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Organizational and pedagogical conditions of profile training of students with special educational needs in the printing industry

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Abstract

Relevance. One of the main responsibilities of modern society is to educate students with special educational needs and integrate individuals with disabilities into the community.

Purpose. The aim of this research is to study the peculiarities of organizational and pedagogical conditions of profile training of persons with special educational needs.

Methodology. The study was conducted by means of a sociological survey. 265 respondents took part in the survey, including 198 teachers, 43 representatives of administration and 24 heads of educational institutions and their departments. During the survey, the respondents assessed their skills and abilities of teaching capabilities.

Results. The results showed the need to improve teachers' ability to manage the teaching process, and to apply inclusive education strategies, the need to improve management skills and the use of equipment. Administrators and supervisors need to improve their skills in communicating with students in an inclusive classroom, understanding how to communicate their vision to teachers.

Conclusions. The study of the possibilities of improving the conditions for teaching students with special educational needs, shows the need to form a space taking into account the needs of students, the creation of infrastructure, the selection, and use of appropriate technologies for teaching, quality training and continuous professional development of teaching staff. The practical significance of the study lies in the study of the level of readiness of teachers, administrators, and supervisors to implement studies for students with special educational needs in the polygraphic field in institutions of profile training.

Keywords: inclusion; curricula; infrastructure; adaptability; teaching capabilities.

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Introduction

Providing access to training of different social groups to professional activity in modern society is actively developing, so it is especially important to determine the conditions for effective training of persons with special educational needs (SEN). The development of global education is carried out in accordance with the Convention on the Rights of Persons with Disabilities and other normative acts, which determine the right of people with disabilities to receive quality education at all levels, as well as in the field of professional training. The professional training of people with SEN to work in the printing industry requires teachers to have the necessary knowledge of teaching, organizing places for comfortable learning, considering the abilities and skills of the students with SEN themselves. Training is also required for administrators and managers of educational institutions in the printing industry. Working with students with SEN requires a careful approach to each student, taking into account the type and level of nosology, selection, or development of an appropriate training programme. All this requires a deep analysis of the peculiarities of teaching students with SEN, and the training of specialists to work with them. In order to organize training for people with SEN in the printing field, it is necessary to apply a comprehensive approach, including the organization of space, professional development of teachers, formation of the curriculum taking into account the needs of people with SEN. At the same time, for the effective implementation of innovative training programmes, it is necessary to examine their effectiveness and assess the capacity of staff to teach new programmes.

The conducted research on teaching vocational subjects for students with SEN in Kazakhstan shows a lot of material and technical, pedagogical, and specific problems for the study of technology of polygraphic production by students with SEN. This is due to the specifics of teaching vocational education lessons in inclusive settings and the lack of courses on teaching methods in inclusive education [1]. Furthermore, T.M. Makoele and V. Burmistrova [2] investigated that Kazakh teacher training universities do not have a clearly articulated strategy for preparing teachers for inclusive education, developing inclusive programmes, courses, and curricula. G. Berikhanova et al. [3] show the feasibility of introducing a model that prepares future teacher-technologist for professional adaptation in inclusive education. This model includes motivational, cognitive, creative and activity components of readiness of the future master of industrial training to work in the field of inclusive education.

M.S. Demirok et al. [4] indicated the learning difficulties of individuals with SEN, and the positive attitude of educators towards the use of assistive technology to overcome learning difficulties. According to G.S. Abdullayeva [5], the development of scientific and methodological complexes, methodological and educational products, professional training programmes for teachers in inclusive education are necessary for effective teaching of students with SEN. Despite improvements in educational opportunities for children with SEN around the world, there are many gaps in the training of teachers to teach students with SEN, and their successful integration into the workplace. Developments

regarding the organizational and pedagogical conditions for the profile training of persons with SEN in the printing field are scarce. It becomes important to identify and analyse the factors influencing the success of training and professional adaptation of people with SEN in the printing industry.

In this regard, the aim of the study is to investigate the organizational and pedagogical conditions of polygraphic education of persons with SEN. The objectives of the study were:

- analysing the features of teaching students with SEN in the conducted studies;
- to determine the preparedness of teachers, administrators, and supervisors for the possibility of implementing studies for persons with SEN in the field of polygraphy;
- to formulate recommendations for the further development of opportunities for the education of students with SEN in the printing industry.

Literature Review

Under the influence of the ideas of integration and tolerance in modern education, there is a search for new conceptual solutions that help people with SEN to adapt in society through accessibility in the educational environment, which allows them to receive education and integrate into society. The presence of SEN complicates the learning processes in higher and vocational education, and according to A.M. Bolborici and D.C. Bódi [6], this requires special attention from educational institutions. C. Pehoiu et al. [7] recommended creating conditions for socialization and integration regarding the capabilities, skills, abilities, and personality of students with SEN for effective learning. O. Telna et al. [8] indicate that practical training in special as well as inclusive education settings is crucial as it enhances the professional competence of master trainers. D. Karkut [9] states that training for individuals with SEN can be used as therapy and socialization. The printing industry offers a variety of employment opportunities, and therefore it is particularly important that people with SEN can receive meaningful training in this field of work. In addition to this, working in the printing industry is a creative and creative endeavour, which has a positive impact on the emotional well-being of people with SEN. When choosing the direction of their professional education, M.N. Jauhari et al. [10] recommend considering the talents, interests, and opportunities of persons with SEN.

S. Myronova et al. [11] point out the importance of forming and creating inclusive spaces, including the design and content of lessons and the readiness of teachers. M.D. Olán-Sánchez et al. [12] pointed out the need to pay attention not only to the curriculum but also to the learning space for the convenience of students. T.M. Adewumi and C. Mosito [13] cited examples of successful education for individuals with SEN, which includes remedial work, use of special teaching aids, individualized work, and interaction with parents. M.P. Martínez-Agut and A. Monzó-Martínez [14] also point out the importance of the attitude of teachers and administrators towards students with SEN, taking into account their individual characteristics in the perception of educational material and practical activities, and correcting the learning process

according to the students' abilities. P.R. da Silva Fernandes et al. [15] point out that teachers need to master soft skills to understand students with SEN, communicate effectively with them. Z. Al-Khatib and H. Obaid Allah [16] proved the effectiveness of introducing a subject on inclusive education, together with the techniques used to teach students with SEN.

K. Stark et al. [17] and A. Riga et al. [18] argue that in order to provide quality teachers, it is necessary to provide the necessary conditions for their work, and continuous professional development. The lack of effective training and professional development for future educators to work with students with SEN is pointed out by A. Larraceleta et al. [19]. The importance of specialized teacher training is also highlighted by D.Y. Kang and S.N. Martin [20], for example, teaching in an informal setting had a positive impact on the comprehension of material by pupils with special educational needs. Accordingly, there is a need to develop training or professional development programmes for teachers in the printing industry in relation to working with students with SEN, and to create effective training programmes for students.

Materials and Methods

The research was carried out by a mixed method. The analysis of publications in Scopus and Web of Science databases related to the organization and pedagogical conditions of training of persons with SEN, and training of students in the printing field was carried out, which contributed to understanding the state of the issue and defining the research problem. This allowed forming key approaches, determining the relevance of the topic, and investigating trends in the development of professional training in the printing field. The method of systematization of data allowed investigating the trends of

training students with SEN, which further contributed to the formation of organizational and pedagogical conditions of training students with SEN in the printing industry. The method of generalization of theoretical approaches and research results allowed examining the problems of training students with SEN in the professional field. The method of data synthesis regarding the content of educational resources, adaptive elements, made it possible to identify information about the presence or absence of materials on the training of students with SEN in the printing industry.

The method of data synthesis allowed investigating the general characteristics regarding the organization of training of students with SEN, highlighting the organizational and pedagogical conditions of work with students with SEN in the polygraphic field. In support of theoretical methods, a survey of teachers was conducted to investigate the level of their readiness to teach students with SEN in the printing industry. To interpret them, the method of descriptive analysis was used to explore the assessment of readiness to teach students with SEN in the printing industry.

Participants of the study: 265 participants took part in the survey, namely teachers, administrators, and administrators of specialized educational institutions in the printing industry: Almaty Printing College, Karaganda Vocational and Technical College, Temirtau Higher Polytechnic College, Kostanay College of Consumer Services, Zhezkazgan College of Business and Transport, O. Tansykbaev College of Decorative and Applied Arts, Kazakh National Academy of Arts named after T.K. Zhurgenov, Abai Kazakh National Pedagogical University, LLP Early Training of Innovative Personnel Dauyr and LLP Atamura Printing Plant. Details of the demographic composition are presented in Table 1.

Table 1. Demographics of respondents who took part in the survey

Category	Respondents	Frequency, n	%
Floor	Male	126	47.55
	Female	139	52.45
Job title	Teacher	198	74.72
	Administrator	43	16.23
	Supervisor	24	9.06
Academic qualifications	Master	248	93.58
	PhD	17	6.42
Professional qualifications	Diploma of Education for Students with SEN	12	4.53
	Higher Degree in Teaching Students with SEN	6	2.26
Teaching experience	1-5 years	98	36.98
	6-10 years	87	32.83
	11-15 years	59	22.26
	16 or more	21	7.92
Age of respondents	25-30 years	115	43.40
	31-35 years old	101	38.11
	36-40 years old	37	13.96
	41 or more	12	4.53

Source: compiled by the authors.

The questionnaires used for the survey were “Training Needs in Inclusive Education” and “Interview on Training

Needs in Inclusive Education”. These questionnaires were developed and recommended by F.N. Ogba et al. [21],

which for this study were translated and adapted regarding training in the printing field. Participants responded to the questionnaire by rating their knowledge and capabilities on a Likert scale (1 – no knowledge/skills, 2 – fairly little knowledge/skills, 3 – average knowledge/skills that require significant development, 4 – good knowledge/skills but require significant improvement, 5 – fully possess knowledge/skills but require little development, 6 – possess the necessary knowledge/skills, require little or no development, ND – if the competence does not relate to the work of the teacher

The survey regarding learning needs in inclusive education consists of 10 competences for teachers and 14 for administrators and managers. The content validity of the questionnaires was proved by the developers and confirmed in this study (Cronbach Alpha coefficient – 0.81). The participants were also asked several additional questions on the possibilities of improving the preparedness of teachers, administration, and managers of educational institutions for profile training of students. The answer options were “I think it would be a good solution” or “I don’t think it would improve preparedness for the learning process”. The obtained answers were processed using SPSS Statistics, mean values, standard deviations, differences by Student’s T criterion between the results of teachers’, supervisors’ and administrators’ answers were calculated.

The ethics of the study was ensured by the anonymity of teachers’, administrators’ and managers’ responses, their voluntary consent to participate in the survey and to publish the results obtained. Participants could stop participating in the surveys if they were unwilling or unprepared to answer the questions posed.

Results

Results of theoretical analysis of data regarding the organization of the educational process with students with SEN

The analysis of the data provided in the conducted studies allowed identifying some problematic aspects of training students in vocational education, and to highlight the conditions of training students with SEN in the printing field. In the process of examining the data in the research studies, two problems of training students with SEN can be identified, these are the opportunities for their training and further employment, and the organization of training, which includes the training of teachers, the creation of curricula and the appropriate organization of space. There is a problem of uncertainty in society about the employability of people with SEN, the limitation of the varieties of employment of people with SEN in several sectors and consequently the existence of unemployment among students with SEN. Further research is needed in relation to vocational training of students in the field of linking education with work, discussing the methods that need to be developed in vocational training, given the changes in the employment characteristics of people with SEN.

One of the organizational and pedagogical conditions for the vocational training of students with SEN is to take into account the needs of the market, to cooperate with employers to understand the requirements of different sectors of activity (in this case, the printing industry), and

to develop training programmes in harmony with the proposed job requirements and students’ capabilities [22; 23]. The challenges that hinder vocational education for people with SEN are as follows – societal attitudes towards people with SEN, lack of mechanisms for evaluating vocational education programme for students with SEN, factors of equipment and infrastructure availability, and readiness of teaching staff to teach students with SEN [24; 25]. It is possible to design a vocational education programme taking these factors into account, which will contribute to a quality learning process. The analysis of current approaches to profile training for students with SEN shows that most educational institutions focus on general educational standards, but there is a lack of adaptation of these standards to specific fields, in this case – in the polygraphic field.

Analysing trends in inclusive education highlights a growing interest in creating learning environments that support the diverse needs of learners with different inclusive education needs depending on the type of disability. The introduction of different technologies into the educational process has an effective impact on the development of inclusive education. E-learning programmes, resources, and adaptive learning technologies demonstrate the potential for more effective learning for students with SEN in print. This creates prerequisites for the formation of the following organizational and pedagogical conditions for the profile training of students with SEN – the development of a methodology for evaluating the assessment of the evaluation of developed programmes for teaching students with SEN in a particular field, considering all the different aspects of student learning, and evaluating the effectiveness of the application of these programmes. There is a need for more activities and initiatives aimed at training future printing professionals, taking into account the capabilities of students with SEN. These activities should be aimed at sharing knowledge and cooperation with stakeholders, to adapt to working conditions and understand the requirements of the modern market. The organizational and pedagogical conditions for the profile preparation of persons with SEN for work in the printing industry imply a focus on continuous learning, cooperation, and adaptation to the rapidly changing landscape of the industry.

One of the problems most analysed in the literature is the lack of special training for teachers to work with students with SEN. In addition, not only the learning process is important, but also the processes of social development of students in higher education, which can positively influence their motivation to learn and further effective work [26]. This requires changes in approaches to the training of educators who will work with students with SEN, and the influential factor of staff performance, which determines the quality of learning for students with SEN in general.

Analysis of the available data in the literature shows the need for further development of training programmes, considering the aspects of professional activity and opportunities for training and further activity of students with SEN. It is necessary to consider individual needs, to differentiate and individualize the training of students, to use innovative methods and digital tools, to consider

developments in the industry. Teaching methods require attention as well, given the diversity of students, there is a lack of opportunities. Teachers in the print sector have considerable expertise, but the issue of preparation for working with individuals with SEN requires further attention. Systematic inclusion in the educational process of courses and trainings on adapting teaching to the individual characteristics of students with SEN is a key aspect. So, training teachers to work with students with SEN from different aspects is the next condition for their education in the framework of specialized training. In addition, each intake of students with SEN requires coordination and adjustment of study programmes on the part of the management of educational institutions, considering the capabilities of the students in this intake. The same applies to online learning, for example, on the platform of massive open educational courses [27].

Another condition for preparing students with SEN is the availability of resources and materials and the development of infrastructure for learning in educational institutions. There is a need for increased adoption of technology and the development of specialized materials that meet a variety of learning needs. It is necessary to adapt spaces and equipment for students with SEN, which includes creating accessible and comfortable conditions for practical training. It is important to assess the professional development and opportunities for each student with SEN in self-actualization, to look for development opportunities that take into account the capabilities of each student individually. It is necessary to revise the methodology of assessment of students with SEN and select rational criteria for assessing students, considering the peculiarities of inclusion, to track the growth of the student in fulfilment of the requirements of the curriculum. All of this creates a need to develop specific programmes that students with specific abilities can complete.

Model approaches in the researched spheres of activity. The analysis of model approaches in education shows the development and design of inclusive teaching methods, adaptation of educational materials for teaching students with SEN in a particular field. Special education models emphasize an individualized approach, considering the needs of each student. In the polygraphic field, the methods of organizing training are focused on standard programmes, without considering individual characteristics. The same is confirmed by the conducted analysis of successful practices of inclusive education in other spheres of activity, the use of individual plans and the use of technology for learning. There is a need for research on the adaptation of training programmes to the individual needs of students with SEN, and the effectiveness of the application of these programmes in practice.

The results also highlighted the importance of tracking the development of skills for working with students with SEN in the print area with teachers, using developed

teaching methods, technology, with the help of learning assistants in special education. Two approaches to teaching students with SEN are possible, the first is inclusive pedagogy only (teaching students with SEN separately from others), the second is universal instructional design (with opportunities for students with SEN to learn with students with normal development), which emphasizes the importance of developing a sense of belonging to the group and the curriculum for all students. But the implementation of universal instructional design depends on the ability of students with SEN, the ability of teachers to organize the learning process, and importantly, the level of culture and perception of students with normal development to this format of learning.

The conducted analysis of the literature data allowed identifying such organizational and pedagogical conditions of teaching students with SEN:

- adaptation of space;
- adaptation of teaching programmes, development of individual programmes, as well as universal programmes for teaching students with SEN in groups with students with normal development (with the possibility of students with SEN, teachers, and students with normal development);
- development of individual study programmes and assessment criteria, taking into account the abilities of students with SEN and the requirements for professional activity and the developed curriculum;
- training of teachers, taking into account the requirements and characteristics of inclusive education;
- the use of technology, taking into account the development of the industry in printing, the capabilities, and needs of students with SEN;
- administration readiness, curriculum development to meet the requirements of inclusive education in a particular area.

To study the capacity of teachers to implement inclusive education in the polygraphic field, a survey of teachers was conducted, the results of which allow further assessing and highlighting the conditions for the organization of education of students with SEN in the polygraphic field.

Results of a survey of teachers of vocational education in the field of printing on the possibility of teaching students with SEN

The analysis of the data in the literature shows the need for effective teacher training to develop curricula and programmes, teaching in various forms. In order to determine the possibility of teaching students with SEN, the survey participants assessed their competences in the possibility of teaching. Table 2 shows the proportion of teachers' answers that highlighted the main areas of training that are most appropriate for the implementation of inclusive education.

Table 2. Teachers' responses about the need for training to implement inclusive education

Area of training needs	No.	%	Rank
Methods of teaching inclusive education	179	90.40	1
Use of special equipment and tools	177	89.39	2
Curriculum design and development	176	88.89	3

Organization and management of study groups	165	83.33	4
Community involvement and participation in inclusive education	159	80.3	5
Conceptual understanding of inclusive education	154	77.78	6
Knowledge of how to introduce inclusive education methods into the educational process	152	76.77	7
Learning environment factors that promote or hinder inclusion	146	73.74	8
Conceptual understanding of diversity in education	143	72.22	9
Collaboration and teamwork in an inclusive environment	122	61.62	10

Source: compiled by the authors.

The survey shows that the most important needs of teachers for the implementation of training of students with SEN in the printing field are the study of methods of teaching inclusive education, the use of special equipment and facilities, design, and development of training programmes. In general, despite the fact that teachers have

been trained to teach students with SEN, they rated their actual capabilities rather low, and almost all of them expressed their training needs. The survey of administrators and supervisors shows such results (Table 3).

Table 3. Responses from administrators and managers about the need for training to implement inclusive education

Area of training needs	No.	%	Rank
Organizing and managing study groups with students with SEN	62	92.54	1
Introduction of inclusive education methods in an educational institution	61	91.04	2
Design and development of training programs taking into account the needs of students with SEN and the characteristics of the printing field	59	88.06	3
Understanding the unique characteristics of students with SEN	56	83.58	4
Design and development of training programs	55	82.09	5
Involvement and participation of assistants in inclusive education (including additional courses or training on working with students with SEN)	54	80.6	6
Providing the necessary conditions for teaching students with SEN in the printing field	49	73.13	7
Conceptual understanding of diversity in education	48	71.64	8
Methods of teaching inclusive education	48	71.64	9
Inclusive education resources, their distribution, and use	43	64.18	10
Use of special equipment and tools	43	64.18	11
Knowledge of legislation regarding the implementation of programs for teaching students with SEN in the field of printing	42	62.69	12
Conceptual understanding of inclusive education	41	61.19	13
Factors in the learning environment that promote or hinder inclusion	37	55.22	14

Source: compiled by the authors.

In order to compare the evaluation of their capabilities of the average evaluations of teachers and administrators and supervisors, a comparison was made using Student's t-test. It is investigated that there is a statistically significant difference between the mean ratings of teachers and administrators on the measures of instructional

management, and equipment use. Teachers are generally better prepared practically to work with students with SEN, whereas administrators and supervisors are better equipped to understand the legislation and organizational features of teaching students with SEN (Table 4).

Table 4. Comparison of the difference in answers from teachers and administration and managers regarding the knowledge, skills, and abilities that they possess for the possible introduction of inclusive education in specialized training in the printing field

No.	Competencies for organizing training for students with SEN in the printing area	Group	Average	SD	Df	t	P-value
1	Management instructions	Teachers (n=198)	3.05	0.43	263	3.552	0.012
		Administration and managers (n=67)	2.87	0.59			
2	Equipment management and use	Teachers (n=198)	2.61	0.76	263	2.763	0.898
		Administration and managers (n=67)	2.32	0.87			

3	General competencies	Teachers (n=198)	3.04	0.65	263	1.781	0.954
		Administration and managers (n=67)	2.71	0.58			

Source: compiled by the authors.

To summarize the results of the survey, there is a need for more in-depth analysis of the content of training programmes for teachers, administrators, and managers of educational institutions. It is necessary to provide resources and infrastructure, as well as the ability of teachers to use specific equipment for teaching students with SEN. Proper space planning needs to be conducted, to allow for wheelchair access, sensory environments, and the use of additional innovative technologies.

Interviews with teachers, administrators, and supervisors further highlighted possible accommodations for training individuals with SEN in the printing field. Participants expressed a desire to collaborate with an assistant (76.98% of those surveyed), to receive additional training regarding working with students with SEN, including the practice of training individuals with SEN for self-study (72.83%). The participants of the survey also indicated the possibility of training students with SEN in specialized schools equipped with the necessary materials or equipment for training in the printing field (the answer, "I think this would be a good solution" was chosen by 74.72% of the participants). The need for new training programmes was indicated by 79.62% of the respondents. The cooperation between the assistant and the teacher was supported by almost all the participants of the survey – 88.3%.

Discussion

The conducted research allowed identifying the features of organizational and pedagogical conditions of learning activities of students with SEN in the printing field, which complement and continue the research on the education of students with SEN in general. For example, I.O. Danchenko [28] singled out four conditions of teaching students with SEN, which are supplemented in this study. The author singles out such conditions: the development and implementation of a programme of full inclusion of persons with SEN in the educational process, training of teachers, formation of educational learning space, tolerant to inclusion, and pedagogical control of monitoring the effectiveness of ensuring full inclusion of students with SEN. Monitoring is understood as a form of organization and collection of information about the activity of a pedagogical system, which provides monitoring of its state and forecasting of its development. This study supplements the conditions for effective teaching of students with SEN in the printing field, namely, the need to study the needs of the market and compare these needs with the capabilities of students with SEN. The needs of the market and the capabilities of students – future specialists in the printing field, this is practically the basis for curriculum development.

Another condition for teaching students with SEN is the use of technology, also considering their capabilities and market requirements, which complements the results of Z. Feng et al. [29]. The next condition is the development of individualized plans for students based on their

capabilities, as well as collaboration with job providers to create relevant curricula. Another condition for educating students with SEN is the development of a system for assessing the fulfilment of the conditions of the curriculum, and the continuous improvement of education to meet the needs of students, as emphasized by researchers M. Efendi et al. [30]. As studied in the research of A. Khurana [31], the necessary condition for the education of students with SEN is also the adaptation of physical space, the creation of infrastructure that will provide access of students with SEN to various means of learning and practical activities. And the most discussed condition for the education of students with SEN in the printing field is the appropriate training of teachers, taking into account the requirements and characteristics of inclusive education, as well as managers and administrators to manage and conduct the learning process. From the literature review, it appears that in order to successfully profile students with SEN in the printing field, some training of the staff of teachers, administrators, and supervisors is necessary. M. Holmqvist et al. [32] researched that teaching students with SEN requires mandatory inclusive education skills for prospective teachers, in addition, it is necessary to correctly assess students' progress, the ability to competently identify and address learning deficits. Teachers need to be able to support and motivate their students with SEN to fulfil their potential and overcome various obstacles. This will also be facilitated by creating virtual space, ensuring physical accessibility to student learning materials, and creating opportunities for staff development.

The participants in this study were teachers, supervisors, and administrators at institutions that train students in the printing field and who had received training in working with students with SEN. Despite this, the participants rated their ability to teach quite low. This shows the need for a more in-depth study of the characteristics of working with students with SEN in order to implement the course in the teaching of future professionals in the printing field. A. Moriña et al. [33] also highlighted that teachers need to periodically conduct self-reflection or else evaluation from the administration regarding the skills and development and knowledge of teaching students with SEN, making necessary adjustments, innovations, and changes to effectively teach each student. According to K. Stark et al. [17], for effective teaching of students with SEN, it is necessary to create a suitable working environment for teachers and develop a system for their evaluation in a specific area. Also, B.D. Kairbekova et al. [34] proved that quality teacher training and teaching in this case will be useful not only for students with SEN, but also for regular students, as they will have the opportunity to master the features of working with people with SEN. Moreover, it was concluded in the study conducted by A. Moriña et al. [33], that teachers and educators need training to teach people with disabilities. Regarding analysing how classes are conducted, changes

in teaching practices, according to K.L. Morin et al. [35], it is effective to use video analysis. Because teachers in the special education environment work in a variety of settings and the student population is highly diverse, evaluation criteria should encompass all these nuances. Indicators of working, learning, and teaching conditions are important to the quality of the educational process and outcome. E.E. Biggs et al. [36] identified 10 competencies that contribute to balanced teacher leadership in inclusive education, which fall under three domains – knowledge, skills, and dispositions.

In addition, it is necessary to equip classrooms and develop curricula that will facilitate effective learning for students with SEN and that can be adjusted to the capabilities of each student, taking into account their individual characteristics. It is possible to develop personalized learning plans, individual work. This approach will promote self-determination and the development of a sense of responsibility and motivation of students with SEN in the learning process [37]. The analysis of research data on the peculiarities of teaching students with SEN shows the following necessary conditions for teaching students with SEN: training of teaching staff, teaching programmes, adaptation to different types of disabilities (vision, hearing, musculoskeletal and others). M. Tripak et al. [26] identified competencies for working with students with SEN, possible ways to improve the curriculum for teachers and for administrators. Most studies focus on the specifics of preparing teachers to work with students with SEN, for example, A.A. Candeias et al. [38] and B. Billingsley et al. [39], as other aspects of learning opportunities for students with SEN depend on different factors, such as financial provision, the development of teaching programmes in institutions, and the possibilities of arranging learning space in a particular institution.

Together with the fulfilment of the necessary conditions for updating training programmes for future specialists, R. Marcheiva-Yoshovska [40] researched that it is effective to use a form of mentoring in the field of inclusive teacher education to train future specialists in the printing industry. It is a learning strategy that is realized in cooperation between two people to achieve learning objectives. This is also indicated by the researchers V. Korniat et al. [41] as training people with SEN is not a simple process as students have different levels of ability, socialization, and other nuances. At this time, there is no consensus on how to evaluate teachers who teach in special education. S.R. Simonson et al. [42] indicated that most institutional practices are inaccurate, which is due to the fact that teaching in the area of educating pupils and students with SEN is hard to evaluate. E. Johnson and C.L. Semmelroth [43] and E. S. Johnson et al. [44] indicated that this is due to many reasons, the diversity of teacher and teacher domains, and the heterogeneity of the population. This study used a preliminary assessment of teachers' ability to deliver instruction to students with SEN, which indicates the need for more in-depth training and the selection of appropriate equipment and location. This continues the findings of H.E. Kratz et al. [45] on the reasons for the discrepancy in the realization of opportunities for students with SEN in education, namely the small number of institutions that meet the requirements

of inclusive teaching. Also, the findings of H. Lopatina et al. [46] show that teachers are oriented to work with students with normative development, not considering the peculiarities of teaching students with SEN, but are ready to develop specialized programmes. D. Bibigul et al. [47] argue that in order to organize training it is necessary to conduct a deeper study of the capabilities of students with SEN, rational selection of teaching tools. If it is impossible to study in a group of students, it is possible to create separate small groups of students with SEN, as well as individual forms of education. After mastering the study material, students with SEN can participate with other students in group projects, perform some tasks. This organization of the learning process should contribute to effective work with students with SEN, their integration into the learning and working processes, as well as into society.

Conclusions

Teaching people with SEN in the printing industry presents many challenges – lack of knowledge and teaching skills for people with SEN, misconceptions of the industry as an uncomfortable environment for people with SEN to work in, perceptions of people with SEN as not being fully employable. The survey of teachers regarding their opinion on the possibilities of teaching students with SEN in the printing industry shows that, firstly, specialized training of teachers themselves is needed to teach students with SEN, as well as assistantship during classes. It is also possible to take refresher courses on the subject of working with students with SEN, but still, teachers in the majority expressed a desire for an assistant to conduct classes.

The provision of subject-specific training for students with SEN in the printing field requires careful attention both organizationally and in the development of teachers' skills. Collaboration between training providers and industry stakeholders (potential employers) is essential in order to develop training programmes that meet the needs of the industry, take into account new trends and developments in technology as well as the capabilities of future professionals with SEN. Appropriate resources and infrastructure, SEN-specific equipment, space, and curriculum planning should be in place to meet the different needs. In addition, support systems such as special education teachers, employment specialists for students with disabilities who will also be involved in the process of student learning in vocational education, and contribute to the professional development of teachers should be established.

From a pedagogical point of view, it is necessary to use a person-centred approach through the development of individual plans, which guarantees the adaptation of the individual needs of each student. Differentiation of teaching strategies, such as the use of visual aids, and technological solutions, considering different learning styles and abilities. Curricula also need to be designed with ethical content to ensure that students with SEN feel comfortable and are able to master the curriculum and assignments as independently as possible without feeling weak. Teachers need to be able to sense the need of students with SEN for help, and to present it as correctly as possible. With the application of organizational and pedagogical conditions of teaching students with SEN, it is

possible to provide quality profile training that will prepare them for successful employment in the printing industry. These are the preparation of space taking into account SEN students, infrastructure, and use of appropriate technologies, training of teaching staff, cooperation with special education institutions and potential employers. For educational institutions, stakeholders in the industry, and society at large, it is necessary to embrace and develop the potential of students with SEN, to provide them with the necessary support and opportunities to develop their capabilities in the printing industry as well as in other fields of endeavour.

Limitations of the study are related to the limited capacity to survey teachers, administrators, and supervisors of vocational education institutions in the printing industry. Also, this study provides preliminary data on the survey of teachers' preparedness to teach students in the printing industry. Prospects for further

research include investigating the effectiveness of teaching students with SEN, exploring emerging issues in the teaching process, and the employability of graduates. Prospects for further research include investigating the effectiveness of teaching students with SEN, exploring emerging aspects in the learning process, and the characteristics of graduate employment. Further research could investigate the effectiveness of pilot programmes of study for students with SEN in the printing industry designed in line with the recommendations of this study (teacher training and space creation).

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Conflict of Interest

None.

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Організаційно-педагогічні умови профільного навчання учнів з особливими освітніми потребами у сфері поліграфічного виробництва

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Анотація

Актуальність. Одним із головних обов'язків сучасного суспільства є навчання учнів з особливими освітніми потребами та інтеграція людей з обмеженими можливостями в суспільство.

Мета. Метою дослідження є вивчення особливостей організаційно-педагогічних умов профільного навчання осіб з особливими освітніми потребами.

Методологія. Дослідження проводилося шляхом соціологічного опитування. В опитуванні взяли участь 265 респондентів, з них 198 педагогів, 43 представники адміністрації та 24 керівники навчальних закладів та їх підрозділів. Під час опитування респонденти оцінювали свої вміння та здібності педагогічної діяльності.

Результати. Результати показали необхідність покращення вміння вчителів керувати навчальним процесом та застосовувати стратегії інклюзивної освіти, потребу вдосконалювати управлінські навички та використання обладнання. Адміністраторам і керівникам необхідно вдосконалювати свої навички спілкування з учнями в інклюзивному класі, розуміти, як донести своє бачення до вчителів.

Висновки. Дослідження можливостей покращення умов навчання студентів з особливими освітніми потребами свідчить про необхідність формування простору з урахуванням потреб студентів, створення інфраструктури, підбору та використання відповідних технологій навчання, якісної підготовки та постійного професійного розвитку педагогічних працівників. Практична значущість дослідження полягає у вивченні рівня готовності вчителів та керівників до здійснення навчання учнів з особливими освітніми потребами поліграфічного спрямування в закладах профільного навчання.

Ключові слова: інклюзія; навчальні програми; інфраструктура; адаптивність; навчальні можливості.