p- ISSN: 2708-2113 e-ISSN: 2708-3608 URL: http://dx.doi.org/10.31703/gesr.2022(VII-IV).05
Vol. VII, No. IV (Fall 2022) Pages: 49– 58 DOI: 10.31703/gesr.2022(VII-IV).05

Understanding 21st Century Learning and Learners: Perspectives of Special Education Teachers

Afaf Manzoor	Assistant Professor, Department of Special Education, University of Education, Lahore, Punjab, Pakistan. Email: Afaf.manzoor@ue.edu.pk *(Corresponding Author)*
Abdul Hameed	Professor, Department of Education, University of Management & Technology, Lahore, Punjab, Pakistan.
Waqas Ahmad Khan	Fellow, Japan Society for the Promotion of Science, Hiroshima University, Japan.

Abstract: *The role of the teacher can be a catalyst in enhancing and developing learning skills among students especially those with special needs. Punjab has one of the largest segregated special schools' systems in the country where more than 30000 children with disabilities are enrolled. However, the learning outcomes are not up to the standards. This study is quantitative in nature and explores the perspectives of special education teachers regarding their knowledge and competencies to understand and practice 21-century skills to teach learners with special needs. A survey method was used to collect data from 50 special education teachers working in public and private sector special schools in Punjab. Due to school closures, convenient sampling was used and data were collected via Google forms. The findings of the study revealed that teachers at special schools are practicing collaborative, communication, creativity and self-direction skills more than other 21st-century skills.*

Key Words: Learning, 21 Century Skills, Students with Disabilities, Teachers' Perspective

Introduction

The global rise on acceptance of education as a human right during the last three decades has compelled the states to include all children irrespective of any differences i.e., culture, creed, color, financial status or ability to learn. The universal agenda SDG 4 also focuses on equitable quality education for all. On the other hand, rapid advancement in the use of technology, media and digitalization has created challenges and opportunities for teachers to meet the diversified needs of learners. Most of the researchers agree upon three basic skills to be learnt by a student to keep abreast with the pace of the 21st century; that are learning skills, literacy skills and lifelong learning skills.

Education has been transformed from conventional teaching to an innovative approach during the 21st century. These innovations and advancements are visible through science and technology; however, such advancements also create challenges for the national stakeholders to meet with this global change in the education sector. Similarly, classrooms are becoming more inclusive in terms of language, ethnicity and economic conditions to accommodate diverse learners (Boyle et al., 2020). Therefore, stakeholders especially teachers are facing challenges to deal with such diversity in classrooms. The tilling of 21st-century skills is one of the focal points in

Citation: Manzoor, A., Hameed, A., & Khan, W. A. (2022). Understanding 21st Century Learning and Learners: Perspectives of Special Education Teachers. *Global Educational Studies Review*, *VII*(IV), 49-58. https://doi.org/10.31703/gesr.2022(VII-IV).05

education today. (Tindowen et al., 2017). The skills of 21st-century are known as a comprehensive set of understanding, skills, work traditions, and personality individualities. These skills are supposed to be unsympathetically important to success in current world, mainly in academic platforms and existing careers as well as workplaces. The phenomena of 21st century may be pragmatic in all theoretical areas of the subject and in all instructive, profession, and civic sets during the course of a student's lifespan (Moyer, 2016; Tindowen et al., 2017)

There are some studies reveal a disproportionate achievement gap among neurotypical and diverse learners in mainstream settings i.e., a significant gap have been found between Asian, White, African American and destitute students (Voltz & Fore III, 2006). The teacher is the most active actor among all stakeholders; therefore, learning challenges are more related to teachers for being professionals (Danielson, 2008). Only effective teachers who are trained to adapt instructions can notice and deal with the diversity of needs in the classroom. (Ormrod, 2009; Manzoor, Nawaz & Munir, 2022) also adds to this fact and explains the diversity in the classroom. According to this study, the students can be different and unique in their weaknesses, strengths, abilities. These traits can be influenced by their gender, ethnicity, living environment and socio-economic status. Any student who is different from the peer group on these traits is considered as a student with special needs. On the other hand, it is well-admitted fact the special children also have some special qualities and abilities which can be utilize to overcome their disabilities that only teacher can identify (Gierczyk & Hornby, 2021). Sustainable development Goal 4 also stresses signatory countries to revamp learning opportunities for 21st-century learners to access inclusive, quality, and lifelong learning skills.

Therefore, this study was conducted to identify special education teacher's knowledge and understanding about 21st-century skills that are vital to know the learners of this very era. This study is significant for special education teachers in terms of their reflection to the knowledge and skills required to teach and train children with special needs that can enable them to fit in the 21st century learning process. Further, this study is very important not only in theoretical but conceptual and practical perspectives.

Review of the Literature

Special education concentrated on the teaching and training of individuals who face difficulty in regular setting despite of multiple interventions. The attendance of disability or learning difficulty was a prerequisite and it referred to specifically designed instruction that was inherently different from the education offered to other children (Columna et al., 2014)

Teaching special students having unique needs in conventional classrooms requires interdisciplinary relationship and mutual concerns amongst faculty. Through collaboration, experienced instructors can help their colleagues by imparting pedagogic steerage and empowerment, which can encourage their colleagues to triumph over the tasks of teaching special students having unique abilities (Abegglen & Hessels, 2018; Schwab et al., 2017).

As (Cameron & Tveit, 2015) elaborated that special methods applied in special schools were necessary to reduce the potential hardships that the presence of alternative approaches and struggling learners might have on other children in regular schools. Therefore, special education came into existence and still have attention as a response to the failure of general schools to teach children with learning difficulties or disabilities. Many changes in special education over the last century led to some theoretical turnarounds: from a categorical to a relational perspective, from conventional medicine to an advanced social model of disability, and from separate to inclusive approaches in education (Papuda-Dolińska, 2018; Manzoor & Hameed, 2019).

In order to assist students and learners succeed in the 21st century, 21st-century competencies were identified as high-priority

abilities and characteristics. (Curriculum & Authority, 2017) Furthermore, it is well admitted fact that skills for 21st-century learning are not only high-tech learning but comprise "critical thinking", "problem-solving", "communication", and collaboration are essential to thrive in practical life (Johnson, 2009). (Hixson et al., 2012) highlighted eight skills that students in the twenty-first century must learn and practice.

Regarding to the use of 21st century learning for special education is also considered as best initiative to enhance the capabilities of students with disabilities. Therefore, (Pazey et al., 2016) explained that the need for selecting the right technology tools for children with learning disabilities. The learning methods elaborated by the 21st century enable the attainment of the target goals, and emphasized instructional guides for the classroom teachers that can be facilitate the students with learning disabilities from the usage of assistive technology instruments, in the classroom and at home. Different methods make the teaching-learning procedure pleasurable and productive.

Teaching and learning are important in improving the student's life and more important for children with special needs (Manzoor & Hameed, 2016). The theoretical framework of this study was derived from (Hixson et al., 2012). According to Hixson et al (2012), there are the following important components of 21st Century Teaching & Learning that make the learning process more convenient and effective for all types of learner.

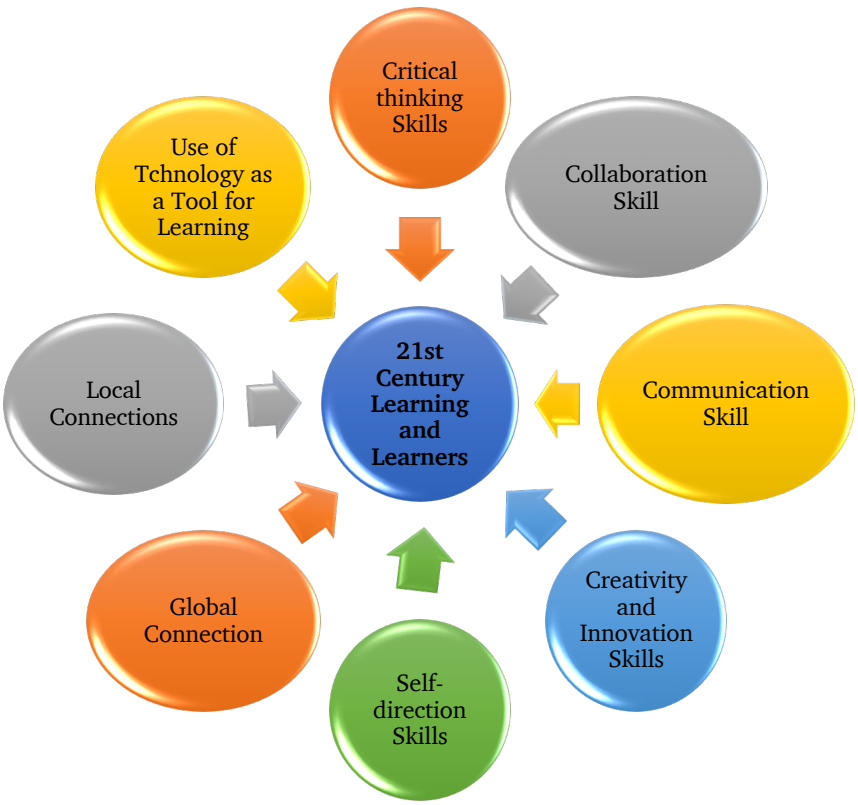

Figure 1: Indicators of 21st-Century Learning and Learners

Source: *Shear, L., Novais, G., Means, B., Gallagher, L., & Langworthy, M. (2010). ITL research design. Menlo Park, CA: SRI International.*

The functional explanations of these indicators are given below by the (Hixson et al., 2012).

- "CRITICAL THINKING SKILLS" mean to the ability of students to observe difficult problems, research flexible topics, gauge various aspects or information sources, and arrive at appropriate conclusions based on data and logic.
- "COLLABORATION SKILLS" refer to pupils being able to collaborate with one another to solve issues or provide answers, to work efficiently and politely in groups to achieve a common objective, and to take on shared responsibility for finishing a task.
- "COMMUNICATION SKILLS" students being proficient to effectively communicating their ideas, information, and results orally, in writing, and through a variety of media.
- "CREATIVITY AND INNOVATION SKILLS" refer to the ability of students to develop and improve solutions to challenging issues or tasks based on synthesis, analysis, and finally combining or presenting what they have learned in novel and creative ways.
- "SELF-DIRECTION SKILLS" is the ability of students to progress and advance answers to perplexing matters or tasks based on analysis and merging what they partake and learn in innovative ways.
- "GLOBAL CONNECTIONS" is the capability of students to understand universal, geopolitical issues, including knowledge of other cultures' geography, literature, and languages.
- "LOCAL CONNECTIONS" refer to the ability of students to relate their learning to regional milieus and social concerns.
- "USING TECHNOLOGY Students' ability to accomplish the learning and create goods while utilizing the proper information and communication technologies is referred to as LEARNING. (Hixson et al., 2012).

Objectives of the Study

This study was intended to:

- Explore the perspectives of special education teachers regarding their knowledge and competencies to understand and practice 21st-century skills to teach learners with special needs.
- Identify the difference of opinion among special education teachers about 21st-century learning skills on the basis of gender, age and qualifications.
- Recommend measures for understanding and practice 21st century skills in teaching to children with special needs.

Method & Procedure

This was a descriptive study with a focus to explore the knowledge of special education teachers about learning skills for the learners of 21st century. For this purpose, A survey for measuring 21st-century teaching and learning [WVDE-CIS-28] developed by (Ravitz & Blazevski, 2014) was used. This survey was designed to explore teachers' perceptions about 21st century teaching & learning. The theoretical framework of this instrument was based on the international Innovative Teaching and Learning study (Shear et al., 2010) , the Deeper Learning framework from The William and Flora Hewlett Foundation (2010), and Partnership for 21st Century Skills (p21.org). See figure 1 for the theoretical framework of the instrument. The framework comprises on eight elements of 21st-century skills (Table 1). These components were included in the instrument to explore teachers' understanding on the use and practice of these skills in their teaching. The instrument had excellent reliability .90 and validity protocols. The original tool was designed to explore the knowledge of general teachers, however, in this study researcher intended to explore the understanding of teachers working in special schools with children having disabilities.

Therefore, researchers adapted the scale keeping in view the learning and contextual limitations of the special children. Table 1

shows the reliability and items in sub scale of the adapted survey. Scale reliabilities was assessed using Cronbach Alpha on SPSS (Table 6). The reliabilities indices of all eight sub scales namely Critical Thinking, Collaboration, Communication, Creativity, Self-Direction, Global Communication, Local Communication, and Using Technology show that all sub-scales have good reliabilities. The overall reliability of main scale comprising these sub-scales "21st Century Learning and Learners Scale" was also good at 0.93 alpha levels.

Table 1. Reliabilities of composite scale and sub-scales

S. No	Scale	No. of items	Reliability
1	Critical Thinking	6	.80
2	Collaboration	7	.85
3	Communication	7	.83
4	Creativity	8	.93
5	Self-Direction	4	.86
6	Global Communication	6	.86
7	Local Communication	3	.84
8	Using Technology	6	.93
	Composite scale	47	.93

The sample of the study comprises on 67 special education teachers working in public and private special schools of Punjab. Due to schools' closure and pandemic situations, a survey was conducted online and a sample was selected by using a convenient method. Data were collected through google Forms by using various online sources i.e., Email, Facebook & WhatsApp. The distribution of demographic variables is given in Tables 1-5. After collection the data was tabulated and analyzed by using SPSS.

Data Analysis and Findings of the Study

This study was conducted to explore the perceptions of the teachers of students with special needs about 21st century skills and their implications for teaching and learning. The distribution of qualifications (Table 1) indicates that Masters and Post-Masters/MPhil degree holders dominate the group (about 81%). Table 5 shows the means and standard deviation of the length of experience and age group. It shows that middle aged group with rich experience was the majority in responding to the questionnaire.

Table 2. Qualifications of the Teachers

Designation	Frequency	Percentage
Graduate	5	7.8
MA/ M.Ed. Special Education	22	34.4
Post-Masters	21	32.8
MPhil Special Education	9	14.1
MS Med/MSc Psy	4	6.3
M.A. B. Ed	1	1.6
M. Com Sc	1	1.6
PhD	1	1.6
Total	64	100

Similarly, the junior special education teachers and senior special education teachers are in majority (68%) in Table 2.

Table 3. Designation of the Teachers

Designation	Frequency	Percentage
Principal	4	6.3
Headmaster/headmistress	3	4.7
Senior Special Education Teacher	22	34.4
Junior Special Education Teachers	22	34.4
Psychologist	6	9.4
Educator	4	6.3
Director	1	1.6
Computer Teacher	1	1.6
Missing value	1	1.6
Total	64	100

The area of disability (Table 3) shows substantial concentration of teachers of intellectually challenged children (46.9%) where future of the children is bleak. Female is dominant group (84.4%).

Table 4. Disability Taught by the Teachers

Disability	Frequency	Percentage
Hearing impairments	6	9.4
Visual impairments	12	18.8
Intellectually challenged	30	46.9
Physical disabilities	6	9.4
Learning difficulties/Slow learners	10	15.6

As far public-private distribution is concerned the private sector is slightly larger than the public sector (34:30) in table 4.

Table 5. Distribution of Gender and Sector

Gender		Sector	
Male	Female	Public	Private
10 (15.6%)	54 (84.4%)	30 (46.9%)	34 (53.1%)

Table 6. Mean and Standard Deviation of Length of Experience and Age

Attribute	N	Mean	Stand Dev
Length of expe(years)	64	8.67	5.73
Age in years	64	34.97	7.93

The means and SDs of the sub-scales and composite scales in Table 7 indicates that the special education teachers are good on creativity, collaboration and communication as compared to other 21st century skills. When genders were compared, no significant difference on independent samples t-test was found in male and female on composite as well as all sub-scales. However, a significant difference in means was found on the basis of sectors.

Table 8 shows that a significant difference in means of collaboration, communication, creativity, self-direction, global connections and composite scale. In all these areas the private sector.

Table 7. Means and Standard Deviations of Composite Scales and Sub-Scales

Scale	N	Mean	SD
Composite scale	47	161.81	32.28

Scale	N	Mean	SD
Critical thinking	6	19.75	5.28
Collaboration	7	26.03	5.53
Communication	7	24.25	5.45
Creativity	8	29.03	6.79
Self-direction	4	14.23	3.42
Global connections	6	17.87	5.04
Local connections	3	10.09	2.79
Using technology	6	20.55	5.49

Outperformed leaving behind public sector. It seems that public sector is not sensitive to the 21st century needs. However, no significant difference was found in terms of critical thinking and local communications.

Table 8. Means difference between Public and Private Sectors on 21st Century Skills

Scale		Means	N	t-vale	P value
Collaboration	Public	24.17	30	2.6	.00
	Private	27.68	34		
Communication	Public	22.83	30	1.99	.03
	Private	25.50	34		
Creativity	Public	27.53	30	1.68	.04
	Private	30.35	34		
Self-direction	Public	12.93	30	3.03	.00
	Private	15.38	34		
Global Connection	Public	16.57	30	1.49	.03
	Private	19.03	34		
Composite Scale	Public	153.47	30	1.99	.03
	Private	169.18	34		

One-way analysis of variance was run to see the significant difference in means on the basis of designation of teacher and subject of teaching. The p-vale of both analyses was non-significant. In other word attitudes of special education teachers toward 21st century skills do not vary on the basis of designation and subject of teaching.

Conclusion & Discussion

This study concludes that the special education teachers are well qualified and knowledgeable to understand the importance of 21st century skills who are supposed to shape up the future of children with special needs. The composite scales to measure 21st century skills and its subscale were found reliable to measure the construct (DAKHI et al., 2020). Special education teachers had better understanding about creativity (Kasirer & Shnitzer-Meirovich, 2021; Tu et al., 2021), collaboration and communication as compared to other 21st century skills. Both male and female responded similarly to the 21st century skills. There was no gender divide found in the responses for being knowledgeable about the skills (Faitar & Faitar, 2013; Gómez-Trigueros & Yáñez de Aldecoa, 2021). Special education teachers working in private sector were found better in perceiving 21st century skills than their counterparts in public sector. Attitudes of special education teachers toward 21st century skills do not vary based on designation and subject of teaching. The school culture perhaps keeps them similar in thinking about 21s century learning & teaching.

There is need to bring revolution in educational institutions to promote 21st-century skills to among pupils through formal education. The people who do not attend

formal education have trouble comprehending and picking up 21st-century abilities that let them compete in the globalized market. (Colardyn & Bjornavold, 2004; Papuda-Dolińska, 2018; Tindowen et al., 2017). The effective implications of 21st century skill needs a collaboration of learners and teachers. The teachers are more responsible for the implication of 21st century skill in the special educational institutions.

Recommendations

Following recommendations were made on the basis of conclusions

- The employer may arrange seminars and workshops to increase the sensitivity level of special education teachers about 21st century skills.
- Special education teachers may be encouraged to become members of international communities and clubs to enhance their knowledge and skills regarding global needs to be an effective teacher.
- The government may use various incentives to promote technological literacy among special education teachers.
- A similar survey may be conducted to assess the sensitivity and ability level of children with disabilities about 21st century skills to support the findings of this study.

References

Abegglen, H.-J., & Hessels, M. G. (2018). Measures of individual, collaborative and environmental characteristics predict Swiss school principals', teachers' and student teachers' attitudes towards inclusive education. *Psychoeducational Assessment, Intervention and Rehabilitation, 1*(1), 1-24. https://doi.org/10.30436/PAIR18-01.

Boyle, C., Anderson, J., & Allen, K.-A. (2020). The Importance of Teacher Attitudes to Inclusive Education. *Inclusive Education: Global Issues and Controversies*, 127–146. https://doi.org/10.1163/9789004431171_008.

Cameron, D. L., & Tveit, A. D. (2015). *Considerations on the evolving role and practice of the special educator in Norway*. Transitions in the field of special education. Theoretical perspectives and implications for practice, 73-90.

Colardyn, D., & Bjornavold, J. (2004). Validation of Formal, Non-Formal and Informal Learning: policy and practices in EU Member States1. *European Journal of Education*, *39*(1), 69–89. https://doi.org/10.1111/j.0141-8211.2004.00167.x.

Columna, L., Lieberman, L. J., Lytle, R., & Arndt, K. (2014). Special Education Terminology Every Physical Education Teacher Should Know. *Journal of Physical Education, Recreation & Dance*, *85*(5), 38–45. https://doi.org/10.1080/07303084.2014.897659.

Curriculum, Q., & Authority, A. (2017). The Pedagogical and Conceptual Frameworks in the new Queensland Senior Mathematics Syllabuses. *Teaching Mathematics, 42*(3), 9-14. https://search.informit.org/doi/10.3316/aeipt.220628.

DAKHI, O., JAMA, J., & IRFAN, D. (2020). Blended learning: a 21st century learning model at college. *International Journal of Multi Science, 1*(08), 50-65. https://multisciencejournal.com/index.php/ijm/article/view/92/72

Danielson, C. (2008). *The handbook for enhancing professional practice: Using the framework for teaching in your school*. ASCD.

Faitar, G. M., & Faitar, S. L. (2013). Gender Gap and Stem Career Choices in 21st Century American Education. *Procedia - Social and Behavioral Sciences*, *106*, 1265–1270. https://doi.org/10.1016/j.sbspro.2013.12.142.

Gierczyk, M., & Hornby, G. (2021). Twice-Exceptional Students: Review of Implications for Special and Inclusive Education. *Education Sciences*, *11*(2), 85. https://doi.org/10.3390/educsci11020085.

Gómez-Trigueros, I., & Yáñez de Aldecoa, C. (2021). The Digital Gender Gap in Teacher Education: The TPACK Framework for the 21st Century. *European Journal of Investigation in Health, Psychology and Education*, *11*(4), 1333–1349. https://doi.org/10.3390/ejihpe11040097.

Hixson, N., Ravitz, J., & Whisman, A. (2012). (2012). Research Brief : Extended professional development in project-based learning: Impacts on 21st century teaching and student achievement. *Www.academia.edu*. https://www.academia.edu/1999386/Research_Brief_Extended_professional_development_in_project_based_learning_Impacts_on_21st_century_teaching_and_student_achievement.

Johnson, P. (2009). The 21st century skills movement. *Educational Leadership, 67*(1), 11.

Kasirer, A., & Shnitzer-Meirovich, S. (2021). The perception of creativity and creative abilities among general education and special education teachers. *Thinking Skills and Creativity*, 100820. https://doi.org/10.1016/j.tsc.2021.100820.

Manzoor, A., & Hameed, A. (2019). Hopes of Out of School Children with Disabilities for Educational Inclusion. *Journal of Research*

& Reflections in Education (JRRE), 13(1), 133-146. http://www.ue.edu.pk/jrre.

Manzoor, A., Hameed, A., & Nabeel, T. (2016). VOICES OF OUT OF SCHOOL CHILDREN WITH DISABILITIES IN PAKISTAN. *Journal of Research in Special Educational Needs*, *16*(S1), 1099–1103. https://doi.org/10.1111/1471-3802.12256.

Manzoor, A., Nawaz, G., & Munir, H. (2022). Use of Differentiated Instructions for the Inclusion of All Learners: Insights from the Prospective Teachers in Pakistan. *Global Educational Studies Review*, *VII*(I), 280–290. https://doi.org/10.31703/gesr.2022(VII-I).28.

Moyer, L. A. (2016). *Engaging Students in 21st Century Skills through Non-Formal Learning*. Virginia Tech.

Ormrod, J. E. (2009). Edisi Keenam Psikologi Pendidikan Membantu Siswa Tumbuh dan Berkembang Jilid 2. *Terjemahan. Jakarta: Penerbit Erlangga*.

Papuda-Dolińska, B. (2018). Special Education in the Context of Educational Shifts towards Inclusion. *Kultura I Edukacja*, *120*(2), 174–191. https://doi.org/10.15804/kie.2018.02.11.

Pazey, B. L., Schalock, R. L., Schaller, J., & Burkett, J. (2016). Incorporating Quality of Life Concepts Into Educational Reform. *Journal of Disability Policy Studies*, *27*(2), 96–105. https://doi.org/10.1177/1044207315604364.

Ravitz, J., & Blazevski, J. (2014). Assessing the Role of Online Technologies in Project-based Learning. *Interdisciplinary Journal of Problem-Based Learning*, *8*(1). https://doi.org/10.7771/1541-5015.1410.

Schwab, S., Hellmich, F., & Görel, G. (2017). Self-efficacy of prospective Austrian and German primary school teachers regarding the implementation of inclusive education. *Journal of Research in Special Educational Needs*, *17*(3), 205–217. https://doi.org/10.1111/1471-3802.12379.

Shear, L., Novais, G., Means, B., Gallagher, L., & Langworthy, M. (2010). *ITL research design*. Menlo Park, CA: SRI International.

Tindowen, D. J. C., Bassig, J. M., & Cagurangan, J.-A. (2017). Twenty-First-Century Skills of Alternative Learning System Learners. *SAGE Open*, *7*(3), 215824401772611. https://doi.org/10.1177/2158244017726116.

Tu, C., Nurymov, Y., Umirzakova, Z., & Berestova, A. (2021). Building an online educational platform to promote creative and affective thinking in special education. *Thinking Skills and Creativity*, *40*, 100841. https://doi.org/10.1016/j.tsc.2021.100841.

Voltz, D. L., & Fore, C. (2006). Urban Special Education in the Context of Standards-Based Reform. *Remedial and Special Education*, *27*(6), 329–336. https://doi.org/10.1177/07419325060270060201.