

## **Fifteen years of research at the Institute for Research in School Education: Commented bibliography (2003–2018)**

The following paragraphs aim to introduce research areas we have focused on at the Institute for Research in School Education (IRSE), Faculty of Education, Masaryk University in Brno. We provide a review of the state-of-the-art in both national and international context. This paper updates our report from 2013<sup>1</sup>.

In the last 15 years, we have had the opportunity to not only conduct our research but also to utilize its outcomes to participate in the debate on educational policies at various levels. This text is going to be structured as follows. We will introduce the issues our research has concentrated on in three areas (teaching and learning, curriculum, and the teaching profession). Then we will outline some of our attempts to influence the educational (curricular in particular) policies in the Czech Republic.

In the text, special attention is paid to our international activities as we have considered them vital, not only in terms of the way they have benefited our professional growth and inter-institutional cooperation but also because due to this experience of being confronted with international partners we have never doubted that improvement is necessary for numerous areas.

### **1 Research area: Teaching and learning – applying a video-based methodology (video study)**

For us, the teaching and learning processes in various school subjects at various levels and types of schools have been the focus of empirical research using video-based methodology (*video study*) since 2004.

The first (pilot) project, the *Video study of physics*, was conducted in 2004. Our team aimed to introduce and standardize a video-based methodology, to conduct video studies across school subjects at primary and secondary schools, and to attempt to utilize their outcomes within the ongoing curricular reform as well as in teacher education. In the year 2005, the *Video study of geography* commenced, followed by the *Video study of English as a foreign*

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<sup>1</sup> Janík, T., Najvar, P. & Doskočilová, M. (2013). Ten Years of the Institute for Research in School Education. *Orbis scholae*, 7(2), 81–91.

language and Video study of physical education in 2007. Then came the Video study of German as a foreign language and Video study of primary education.

Between the years 2006–2010, video studies were part of the Ministry of Education, Youth and Sports of the CR project *LC06046 Research Centre on Schooling* which was carried out by two co-operating departments: the IRSE of the Faculty of Education, Masaryk University together with the Institute for Research and Development in Education, Faculty of Education, Charles University, Prague (with Eliška Walterová as the principal investigator, and Jiří Němec as a co-investigator).

This research resulted in numerous outputs in the form of expert publications, papers in journals and proceedings in Czech, English, and German.

The outcomes of video studies are presented, for instance, in the following publications:

- Hübelová, D., Janík, T., & Najvar, P. (2008). Pohledy na výuku zeměpisu na 2. stupni základní školy: souhrnné výsledky CPV videostudie zeměpisu [The Geography instruction on the secondary school level: Results of the CPV video study of Geography]. *Orbis scholae*, 2(1), 53–72.
- Janík, T., Janíková, M., Najvar, P., & Najvarová, V. (2008). Pohledy na výuku fyziky na 2. stupni základní školy: souhrnné výsledky CPV videostudie fyziky [The Physics instruction on the secondary school level: Results of the CPV video study of Physics]. *Orbis scholae*, 2(1), 29–52.
- Janíková, M., Janík, T., & Valkounová, E. (2009). Vyučovací jednotky tělesné výchovy z hlediska organizačních forem a fází výuky [The structure of Physical Education modes of classroom organisation and lesson phases]. In V. Mužík & V. Süß (Eds.), *Tělesná výchova a sport mládeže v 21. století* (pp. 101–115). Brno: Masarykova univerzita.
- Najvarová, V., Najvar, P., & Janík, T. (2011). Procesy výuky a příležitosti k učení na 1. a 2. stupni [Processes of teaching and opportunities to learn on the primary and lower-secondary school level]. In E. Walterová, et al., *Dva světy základní školy? Úskalí přechodu z 1. na 2. stupeň* (pp. 137–161). Praha: Karolinum.

Methodological issues related to video studies are reflected in the following publications:

- Miková, M., & Janík, T. (2007). Pořizování videozáznamu jako metoda sběru dat [Video recording as a method of data collection]. In R. Švaříček & K. Šedová, et al., *Kvalitativní výzkum v pedagogických vědách: pravidla hry* (pp. 192–201). Praha: Portál.
- Najvar, P., & Janík, T. (2008). Videostudie ve výzkumu vyučování a učení [Video study in investigating teaching and learning in the classroom]. *Orbis scholae*, 2(1), 7–28.
- Janíková, M., & Janík, T. (2009). Videostudie v edukačním výzkumu [Video study in educational research]. In Š. Švec, et al., *Metodologie věd o výchově: kvantitativně-*

*scientistické a kvalitativně-humanitní přístupy v edukačním výzkumu* (pp. 101–111).  
Brno: Paido.

Overviews of the issues are provided in the following monographs:

- Janík, T., & Miková, M. (2006). *Videostudie: Výzkum výuky založený na analýze videozáznamů* [Video study: Research on instruction based on video recordings]. Brno: Paido.
- Najvar, P., Najvarová, V., Janík, T., & Šebestová, S. (2011). *Videostudie v pedagogickém výzkumu* [Video study in educational research]. Brno: Paido.

A publication in English, a monograph called *The power of video studies in investigating teaching and learning in the classroom*, was prepared for the international research community. Leading experts in video-based research were invited to contribute to the monograph. The importance of the publication to the international community is substantiated with it being widely read as well as cited.

- Janík, T., & Seidel, T. et al. (2009). *The power of video studies in investigating teaching and learning in the classroom*. Münster: Waxmann.

Since video studies were conducted in cooperation and mutual inspiration with international partners (especially the Leibnitz Institute for Science and Mathematics Education at Kiel University in Germany), some outputs were also published in German<sup>2</sup> – e.g.:

- Janík, T., Miková, M., Najvar, P., & Najvarová, V. (2006). Unterrichtsformen und -phasen im tschechischen Physikunterricht: Design und Ergebnisse der CPV Videostudie Physik [Forms and Phases in Physic Instruction in the Czech Republic: design and results of CPV Video study of Physics]. *Zeitschrift für Didaktik der Naturwissenschaften*, 12(1), 219–238.
- Janík, T., Najvarová, V., & Janík, M. (2014). Zum Einsatz didaktischer Medien und Mittel: Ergebnisse einer videobasierten Studie [The use of educational means and media: Results of a videostudy]. In P. Knecht, E. Matthes, S. Schütze, & B. Aamotsbakke, et al., *Methodologie und Methoden der Schulbuch- und Lehrmittelforschung* (pp. 289–302). Bad Heilbrunn: Verlag Julius Klinkhardt.

Video-based research was later developed between 2011–2013 in the GAP407/11/0262 project<sup>3</sup> *Quality of Curriculum and Instruction in School Education*, of which Tomáš Janík was the principal investigator. The relatively original methodology was developed in this project – *a content-based approach to analyzing and improving instruction*. The project was based

<sup>2</sup> Janík, T., Najvar, P., Najvarová, V., Trna, J., & Novák, P. (2012). Opportunities to learn in Physics instruction in the Czech Republic: Findings of the IRSE Video Study. *The New Educational Review*, 28(2), 102–114.

<sup>3</sup> GAP stands for Grant Agency (Science Foundation) of the Czech Republic.

on an analysis of problems in school education, which were identified in Czech educational research in 2001–2008<sup>4</sup>. The project aimed to introduce the quality of curriculum and instruction as theoretical constructs to the professional research community in the Czech Republic, to develop instruments for their empirical research, and to carry out a series of research studies on the aspects of quality of curriculum and instruction in different school subjects. Three methodological principles were applied: (i) systematic approach – the quality of curriculum and instruction was examined in the wider contexts of the school quality as well as the quality of educational system, (ii) content-process-oriented approach – the quality of curriculum and instruction was tackled concerning particular content and its sequencing, (iii) connecting the domain-specific and the domain-general perspectives – the quality of curriculum and instruction was investigated from the perspectives of subject-specific didactics (languages, maths, and science, social sciences, aesthetics, and sport). The added value of the project was the fact that having built on the cross-curricular comparison, it aimed to achieve generalizations across the subjects concerned.

The methodological foundations of the content-based approach were compiled in the following monograph which was then awarded by the Czech Educational Research Association in 2014:

Janík, T., Slavík, J., Mužík, V., Trna, J., Janko, T., Lokajíčková, V., Minaříčková, E., Lukavský, J., Sliacky, J., Šalamounová, Z., Šebestová, S., Vondrová, N., & Zlatníček, P. (2013). *Kvalita (ve) vzdělávání: obsahově zaměřený přístup ke zkoumání a zlepšování výuky* [Quality in education: a content-focused approach to analyzing and improving instruction]. Brno: Masarykova univerzita.

As part of the project outcomes, the first dozen didactical case studies were carried out together with the assistance of a wider community of authors from subject-specific didactics. In the case studies, the 3A methodology was employed (i.e., annotation-analysis-alteration of the teaching and learning situations). The case studies provided portraits of more or less successful teaching and learning together with substantiated suggestions for possible improvement in quality. As such, they provided an empirical basis for the

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<sup>4</sup> Janík, T., Janíková, M., Janko, T., Knecht, P., Najvar, P., Najvarová, V., Šebestová, S., & Vlčková, K. (2009). *Kurikulum – výuka – školní klima – učitelské vzdělávání: Analýza nálezů českého pedagogického výzkumu (2001–2008)* [Curriculum – teaching – school climate – teacher education: Analysis of findings of the Czech educational research (2001–2008)]. Brno: Masarykova univerzita.

subsequent generalizations. The theoretical and methodological foundations of this approach have been elaborated on in the following journal papers:

Slavík, J., Janík, T., Jarníková, J., & Tupý, J. (2014). Zkoumání a rozvíjení kvality výuky v oborových didaktikách: metodika 3A mezi teorií a praxí [Analysing and improving instructional quality in subject matter didactics: 3A model between theory and practice]. *Pedagogická orientace*, 24(5), 721–752.

Slavík, J., Lukavský, J., Najvar, P., & Janík, T. (2015). Profesionální soud o kvalitě výuky: předem a následně strukturovaná reflexe [Professional judgments on the quality of teaching: Prospectively and retrospectively structured reflection]. *Pedagogika*, 65(1), 5–33.

Our work was further elaborated on in the project GA14-06480S *Producing pedagogical knowledge for improvement: Altering teaching situations for the better*, which was carried out at IRSE between the years 2014–2016 with Jan Slavík as the principal investigator. It resulted in launching an educational portal site *Didactica Viva* and in developing a concept of transdisciplinary didactics<sup>5</sup>. The project stemmed from the analyses of the character of pedagogical knowledge provided by educational research. It became apparent that the increasing amount of descriptive and explanatory knowledge in educational science was in contrast with the lack of knowledge for change and knowledge for improvement that was essential for fulfilling the ambition to deal with problems in school education, i.e., to improve teaching and learning. The project was in line with the content-based approach to studying and improving teaching and learning processes. It aimed to produce pedagogical knowledge for improvement by identifying, analyzing, assessing, and suggesting alterations to teaching situations relevant for a productive culture of teaching and learning across school subjects (languages, maths, science, social science, and aesthetics). That became the foundation for generalizing the findings across the teaching situations. These aims were achieved by cooperating within professional communities composed of experienced

<sup>5</sup> In parallel with and as a follow-up, a review monograph was compiled by the Accreditation Commission working group for subject didactics. This monograph has played a vital part in current attempts to conceptualise subject-matter didactics as relatively autonomous disciplines having a key role in teacher education: Stuchlíková, I., Janík, T., Beneš, Z., Bílek, M., Brücknerová, K., Černochová, M., Čížková, V., Čtrnáctová, H., Dvořák, L., Dyrtrtová, K., Gracová, B., Hník, O., Kekule, M., Kostková, K., Kubiátko, M., Nedělka, M., Novotná, J., Papáček, M., Petr, J., Píšová, M., Řezníčková, D., Slavík, J., Staněk, A., Šmejkalová, M., Tichá, M., Valenta, J., Vaníček, J., Vondrová, N., Závodská, R., & Žák, V. (2015). *Oborové didaktiky: vývoj – stav – perspektivy*. [Field didactics: Development – state of the art – perspectives]. Brno: Masarykova univerzita. The monograph was awarded the University of South Bohemia Rector's Award as well as the Czech Educational Research Association Award in 2016.

teachers and researchers – usually subject-specific methodologists, pedagogues, and psychologists from faculties of education. Within these communities, video sequences of teaching situations were (and still have been) annotated, analyzed, and altered with the support of the e-learning environment (DiViWeb). These teaching situations were then worked on as didactical case studies and published to be shared and discussed within the professional community to develop pedagogical knowledge for change and knowledge for improvement.

The concept of transdisciplinary didactics representing the methodological foundation for the activities mentioned above is introduced in the following book:

Slavík, J., Janík, T., Najvar, P., & Knecht, P. (2017). *Transdisciplinární didaktika: o učitelském sdílení znalostí a zvyšování kvality výuky napříč obory* [Transdisciplinary didactics: On teachers' sharing knowledge and improving instructional quality across disciplines]. Brno: Masarykova univerzita.

Dozens of other didactical case studies have been continuously published in journals focused on teaching practice as well as on DiViWeb. Due to them, the characteristics of quality (or non-quality) of teaching were possible to be identified and described in greater detail. The *low-didactic-quality* of teaching was found out to possess features of didactic formalism such as alienated learning, obscured learning, overloaded learning, mislead learning, incomplete learning, etc. On the other hand, the *high-didactic-quality teaching* and, therefore, *didactic excellence* was characterized by constructing learning, cognitive activating learning, and such. These features of high/low-didactic-quality teaching are described in the book *Transdisciplinary didactics: On teachers' sharing knowledge and improving instructional quality across disciplines*.

The outcomes of both these projects were presented at international conferences where the feedback was welcoming. The first publications on this topic in English and German were soon to follow. Our approach was presented in German as a chapter in the monograph cited below, and in English as a journal paper:

Janík, T. (2016). *Aktuelle Entwicklungen im Bildungsbereich in der Tschechischen Republik: Curriculum – Unterricht – Lehrerbildung* [Current trends in education in the Czech Republic: Curriculum – instruction – teacher education]. Münster: Waxmann.

Slavík, J., Janík, T., & Najvar, P. (2016). Producing knowledge for improvement: The 3A procedure as a tool for research on teaching and learning. *Pedagogika*, 66(6), 672–688.

Tomáš Janík has also presented the depicted approach to the international scientific community – e.g., during his *visiting professorship* at the University of Klagenfurt in May 2015, among others.

Another approach to using video recording for research in learning and teaching is adopted in the project GA15-08857S *Interakce ve výuce anglického jazyka na vysoké škole [Interaction in English language teaching]* by František Tůma that was conducted at IRSE from 2015 to 2019. It examines characteristic features of interaction in English language teaching in university settings using a conversation analysis, which is a unique combination in the Czech Republic. The publication output includes, for example, the following methodological study that was awarded by the Czech Educational Research Association:

Tůma, F. (2016). Konverzační analýza a interakce ve třídě: východiska a metodologické aspekty [Conversation analysis and classroom interaction: Background and methodological aspects]. *Pedagogická orientace*, 26(3), 415–441.

Besides research based on video analysis, the topics of research also focused on using pupils' learning strategies. This research was presented in the project GAP407/12/0432 *Strategies in foreign language learning and education outcomes: Analysis of clusters and sequences of strategies* conducted by Kateřina Vlčková's team. The research dealt with pupils' strategies (in particular, foreign language learning strategies) used when learning English as a foreign language at the end of primary education. Pupils' use of strategies is related to indicators of their learning outcomes, such as standardized KET test scores at level A2 of CEFR or their grade in the English language at school. Strategies and task success rates are examined in reading, listening, speaking, and writing skills in the context of other variables, such as learning and performance-related motivation, learning styles, or teacher's support of strategies. Research results are described and discussed in this monograph:

Vlčková, K., Pešková, K., Uličná, K., Janík, M., & Švejdlíková, K. (2014). *Žákovské strategie při učení se anglickému jazyku a jejich vztah k úspěšnosti* [Learner strategies in English as a foreign language and their relation to achievement]. Brno: Masarykova univerzita.

The project GA16-01003S *Visual geographical information and its role in geography learning and teaching* carried out from 2016 to 2018 by Petr Knecht in cooperation with the University of Jan Evangelista Purkyně was operating at the intersection of research in learning and teaching and research in curriculum. The project focused on the role of visual geographical

information in geography learning and teaching. Although pupils perceive working with visual information as attractive, we do not know whether the use of visual geographical information is always effective regarding pupils' educational needs and in educational media, i.e., whether it supports pupils' active learning. This project attempted to fill the gap in our knowledge through an analysis of visual geographical information, pupils' work with the information, and interviews with authors and publishers of textbooks who choose and design visual geographical information.

Janko, T., Knecht, P., Kučerová, S. R., & Bláha, J. D. (2018). Vizuálie v geografickém vzdělávání: přehledová studie [Visuals in geography education: A review]. *Scientia in Educatione*, 9(2), 4–21.

## 2 Research topic: Curriculum – pedagogical content transformation – curriculum reform

Out of the wide range of topics and issues related to school education that dealt with due to the video studies and other research studies, we were interested most in the questions of how a teacher works with the educational content or how the *subject matter* is transformed from the *educational content*. Attempts to find a solution to this question led us to works by L. S. Shulman and his concept of *pedagogical content knowledge* which is introduced in Czech research community as *didaktické znalosti obsahu*:

Janík, T. (2004). Význam Shulmanovy teorie pedagogických znalostí pro oborové didaktiky a pro vzdělávání učitelů [The importance of Shulman's theory of pedagogical knowledge for field didactics and teacher education]. *Pedagogika*, 54(3), 243–250.

This issue was discussed by Tomáš Janík within the postdoctoral project GA406/06/0246 *Pedagogical content knowledge as a key concept of the curriculum reform* from 2006 to 2008. The concept of *pedagogical content knowledge* appeared to meet the needs of a specific nature of the pedagogical representation of subject matter in different subjects. The two-dimensionality of this knowledge is fundamental. It manifests itself when a teacher considers the requirement of disciplinary correctness of the content as well as the pupils' learning potential. The problem of maintaining the balance of both dimensions resulted in the question of how a teacher learns to be more sensitive to a pupil while developing pedagogical content, which means analyzing a relationship between the *educational content* and a *pupil's knowledge*. The publication output is the following monograph:



Janík, T. (2009). *Didaktické znalosti obsahu a jejich význam pro oborové didaktiky, tvorbu kurikula a učitelské vzdělávání* [Pedagogical content knowledge and its implications for field didactic, curriculum development and teacher education]. Brno: Paido.

The following studies and presentations at numerous conferences (e.g., in Geneva, Innsbruck, Vienna) attempt to reach the international research community:

Janík, T., Najvar, P., Slavík, J., & Trna, J. (2009). On the dynamic nature of physics teachers pedagogical content knowledge. *Orbis scholae*, 3(2), 47–62.

Janík, T., & Knecht, P. (2009). Zur Entwicklung des fachdidaktischen Wissens in der LehrerInnenbildung: Möglichkeiten und Grenzen nach dem Bologna-Prozess [On the Development of Pedagogical Content Knowledge: Possibilities and Limits after Bologna Declaration]. In Pädagogische Hochschule Wien (Ed.), *Neue Architekturen im europäischen Hochschulraum – New architectures in the European higher education area* (pp. 169–173). Wien: LIT Verlag.

Similar analyses were made by a large team of co-workers under the leadership of Josef Maňák in the project GA406/06/0246 *The content dimension of the primary school curriculum (2005–2007)* and in the above-mentioned project of the *Centre for Basic Research in Schooling (2006–2011)*. Both projects included curriculum research in its different dimensions, levels and aspects. Conceptual questions of curriculum were discussed.

Maňák, J., Janík, T., & Švec, V. (2008). *Kurikulum v současné škole* [Curriculum in today's school]. Brno: Masaryk University.

A research study was developed that attempted to find the answers to the question about the way the pupils follow accompanied by a teacher so that the presented subject matter could be transformed into their knowledge. The two types of pedagogical transformation (onto-didactic and psycho-didactic), which have been successfully established in the scientific discourse, were discussed in this thesis.

Janík, T., Maňák, J., & Knecht, P. (2009). *Cíle a obsahy školního vzdělávání a metodologie jejich utváření* [Aims and contents of schooling and its designing]. Brno: Paido.

In a broader context, our activities at that time concentrated on the issue of curricular reform implemented in the Czech Republic at the turn of the millennium. Not least due to that the curricular reform became the focal point of our research effort. In 2009, the Institute for Education Research, Prague, turned to our Institute with an offer to carry out large-scale research study into the curricular reform at Czech grammar schools. This research was conducted under the leadership of Tomáš Janík as a part of the project

*Curriculum G – Quality of the school.* The outcomes were published in the following five research reports which have acquired response not only in the area of educational and curricular policy but also amongst the school headmasters and teachers in the field:

- Janík, T., Knecht, P., Najvar, P., Pavlas, T., Slavík, J., & Solníčka, D. (2010). *Kurikulární reforma na gymnáziích v rozhovorech s koordinátory pilotních a partnerských škol* [The curricular reform at grammar schools: Interviews with coordinators at pilot and partner schools]. Praha: VÚP v Praze.
- Janík, T., Janko, T., Knecht, P., Kubiátko, M., Najvar, P., Pavlas, T., Slavík, J., Solníčka, D., & Vlčková, K. (2010). *Kurikulární reforma na gymnáziích: výsledky dotazníkového šetření* [Curricular reform at gymnasium: Questionnaire survey]. Praha: VÚP v Praze.
- Píšová, M., Kostková, K., Janík, T., Doulík, P., Hajdušková, L., Knecht, P., Lukavský, J., Najvar, P., Najvarová, V., Maňák, J., Pavlas, T., Slavík, J., Spurná, M., Stehlíková, N., Škoda, J., & Vlček, P. (2011). *Kurikulární reforma na gymnáziích: případové studie tvorby kurikula* [Curriculum reform at grammar schools: Case studies on curriculum development]. Praha: VÚP v Praze.
- Janík, T., Slavík, J., Najvar, P., Hajdušková, L., Hesová, A., Lukavský, J., Minaříková, E., Píšová, M., & Švecová, Z. (2011). *Kurikulární reforma na gymnáziích: od virtuálních hospitací k videostudiím* [Curricular reform at grammar schools: From virtual observations to videostudies]. Praha: NÚV.
- Janík, T., Knecht, P., Kubiátko, M., Pavlas, T., Slavík, J., Solníčka, D., & Vlček, P. (2011). *Kvalita školy a kurikula: od expertního šetření ke standardu kvality* [The quality of school and curriculum: From expert survey towards the standard of quality]. Praha: NÚV.

The cooperation on the research in the implementation of a reform of the vocational training followed the research in the curriculum reform. The reform of the vocational training was provided with the supportive environment of the project *Curriculum S – Support of the global implementation of educational programs in vocational education*. The results are published in this research report:

- Knecht, P., Šumavská, G., Bartošek, M., Dobešová, Z., Horská, V., Janík, T., & Novotná, J. (2011). *Moderní odborná škola. Názory učitelů pilotních škol na kurikulární reformu* [Modern vocational school: The opinions of pilot school teachers on curricular reform]. Praha: NÚV.

The results from these projects prove that the main problem of the curriculum reform is its implementation – headmasters and teachers are often reluctant to adopt a role of the curriculum developer and to implement the idea of curriculum decentralization which was promoted by the proponents of curriculum reform as one of the crucial ideas. Most importantly, the research findings enabled us to consider the issues of school transformation towards its improvement since the curriculum reform (around 2010) was a vital issue

when considering the education system as such. Then, we began to enter the educational policy with our research results more assertively – it was possible to produce a set of recommendations regarding future development – for example, see the following works:

- Janík, T., Knecht, P., Najvar, P., Pířšová, M., & Slavík, J. (2011). Kurikulární reforma na gymnáziích: výzkumná zjiřtění a doporučení [Curriculum reform in grammar schools: Research findings and recommendations]. *Pedagogická orientace*, 21(4), 375–415.
- Janík, T. (2013). Od reformy kurikula k produktivní kultuře vyučování a učení [From curricular reform towards the productive culture of teaching and learning]. *Pedagogická orientace*, 23(5), 634–663.

The project GAP407/12/P059 *Opportunities for the development of the problem-solving competence in textbooks and teaching* by Petr Knecht was closely related to the curriculum reform. He tried to analyze how the focus on key competences (in particular, the problem-solving competence) is reflected in practice through tasks in textbooks and teaching. This project, which connects research in teaching and curriculum, offers an interesting perspective in the implementation of the curriculum reform through the implementation of the specific objective of a new curriculum. The results are summarised in the following book:

- Knecht, P. (2014). *Příležitosti k rozvíjení kompetence k řešení problémů v učebnicích a ve výuce zeměpisu* [Opportunities for developing problem-solving competence in geography textbooks and in geography instruction]. Brno: Masarykova univerzita.

Stemming from the outcomes of the research on curricular reform at grammar schools and vocational schools, we designed an application for a follow-up project GA15-05122S *Between acceptance and resistance: Teachers' perceptions of curricular changes 10 years into the reform implementation*, which has been supervised by Tomáš Janík and Karolína Peřšková since 2015. It focused on basic-school teacher perceptions of the curricular reform. Amongst its outputs, there are the following papers:

- Janík, T. (2016). Škola v pohybu aneb k problému výjezdu a rozjezdu z kruhového objezdu [School in motion: On the problem of exiting a roundabout]. In M. Strouhal & S. Štech, et al., *Vzdělání a dnešek* (pp. 164–179). Praha: Karolinum.
- Janko, T., & Peřšková, K. (2017). Exploring teachers' perceptions of curriculum change and their use of textbooks during its implementation: A review of current research. *Zeitschrift für Geographiedidaktik*, 17(1), 33–52.
- Janík, T., Janko, T., Peřšková, K., Knecht, P., & Spurná, M. (2018). Czech teachers' attitudes toward curriculum reform implementation. *Human Affairs – Postdisciplinary Humanities Social Sciences Quarterly*, 28(1), 54–70.

Pešková, K., Janko, T., Janík, T., & Spurná, M. (2018). Proměny postojů učitelů ke kurikulární reformě a jejímu zavádění [The changes of teachers' attitudes towards curriculum reform and its implementation]. *Orbis scholae*, 12(1), 69–93.

The research findings are presented abroad in the form of studies (chapters) published in the book mentioned above:

Janík, T. (2016). *Aktuelle Entwicklungen im Bildungsbereich in der Tschechischen Republik: Curriculum – Unterricht – Lehrerbildung* [Current trends in education in the Czech Republic: Curriculum – instruction – teacher education]. Münster: Waxmann.

The research findings related to teaching and curriculum are used in teacher training and support of the teaching profession.

### **3 Research area: Teachers' pedagogical knowledge – teacher expertise – professional vision – teacher standards and career systems – teaching profession – teacher education**

Simultaneously, the researchers of the IRSE followed the issue related to the field of pedeutology (theory of the teaching profession). In the years 2011 and 2012, the project GA406/02/1247 *Implicit pedagogical knowledge and possibilities of its development (2002–2004)* under the leadership of Vlastimil Švec was carried out.

The project aimed at the issue of teachers' pedagogical knowledge and subjective theories. As it transpired, that concept has the potential to enrich the discourse on the teaching profession and teacher education. The issue of teachers' subjective theories, including the approaches to their research is discussed in the following study:

Janík, T. (2005). Zkoumání subjektivních teorií pomocí techniky strukturování konceptů (SLT) [Research of subjective theories using structuring concepts technique (SLT)]. *Pedagogická revue*, 57(5), 477–496.

Research studies into teachers' and parents' subjective theories were conducted between 2002–2004 suggested that contradictory constructs can coexist in subjective theories – see the paper:

Janík, T. (2005). Transmise versus konstrukce? Pedagogické dilema v subjektivních teoriích učitelů [Transmission or construction? The pedagogical dilemma in teachers' subjective theories]. In V. Švec (Eds.), *Od implicitních teorií výuky k implicitním pedagogickým znalostem* (pp. 17–26). Brno: Paido.

Together with the research on subjective theories, we continued to work on the topic of pedagogical knowledge, as shown in the following books:

- Švec, V. et al. (2005). *Od implicitních teorií výuky k implicitním pedagogickým znalostem* [From implicit theories of teaching to implicit pedagogical knowledge]. Brno: Paido.
- Švec, V. (2005). *Pedagogické znalosti učitele. Teorie a praxe* [Pedagogical knowledge of teachers: Theory and practice]. Praha: ASPI.
- Janík, T. (2005). *Znalost jako klíčová kategorie učitelského vzdělávání* [Knowledge in teacher education]. Brno: Paido.

Our research proved that pre-service teachers demonstrate considerable deficiencies in the use of professional language when externalizing their tacit knowledge. This finding led us to investigate the potential of particular approaches and instruments that might support the development of teachers' professional pedagogical reflection/thinking (incl. professional language).

We were provided an excellent opportunity to do so in the *GAP407/11/0234 Expert teacher: The nature of expertise and determinants of professional development in FLT perspective (2011–2013)* with Michaela Píšová as the principal investigator. This project aimed to contribute to the current state-of-the-art regarding quality in the teaching profession employing research into the characteristics of expert teachers. In the first stage, a theoretical state-of-the-art review was done to provide the background to serve as a basis for developing, piloting, and verifying the methods to identify expert teachers, as well as researching them, bearing the context of the Czech cultural framework in mind. The research itself concentrated on deepening the knowledge of these characteristics. In the following stage, it focused on the determinants of expert-teacher professional development. The next monograph is the output of the research:

- Píšová, M., Najvar, P., Janík, T., Hanušová, S., Kostková, K., Janíková, V., Tůma, F., & Zerková, J. (2011). *Teorie a výzkum expertnosti v učitelské profesi* [Theory and research of expertise in the teaching profession]. Brno: Masarykova univerzita.
- Píšová, M., Hanušová, S., Kostková, K., Janíková, V., Najvar, P., & Tůma, F. (2013). *Učitel expert: jeho charakteristiky a determinanty profesního rozvoje (na pozadí výuky cizích jazyků)* [Expert teacher: The nature of expertise and determinants of professional development (in FLT perspective)]. Brno: Masarykova univerzita.
- Hanušová, S., Píšová, M., Kostková, K., Janíková, V., & Najvar, P. (2013). Researching the expertise of foreign language teachers. *JoLaCe Journal of Language and Cultural Education*, 1(1), 4–36.

One of the main outputs of this projects, the book *Učitel expert: jeho charakteristiky a determinanty profesního rozvoje na pozadí výuky cizích*

*jazyků [Teacher expert: Their characteristic features and determinants of professional development against the background of foreign languages teaching]*, was awarded by the Czech Educational Research Association in 2015.

Another opportunity to work in this direction opened up with the project GA13-21961S Exploring professional vision and its development through video-based analysis (from the perspective of teachers of English as a foreign language) (2013–2015) under the leadership of Tomáš Janík and Eva Minaříková. This project stemmed from the debate on teacher professionalization and education quality as it aimed to examine (and also to introduce to the Czech professional environment) a relatively new concept of teachers' professional vision. It was apparent that professional vision, linked to professional knowledge and professional action, offers a possibility to re-conceptualize teacher professionalism. In the project, we focused on the teachers of English as a foreign language and the following objectives were set: to describe the nature of professional vision in the teachers; to examine the influence of teachers' participation in video clubs (collaborative analysis based on a video) on their professional vision and how the participants accept the video clubs; to examine the relationship between the professional vision, professional supervision and the professional conduct. The results published in the following book and other studies (in both Czech and English) show that video clubs not only influence the participants' professional vision considerably and knowledge, but they are also accepted positively:

- Minaříková, E. (2014). Profesní vidění studentů učitelství anglického jazyka: jak vidí studenti výukové situace zachycené na videu? [Professional vision of prospective EFL teachers: How student teachers see videotaped classroom situations] *Pedagogická orientace*, 24(5), 753–777.
- Minaříková, E., Píšová, M., Janík, T., & Uličná, K. (2015). Video clubs: EFL teachers' selective attention before and after. *Orbis scholae*, 9(2), 55–75.
- Minaříková, E., Píšová, M., & Janík, T. (2015). Using video in teacher education: An example from the Czech Republic. In L. Orland-Barak & Ch. J. Craig, et al., *Advances in research on teaching – international teacher education: Promising pedagogies*, Part B (pp. 379–400). Emerald Group Publishing Limited.
- Janík, T., Minaříková, E., Píšová, M., Uličná, K., & Janík, M. (2016). *Profesní vidění učitelů a jeho rozvíjení prostřednictvím videoklubů* [Professional vision and its development using videoclubs]. Brno: Masarykova univerzita.
- Minaříková, E., Píšová, M., & Janík, T. (2016). Using VideoWeb in EFL teacher education: Do the benefits differ for teachers with and without previous teaching experience? In P. Haworth & C. Craig, et al., *Career trajectories of English language teachers* (pp. 129–140). Oxford: Symposium Books.

The new project *GA17-15467S* led by Eva Minaříková and Miroslav Janík follows, which uses a method of eye-tracking for the study of teachers' professional vision. It was carried out in cooperation with HumeLab (workplace in the Faculty of Arts at Masaryk University). It attempts to describe not only teachers' professional vision but also to compare it to the professional vision of students of the teacher education.

Our research on the teaching profession equipped us with expertise and led us subsequently to take part in activities carried out at (inter)national levels. For example, we cooperated with the Czech School Inspectorate in terms of processing the data (assessing and interpreting the results) of the international comparative study *TALIS – Teaching and Learning International Survey*. We participated in compiling an analytical research report as well as conducting one of the in-depth studies:

Kašparová, V., Holečková, A., Hučín, J., Janík, T., Najvar, P., Píšová, M., Potužníková, E., Soukup, P., & Ševců, M. (2015). *Analytická zpráva z šetření TALIS 2013* [Analytic report from the TALIS 2013 survey]. Praha: Česká školní inspekce.

Kašparová, V., Potužníková, E., & Janík, T. (2015). Subjektivně vnímaná zdatnost učitelů v kontextu jejich profesního vzdělávání: zjištění a výzvy z šetření TALIS 2013 [Teachers' self-efficacy in the context of their professional development: Findings and challenges of TALIS 2013]. *Pedagogická orientace*, 25(4), 528–556.

Another significant activity was devoted to development of standard and career ladder for teachers. Researchers of IRSE in cooperation with other colleagues prepared international comparative analysis of teaching standards a provided critical analysis of the Czech concept:

Janík, T., Píšová, M., & Spilková, V. (2014). Standardy v učitelské profesi: zahraniční přístupy a pokus o jejich zhodnocení [Standards in the teaching profession: Foreign approaches and analysis of their effects]. *Orbis scholae*, 8(3), 133–158.

In the next step we drew up another comparative study and subsequently proposed a solution for the induction period for novice teachers – this was associated with the project *GA15-12956S What is the purpose of context: Objective determinants of novice teachers' socialisation* (Michaela Píšová and Světlana Hanušová as its principal investigators):

Janík, T., Wildová, R., Uličná, K., Minaříková, E., Janík, M., Jašková, J., & Šimůnková, B. (2017). Adaptační období pro začínající učitele: zahraniční přístupy a návrhy řešení [Induction period for novice teachers: International experiences and implementation suggestions]. *Pedaogika*, 67(1), 4–26.

A review discussing what makes teachers leave their profession was also related to the above-mentioned project:

Pišová, M., & Hanušová, S. (2016). Začínající učitelé a drop-out [Novice teachers and drop-out]. *Pedagogika*, 66(4), 386–407.

Our further efforts between the years 2015–2016 was linked with the Accreditation Commission working groups for education, psychology and sports studies, and for subject didactics. It aimed at the development and updating of the *Framework concept of primary- and secondary school teacher education* which, after several rounds of debates, should be used by workers of the Ministry of Education, Youth and Sports as a starting point for the development of the standard for teacher training in the Czech Republic (it was carried out mostly at the declaratory level).

Stuchlíková, I., & Janík, T. (2017). Rámcová koncepce přípravy učitelů základních a středních škol aneb o hledání a nacházení konsensu mezi aktéry [Framework concept of primary- and secondary school teacher education: On seeking and finding consensus amongst actors]. *Pedagogická orientace*, 27(1), 242–265.

#### **4 Conclusion: On attempts to apply research findings to educational policy**

Our first encounters with educational policy at the national level date back to the year 2009 when IRSE was assigned with a large-scale research study into the curricular reform implementation at grammar schools. It is gratifying that they received rather broad publicity amongst educational practitioners, amongst the Ministry of Education representatives, and in the organizations directed by the Ministry. The recommendation resonating relatively most amongst practicing professionals, in particular, was the one suggesting that the curricular reform ought to be developed into a program supporting a productive culture of teaching and learning at schools.

Cooperation with the Ministry of Education and its organizations was developed in various advisory and expert roles (Tomáš Janík has been a member of the Minister's Advisory Board since 2015). An area for cooperation is currently opening up regarding the development of educational policy strategy extending beyond the year 2020. The analyses of the developments in that area to date indicate that it is the *governance* approach that needs to be adopted for further development of the Czech educational system



orientation rather than the simplifying concept of *top-down* management when it comes to the implementation of educational reforms.

Regarding the issue of the teaching profession and teacher education, our expertise has grown hand in hand with the cooperation with the Accreditation Commission working groups. As a result, the teacher education standard was prepared in the form of the *Framework concept of primary- and secondary school teacher education* accepted first by the Accreditation Commission in 2015 and subsequently by the Ministry of Education, Youth and Sports (2016). Concerning that, we have also participated in the development of the professional standard and career ladder for teachers, with a specific focus on the adaptation period for novice teachers. We have compiled a *review* of international approaches to the support of novice teachers, which served as a basis for our proposal for a solution for the Czech Republic.

One of the issues we have paid extensive attention to is the unsolved challenge of the further direction of the curricular reform in regional schools. Cooperation on the review of curricula is currently unfolding at the national level. It aims to re-examine the way the aims and contents are defined in the Czech educational system. We consider this issue relevant and challenging enough to be the subject of our research in the upcoming future.

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<sup>6</sup> The abbreviation *et al.* stands here for all members and collaborators of IRSE between 2003 and 2018.