

RENATA MICHALAK

Adam Mickiewicz University in Poznań, Poland
ORCID: <https://orcid.org/0000-0002-6578-3822>
renmi@amu.edu.pl

The Training School as a Community of Mutual Learning between Teachers and Students. A Research Perspective

Szkoła ćwiczeń wspólnotą wzajemnego uczenia się praktyków i studentów. Perspektywa badawcza

Abstract: The text attempts to show the value of the training school for the process of preparing students for the role of teachers. It is based on the assumptions of “Wielkopolska Training School in the Cogito” project, the implementation of which was completed in December 2020. The content of the article reflects the key aspects of teacher candidates’ education through their versatile involvement in a peer-learning network for in-service teachers and students. It also shows the empirical substance from the study of teacher training students, confirming the value and meaning of the teachers education model by creating training schools.

Keywords: training school; teachers training; mutual learning community; practical student education

Abstrakt: Opracowanie jest próbą ukazania wartości szkoły ćwiczeń dla procesu przygotowania studentów do roli nauczyciela. Autorka bazuje na założeniach projektu pn. „Wielkopolska Szkoła Ćwiczeń w Cogito”, realizację którego zakończono w grudniu 2020 roku. W artykule odzwierciedlenie znalazły kluczowe aspekty kształcenia kandydatów na nauczycieli poprzez ich wielostronne zaangażowanie w sieć wzajemnego uczenia się nauczycieli praktyków i studentów. Ponadto uwzględniono materiał empiryczny pochodzący z badania studentów kierunków nauczycielskich, potwierdzający wartość i sens modelu kształcenia nauczycieli poprzez tworzenie szkół ćwiczeń.

Słowa kluczowe: szkoła ćwiczeń; kształcenie nauczycieli; wspólnota wzajemnego uczenia się; praktyczne kształcenie studentów

INTRODUCTION

Teacher education is a huge challenge for universities, especially those with an academic profile. The process of preparing students for the role of teachers requires not only introducing them in the course of their studies into various, often competing with each other, theories of education, but also their strict embedding in innovative and practical contexts. As noted by Małgorzata Żytko and collaborators (2018, p. 15), “the scientific theory allows us to understand the mechanisms governing education, child development, and the learning process, as well as to identify relationships, contexts, and conditions for functioning as a teacher, but it is not enough to guide practice. Therefore, over time, people began to search for such an interpretation of the theory that is firmly rooted in practice”. These two basic areas of acquiring teaching competencies should create an integrated environment for shaping the professional identity of the future creators of the student’s educational reality (Fish, Broekman 1993; Gołębiak 1998; Kwiatkowska 2008; Lewowicki 2007; Sajdak 2013). A valuable proposition seems to be a not-new concept of educating teachers by creating training schools. In this study, which refers to the assumptions of the innovative project: “Wielkopolska Training School in Cogito”, the understanding of the training school as an authentic environment for the acquisition and development of teaching competencies differs from the existing schemes. Until now, the training school was only a place of practical learning for future teachers from more experienced teachers, which was mainly based on passive copying of teachers’ behavior patterns and obedient performance of assigned tasks. The training school proposed in the project focuses on partnership and full involvement in constructing the teacher’s role through peer-learning (Johnson, Johnson 1991; Wenger, Lave 1998). This means that both a candidate for a teacher and in-service teacher, regardless of their professional experience, receive support in line with their individual needs and expectations.

The category that constitutes the greatest value of the model of teacher education based on a training school is learning in a community, i.e. from others, for others, together with others, and among others. The key features of a mutual learning community between in-service teachers and students include:

- cooperation in creating conditions for effective learning from each other and for oneself and others,
- synergy of efforts to care for proper social relations, based on mutual respect, trust, help and willingness to cooperate,
- cooperation in the field of permanent improvement of one’s own work by acquiring and enriching personal competences by examining one’s own and someone else’s practice, reflecting, negotiating and sharing experience,
- joint creation of situations that motivate to learn, act and self-fulfill,
- cooperative activities aimed at eliminating problems and difficulties experienced individually and as a team,

- continuous reflection on the actions taken and the continuous process of monitoring and self-evaluation.

All the above-outlined features of the culture of mutual learning of teachers and students were implemented in the practice of the “Wielkopolska Training School in Cogito”, mainly through an extensive system of substantive and methodological support of expert teachers, and then cooperating teachers and candidate teachers. All project beneficiaries could directly experience these unique and professional, and at the same time partnership relations, regardless of the role they played in the implementation of its assumptions. The joint effort to ensure high-quality education of students in acquiring key competencies in the basic areas of education (linguistic, mathematical, science, and IT) provided a platform for genuine exchange and sharing of professionalism. This allowed each project participant to pursue an individual path of their personal and professional development in accordance with their own needs and resources.

Due to the editorial principles of the journal, this text will be limited to showing the significance of the practice school, understood as a mutual learning community, for the education of candidate teachers.

PROJECT ASSUMPTIONS: “WIELKOPOLSKA TRAINING SCHOOL IN COGITO”¹

The material scope of the project included the establishment of a training school in the Cogito Public Primary School in Poznań (Publiczna Szkoła Podstawowa Cogito) in Wielkopolska, whose aim was to optimize the process of teacher training and education of students of teaching studies. The structure of the project and its content were preceded by a diagnosis of the needs of teachers and students.²

In response to the needs of teachers and students, there was an attempt to develop a project aimed at creating and implementing a constructivist model of supporting teachers and teacher candidates in the development of students’ key competencies and the so-called universal skills through the creation of a training school (von Glasersfeld 1995; Cox 2006). Support was provided to 56 teachers from 7 schools operating in Wielkopolska in 2019 and 2020. The project included 2 schools from rural areas and 1 special/integrated school. The target group of the project were teachers from primary schools in Wielkopolska, as well as 15 students studying in teaching faculties. It was assumed that the support for teachers and students would be implemented within 4 thematic areas: mathematics, science, language, and IT.

¹ The text includes excerpts from Michalak (2021).

² Recognition of students’ needs brought the following results: 1) getting to know the key elements of your future profession; 2) use of the learned theory in practice; 3) acquiring teaching competences in practice.

It is worth noting that the teaching staff of the Cogito Public Primary School, which was to provide expert support to teachers and students, have high general professional qualifications and especially in the field of Freinet pedagogy, which is one of the innovative concepts of education. It is based on the ways of unaffected awakening in students the need and motivation to acquire knowledge, manage the personal learning process, get to know oneself and one's own interests, both in the aspect of individual and team work. It can, therefore, be said with certainty that the choice of the Cogito Public Primary School as a training school was not accidental.

Taking into account the temporal criterion, three basic stages can be distinguished in the structure of the "Wielkopolska Training School in Cogito": (1) preparation of the training school; (2) the opening and operation of the training school, and (3) the evaluation of the quality of implementation of the training school assumptions. Each stage was characterized by the specificity of tasks and activities aimed at their achievement.

Due to the volume limitations of this text, there was an attempt to graphically present the key stages of the "Wielkopolska Training School in Cogito", with the hope that it will contribute to a better understanding of the essence of the project. Only the participation of students in the implementation of the assumptions of the project will be discussed in more detail, due to the subject of discussion in the article.

PREPARATORY STAGE

- Diagnosing the needs of teachers and students
- Developing a model of the training school as a mutual learning community
- Preparing the PSP Cogito training school to function as a training school
- Substantive support for the teaching staff of the Cogito Public Primary School
- Equipping the school with material and teaching aids
- Development of a set of methodological materials and recordings of the series of demonstration lessons
- Opening conference for the project implementation
- Recruitment of cooperating schools

IMPLEMENTATION STAGE

- Opening of the Wielkopolska Training School in Cogito
- Creation of a mutual learning community of practicing teachers and students
- Launching of an Internet platform for contacts and cooperation between teachers and students
- Professional training for teachers from 7 cooperating schools
- Education of students of teaching faculties

EVALUATION STAGE

- Developing a procedure for testing the effectiveness of the Wielkopolska Training School in Cogito project

Conducting surveys among project beneficiaries
Preparing a project efficiency report
Summary conference

Scheme 1. Stages of the “Wielkopolska Training School in Cogito” project implementation
Source: Author’s own study.

In the first stage, the main focus was on substantive support for the teaching staff of the Cogito Public Primary School and on equipping the school with material and teaching aids that enabled the implementation of an innovative model of education for students and teachers. The aim of this stage was to prepare a group of expert teachers who were to support the process of competence development of teachers from other primary schools and students. They were to play a leadership role in the mutual learning community of teachers and students.

The second stage of the project can be described as its merits, core or critical period. Its implementation is related to the opening of “Wielkopolska Training School in Cogito” by creating a mutual learning community for practicing teachers and teacher candidates, i.e. teaching students. This community consisted of 8 teachers from the Cogito Public Primary School, 56 teachers from 7 primary schools recruited to the project, and 15 students of the Faculty of Educational Studies at the University of Adam Mickiewicz in Poznań. Each group of beneficiaries played specific roles in the project. At this stage of the implementation of the assumptions of the project, students of teaching faculties received strong substantive support. It was mainly expressed in the possibility of gaining experience by taking the role of a teacher in real situations, being close to teachers, creators of students’ lives and their struggles, experiences, successes, and joys. The acquisition and enrichment of teaching competencies by students has been embedded in a constructivist space of mutual learning culture (Oliver 2000; Olusegun 2015; Tam 2000). It was strengthened and in many ways enriched with the innovative experiences of teachers who create everyday school reality. In the course of various educational situations, students learned about methods and techniques that activate students, which stimulated them to explore and solve interesting problems, experiment, explore, and go through labyrinths in search of and discover knowledge. Therefore, students could “learn how to learn and teach” by taking up numerous challenges in the teachers and students community.

An important aspect of functioning in a culture of mutual learning is the possibility of participating in the process of assessing students and evaluating the quality of the education process. There were many opportunities for students to observe educational situations conducive to cooperation, collaboration in undertaking activities designed together, expressing their own opinions, viewpoints or presenting ideas, and negotiating divergent assessments. A significant place in the strategy of acquiring competences by students is intended to constantly activate self-reflection. This was especially facilitated

by discussions, sharing reflections, observations, and the possibility of verifying personal theories and learned concepts after each day of activity. During the activities, students had favorable opportunities to collectively solve everyday problems of students and teachers, and it was ensured that they had many opportunities to get to know the rich learning environment based on the multifaceted activity of students in the process of acquiring key competencies (Grabinger 1996). Therefore, it was assumed that the contact of students with the everyday practice of school life would fully reflect the assumptions of the constructivist theory of learning and enable the implementation of theoretical knowledge acquired at the university and personal educational experiences. The active participation of students in various forms of life of students and teachers, such as demonstration classes, workshops, seminars, and debates made it possible to create personal meanings, ideas, and innovative solutions. In addition to the educational dimension, students, in the course of exchanging their observations, reflections, experiences, and opinions established close emotional relations with teachers and students, which in the process of building their professional identity is an extremely valuable value.

Creating a mutual learning community required partnership-based participation of all attendees in the process of sharing, exchanging, and providing mutual mental and physical support, mainly by motivating and providing tools to change their functioning as a teacher.

The last stage of the project was mainly related to the diagnosis of the quality of the achieved project aims and its summary. In order to empirically verify the effectiveness of the project, appropriate research tools, adequate to the role played by the beneficiaries in the project, were developed.

METHODOLOGY

Project outcomes have both objective and subjective, quantitative and qualitative dimensions. The first, in this case, can be measured with material indicators. These include developed or purchased didactic resources: technical equipment, specialist workshop equipment, greenhouse, publications, conferences, etc. The subjective dimension includes the opinions and experiences of the project participants, i.e. expert teachers, collaborating teachers, and students. For this purpose, the method of diagnostic poll and technique survey were used. In addition, appropriate research tools were constructed, with the help of which the effectiveness of the project was verified³ empirically. The empirical material was supplemented with data from three focus sessions.

³ For the study of students, the following categories were taken into account: 1) Overall satisfaction with participation in the project; 2) Organization of workshops, demonstration lessons; 3) The content of the workshops and demonstration lessons (attractiveness of content, topics, issues); 4) Competences of people conducting workshops and demonstration lessons; 5) Quality of training materials; 6) Meeting personal expectations; 7) Enrichment of personal competences in the organi-

The implementation of the main goal of the study, which was: determining the effectiveness of the implementation of the assumptions of the “Wielkopolska Training School in Cogito”, allowed to adopt the following main problem and specific problems:

1. How do the beneficiaries evaluate the effectiveness of “Wielkopolska Training School in Cogito” in the context of their personal experiences?

1.1. Did the beneficiaries receive competency, material and psychological support, and if so, how do they evaluate it?

1.2. Did the beneficiaries experience positive changes in their personal knowledge about organizing the constructivist learning process and methodological skills, and if so, how do they evaluate them?

1.3. Were the beneficiaries involved in the creation and functioning of the peer-learning network, and if so, how did they evaluate its value and quality?

1.4. Have the beneficiaries experienced changes in personal motivation for professional development, reflectivity, and responsibility for the quality of educational processes, and if so, how do they evaluate them?

1.5. How do the beneficiaries evaluate the amount of work and effort put into the implementation of the project assumptions in the context of its effectiveness?

1.6. How do the beneficiaries evaluate the overall satisfaction obtained from participation in the project?

1.7. Do the beneficiaries have any suggestions concerning the ways of implementing the project assumptions?

In order to empirically verify the problems posed, a questionnaire, which mainly contained questions about the intensity of the variable, which implied the use of the Likert scale, was constructed. The respondents marked their answer on a scale from 1 to 5, where 1 meant a very high grade and 5 – a very low grade. The electronic questionnaire was sent to students. The research was anonymous and voluntary. In

zation of the educational process; 8) Increase in understanding of the studied content; 9) Increase in self-awareness of the resources/opportunities necessary to fulfill the role of a professional teacher; 10) Increased motivation to improve their teaching competences; 11) Enriching personal knowledge in the field of: A. Ways of understanding key competences; B. Teaching methods, including research methods; C. Teaching resources, including IT; D. Conditions for the organization of the education process; E. Assessing the education process; 12) Enriching professional skills in the field of: A. Developing key competences in mathematics; B. Developing key competences in a foreign language; C. Developing key competences in science; D. Developing key IT competences; E. Motivating students, awakening their cognitive curiosity; F. Creating and using various didactic aids, including IT, for planning the education process; G. Designing task situations that favor active and independent search and discovery of knowledge by students; H. Use of research methods, such as observation, experiment; I. Organization of the educational process useful for the student, supporting his understanding of the phenomena occurring in the surrounding world; J. Organizing activities outside the school building; K. Individualization of the education process; 13) Project effectiveness due to: A. Workload, additional duties, effort; B. Time invested in the implementation of the project; C. Real effects, obtained results; 14) Willingness to take part in a similar project again.

addition, the respondents filled out e-questionnaires at home, without time pressure, so they probably had a moment to think and reliably respond to the questions. During the focus sessions, students assessed: (1) the scope of cooperation with teachers in organizing a constructivist learning environment, (2) advantages and disadvantages of the mutual learning model (3) changes in the repertoire of personal teaching competences. The main variable was the effectiveness of the project assumptions, which the respondents subjectively assessed in various aspects of personal professional development and in the context of personal experiences.

The study involved 14 students (out of 15 people involved in the project) of pedagogy in the following areas: (1) elementary education and English; (2) pre-school education and primary education. Students represented the Faculty of Educational Studies at the University of Adam Mickiewicz in Poznań. The study of the overall effectiveness of the project in the context of the opinions and experiences of students consisted of assigning points from 1 to 5 to each response category in 14 verified aspects (28 response categories). It should be emphasized that the smaller the number of points assigned, the greater the severity of the variable. The reversed strategy was to force a moment of reflection of the examined student before giving the answer. Due to the number of points assigned to successive research areas, the following point ranges, which determined the overall degree of project effectiveness, were established: high grade: 28–65 points; average grade: 66–103 points; low grade: 104–140 points.

RESULTS

The analysis of empirical data obtained from the study of students shows that they highly value the effectiveness of the project, both in terms of the increase in their teaching competencies, including knowledge and methodological skills, the attractiveness of the teaching materials used during classes with students, and the quality of the teaching offer, which was the context in which they acquired new professional experiences and confronted their academic knowledge. The analysis of empirical data shows that students gave a total of 804 points, which, with $N = 14$, gives an average score of 57.43. This result is in the lower point range and proves a high degree of project effectiveness as assessed by beneficiaries.

A detailed analysis of the results for individual variables showed that they are in the lower and average point range, which corresponds to a high or average degree of effectiveness. Therefore, all the results obtained from the study of students prove that the assumptions of the project in the area of their practical education have been achieved to a very satisfactory degree.

The data in Table 1 shows that the surveyed students highly rated the overall satisfaction with involvement in the project implementation. They gave the highest marks to the competence of teachers conducting demonstration lessons and the organiza-

tion of the classes themselves, especially with regard to the availability of educational materials, methodological attractiveness, and atmosphere. They also noted positive changes in the form of increased personal motivation to improve their teaching competences. They also highly rated the changes in the repertoire of competencies related to the organization of the educational process based on the assumptions of the constructivist theory of knowledge and cognition. They only assessed averagely the increase in understanding of the content of academic education, emphasizing that this content was present in their practical activities to a minimum extent. The opinions of students, as future teachers, indicate the need to modify the system of acquiring teaching competences.

Table 1. Detailed distribution of the variable *project effectiveness* in the context of students' answers (N = 14)

Detailed variables	Points
Organization of workshops	26
Organization of demonstration lessons	24
Improvement of personal competence in the field of organization of the educational process	18
The content of workshops and demonstration lessons	22
Competences of teachers conducting classes	24
Quality of the materials obtained	14
Meeting personal expectations	30
Increase in understanding of the content of academic education	38
Increase in self-awareness of the resources necessary to fulfill the role of a professional teacher	32
Increased motivation to improve teaching competences	22
Total	250

Points range: high: 14–32, medium: 33–51, low: 52–70

Source: Author's own study.

To show the picture of the global variable, it was important to examine the changes in the knowledge of students. Since the project focused mainly on developing teachers' competencies in planning and organizing a constructivist learning process, it was important to capture changes in this respect. Accordingly, students were asked to evaluate the extent to which they experienced the enrichment and modification of personal knowledge in various methodological aspects of the learning process. The collected results show that the highest rates were given to changes in the understanding of the essence and use of modern media and research methods in the process of educating students. They also appreciated the reconstruction of their personal knowledge in the area of understanding key competencies and the essence of evaluating and assessing the education process itself. The respondents also noted positive changes in the form of an increase in their knowledge about the essence and importance of individual phases

of the constructivist education process for the effectiveness of students' learning. The increase in the knowledge of the respondents in this area is particularly important for the implementation of the project assumptions that resulted from constructivism. A detailed data distribution is presented in Table 2.

Table 2. Detailed distribution of the variable *reconstruction of personal knowledge* in the context of students' answers (N = 14)

Detailed variables	Points
Ways of understanding key competences	28
Understanding the importance and selection of teaching methods	22
Understanding the essence and selection of teaching aids, including IT	20
Understanding the essence of the particular stages of the organization of the constructivist educational process	24
Understanding the essence of the evaluation of the education process and its conducting	30
Total	124

Points range: high: 14–32, medium: 33–51, low: 52–70

Source: Author's own study.

Project effectiveness: Wielkopolska Training School in terms of changes that took place in the skills repertoire of the surveyed students seems to be one of the most important indicators of the variable. It was assumed that the active participation of students in all areas of the educational activity of the teacher and the school may contribute to the acquisition and improvement of the skills of managing the learning process of students. The respondents assessed the changes they experienced mainly in the category of methodological skills. The data illustrated in Table 3 show the increase in skills in all examined aspects. During the project, students had the opportunity to immerse themselves in a genuinely constructivist learning environment. It is not surprising that they rated the highest increase in their skills in designing task situations, conducive to active and independent search and discovery of knowledge by students, and in the use of research methods such as observation and experiment. They also highly rated the changes in their skills in terms of creating conditions for students to acquire and develop key competencies in computer science, nature, foreign language, and mathematics. These areas of education were the content context for the implementation of the project assumptions and, therefore, were the subject of research. An important and extremely difficult aspect of a teacher's educational activity is motivating students and arousing their cognitive curiosity. Therefore, the increase in skills in this area noted by the surveyed students is optimistic. Nevertheless, they are pleased with the changes they experienced in terms of the ability to organize the educational process that respects the individual needs of the student and fosters the understanding of real phenomena. They evaluated the increase in the ability to organize outdoor education as average.

Table 3. Detailed distribution of the variable *skill increase* in the context of students' answers (N = 14)

Detailed variables	Points
Developing students' mathematical key competences	28
Developing students' foreign language key competences	26
Developing students' key competences in nature	28
Developing students' key IT competences	20
Motivating students	28
Creating and using various didactic aids, including IT, for planning the education process	18
Designing task situations that are conducive to active and independent construction of knowledge by students	18
Use of research methods	18
Organization of the educational process useful for the students, supporting their understanding of the phenomena occurring in the surrounding world	30
Organization of activities outside the school building	36
Individualization of the education process	32
Total	282

Points range: high: 14–32, medium: 33–51, low: 52–70

Source: Author's own study.

The opinions and experiences of the respondents were also subject to empirical verification in relation to the amount of their work, additionally undertaken duties and the effort put into the project implementation. The results of the specific variables in this area of research show that students express very positive opinions. Their real support are declarations which show that all surveyed students expressed their full readiness to participate in a similar project. At the same time, they did not raise any substantive objections to the methods of implementing the project assumptions, declaring general gratification and high satisfaction with the results achieved.

DISCUSSION

The results of the study of students show a deep sense of creating a peer-learning community by organizing a training school as an important link in the teacher education system. The training school becomes a space for gaining new and authentic experiences and for confronting academic theoretical knowledge, personal ideas, experiences, and resources. In addition, it creates various opportunities for the construction of the image of the educational reality, the role of the teacher and the student, not only as a result of feedback from his task-based functioning but thanks to the relationships students naturally develop with other participants in everyday school life.

The essence of peer-learning in the proposed model of exercise school reflects a culture of offering, in which participants have many opportunities to share their own

observations and experiences, so they have a chance to learn about a wide range of educational activities and theories that constitute them. In this strategy, they explore, experience, search, discover, verify, negotiate, and, thus, have many opportunities to reconstruct their philosophy of education. Both candidates for teachers and in-service teachers in practicing education based on intuition, common theories and passive copying of someone else's solutions have a chance to become reflective, autonomous, and self-aware participants in the education process, making paradigmatic choices and focusing on continuous improvement.

In the described model of training school, the process of educating candidates for teachers is incomplete, open, accessible and variable. Reflection plays a key role in the process of becoming a teacher, which serves to deepen the understanding of educational phenomena and their broad determinants. The functioning of a training school based on the model of reciprocity in learning requires sharing common goals, dialogue, exchange of knowledge and experiences, as well as mutual use of one's competencies and providing psychological support. Thus, it has the dimension of subjective interactions in which people who give and receive support change places in a long-term process of professional improvement. Such a model of relations not only allows for the acquisition of new competencies, but also enables the development of a sense of competence, and, as a result, a sense of agency and influence on the course of events. What is particularly important, the subjective relations are accompanied by an atmosphere of security and acceptance, enabling each participant of the interaction to undertake creative and innovative activities.

CONCLUSIONS

The model of educating candidates for teachers requires, apart from academic education, their active participation and learning in practice (Bednar, Cunningham, Duffy, Perry 1991). This must be a high-quality practice, as it is a source of experience essential in the process of forming the professional identity of students. It is an important place for the reorganization of their knowledge about the essence, course, and conditions of the education and upbringing process. Moreover, it becomes the context of the confrontation, clash of the imaginary and personal construct of the professional role with reality. It is important that this confrontation takes place in an environment with high pedagogical culture (Bonar, Buła, Just, Radzikowska 2014; Michalak 2018). Such conditions were created by "Wielkopolska Training School in Cogito", which, in accordance with the assumptions of the project, offered a multidimensional environment for promoting a constructivist learning process based on authentic cooperation, generative, and research learning strategies, problem-solving, and individualization of the development of each student (Grabinger 1996; Honebein 1996).

The collected empirical data and the reflections made in their context allow us to hope that the model of teacher education by creating training schools understood as an environment of peer-learning will become universal, and, at the same time, will be a tool for long-awaited changes in the broadly understood educational reality.

REFERENCES

Literature

- Bednar A.K., Cunningham D., Duffy T.M., Perry J.D. (1991). Theory into Practice: How Do We Link? In: G.J. Anglin (ed.), *Instructional Technology: Past, Present and Future* (pp. 81–101). Englewood: Libraries Unlimited.
- Bonar J., Buła A., Just M., Radzikowska D. (2014). Charakterystyka i opis nowatorskiego programu praktyk dla studentów pedagogiki na studiach I stopnia na specjalności edukacja wczesnoszkolna i wychowanie przedszkolne. In: J. Bonar, A. Buła, D. Radzikowska (red.), *Poznać – Zrozumieć – Doświadczyć. Nowatorski program praktyk dla studentów pedagogiki przedszkolnej i wczesnoszkolnej w aspekcie naukowym i organizacyjnym* (pp. 195–219). Kraków: Oficyna Wydawnicza Impuls.
- Fish D., Broekman H. (1993). Odmienne podejście do kształcenia nauczycieli. *Forum Oświatowe*, 7.
- von Glasersfeld E. (1995). A Constructivist Approach to Teaching. In: L.P. Steffe, J. Gale (eds.), *Constructivism in Education* (pp. 3–15). Hillsdale: Lawrence Erlbaum Associates.
- Gołębniak B.D. (1998). *Zmiany edukacji nauczycieli. Wiedza – biegłość – refleksyjność*. Toruń – Poznań: Edytor.
- Grabinger R.S. (1996). Rich Environments for Active Learning. In: D.H. Jonassen (ed.), *Handbook of Research for Educational Communications and Technology* (pp. 665–692). New York: Macmillan.
- Honebein P.C. (1996). Seven Goals for the Design of Constructivist Learning Environments. In: B.G. Wilson (ed.), *Constructivist Learning Environments: Case Studies in Instructional Design* (pp. 11–24). Englewood Cliffs: Educational Technology Publications.
- Johnson D.W., Johnson R.T. (1991). *Learning Together and Alone*. Englewood Cliffs: Prentice Hall.
- Kwiatkowska H. (2008). *Pedeutologia*. Warszawa: WAIp.
- Lewowicki T. (2007). *Problemy kształcenia i pracy nauczyciela*. Warszawa – Radom: Wyd. ITE.
- Michalak R. (2018). Praktyka pedagogiczna kontekstem reorganizacji personalnej wiedzy o nauczaniu przyszłych nauczycieli. Propozycja zmiany modelu kształcenia nauczycieli. In: E. Musiał, J. Malinowska (red.), *Praktyki pedagogiczne przestrzenią i miejscem ewaluacji kompetencji przyszłych nauczycieli wczesniej edukacji. Konceptcje – przemiany – rozwiązania* (pp. 26–41). Wrocław: Instytut Pedagogiki UW.
- Michalak R. (2021). Założenia projektu Wielkopolska Szkoła Ćwiczeń w Cogito. In: R. Michalak (red.), *Nauczyciel w kulturze wzajemnego uczenia się* (pp. 149–159). Poznań: Ogólnopolski Operator Oświaty.
- Oliver K.M. (2000). Methods for Developing Constructivism Learning on the Web. *Educational Technology*, 40(6), pp. 5–18.

- Sajdak A. (2013). *Paradygmaty kształcenia studentów i wspierania rozwoju nauczycieli akademickich. Teoretyczne podstawy dydaktyki akademickiej*. Kraków: Oficyna Wydawnicza Impuls.
- Tam M. (2000). Constructivism, Instructional Design, and Technology: Implications for Transforming Distance Learning. *Educational Technology & Society*, 3(2), pp. 50–60.
- Wenger E., Lave J. (1998). *Communities of Practice: Learning, Meaning and Identity*. Cambridge: Cambridge University Press.
- Żytko M., Nowakowska L., Sobierańska D., Szydler A. (2018). *Znaczenie praktyk pedagogicznych w procesie kształcenia nauczycieli*. Warszawa: Wolters Kluwer.

Netography

- Cox G. (2006). *REAL Business Learning Environments: Design Considerations in the Integration of Business Simulations into Rich Environments for Active Learning*. Carnforth: RSVP Learning Design. Retrieved from: http://rsvpdesign.co.uk/images/downloads/RSVP_Reals_complete.pdf/ (access: 5.05.2011).
- Olusegun S. (2015). Constructivism Learning Theory: A Paradigm for Teaching and Learning. *IOSR Journal of Research & Method in Education*, 5(6), pp. 66–70. DOI: <https://doi.org/10.9790/7388-05616670>. Retrieved from: <http://iosrjournals.org/iosr-jrme/papers/Vol-5%20Issue-6/Version-1/I05616670.pdf> (access: 29.09.2020).