two important features.**
First, we observed and evaluated the so-called **activity centres (AC)** and, second, we examined the processes involved in building **the emotional-cognitive infrastructure itself.**

ACs are based on integrative tasks instituted with the goal of teaching students how to acquire knowledge in a cross-curricular context. The ultimate objective is to potentiate the young person's intrinsic motivation to learn and to gain a richer understanding of knowledge contexts. A key structural element of ACs is the emphasis on group work and group reflection. Although during our research we found that in reality the occurrences ratio between the individual and group work of students is balanced, the emphasis on collaboration and joint reflection is crucial, as this factor multiplies the opportunities for learning. While the concept of the circle plays an important role in developing cooperation and joint reflection and thus represents an essential part of the entire Step by Step programme, the circle is most intensively used during work at the activity centres. Recommendations regarding what mistakes should be avoided by groups that will complete a certain task in the coming days and weeks are also an important ballance part of the final AC circle. Working positively with error, i.e., that mistakes are not a matter to be negatively evaluated, but rather an opportunity to improve the learning process, is one of the pillars of the Step by Step programme. At first glance, this seems no different than in several other innovative programmes. Nevertheless, what is different in Step by Step is that due to the organisation and structuring of ACs, the detection of possible errors and thus the detection of possible solutions are multiplied in the final circle phase. Students encounter more opportunities to think through problems from multiple angles, empowering them to engage both in self-reflection as well as to interact with their classmates. Although the development of ECI is facilitated by the overall configuration of the Step by Step programme, it is during the work in ACs that the most intensive formation and strengthening of ECI occurs.

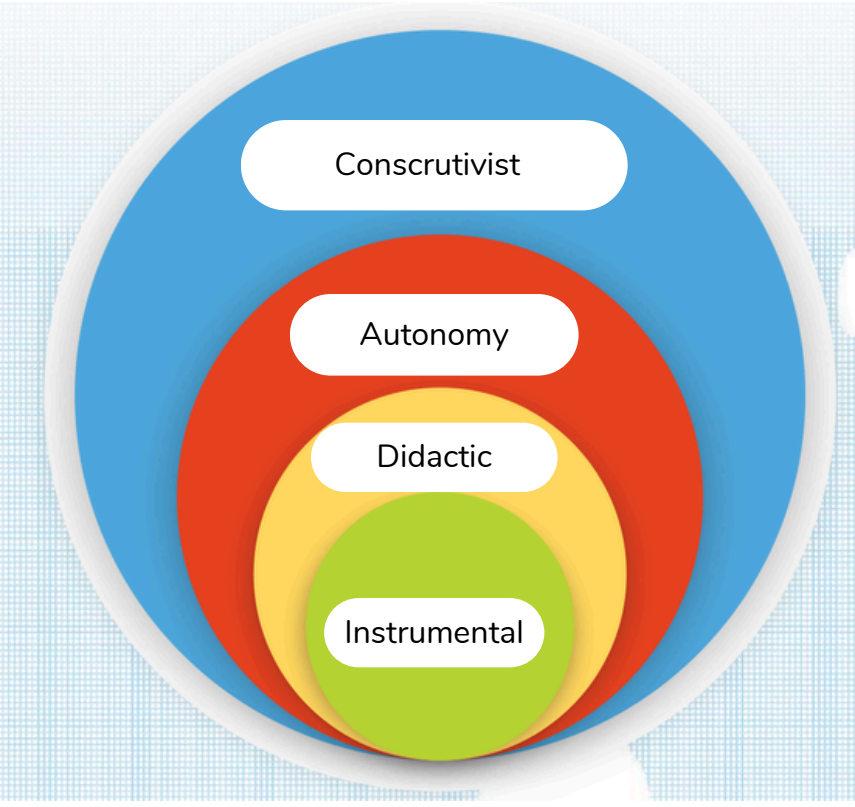
The effectiveness of the Step by Step programme lies primarily in the systemic development of the emotional-cognitive infrastructure of each pupil. ECI is made up of an interdependent system of processes that mitigate or completely remove barriers at the emotional and cognitive level that commonly impede the educational progress of young learners. In doing so, these processes also accelerate the purely cognitive development of most pupils.
ECI is built on four interrelated levels – instrumental, didactic, autonomy and constructivist.

Achieving each of the these levels requires a solid mastery of the levels which preceded it. It is only when the entire infrastructure is built and becomes fully operational that constructivist education can be applied. In mainstream classrooms, efforts at constructivist learning usually fail or are not very effective because not enough time is devoted to developing ECI. In contrast, since building ECI is a fundamental focus of Step by Step, the application of constructivist teaching brings a much higher level of practical results.

In comparison, the difference between traditional education and Step by Step can be primarily related to the fact that teachers in regular classes are overly concerned with hammering through conventional educational content at the expense of all other aspects of the young learner's experience. To successfully build ECI, it is essential that the teacher focuses on the overall quality of the learning process. Initially, this requires devoting more attention to instrumental, didactic, and autonomizing content, even at the cost of temporarily neglecting traditional content. As alluded to above, we consider this a vital investment of time and resources which, once the building of the ECI is complete, will be reflected not only in the acceleration of the acquisition of the educational content, but above all in the more effective development of more demanding cognitive skills and metacognitive abilities.

We should therefore view the Step by Step programme as would an economist who recognizes importance of investing thoughtfully in improving the entire economic system, despite a possible temporary reduction in the intensity of economic results. In Step by Step classrooms, teachers invest in social skills development with their students. While this may initially lead to a slowdown in the achievement of expected outcomes, this investment eventually results in the development of learning conditions and skills that accelerate the acquisition of knowledge and skills, enabling the development of effective long-term attitudes to learning. Such organized endeavours have the potential to have a significant positive impact on the child's future educational trajectories.

The emotional-cognitive infrastructure development model



What other competences are developed in the Step by Step programme? Metacognition and creativity

Metacognitive abilities allow us to identify our own cognitive process, which include understanding our own processes, the ability to monitor, regulate and evaluate our thinking, as well as to estimate the level and potential of our own cognitive competence. If the goal is to investigate these abilities in children, it is most useful to link metacognition to specific content in the form of a particular task that the child thinks about, and can then investigate his or her thought processes. Although it was not our primary goal to examine the mathematical abilities of the students, in order to assess metacognitive abilities we asked the children to solve math word problems. The mathematics test included standard tasks (for which ordinary arithmetic skills such as addition and multiplication were sufficient to solve correctly) as well as so-called problem tasks for which detailed consideration of the described context was required. While the results of the didactic test in mathematics are not essential for the assessment of metacognitive abilities, we sought to compare the success rate in solving word problems between learners in traditional schools and pupils in the Step by Step programme. We found that, overall, pupils educated in the Step by Step programme are significantly more successful in solving word-based problems than pupils from traditional schools. Whereas students in the Step by Step programme are slightly more successful in solving standard arithmetic problems, they achieved significantly more success in solving word problems.

The didactic test is supplemented with questions to determine the students' levels of prediction (i.e. the estimation of one's own success after reading the word problem) and self-assessment (i.e. evaluation of one's own success after solving the problem). Accordingly, these questions focus on the assessment of children's thought processes before and after solving a particular task, a method quite easy to use for the age group of younger school-age children. In comparing metacognitive skills between pupils in traditional schools and those in the Step by Step programme, it appears that pupils in the Step by Step programme achieve significantly higher levels of prediction on both types of task, indicating that they are better able to judge the difficulty of a task in the context of their own abilities. They achieved a significantly higher level of self-assessment for the problem tasks, meaning that they were able to make decisions regarding the solution of more complex tasks with more confidence in terms of whether they had solved the word problem well or poorly.

Our analysis of the results also shows that there are large differences between pupils even within the Step by Step programme. Such discrepancies may be strictly due to differences in success in solving word problems in mathematics, which shows us that more successful learners may employ metacognitive skills to a greater extent than less successful pupils.
While we consider these findings to be crucial, they are not entirely surprising. The emphasis on iterative self-reflective processes is one of the important pillars of the Step by Step programme. As we have described above, metacognitive skills develop naturally in an environment with a functionally developed emotional-cognitive infrastructure. It has been confirmed that pupils internalise these skills and use them in their regular school work.

Creativity can be understood in many ways, but in general we understand it as the ability to produce from the creations of others something original, different, or otherwise unexpected. Nevertheless, while a creative output must be anchored in reality and its otherness should meet the particular criteria, at the same time it also must bring new meaning and significance, or explore the problem in a different way that leads to a successful solution. In our research, we focused on assessing creative thinking through a drawing test. Students were asked to complete an unfinished drawing in any way they could.

Overall, children in Step by Step classes perform above average on the creative thinking test. Their scores decrease as they get older, but still remain slightly above average. It can therefore be concluded that in the higher grades children are less creative also due to the influence of the school. A possible influence here could be the lower motivation of the older children to complete the drawing task, but we did not observe this in the data collection. The children were generally willing to complete the task even in the fifth grade. The high differences across specific grades may indicate that the level of creativity of the pupils in Level 1 primary schools surveyed are also influenced by the level of creativity of their teachers. Interestingly, however, affiliation to a particular grade appears to be even more important than affiliation to a particular primary school. This finding would suggest that a certain creativity-enhancing environment has already been encoded at the level of the whole institution.

Final reflections

Both at the level of work with teachers as well as work with schools, the Step by Step programme demonstrates all the characteristics of a sophisticated and sustainable system, as can be seen in its internal integrity and robust system of inspiration and support. It is clear that Step by Step is making a significant contribution to the cultivation of the Czech education system from the bottom up. It is this distinguishing feature that explains why Step by Step is one of the most successful "alternative education" programmes that has managed to establish itself in mainstream schools and thus positively influence the trajectory.

Research shows that the Step by Step programme develops skills that children will use later in life such as metacognition, creativity, communication, etc. While such abilities have been important at any time in modern life, in the current phase of rapid development of AI technologies, a period of flux in which we do not know what jobs will be needed in ten or even five years, such aptitudes are particularly crucial. In this way, education through the Step by Step programme can be seen as a competitive advantage for the future working life of young people, whether it be as an employee or entrepreneur. Further, this competitive advantage brings the potential to progress beyond the individual to support the development of the wider community. Our societies today certainly face complex challenges, including climate change and the rise of authoritarian regimes that deny the dignity and development of all members of society. These problems must be tackled at the national and international level, as the individual alone is not equipped to confront them successfully. Although not explicitly thematized in the Research Report, the findings also naturally imply that Step by Step students are better prepared for life in a democratic, diverse society. If the Step by Step curriculum reaches a greater number of pupils, a strengthening of political and social community resilience would be the result in the long run. These goals are also in line with the Czech Republic's Education Policy Strategy 2030+, which aligns with the original intentions of the Open Society Foundation to expand Step by Step to post-communist countries in Europe.