2

Teacher Education in the Czech Republic: Recent Developments and Future Prospects

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Introduction

This chapter focuses on issues related to initial teacher education and professional development in the Czech Republic. In addition to international research, surveys, and reports, it incorporates original research published in Czech education journals or in professional publications that could be used as a source for teachers' self-reflection, for institutions providing teacher education, and for education policy experts.

In this mapping endeavour, the historical and political context are a crucial starting point. Shortly after the Second World War—in 1946—a law was passed in Czechoslovakia, based upon which pedagogical faculties were established and primary and secondary school teachers were required to be educated at universities. In 1948, the Communists took power, and communist ideology governed the administration of all sectors, including education. Under the Education Act of 1948, for the first time in the history of Czechoslovak education, a unified state school system was established and common education goals were introduced. The basic education of all young people was declared compulsory up to the age of 15. Education at primary and secondary schools, as well as universities, was provided free of charge in public education institutions. Great emphasis was placed on teachers having

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M. Kowalczuk-Walędziak et al. (eds.), *The Palgrave Handbook of Teacher Education in Central and Eastern Europe*, https://doi.org/10.1007/978-3-031-09515-3_2

a Marxist-Leninist political orientation and making a singular commitment to that worldview. Decades later, as a result of the social and political changes brought about by the Velvet Revolution of November 1989 which saw the end of one-party Communist rule in Czechoslovakia, the country's education policy, including teacher education, had to change.

This chapter deals with both key issues of the past thirty years and perspectives for future development. What have been the most important changes since the dissolution of one-party communism? What was the subsequent transition process like? What did it achieve? What new and emerging circumstances did the system of teacher training and in-service teacher education need to encompass? After so many years, what problems do teacher education and training—including the system of teacher professional development—in the Czech Republic still face? Prior to November 1989, most people in then Czechoslovakia did not expect that the political situation could change, essentially from one day to the next: indeed, they did not imagine that major systemic changes in education could or would be implemented rapidly. Arguably, this is a period of transition which can be characterised by many expectations, much inexperience, great opportunities, and a real diversity of interest groups. Freedom and democracy came at an unexpected speed and, even now, many are still learning how to deal with it.

Context of Teacher Education

Over the past three decades, the Czech Republic has gone from a totalitarian political system and centrally planned state economy to a democratic administration that respects human rights, restores private property, and runs a market economy. The course of historical events leading to this radical change was rapid. After the Velvet Revolution (1989), Czechoslovakia returned to a liberal democracy, then, after the division with Slovakia in 1993, the Czech Republic was founded. Since 1995, the Czech Republic has been a member of the OECD and, since 1999, a member of NATO. In turn, all of these changes have also affected the education sector (Greger and Walterová 2007), but since the Czech Republic already had a relatively long tradition of higher education for teachers, a renewed system of teacher education could be developed on this solid basis.

In 1946, soon after the end of World War II, faculties of education were established as part of public universities in Czechoslovakia. For more information on the history of teacher education in the Czech lands (i.e. Bohemia, Moravia, and Czech Silesia—the three historical regions which formed the

Czech part of Czechoslovakia from 1918), see Novotná (2019). Since the post-war period, primary and secondary school teachers have been university qualified. Before 1989, there was a relatively dense network of teacher education institutions which still exists today, however, prior to the Velvet Revolution, the whole education system had been under the exclusive control of a central power. The totalitarian regime used teachers as its servants (Moree 2013), with the Communist Party of Czechoslovakia influencing the admissions process for applicants to teacher education studies by checking their political 'reliability'. All faculties of education were obliged to have the same study programmes and uniform syllabi: the content and organisational structure of teacher education was centrally co-ordinated, and the state final exams included one on Marxism-Leninism. Fundamentally, the teaching of general didactics was based on the work of socialist educators (e.g. V. V. Davydov, L. V. Zankov, P. J. Galperin), with the teaching of subject didactics developed in collaboration with scientists from socialist countries. Communist resolutions were also strictly applied to the daily life and work taking place in teacher education faculties.

In terms of school education, the most important success following November 1989 was the disappearance of communist ideology, combined with the new possibility of freedom of expression and opinion during a time of rapid political, economic, and social changes. Other important reforms were also addressed in the areas of foreign policy, corporate governance, and legislation, so it should be noted that education was not at the centre of political priorities. Indeed, since 1989, a total of 19 ministers from six different political parties have held the Minister of Education post, making it impossible to maintain continuity and often negatively influencing the speed of and approach to solving problems in the field of education, including teacher education.

After 1989, private and church schools at all levels of education were gradually established. Nonetheless, the majority of pupils and students today are educated in public institutions: currently, 91.5% of kindergartens, 93.7% of primary schools, and 83.9% of secondary vocational schools are in the public domain. In addition, some pupils are educated at home, which is referred to as 'home education'.

One significant problem facing the Czech education sector is its financing. The OECD (2019a, p. 3) reported that:

> [e]expenditure on educational institutions in the Czech Republic is lower than on average across the OECD. Total (public and private) expenditure on primary

> to tertiary education as a percentage of gross domestic product (GDP) was 3.5% in 2016, well below the OECD average of 5.0%.

Within this comparatively low level of public spending on education, teachers' salaries are among the lowest across OECD countries and consistently below those of tertiary-educated adults at all levels of education (OECD 2019a, p. 3).

The several stages of the development of education in the Czech Republic after 1989 are described by Greger and Walterová (2007) as being crucial for the new shape of the sector, including teacher education. Deconstruction—the first phase of education transformation—lasted only a few months following the political upheaval of November 1989, and was characterised as a period of annulation or correction (Greger and Walterová 2007, p. 15) The second phase (1991–2000) in this transformation was termed 'partial stabilisation' and was characterised by 'gradual, partial legislative, organisational and pedagogical measures' (Greger and Walterová 2007, p. 16). The third and most recent phase lasted from 2005 onwards: that is, the 'period of implementation' of the systemic reform for which the previous reconstruction phase had laid the groundwork. Kotásek et al. (2004, p. 4) specify:

> [i]n the first stage of the transformation, and even later, there was no doubt that most efforts were necessary and fruitful. The trend of 'negating the past and restoring the "status quo ante"' was pursued—particularly in political and academic circles—with the lack of profound knowledge of West-European and global developments in education policies and without a constructive view of the long-term prospects of the development of democratic schooling.

The understandable consequence of such profound upheaval has, in some ways, been the abolition of functional best practices and the overall instability of the system.

With the fall of the communist regime, the Czech Republic's universities were liberated: overnight, all subjects and exams related to communist ideology disappeared from study programmes, including in teacher education. People who, after 1968, had had to leave universities for political reasons could return to academic life at last—they were rehabilitated and many of them went on to significantly influence the further development of Czech education. Professor Radim Palouš—who, as a student in 1945, joined the Prague Revolt as a member of the Czech resistance, and was banned from teaching in 1959—became the first rector of Charles University after the Velvet Revolution. Another very important personality who underwent

rehabilitation, regaining his official status as a professor post-regime, was the prominent mathematician and philosopher, Professor Petr Vopěnka, who eventually became Minister of Education (1990–1992). Professor Jiří Kotásek was another a rehabilitated academic, who became Dean of the Faculty of Education at Charles University and led the team that developed the 2001 education development strategies in the National Programme for the Development of the Education System (designated as a White Paper), one of the major milestones in supporting the democratisation of education and pupil-centred approaches to teaching.

In terms of access to higher education courses, those offered at public and state institutions are free of charge, with the exception of administration fees and fees for extending the duration of study beyond a set limit. Over the last three decades, the demographic characteristics of applicants for teacher education courses have partially changed: for instance, now, applicants older than high school graduates, who, for a variety of reasons, did not have the opportunity to study at university pre-1989, have since begun studying at teacher education faculties.

Teacher Education Reforms in the Last Three Decades in Light of Global Trends

Teacher education reform in the Czech Republic was motivated by national trends in social and education reform. With the democratisation of the early 1990s came the topic of democratic citizenship, the opening of private and alternative schools, and the replacement of compulsory Russian language studies with English. These new topics and new school subjects led to a huge need for teacher retraining through both continuing professional development and initial teacher education. Since the mid-1990s, the Czech Republic has been actively involved in large-scale international measures of education success (i.e. TIMSS, PISA, PIRLS, TALIS), thus bringing a global dimension to the nation's education sphere. In this opening up of the Czech Republic's education sector, one of the major milestones was, as mentioned above, the National Programme for the Development of the Education System (Kotásek et al. 2001), which was designed to support democratisation in education, as well as pupil-centred approaches to teaching. As of 2003, all schools are legal entities in their own right, and school heads are fully responsible for the quality of the educational process within their institution—indeed, as is common practice in Europe (Shewbridge et al. 2016), the Czech Republic's School Act

(Zákon č. 561/2004 Sb.) declared the authority of the school curriculum. The Central Educational Programme was replaced by the Framework Educational Plans, the launch of key competences, and a cross-cutting accent on current issues in society. Further, these new focuses, in combination with global trends in environmental education, multiculturalism, and ICT required a fundamental shift in teachers' thinking and professional skills. In fact, teachers became curriculum designers, a new role which made new demands on initial and continuing teacher education. Following these significant changes in the early 2000s, 2017 brought a focus on equity and inclusive approaches in education. Thus, in summary, over the past 30 years, teachers in the Czech Republic have been under constant pressure from waves of reforms. The following is an analysis of the impacts of selected global trends.

Democratic Citizenship

The changes in teacher education after 1989 took place in a society that sought to return to democracy—characterised by a movement from non-freedom to relative freedom, across the areas of institutions, course content, and staff. Indeed, teachers of all grades are important stakeholders in the teaching of democratic citizenship (Dvořáková et al. 2001), therefore it is logical that this requirement was reflected in the post-regime transformation of teacher education. In the Czech Republic today, citizenship education is established as a compulsory part of the curriculum for both primary and secondary education.

Cross-curricular subjects in the Framework Education Programme (FEP) explore problems of the contemporary world, and have become a significant, even indispensable, part of elementary education. These subjects create opportunities for pupils' individual engagement, as well as mutual cooperation and development of their character, primarily in terms of attitudes and values. For instance, the cross-curricular subject, Civic Education for Democracy, is of an interdisciplinary and multicultural nature. Generally, it comprises a synthesis of values—namely justice, tolerance, and responsibility—as well as, specifically, developing critical thinking, an awareness of rights and obligations, and an understanding of the democratic social order and democratic methods for resolving problems and conflicts. Civic Education for Democracy should provide the pupil with a basic level of citizenship literacy, that is, the ability to orient themselves within the intricacies, problems, and conflicts of an open, democratic, and pluralistic society. In order to facilitate this new type of learning, the country's teacher education faculties underwent a completely new

conceptualisation and course content-creation process in the fields of civic education—furthermore, points of interconnection with other fields (e.g. history and ethics) had to be created. Truly, the Civic Education for Democracy course is not an isolated unit designed to serve a singular ideology, but a tool for critically thinking about people, science, and active citizenship.

Internationalisation

After November 1989, the state borders opened. The citizens of Czechoslovakia could travel 'freely' all over the world, and people from different continents began to visit Czechoslovakia. Czechoslovakia became, for example, a hub for international conferences about education, with one of them being the ATEE conference in 1994. This new geographical freedom meant that academic staff involved in teacher education and research focused on education could embark upon professional cooperation with experts from other countries, and deliver lectures at foreign universities.

The Bologna Declaration (1999) contained a list of priorities, including (1) the implementation of a unified and comprehensive framework for obtaining academic degrees; (2) the introduction of a structured study system, divided into comparable degrees (bachelor's, master's, and doctoral); (3) the introduction of the European Credit Transfer System (ECTS) and the issuing of diploma supplements; (4) promoting the mobility of students and teachers; and (5) the development of European cooperation in quality assurance.

As a result of the Bologna Process, the five-year master's programme in teacher education was transformed into a bachelor's plus corresponding master's degree, with the exception of the primary school teacher education programme (see also Novotná 2019). This shift has been strongly criticised in the Czech Republic, with academics, in particular, accepting it much less than students (Bendl et al. 2013). Some experts consider the split 'destructive' to the continuity of learning the subject, didactics, and reflexive practices (Minaříková et al. 2015). This change does, however, allow more graduates of non-teaching bachelor's programmes to choose teaching for their subsequent master's degree.

Since the mid-1990s, the Czech Republic has been actively involved in large-scale international studies (TIMSS since 1995, PISA since 2000, PIRLS since 2011, TALIS since 2012, and ICILS since 2013), each of which have brought an international and global dimension to the education environment. Information and data from these comparative research surveys compensate somewhat for the lack of national-level data collection about the state

of education in the Czech Republic, yielding results which assist in revealing the weaknesses of the education system. They prompt and direct consideration of factors which have a decisive influence on pupils' success in the subjects they study. The results of these comparative studies are discussed not only at the level of education management, but also in teacher education faculties themselves.

The Czech Republic was also involved in a large-scale international survey, Second Information Technology in Education Study (SITES), focused on the role of ICT in teaching and learning in mathematics and science classrooms. On a practical level, it examined how teachers and students used ICT; the student-to-computer ratio used for instruction; and the extent to which schools had access to the internet for instructional purposes. On a pedagogical level, SITES investigated the extent to which certain pedagogical practices considered conducive to the development of twenty-first-century skills were present, plus the extent to which ICT contributed to changes in approaches to pedagogy.

Beyond these large-scale assessments, international cooperation via teacher education institutions has an impact on teacher education in the Czech Republic in multiple ways. Indeed, at faculties of education, international cooperation takes place both within the framework of participation in joint study programmes and within the framework of various international projects. For instance, the Erasmus Mundus MA/Mgr in Special Education Needs (EM SEN) created as a Master's Course funded by the European Commission's Erasmus Mundus Programme (EMP) to challenge and educate students in inclusive policy and practice in education (Grinbergs and Jones 2013) was an example of cooperation via joint study programmes, instigated by the Charles University Faculty of Education, then acting in collaboration with the universities of Roehampton (England) and Oslo (Norway). This joint degree programme was open to students and academics from the European Union and third countries with a professional focus on the education of people with special educational needs. Unfortunately, however, the cooperation of Czech faculties of teacher education with foreign universities on joint degree programmes is complicated owing to differences in national systems and structures of teacher education, as well as the respective regulations and requirements for the cross-border accreditation of study programmes.

The involvement of Czech faculties of education in international projects contributes not only to improving teacher education; innovation in educational content, standards for the teaching profession, and teacher competences, as well as reflection on teacher educators' work, but also to the presentation and sharing of research findings. Faculties of teacher education

in the Czech Republic have gained extensive experience with various EU projects since 1989—namely, TEMPUS, PHARE, ERASMUS+, 5FP, 6FP or 7FP, and Horizon2020. For example, the TEMPUS project of the 1990s focused on student teachers working in the areas of Informatics and ICT, within which the sub-project AQUA brought new teaching methods for teacher education to ICT, Chemistry, and Biology. The Czech Republic was also involved in the 5FP School+ project, the aim of which was to develop and verify an e-learning platform.

While the results of international cooperation are reflected in the teaching of student teachers, the results of these projects are seldom sufficiently implemented at the national level. Therefore, it would be strategically important for the Ministry of Education, Youth and Sport (MoEYS; Ministerstvo školství, mládeže a tělovýchovy [MŠMT]) in Czech to become more interested in how to exploit such opportune educational strategies, then prioritise the results and recommendations generated by international projects, in order to support their sustainability at a national level.

Active involvement in international associations or networks also has great importance for teacher education institutions. As already mentioned, the Czech Republic is represented in the ATEE through the Charles University Faculty of Education, a faculty which is also an institutional member of the Children's Identity & Citizenship European Association (CiCea). Furthermore, the Czech Republic is involved in the European Literacy Policy Network (ELINET) and is a member of the European Educational Research Association (EERA) through the Czech Educational Research Association (ČAPV).

Although the above networks are primarily for qualified teachers, the opportunities for student teachers in the field of international cooperation are extensive too. For example, student teachers may apply to the ERASMUS+ mobility scheme for several reasons: firstly, to improve in a foreign language (e.g. English, German, or French) or to learn another foreign language (e.g. Italian or Portuguese); secondly, to gain deeper knowledge in a field (e.g. in psychology at top universities in the Netherlands or Belgium, or in history at top universities in France or Poland); and, thirdly, to become acquainted with institutions where interesting approaches to the studied area or to the field of didactics are being developed (e.g. in Spain or Italy).

Student teacher mobility contributes to what may be termed 'intercultural teacher competence'. Following their return from studying abroad, many student teachers from the Czech Republic talk openly about their new awareness of current social problems and patterns, such as protest strikes, environmental movements, immigration policy, and how different countries accept immigrants. During internships in foreign schools, these student teachers are also

likely to encounter the fact that it is common for children from different countries to be together in the same classroom environments—not only in Europe, but also in Africa and Asia. Through their time abroad, they also have the unique opportunity to explore the importance of foreign language competences, located within the real-time contexts of various phenomena, history, culture, and life in the EU or further afield. This need for Czech students to create international networks extends beyond term-time commitments, with some Czech student teachers being aware of the need to know a foreign language well. As such, student teachers—not only of foreign languages, but also of History, Mathematics, Biology, and the Czech language—go to summer language schools in, for example, Germany, Austria, Russia, and England. During their study abroad, student teachers are able to establish contacts with young people and proactively become part of international communities. These communities are also created and strengthened through student teachers' collaboration with their peers in other countries: for example, the collaborative project between Charles University and the University of Michigan-Flint (USA), 'How I am becoming a teacher' enhanced student teachers' collaborative and conceptual learning through a photography and animation project done in pairs, with the outcome of creating a visual representation of their education journeys.

Elsewhere, consideration is already being given to how EU programmes could contribute to the education of 'European teachers' (see Simões et al. 2018). This idea has not yet been discussed in the Czech Republic, where, so far, ERASMUS mobility is generally seen as an opportunity to improve language skills, to gain valuable life experience (e.g. to become more independent, to get to know European culture, to understand what the EU is, etc.), or to learn how to implement newly acquired pedagogical knowledge into the Czech setting, including the practice of institutions and associations, upon return from abroad. Currently, Czech schools are already very active in terms of international cooperation, as evidenced by the number of applications for international projects within ERASMUS+. It is therefore necessary to start preparing student teachers for long-term international cooperation during their studies. For example, at the Charles University Faculty of Education, the newly accredited MA study programme for IT teachers has succeeded in including the optional subject, collaborative internet projects in education, in which student teachers will focus on models of international cooperation in educational practice in schools—such an example could pave the way towards other initiatives which share the goal of producing internationally minded teachers.

Emphasis on Competences, Rather than Knowledge

Changes in education in connection with changes in society post-1989 were reflected in, among other places, curricular reforms. However, teachers have had difficulty accepting them. This may be because they have not been invited to contribute to reform preparation, or because reforms have not been sufficiently explained to them. Nonetheless, the success of reforms always depends on whether or not they are positively accepted by their implementers—in this case, teachers. While, since the 1990s, curricular policy in Western countries has again been influenced by the idea of centralisation, Czech curricular policy has striven to move away from a centrally planned curriculum and towards a school-based curriculum. The core of this reform lies in the transition to a two-level system of curricular documents: the state-level curriculum (Framework Education Programmes, i.e. FEPs) and the school-level curriculum (School Education Programmes, i.e. SEPs) (Minaříková et al. 2015, p. 381). The school-level curriculum means that schools develop their own programmes, in accordance with corresponding FEPs. Curricular reform based on the principle of FEPs was well-intentioned—aiming to create suitable conditions to improve the quality of instruction—but met with misunderstanding in school practice and with conflicting responses among education experts.

Curricular reform was expected to lead to the teacher's role being extended to encompass 'curricular activity', meaning that the teacher would become a creator of the curriculum. A key piece of extensive and very thorough research, A Quality School *(Kvalitní škola)* was carried out in 2011 on the basis of a set of single-case studies across various fields of education; a questionnaire survey; interviews with teachers, principals, and SEP co-ordinators; and observations and analysis of video recordings of teaching (Píšová et al. 2011, p. 12; p. 277). The research concluded that: (i) the impact of curricular reform on actual teaching is relatively small; (ii) curricular reform has provided stimuli for thinking about teaching and learning in schools; (iii) in many schools, the creation of SEPs has been an opportunity for collaboration and teamwork among teachers; (iv) teachers prefer to teach what they want and know, rather than what they are obliged to; (v) it is a question of what role language plays, respectively the languages used by the FEP in working with the objectives and content and used by teachers in the creation of the SEP; (vi) teachers deal more with pupils' activities in terms of content than with the 'well-defined objectives'; and (vii) there are differences between teachers in terms of which teaching methods they use in implementing SEPs. With regards to this final

point, some teachers choose traditional approaches (e.g. in chemistry education), while others pursue more innovative approaches (e.g. in geography, mathematics, or art education, etc.). One of the subjects from the study, D. Dvořák called what is happening in connection with curricular reform in school practice 'curricular DIY' (Píšová et al. 2011, p. 283), and Štech (2013) speaks about 'evidence-less curriculum reform', both of which capture the piecemeal nature of this aspect of the reforms in practice. Indeed, Píšová et al. (2011, p. 283) concluded that 'curriculum development is, to certain extent, a specialised and demanding activity [such that] it is not reasonable to fully delegate it to ordinary teachers'. Despite this gap between reform stipulations and teachers' realities, the FEP emphasis on key competences and expected outcomes have robustly reinforced the message that targets are an essential component of the curriculum, communicating the idea that course content is then understood only as a means to achieve the set of expected outcomes.

In summary, formal research, as well as discussions with teachers and principals, on the implementation of curricular reform have shown that said reform has not been unequivocally or easily accepted: in fact, over the course of time, an increasing tendency towards resistance has become apparent (Pešková et al. 2019). Currently, the National Institute for Education is working on a revision of the national curricula. The task is to clearly determine the scope and content of education as the common basis for the individual development of each pupil. The intended changes should help better achieve required learning outcomes, and allow enough time to acquire and consolidate the necessary knowledge and skills, as well as to develop creativity.

ICT, Digital Technology, and Teacher Education

After 1989, the market opened up and computers from foreign companies were imported into the Czech Republic. In schools, correspondingly, technology enthusiasts soon started using computers in their teaching, and teacher training faculties also began to equip themselves with computer technology and the available software. All student teachers also became acquainted with the use of computers, initially in subjects such as Technical Instructional Tools or Educational Technology, and later in compulsory subjects as a part of general basic studies at university. In the 90s, and also at the beginning of the millennium, these courses were very popular—students discovered the world of the internet through their institutions, as most of them could not buy a computer with an internet connection due to the cost. In this way, the faculties contributed to the computer literacy development of student teachers.

The effectiveness of this teaching, as well as the motivation for student teachers to learn with a computer, increased when it became more affordable to buy a home computer and, later, an internet connection.

In the years from 2000 to 2006, the MEYS implemented a national Governmental Information Policy in Education project (i.e. Státní informační politika ve vzdělávání, abbreviated as SIPVZ) aiming to ensure the availability of digital technologies (i.e. infrastructure) to all people in education (both in schools and life-long learning) and create a basic framework for digital technology integration into teaching. Emphasis was placed on the role of trained teachers. The SIPVZ focused on the information literacy of teachers at four levels, that is, basic, intermediate, advanced, and highly specialised; the development of learning object repository; and the infrastructure development of schools, including their connection to the internet.

> In the Czech Republic under the decision of the MoEYS in 2005, ICT education became a compulsory subject at all levels of school education (from primary to lower and upper secondary schools) due to the introduction of the Framework Educational Programmes (FEPs) into schools. Nonetheless, teaching ICT subjects has focused mainly on developing users' skills in order to be able to work with computers, to use the internet, to search for information, and to work with commonly available computer applications. (Černochová and Novotná 2020)

Currently, ICT and Informatics teachers are educated at faculties of education and in some professional faculties (like the Faculty of Informatics at Masaryk University, and the Faculty of Maths and Physics at Charles University), so that they can provide teaching for the compulsory subject of ICT in primary and secondary schools.

The MoEYS, through the Czech School Inspectorate (ČŠI), evaluates the level of technical equipment available in schools; its usage in particular subjects of the school curriculum; numbers of teachers who use computer technology in their pedagogical work; whether or not primary and secondary school teachers improve their digital competency; whether or not ICT or Informatics is taught by qualified teachers; and so on. Schools in the Czech Republic have long struggled with a lack of qualified IT teachers in schools. ICT or Informatics is regularly taught by teachers who have not studied these subjects themselves.

> In Czech schools, the use of desktop computers (PCs) and laptops is clearly prevalent. A low proportion of BYOD implementation into schools is related to

> a lack of appropriate infrastructure in schools and to a lack of capacity to administer and manage ICT resources. (ČŠI 2017, p. 19; cited in Černochová and Novotná 2020)

> Only 52% of teachers are qualified for teaching informatics and computing in small basic schools, 43% in big basic schools, and about 80% in secondary schools and tertiary professional schools. (ČŠI 2017, p. 3)

The current reform of ICT education in primary, and lower and upper secondary school curricula is currently being completed. The subject will be renamed 'Informatics and ICT', and its content will be selected topics from the fields of informatics or computer science, with the addition of some themes about digital technologies. Pupils' activities will be focused on computational thinking development—that is, programming, algorithms, and robotics, among other things. More broadly, pupils' digital literacy is also to be developed by teachers of other subjects (e.g. Mathematics, History, Music, etc.). The Czech Republic uses the concept of digital literacy accepted by EU countries, based on the DigComp 2.0 scheme, as its measure (Vuorikari et al. 2016).

This curricular reform follows the Strategy for Digital Education (*Strategie digitálního vzdělávání)* in which the development of pupils' and teachers' computational thinking is one of the core priorities. Faculties of education will provide compulsory subject courses in teacher education for primary education and ICT or Informatics, through which student teachers will be introduced to the basics of informatics and methodological approaches to pupils' computational thinking development. In addition, a support system for teachers and schools (i.e. a network of teaching method cabinets) will be established on a national level to uphold teachers in their professional practice.

Equity and Inclusion

The Czech Republic has made reducing inequality in the education system one of its key priorities in the Education Policy Strategy for 2020 (MŠMT 2014). Czech authorities and policy-makers aim to focus on equal access to education, as well as to ensure that students' personal or social circumstances do not hinder their educational achievement. At present, in the Czech Republic the impact of students' socio-economic background on individual educational attainment at the age of 15 is below the OECD average (OECD 2019b, p. 161). On the other hand, differences in reading

performance between schools within the Czech Republic are higher than the OECD average and appear to be largely explained by schools' socio-economic characteristics.

The Czech government has introduced multiple policies to support students, particularly those who might be at risk of factors outwith their control impacting their performance in school. An emphasis on early care has led to the introduction of a compulsory final year of kindergarten and the extension of compulsory schooling to ten years (i.e. when the child is approximately 16 years of age). Furthermore, the amendment of the Education Act—effective from 2016—guarantees the right for children to access supportive measures. These measures should fit the particular needs of children and pupils who experience social disadvantages, who come from minoritised cultural backgrounds, or who have disabilities and additional support needs (including being extraordinarily talented).

The education community in the Czech Republic was aware of the changes needed in pre-service teacher education in order to prepare future teachers to meet the needs of all students. This is considered to be one of the key prerequisites for making inclusive education a reality for mainstream schools (Strnadová and Hájková 2012). The consequence for teacher education is the introduction of inclusive didactics as a compulsory curricular component, and faculties of education are open to students with special educational needs who receive individual support on their own journey to becoming teachers.

Main Characteristics of the Existing National Initial Teacher Education System

Most teachers must obtain a master's degree during their five years of study—lower and upper secondary teachers must complete bachelor's and master's degrees, and primary school teachers must complete a five-year master's degree (and an alternative pathway to the teaching profession is the acquisition of vocational higher education and subsequent pedagogical studies). Initial teacher education programmes consist of an academic component and a practical component. Recently, there have been changes in the accreditation process, which has refined the curricula of teacher education programmes and delegated the accreditation process to universities. The National Accreditation Office of Higher Education Institutions (hereinafter referred to as the 'Accreditation Office') is an independent body established under the Higher Education Act (Zákon č. 111/1998 Sb., amended in 2016) and decides on

the accreditation of both study programmes and institutions. Teacher training programmes are subject to the approval of the MoEYS and follow binding structure guidelines. The principles underpinning the new standards for teacher education programmes are set out in the MoEYS Framework Requirements for Teacher Education Programmes.

General training now consists of general and school pedagogy; pedagogical and school psychology; general didactics; inclusive didactics; ICT; and, optionally, Ethics, Sociology, and other subjects. For primary school teachers, there is a minimum of 78 ECTS for general preparation; a minimum of 150 ECTS for the study of the subject, including didactics of subjects; and a minimum of 30 ECTS (i.e. 900 hours) for reflective practice, all completed within an undivided five-year master's degree programme (300 ECTS). For secondary school teachers, there is a minimum of 60 ECTS for general preparation (of which 24 ECTS are for subject didactics); 150 ECTS for subject knowledge; and a minimum of 24 ECTS (720 hours) for reflective practice—all completed within a three-year bachelor's programme (180 ECTS) plus a two-year follow-up master's programme (120 ECTS).

The accreditation system has changed several times in recent years: these changes demand a great deal of work and bring an administrative burden for academics. Going forwards, we hope that the system now established will remain for some time, allowing us to focus primarily on ensuring and developing the quality of teaching. In turn, the development of teacher education faculties is driven by research and innovation. University education is traditionally, naturally, linked to pedagogical research (Svatoš 2013), and large-scale grant research projects are aimed at improving the teaching profession (e.g. the interdisciplinary grant, *The teaching profession in changing educational requirements 2007–2014*). Indeed, there is much pressure on those working in the field of research to produce professional articles and monographs. By contrast, exerting actual influence on pedagogical practice via research is very minimally supported on a practical level, for example, authorship of textbooks and university scripts do not count as research, often leading to the separation of research findings from teaching practice. That said, one positive sign is that professional-pedagogical journals have recently been focusing on publishing empirical studies born from action research, and many contemporary researchers are directly involved in educational activities, both within and outwith universities.

Current innovations in university teacher education are largely implemented according to project priorities set out in EU calls, and some recent projects illustrate the thematic focus of the priorities very well. Firstly, community practice *(Společenství praxe)* is focused on *the* development of key

competences within subject didactics, cross-cutting topics, and interdisciplinary relationships. The aim is to develop the competences of teachers from teacher education faculties and early years education schools (ISCED 0–3) through community practice. Community practice is a regular and long-term cooperation, based on the principles of action research, in order to develop the skills of both groups of actors and develop a more comprehensive elaboration upon the educational strategies set for individual subjects and via cross-cutting themes.

Secondly, supporting undergraduate education *(Pregraduální vzdělávání I. a II.)* has upheld the project goals in several areas. The first is improving the quality of future teachers' practical training, namely by: increasing the quality of student pedagogical practices; offering education aimed at developing the mentoring and reflective skills of university and faculty teachers; and the networking of faculty schools. The second is to increase the competences of future teachers in terms of inclusive education for children and pupils. The third is to improve the quality of university teachers' work, through: supporting the development of didactic competences; supporting beginning university teachers; increasing the pedagogical competences of university teachers, in order to allow them to provide descriptive feedback to their students; and supporting the development of professional competences of academic staff, specifically in terms of preparation for the conferment/appointment procedure. The overall approach across these three areas is focused on the development of the personal and social competences of students—future teachers—by linking theory and practical teaching, particularly with regards to the context of inclusion; the practical use of innovative approaches in teaching students; and the involvement of practising teachers from kindergarten, primary, and secondary in educating student teachers.

Thirdly, some projects support the use of technology and the implementation of research activities in undergraduate education, namely via: preparing innovative educational materials and courses; creating and running didactic innovation centres; and supporting research activities. Through the PRIM project (Podpora rozvíjení informatického myšlení, translated to English as Support of development of computational thinking), all pedagogical faculties incorporate thinking and concepts from the field of informatics into the education of future teachers, including kindergarten teachers, such as preparing for the deployment of robotics in schools. Furthermore, through the DG project (Podpora rozvoje digitální gramotnosti, translated to English as Support for the development of digital literacy), all pedagogical faculties will employ digital literacy in the education of future teachers and subject didactics across curricular areas. Trained teachers will develop the digital literacy of pupils across the country.

In summary, project calls enable significant innovation in university education. Faculties are autonomous but, at the same time, almost all innovate in line with EU proposals out of financial need for the corresponding investment in Czech schools. On the other hand, project calls of this sort also present a significant problem and administrative burden for both state administrative staff and university academic staff. Furthermore, the impact and sustainability of short-term projects is questionable, given that continuity of work and systematic problem-solving are difficult to achieve under the pressure of externally set goals. While a great benefit of these projects is that the country's faculties cooperate with each other, it might well be argued that university teachers themselves should be paid for carrying out such innovations by default, since it is ultimately academic work.

Characteristics of Existing National Teacher Professional Development Systems

After obtaining a master's degree, student teachers are fully qualified to teach. According to Act on Education Staff (Zákon č. 563/2004 Sb.), all teaching professionals are obliged to attend professional development activities and are allowed to use up to 12 working days for professional development per school year. The types of professional development vary, covering courses, peer observations, seminars, qualification programmes, and so on. According to TALIS, attending courses and seminars is one of the most popular types of professional development for teachers across the OECD, and, in the Czech Republic, 84% of teachers participate in this kind of training. Across OECD countries, three areas have been identified where teachers say they need more training: developing advanced ICT skills; teaching in a multicultural/multilingual environment; and teaching students with special needs. Within this, teachers in the Czech Republic have expressed, in particular, a comparatively higher need for preparation for teaching students with special educational needs (OECD 2019c, p. 172).

Additionally, supporting newly qualified teachers is crucial for their survival and professional success. The Czech education system does not offer any official induction programme for fully qualified first-year teachers; some schools do, on the other hand, provide their own induction programme. Indeed, according to TALIS (2018), 57% of teachers in the Czech Republic (with 42% being the OECD average) report having participated in some kind of formal or informal induction when they joined their current school.

However, only 26% of novice teachers (i.e. those with up to five years of experience) in the Czech Republic have an assigned mentor (with 22% being the OECD average), which is not sufficient since school principals generally consider mentoring to be important for teachers' work and students' performance. Other research studies point to a lack of effective support for beginning teachers to help them cope with the introductory period in the profession—showing that it is perceived as functional by only about 10% of beginning teachers, and that, in many cases, it is missing or still formally set up, and thus about a third of new teachers are considering leaving their roles (Hanušová et al. 2017; Vítečková 2018).

In the Czech Republic, headteachers are responsible for staff development and training. The offer of continuous professional development (CPD) education programmes is a rich system, yet somewhat confusing and lacking in quality assurance. In addition to the publicly-funded National Pedagogical Institute, CPD is also provided by many external private and non-governmental providers. In-service teacher education varies greatly between schools, due to their high degree of autonomy: some schools might only approach CPD formally, whereas some exemplify good practice in professional learning communities.

Tensions and Challenges in Transforming the Teacher Education System in the Czech Republic

Tensions in the teacher education system reflect tensions in the education sector more broadly. Despite the positive changes in education policy, legislation, governance, funding regulation, curriculum, and teacher professionalism, as well as the development of support structures, there are still hurdles to overcome, such as a lack of mechanism management and monitoring in the sector. These problems are not new: in 2007, Greger and Walterová wrote that a lack of political consensus had been a challenge for 12 years, and their observations are still relevant today. As outlined in this chapter, better support for teachers, reducing inequalities, and improving governance were three strategic priorities for Czech education policy up to 2020. However, in practice, it remains a challenge for the teaching profession to attract the most talented students. Some students choose teacher education as a second choice, probably due to systemic problems in the education sector: low professional prestige and salaries; low state investment in education; lack of career prospects;

and lack of professional support. Two years ago, the authorities prepared a highly-anticipated career system, but there was insufficient political support for its implementation.

Although future teachers are educated in modern approaches to teaching, unfortunately, when faced with the reality of school practice and, sometimes, conservative school environments, they either retreat from teaching or leave the profession altogether. The subjectively-perceived professional competence of in-service teachers in inspiring and facilitating the active involvement of pupils in teaching is currently below the EU average and is still, despite improvements made since 2013, among the very lowest included in the TALIS survey (Boudová et al. 2019, pp. 8–9). In terms of tackling some of these shortcomings, roundtables with teachers and principals have resulted in recommendations regarding strengthening undergraduate preparation, especially in terms of subject didactics; the ability to work with curricular documents; improving the results of weaker pupils; and methods for working in heterogeneous classes. Additionally, practitioners themselves call for support in developing skills for cooperation with other teachers, teaching assistants, and other supportive professions; skills for recognising psychosocial problems (e.g. family, housing, etc.) and solving them within the school; and skills for working with pupils' parents and legal guardians. The newly accredited study programmes of pedagogical faculties acknowledge these elements.

Strategy 2030+ places a great emphasis on preparing Czech education for 'pervasive digitisation' associated with a 'fundamental technological transformation of the economy' (Veselý et al. 2019, p. 11). Indeed, in the Czech Republic routine skills are expected to be replaceable within five years with 1.3 million employees and within 15 years with 2.2 million employees (Ministry of Industry and Trade 2019). Correspondingly, the need to adapt education to new socio-economic trends is also reflected in other strategic documents outwith the field of education, such as the *National Strategy for the Development of Artificial Intelligence* (*Národní strategie umělé inteligence v České republice*) proposed by the Ministry of Industry and Trade (Veselý et al. 2019, p. 12). However, the implementation of these visions, which have been formulated independently by several ministries, supposes close cooperation between these ministries and education institutions—yet, in actuality, such plans necessitate clarification and media coverage for citizens, including in terms of their implementation in the field of education, such as via teacher training. Who will be responsible for their fulfilment? Who will prepare teacher educators to realise these visions?

Suggestions for the Future Development of Teacher Education in the Czech Republic

Consultations with the OECD review team found that training graduates in practical teaching skills is a key issue for the future development of teacher education. In more specific terms, closer collaboration with schools; encouraging active student learning; responding to future challenges; developing ICT; supporting inclusive education; and involving professionals—while maintaining a high level of theoretical studies—can all serve as means of achieving this. These recommendations are also in accord with the student voice, which has been louder of late. The other aspect of the future development of teacher education is the support and development of teacher educators themselves. Currently, participation in research activities and the writing of articles are included in the evaluation of academic staff, therefore, going forwards, there needs to be emphasis and recognition of the importance of high-quality teaching; writing textbooks and methodological materials; promoting pedagogical competences; and reducing administrative burdens. Furthermore, investing in modern learning approaches, like tandem teaching, as well as allocating more funding to teacher education, are key factors for future development.

In more depth, guidelines for the future development of teacher education in the Czech Republic can be outlined in several directions. First of all, at a national level, a system of methodical cabinets, that is, structured, supportive professional communities of teachers, for specific education areas will be created (e.g. the Methodical Cabinet for Mathematics Education). Methodical cabinet activities would be based on the professional support system model, feeding into methodical cabinets at a regional level. The aim is to overcome ineffective professional support of teachers through in-service professional teacher development. The starting point is 'the belief that teacher education should be systemically conceptually clarified at the national level in its entirety' (Slavík et al. 2019, p. 4), as well as in relation to the relevant theoretical background and subject didactics.

Second of all, the system-level approach to improving teacher education will be based on the concept of the professionalisation continuum (Stuchlíková and Janík 2017), in which four stages are defined: (1) acquiring quality applicants for teaching—diagnostics of study and professional prerequisites; (2) initial teacher education; (3) induction into the teaching profession; and (4) in-service training and teacher professional development. The individual stages of this continuum should be interconnected and facilitated to an

appropriate standard. Based on the systemic connection between universities (i.e. teacher training and subject didactics) and the terrain of practice (i.e. schools and in-service teachers), a mutual partnership between schools and research should be developed. In order to strengthen the work of teacher educators and researchers, both practice and theory should be equally represented across all four stages of the continuum: the two facets should not be separated, but interconnected and collaborative—with theory helping teachers to understand their professional practice more deeply and reflexively, and professional practice informing the agendas of theory and research.

Lastly, by way of conclusion, we have devised priority recommendations for the future development of teacher education in the Czech Republic, drawing from the approved document of *Strategy 2030+* (MŠMT 2020). In order to prepare graduates for the increasing demands of the profession, initial teacher education institutions need to offer a clear competency model for student teachers (i.e. outlining exactly what graduates of the programme will know and be able to do upon completion of their studies). Simultaneously, stakeholders should plan how to link this preparatory education period more robustly with the two-year adaptation period at the beginning of in-service teaching.

Changes of undergraduate education through appropriate changes in university funding models should be promoted. In particular, it is a matter of limiting project funding and taking due account of the cost of the desired form of study. The result will be larger share of individual work with the student, larger share of reflected internships, and so on. It is also desirable to encourage pedagogical research carried out at faculties which train teachers.

Spanning their careers, meaningful and lasting professional development for present and future teachers in the Czech Republic will require systemic changes. Initial teacher education can lay the foundations for teaching quality, but creating fully-prepared professionals is neither realistic nor desirable. Rather, an important step in improving the quality of the education provided to pupils is to ensure that teachers themselves can continue to grow and develop as learners—from their very first days in class and onwards throughout their careers (OECD 2017). Teachers in the early years of their careers are vulnerable to dropping out, hence, improving the induction system should be a priority: reducing direct or indirect pedagogical activities (in the school); increasing intensive mentoring; and evaluating the adaptation procedures, all serve the aim of reducing the burden on teachers at every stage of their career.

Longer term, the vision of schools as learning communities is essential. Teachers, across the OECD (OECD 2019c), report that professional development based on collaboration and collaborative approaches to teaching is

among the most impactful for them. However, only 45% of teachers in the Czech Republic participate in training based on peer learning and coaching: this share should increase, as facilitating mutual learning and support within and between school pedagogical teams is the way forwards.

On the whole, such a system of ongoing education could fulfil the educational needs of the school, teachers, principals, and other pedagogical staff to a greater extent. Professional development may include intervision (i.e. a mutual activity between a small group of professionals who have a common professional context, with an emphasis on multilateral exchange, see Willems et al. 2000), supervision, and the analysis of implemented teaching—all facilitated via the offer of high-quality methodological materials, the use of communication technologies, and implemented in cooperation with methodical cabinets, universities, and other schools.

Ultimately, we perceive it to be a good sign that, in recent years, Czech education policy representatives have begun to openly name the situation in education and to offer solutions. It is clearly documented that investments in improving the quality of teachers' work, in the sense of achieving better academic results for pupils, are an investment with a very high return, quite literally, in that they lead to a very significant increase in economic growth (e.g. Krajčová et al. 2019). The quality of teachers' work is gradually becoming a political priority, and this gives us hope for the future of teacher education in the Czech Republic.

Acknowledgements This chapter is a result of the COOPERATIO *General Education and Pedagogy* research (2022–2026) funded by Charles University.

The authors would like to thank Dr. Glynn Kirkham for his kind consultation in the process of creating this chapter.

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