



Research Article

Advancing Inclusive Visual Arts Education and A Mixed-Methods Investigation of Universal Design for Learning

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Abstract

This study examines how Universal Design for Learning (UDL) can support engagement, understanding, and creative development in visual arts education among students in Grades 6–8 at a private school in Mongolia. A total of 169 students participated in UDL-informed visual arts lessons designed around culturally relevant topics, including Mongolian Ornament in Grade 6, Animal Form Creation in Grade 7, and Artists of Mongolia in Grade 8. A mixed-methods research design was employed, combining student surveys, classroom observations, and structured examination of students' artistic work. Classroom observations and artwork analysis indicated that varied forms of instructional representation, including demonstrations, visual references, hands-on resources, and digital materials, helped students interpret artistic techniques and culturally significant concepts more effectively. Opportunities to select materials, techniques, and methods of presenting their work also encouraged experimentation and individual artistic choices. Students demonstrated stronger participation, greater independence in completing tasks, and increased confidence when learning activities offered multiple pathways for engagement and expression. The findings suggest that UDL can provide a practical framework for making visual arts instruction more responsive to differences in students' abilities, interests, and learning approaches. In the Mongolian context, its use may also strengthen connections between inclusive teaching practices and culturally relevant arts education. The study highlights the importance of teacher preparation, flexible instructional planning, and institutional support for incorporating UDL principles into visual arts curricula.

Keywords: Universal Design for Learning; inclusive visual arts education; multimodal learning; student engagement; creative expression; culturally responsive pedagogy; Mongolian secondary education

Introduction

Visual arts education offers students an important setting for developing imagination, cultural understanding, critical thinking, and personal expression. In Mongolia, increasing attention to equitable and learner-centered education has created a need for teaching approaches that recognize differences in students' abilities, interests, experiences, and ways of learning. However, visual arts lessons may still depend on common activities, teacher demonstrations, and similar expectations for all learners, which can restrict opportunities for students to access artistic concepts, participate actively, and demonstrate their understanding in

different ways. Universal Design for Learning (UDL) provides a framework for addressing this challenge by considering learner variability during the planning of instruction rather than treating differences as difficulties to be addressed later [1]. Its three core principles—multiple means of representation, multiple means of action and expression, and multiple means of engagement—encourage teachers to present information through varied formats, provide alternative ways for students to demonstrate learning, and create opportunities that sustain interest and participation [2,3]. These principles have particular relevance to visual arts because artistic learning naturally involves observation, sensory experience, experimentation, interpretation, and

communication through different media. Students may understand an artistic concept through demonstrations, images, discussion, physical materials, or digital resources and may express their understanding through drawing, painting, modelling, design, or other creative forms. Previous scholarship has therefore identified the potential of flexible and choice-oriented approaches to strengthen autonomy, participation, and creative development in arts learning [4-7]. Research from Asian educational settings further suggests that effective UDL implementation requires attention to local curriculum expectations, cultural practices, classroom realities, and teacher preparation [8-10].

Methodology

The study adopted a quasi-experimental mixed-methods design to examine the contribution of Universal Design for Learning (UDL) to visual arts instruction among students in Grades 6–8 in a Mongolian general education school. Two instructional conditions were considered: a UDL group that experienced lessons planned around flexible learning opportunities and a comparison group that received the school's conventional teacher-directed instruction [9]. The instructional period extended over approximately 6–8 consecutive weeks. UDL lessons were organized around three complementary principles: presenting learning content through varied forms of representation, allowing students different ways to act and demonstrate their learning, and creating opportunities for sustained engagement. Classroom activities incorporated visual demonstrations, exemplars, hands-on and tactile resources, movement-based videos, and selected digital materials [11]. The artistic tasks were connected with culturally relevant themes, including Mongolian ornamental traditions, animal forms, and Mongolian artists. These adaptations were intended to provide students with more than one pathway for understanding artistic concepts and completing creative tasks.

Participants

The study included 169 students from Grades 6–8, of whom 49 participated in the UDL instructional condition and 120 constituted the comparison group. Students differed in academic readiness, preferred ways of learning, levels of confidence, and motivation toward visual arts. Such variation was considered relevant to the investigation because UDL is intended to accommodate differences among learners rather than rely on a single instructional pathway. Students were assigned to the instructional conditions according to the existing school and classroom arrangements rather than through individual randomization [12].

Data Collection

Data were gathered from several complementary sources to obtain a broader picture of students' participation, understanding, and artistic development. Classroom observations were used to record students' involvement in activities, responses to instructional support, persistence with tasks, and patterns of classroom participation. Semi-structured interviews with teachers and selected students provided additional information about their experiences with the instructional approaches and the perceived usefulness of different learning options. Student artwork was examined for evidence of originality, expressive variety, technical experimentation, composition, and interpretation of cultural themes. In addition, formative assessment records and participation logs were reviewed to identify changes in task completion and classroom involvement. A Google Forms-based student survey collected responses concerning interest in visual arts, preferred learning approaches, motivation, and perceived engagement. Bringing together these different sources enabled the researchers to compare observable classroom behavior with student and teacher perspectives and with evidence contained in the students completed artwork (Figure 1).

Data Analysis

The quantitative and qualitative data were analyzed separately and then considered together to develop an overall interpretation of the instructional intervention. Quantitative analysis involved descriptive statistics, including frequencies and mean scores, to summarize student responses and participation patterns. An independent-samples t-test was used to examine differences between the UDL and comparison groups on the selected outcome measures. Qualitative information from classroom observations, interviews, and artwork reviews was organized through systematic coding. Recurring categories included student participation, independence, creative experimentation, confidence, conceptual understanding, and use of culturally relevant artistic ideas [13]. The findings from the two strands were subsequently compared through methodological triangulation, allowing patterns identified in numerical results to be considered alongside classroom and artwork-based evidence.

Development of the UDL-Based Instructional Model

An Integrated UDL Model for Visual Arts Education was developed to translate the principles of UDL into practical classroom activities appropriate for the Mongolian context. The model emphasized flexible presentation of artistic

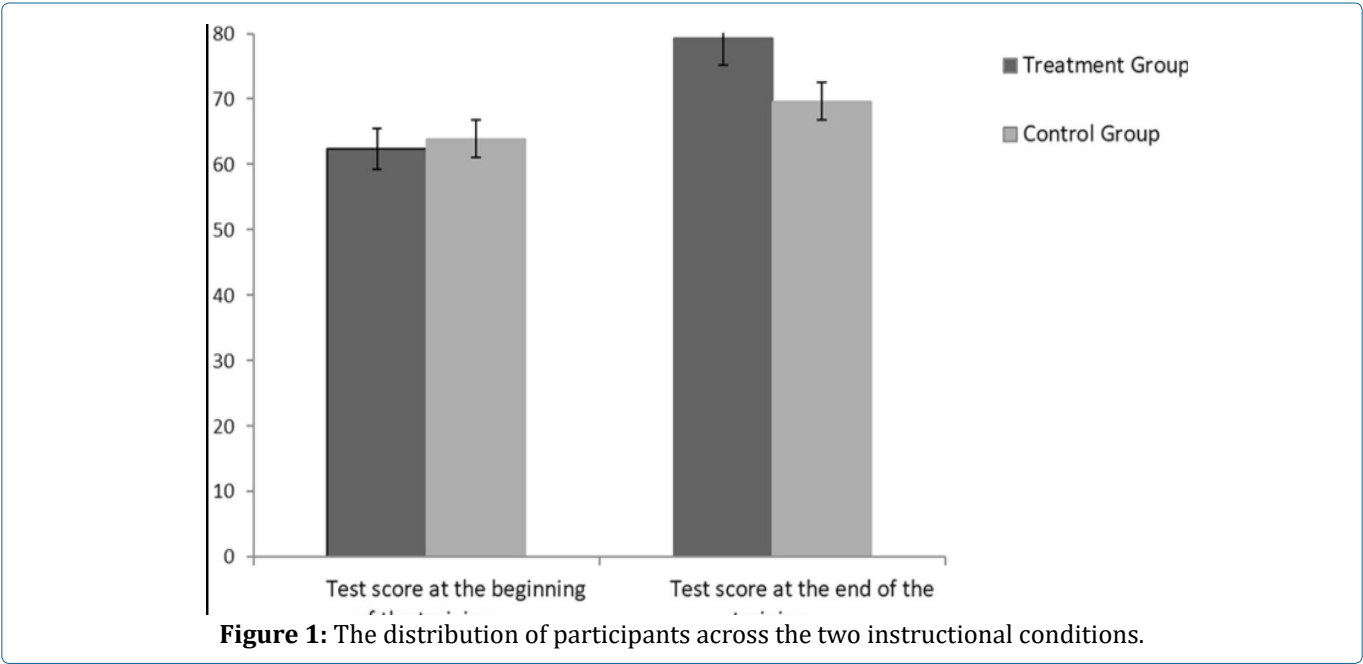


Table 1: Data Sources and Their Contribution to the Evaluation of UDL-Based Visual Arts Instruction

Data source	Main purpose	Key aspects examined
Student survey	Capture students’ perceptions of the learning experience	Interest, motivation, preferred learning modes, perceived engagement
Classroom observation	Document learning behavior during instruction	Participation, persistence, responsiveness, task involvement
Teacher and student interviews	Explore experiences with UDL-based activities	Accessibility, choice, confidence, perceived usefulness
Student artwork analysis	Examine evidence of creative and conceptual development	Originality, technical experimentation, composition, cultural interpretation
Formative assessment records	Monitor learning progress during lessons	Task completion, understanding, application of techniques
Participation logs	Record involvement across instructional activities	Attendance-related participation, task engagement, completion patterns

information, differentiated learning tasks, opportunities for students to select materials and techniques, and multiple forms of artistic expression [14]. Depending on the lesson, students could communicate their ideas through approaches such as drawing, collage, clay work, or digital composition. Choice was incorporated into activities where appropriate so that students could make decisions about materials, techniques, and aspects of their final work while still meeting the intended learning outcomes. Formative assessment was also incorporated to provide feedback during the learning process rather than relying solely on the finished product. Student responses, teacher observations, and classroom experiences were used to refine the model and improve its practical suitability for visual arts instruction in Mongolian schools (Table 1).

Results

The findings combine quantitative ratings with qualitative evidence from classroom observations, student responses, and samples of student work across Grades 6–8. The analysis focused on three major dimensions of UDL implementation: representation, action and expression, and engagement. The quantitative results showed a gradual increase in overall UDL effectiveness across the three grade levels, while the qualitative evidence provided additional insight into how students responded to different instructional options and how these options were reflected in their artistic work [15].

Overall Performance Across Grade Levels

The overall UDL effectiveness ratings showed a steady upward pattern across the three grade levels. Grade 6

recorded a mean score of 4.27 out of 5, while the mean increased to 4.45 in Grade 7 and 4.83 in Grade 8. Thus, Grade 8 recorded the strongest overall rating among the participating groups. The pattern suggests that students in the higher grade levels may have been better able to use the flexibility provided by UDL activities, particularly when tasks required independent decision-making, interpretation, and sustained creative work. However, these differences should be interpreted as descriptive patterns rather than evidence of developmental causation, particularly because the study used a quasi-experimental design [16].

Multiple Means of Representation

The findings related to representation indicated that students benefited from receiving artistic information through more than one format. The Grade 8 group obtained the highest representation score (4.80), followed by Grade 6 (4.50) and Grade 7 (4.20). Students were exposed to combinations of visual examples, written explanations, demonstrations, sensory materials, contextual information, and digital resources. Classroom observations suggested that these varied forms of presentation helped students connect artistic techniques with the cultural and conceptual information underlying each activity. Older

students appeared particularly comfortable combining information from different sources and relating visual references to broader cultural meanings. The results indicate that multimodal presentation can be useful when artistic concepts require students to interpret both observable features and contextual meanings (Figure 2).

Multiple Means of Action and Expression

Student artwork demonstrated differences in the ways learners translated ideas into artistic products. The expression-form variety scores increased from 4.00 in Grade 6 to 4.50 in Grade 7 and 5.00 in Grade 8. Grade 7 students showed noticeable willingness to experiment with techniques and materials, particularly during the animal-form activity. Grade 8 students demonstrated the broadest range of final outputs, combining formats such as posters, written reflections, drawings, and digital compositions. The availability of different ways to complete and present artistic tasks appeared to give students greater scope to make individual choices and experiment with techniques. Rather than requiring every learner to produce an identical type of outcome, the UDL approach allowed the intended learning objectives to be demonstrated through different forms of artistic communication (Table 2).

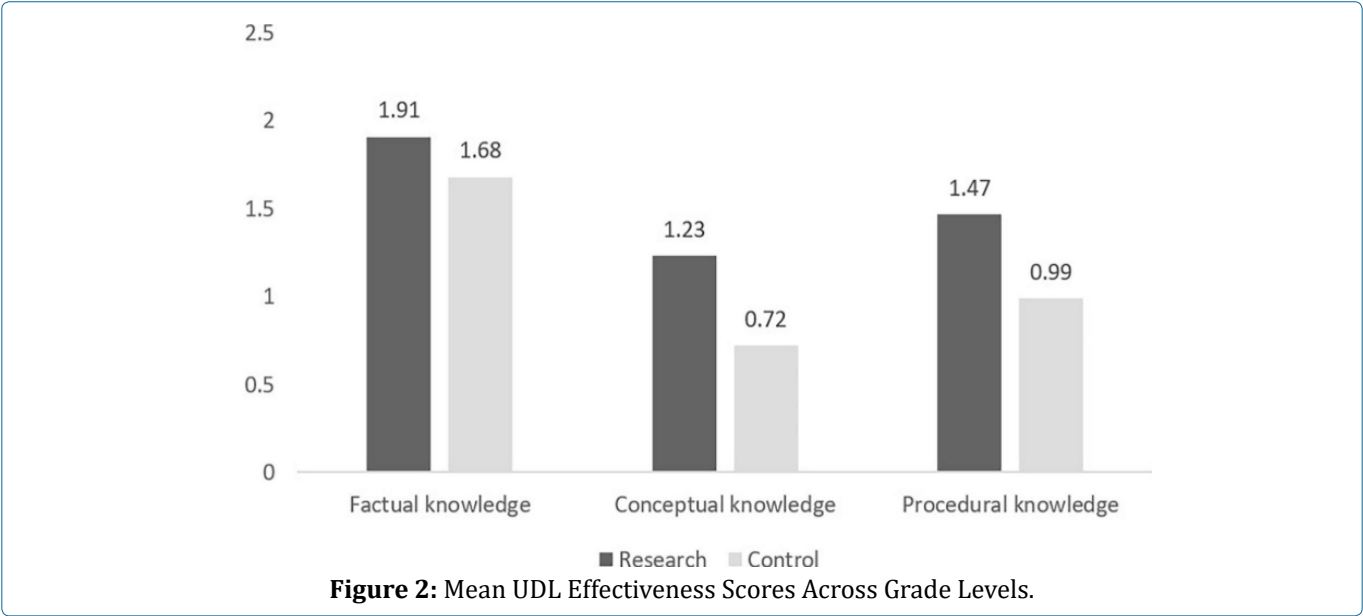


Figure 2: Mean UDL Effectiveness Scores Across Grade Levels.

Table 2: Grade-Level Results for UDL Representation and Action/Expression.

Grade	Overall UDL effectiveness	Representation score	Action and expression score	Dominant qualitative observation
Grade 6	4.27	4.50	4.00	Greater need for structured guidance and support
Grade 7	4.45	4.20	4.50	Strong experimentation and active participation
Grade 8	4.83	4.80	5.00	Greater independence and diverse forms of expression

Multiple Means of Engagement

Engagement patterns varied according to grade level and the characteristics of the artistic tasks. Grade 7 students displayed particularly strong behavioural and emotional involvement during the Animal Form Creation activity, where movement, sensory exploration, and practical experimentation were prominent features of the lesson. Grade 8 students showed strong evidence of independent engagement, including greater ownership of tasks and increased willingness to make individual artistic decisions. Grade 6 students participated actively but appeared to benefit from clearer sequencing, teacher guidance, and structured support when maintaining attention during longer activities. These observations suggest that engagement was not expressed in a single uniform manner across the grades. Instead, students responded to different motivational pathways, supporting the UDL emphasis on providing varied opportunities for participation, choice, and sustained involvement.

Conclusion

This study examined the use of Universal Design for Learning (UDL) in visual arts instruction among students in Grades 6–8 in a Mongolian school. The combined evidence from student responses, classroom observations, and analysis of artistic work indicates that flexible instructional practices can create meaningful opportunities for participation, creative exploration, and independent learning. The progressive pattern in overall UDL scores, together with the observed differences in representation, action and expression, and engagement, suggests that students responded positively when artistic concepts were presented through varied formats and when they were given greater flexibility in choosing how to develop and communicate their ideas. The use of culturally relevant themes also helped connect classroom activities with Mongolian artistic traditions and cultural knowledge, providing students with opportunities to interpret familiar cultural content through their own creative perspectives. Grade 8 students recorded the highest overall scores and demonstrated particularly broad forms of artistic expression, although the findings should be understood as grade-level differences rather than evidence that developmental level alone determined UDL effectiveness.

The study also highlights the practical potential of UDL for strengthening inclusive and learner-centered visual arts education in Mongolia. Providing multiple ways of accessing information, participating in activities, and

demonstrating learning can help teachers respond to differences among students without reducing common learning expectations. However, wider adoption of this approach will require appropriate teacher preparation, access to varied instructional materials, and curriculum structures that allow sufficient flexibility in classroom practice. Further research should examine UDL across larger and more diverse samples, including schools in different geographic and socioeconomic settings, and should investigate whether the observed benefits are sustained over longer periods. Future studies could also explore the contribution of digital and technology-supported UDL strategies to visual arts learning. Overall, the findings suggest that UDL has considerable potential as a culturally responsive approach for making Mongolian visual arts classrooms more accessible, participatory, and supportive of diverse forms of creative expression.

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