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DEVELOPING

Xidoyatova Feruza
feruzakhidoyatova2@gmail.com

Abstract

This article looks at how schools can develop creative thinking in students who are blind or have low vision. Most classroom exercises for creativity depend on pictures, drawing and visual observation, so these students get fewer chances to practice. The paper reviews comparative and experimental studies published between 1971 and 2025, describes the network of specialized schools for visually impaired children in Uzbekistan, and proposes classroom tasks built on touch, sound, movement and speech. The evidence shows that visual impairment lowers results on some creative tasks, mainly pretend play and storytelling. The size of that gap, however, depends on age, teaching methods and how much hands-on experience a child gets.

Keywords: Creative thinking, visual impairment, divergent thinking, inclusive education, tactile learning, Uzbekistan.

Introduction

Before discussing visually impaired students, the term "creative thinking" needs a working definition. Psychologists usually split it into four measurable parts: fluency (how many ideas a person produces), flexibility (how many different kinds of ideas), originality (how rare the ideas are) and elaboration (how much detail the person adds). The Torrance Tests of Creative Thinking, the most widely used instrument, score all four. The test has a verbal form and a figural form, and the figural form asks children to complete and title drawings (Torrance, 1974). A blind child cannot take that half of the test at all.

The number of people affected is large. The World Health Organization (2019) estimates that at least 2.2 billion people live with some form of vision impairment. According to the same report, young children with early, severe impairment can fall behind in motor, language, emotional, social and cognitive development, and school-age children with impaired vision tend to have lower academic results.

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For a teacher, the problem is practical. A typical primary school lesson on creativity starts with a picture to describe, a drawing to finish or a short video to discuss. A blind student receives only the teacher's spoken description of that picture. In effect, the student listens to someone else's interpretation instead of producing one.

Research on this question started in the early 1970s. E. Paul Torrance and his colleagues at the University of Georgia adapted creativity tests for blind children and compared their results with those of sighted peers (Halpin, Halpin, & Torrance, 1973). In the same period, Tisdall, Blackhurst and Marks (1971) reported a connection between divergent thinking in blind children and their mobility, that is, how freely they moved around and explored their surroundings. Studies of play came later and gave mixed results. Lewis, Norgate, Collis and Reynolds (2000) first observed weaker pretend play among visually impaired children. When they removed the children who met the diagnostic criteria for autism, the difference with sighted children disappeared. Bishop, Hobson and Lee (2005) reported results in line with this.

The most recent data are less encouraging. Federici et al. (2025) compared 31 Italian children aged 3 to 9, all with congenital blindness or moderate to severe impairment, against 31 sighted children of the same age and sex. The sighted group scored higher on pretend play and on a storytelling task. On a 1 to 5 rating of how creative the stories were, visually impaired children averaged 1.13 and sighted children 2.35. Blind children did no worse than children with partial sight, so the severity of impairment did not predict the score. In Russia, Sorokin, Darinskaia and Molodtsova (2023) also found weaker creative imagination among visually impaired primary school children. In their teaching experiment, though, the same children revealed abilities that the initial testing had missed.

These findings point to experience rather than to eyesight alone. In the Italian study, visually impaired children mostly used wooden blocks as blocks. They rarely turned a block into a phone, a car or a piece of bread, which is the basic move of pretend play. Sighted children pick up this move by watching parents and other children. A blind child has to learn it through touch and words, and someone has to teach it on purpose. The stories told by the visually impaired group also had one outside narrator and almost no dialogue between characters. The authors linked this to difficulty in reading other people's emotions, since facial expressions and gestures are hard to perceive without sight.

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Uzbekistan signed the UN Convention on the Rights of Persons with Disabilities in February 2009 and ratified it on 7 June 2021. The Convention entered into force for the country on 28 July 2021 (Kun.uz, 2021). A year earlier, on 15 October 2020, Law No. ZRU-641 "On the rights of persons with disabilities" was signed. It provides for inclusive education at every stage, including preschool, general secondary, vocational, higher and postgraduate education. The government later approved a National Action Plan for 2023-2025 to put the Convention into practice. Alongside inclusive classes, the country keeps a separate network of specialized boarding schools for blind and visually impaired children. Table 1 shows its size.

Table 1. Specialized schools for blind and visually impaired children in Uzbekistan, 2019

Indicator	Value
Specialized schools	14
Students	about 2,830
Teachers	823
Educators (tarbiyachi)	606
Separately published textbook titles	145
Braille writing devices planned for 2019	3,000

Source: compiled by the author from UzDaily (2019).

Two numbers stand out. The schools have roughly 3.4 students per teacher, a ratio general schools cannot offer. That leaves time for individual oral tasks, which creative exercises need. The second number concerns materials. Braille textbooks and writing devices give students access to the standard curriculum. On their own, they add no tasks that train creative thinking. That part depends on what teachers do in class.

Since the 2021-2022 school year, teachers, psychologists and school leaders in general schools with inclusive education have taken a 72-hour online course every August (Uzbekistan’s inclusive education, n.d.). A module on creative tasks for blind students could fit into this existing course without new infrastructure.

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What can a teacher do in practice? The tasks below replace visual material with objects, sounds, movement and speech. Each one can be scored on the same four parts as a standard creativity test, so you can track a student's progress over a term.

Object tasks come first. Hand each student a real object: a wooden spoon, a kitchen sponge or a piece of rope. Give three minutes to name as many uses as possible. Count the total number of answers (fluency), the number of categories they fall into, for example cooking, music, games or tools (flexibility), and the answers no other student in the group gave (originality). A student who names "drumstick", "ruler" and "back scratcher" for the spoon has three answers in three categories.

Sound tasks are the second option. Torrance's group built a whole test on sound, Thinking Creatively with Sounds and Words, in which children describe the images that recorded sounds bring to mind (Khatena & Torrance, 1973). In class you can play four short recordings (rain, a closing door, a bus and a cat) and ask students to join them into one story.

Story continuation is the third. Read the opening of a folk tale and stop where the hero has to make a choice. Federici et al. (2025) used this format with an audio fairy tale; two independent raters scored each continuation for creativity, imagination, novelty and likeability with the rating method of Hennessey and Amabile (1988). Uzbek folk tales work well here because students already know the characters. To deal with the single-narrator problem, ask direct questions: "What did the old man say to the fox? How did his voice sound?"

The fourth task is building with the hands. Give students clay, a construction set or pipe cleaners and ask them to build an animal that does not exist, then explain how it moves and what it eats. Phutane et al. (2022) interviewed 21 teachers of visually impaired students. These teachers preferred 3D models over flat tactile graphics and used real objects as a first step toward raised-line pictures, although they found models hard to make and change. Clay avoids that problem, because the student makes the model.

The fifth task is for the early grades: show object substitution directly. Put a block in the child's hand, hold it to your ear and say "Hello, who is calling?" Then ask the child to turn the same block into something else. Repeat with a different object each day. This exercise targets the exact skill the Italian children lacked. Table 2 sums up the five tasks.

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Table 2. Classroom tasks and the parts of creative thinking they train

Task	What the student does	Parts trained
Object uses	Names uses for a real object in 3 minutes	Fluency, flexibility, originality
Sound story	Joins 4 recorded sounds into one story	Originality, elaboration
Story continuation	Finishes a folk tale, with dialogue between characters	Elaboration, originality
Hand building	Builds a new animal from clay and explains how it lives	Originality, elaboration
Object substitution	Turns one block into several pretend objects	Flexibility, fluency

Source: developed by the author.

One-off tasks are easy to run, while a planned programme is easier to evaluate. Al-Dababneh, Al-Masa'deh and Oliemat (2015) designed a full training programme in creativity for children with visual impairment and tested its effect on their creative abilities. For testing, teachers do not have to give up on figural tasks entirely. De Caroli, Sagone, Falanga and Licciardello (2019) printed the Williams test of divergent thinking and Raven's matrices in relief by thermoforming on PVC, with raised lines at least 0.9 mm high, so blind students could read them by touch.

A few classroom rules make these tasks work. Accept every answer during the idea stage and comment only afterward. Record oral answers on a phone, so the student does not have to write in Braille under time pressure. Give the same task again after six to eight weeks and compare the scores. If a student named 4 uses for the spoon in September and 9 in November, you have a concrete measure of progress.

Visual impairment makes some creative tasks harder, mostly those that depend on imitation, pretend play and reading other people's faces. The research does not show a fixed ceiling, though. Results vary with age, with how independently a child moves and with the kind of tasks teachers set. Uzbekistan already has the legal base, 14 specialized schools and small classes. What these schools need next are lesson materials that train creative thinking through touch, sound and speech,

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plus short teacher training on how to score such tasks. The five tasks in Table 2 cost almost nothing and can be tested within one school term.

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