

Abstraction in Traditional Kazakh Art

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Abstract

The objective of this study is to conduct an analysis of the main tendencies of abstract art in traditional Kazakh art, identify key characteristics and stages of abstraction evolution, and elucidate their impact on artists' creativity. The research employed online surveys, questionnaires, data analysis, and organization. Statistical methods were applied to process and analyze the obtained data, including comparative analysis of mean values and calculation of t-indicators. The results of the statistical analysis indicate a statistically significant difference between the experimental and control groups at a significance level of 0.05. The t-statistic value (4.971) exceeds the critical t-value (1.98), allowing the rejection of the null hypothesis. This suggests that the use of graphic tablets and drawing software significantly influences the creative process in abstraction compared to traditional art methods employed by the control group.

Keywords: *Abstract Art, Artistic Abstraction, Contemporary Art Studies, Digital Innovations in Art, Modern Trends in Art, Technological Influence on Art, Abstract Art Evolution, Traditional Kazakh Art, Kazakhstan*

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Introduction

Abstract art is an artistic style aimed at rejecting the precise representation of visual reality. This artistic movement emerged in the early 20th century when the art community abandoned traditional forms of art and actively began to explore new methods of conveying emotions and ideas through the use of non-representational and non-objective images, including non-figurative art (Nrshinga, 2023). Although abstract art was present during the Tang Dynasty (618-907), it experienced a true flourishing in the late 19th century. This development was triggered by artists distancing themselves from classical and traditional painting methods after World War I due to a growing sense of cynicism and disillusionment. The beginning of this stage can be associated with the Impressionist movement, which emphasized the possibility of art being non-representational. Subsequently, this trend evolved towards more abstract forms, manifesting itself in Cubism and Fauvism. In the early 20th century, artists rejected the copying of real objects and focused on reproducing abstract ideas arising from their minds and imaginations (Soo, 2020).

In the contemporary world, the study of traditional Kazakh art and contemporary art studies is determined by educational and methodological support that takes into account the multifaceted aspects of these two spheres. When interpreting Kazakh abstract art, it is important to consider that there is no single correct or incorrect way of perceiving or understanding this form of creativity. Abstract art always elicits diverse emotions and reactions that can vary for each observer. Despite the diversity of interpretations, abstract art has remained the subject of study for art historians and viewers for decades, constantly evoking new thoughts and reflections. It is precisely because abstract art often transforms and takes forms different from the artist's initial intent that its interpretation becomes even more complex. The active role of an informed viewer can reveal new levels of meaning and enrich the perception of abstract art through personal connections and impressions (The Kelly Museum, 2021). In the 1950s and 1960s, Kazakh art experienced the development of abstract forms in painting, reflecting shifts in cultural and social paradigms. During the 1970s and 1980s, a period known as the "Thaw," abstraction emerged as a tool for expressing emotions and individual experiences, contributing to the transformation of the urban image. This era was marked by a shift in visual practices, where realistic imagery gradually evolved into metaphorical and symbolic interpretations, reflecting a new cultural reality. Thus, the final decades of the 20th century demonstrated how abstract forms became a means of profound cultural reflection on the changes within Kazakh society (Baturina, 2022).

Art is a unique experience that is difficult to convey in words due to its personal and non-verbal nature of impact on people. The experience of a work of art requires letting go of the need to express feelings in words and surrendering oneself to the influence of the artwork to feel its emotional depth (Redacted, 2016).

Thus, abstraction in traditional Kazakh art evolves into a deeper and more multifaceted process, serving not only as a form of artistic expression but also as a powerful means of preserving and transmitting cultural heritage. This approach creates a unique interaction where abstract forms and symbols become a bridge between the past and the present (Shevtsova, 2016). Understanding abstract art requires perceiving it as it is, without attempting to fix the exact meaning of the imagery (Thaneeya, 2023). Abstract painting,

defined by the absence of a recognizable plot, uses colors, lines, outlines, and forms to convey emotions and ideas. The emphasis in such art lies in the arrangement of elements and their interaction to create a harmonious or contrasting composition. In the context of abstract art, the freedom of individual interpretation for each viewer is crucial (Stojilovic, 2017).

Color serves as a fundamental element used to evoke various emotions and moods, where bold and bright shades can convey energy, while muted tones express tranquility. Additionally, artists employ brush gestures and textured surfaces to create a sense of spontaneity and dynamism, adding depth and visual interest to their creations (Gupta, 2024).

Contemporary art, created in the 21st century, is defined by a dynamic combination of materials, methods, concepts, and narratives that challenge traditional boundaries. Transitional art, using modern materials and updated finishes, blends with traditional images, characterized by clear identification and an elegant appearance. Abstractionism is defined by color manipulations without a recognizable image; contemporary art reimagines familiar images, and transitional art uses broad strokes and bold colors to exaggerate well-known narratives (Art & Company, 2019).

From the pioneers of abstractionism, such as Kandinsky and Malevich, to later innovators like Pollock and Rothko, abstract art continues its evolutionary development, shaping the perception of the diversity of art. Its influence is not confined solely to painting but extends to sculpture, architecture, and design (Nguyen, 2023). At the same time, while it may initially appear that technology and art represent opposing aspects of creativity, considering contemporary trends in the art sphere, it is important to explore the possibilities of integrating technology to enrich the artistic process and stimulate creativity (Schukei, 2019). This is particularly relevant in the context of abstract art, where artists explore new expressive means, and the use of technology can serve not only as a tool for creation but also as a source of innovation, opening new horizons in abstract artistic expression.

The article on the influence of abstraction in traditional Kazakh art provides a pertinent perspective on the artistic realm, considering national traditions. It makes a significant contribution to understanding the artistic landscape by drawing attention to the trends and styles inherent in this direction within Kazakh culture. Special emphasis is placed on the interaction between traditions and innovations, as well as the impact of modern technologies on the creative process, contributing to the formation of unique abstract works of art. The article serves not only as a source of information for students of art history but also as a valuable resource for artists seeking to broaden their understanding of traditions and innovations in the context of abstraction in Kazakh art.

Literature Review

Abstract art, with its forms and techniques that do not reproduce specific objects or scenes, serves as an effective means for exploring complex or challenging ideas that are difficult to convey through representational art (The Art Story, 2023). One significant impact of abstract art on culture lies in its support for global cultural exchange. Abstract art transcends cultural and national boundaries as it is detached from representative images of the physical world. This has contributed to the spread of the style on an international level and gaining recognition from diverse audiences (Ezee Art, 2023).

In a specific direction of contemporary abstract art, individual artists push the concept of expressionism to extreme expressions, creating works that can be characterized as absolutely grotesque and prompting reflection on the notions of mass consumption and excess (Lesso, 2023).

The following scholarly work explores the relationship between Global Image Properties (GIPs) and viewer preferences, focusing on the category of abstract art (Hayn-Leichsenring et al., 2020). The authors employ computational network science and empirical methods to examine GIPs and subjective preferences. The results confirm that GIPs do not have a determining influence on assessments of abstract art. The network structure of abstract art images is investigated using two approaches - verbal descriptions and GIPs. The semantic network was found to be capable of predicting preferences and artistic style, underscoring the importance of verbal descriptors. Overall, the article emphasizes the necessity of considering the diversity within abstract art in its empirical analysis and underscores the role of verbal descriptions in shaping subjective assessments.

One important theme under investigation is the influence of empathy on the aesthetic perception of representational and abstract art. In this study, the authors examined how the ability to feel emotional content (*Einfühlung*) affects participants' bodily reactions and subjective evaluations of paintings (Gernot, Pelowski, and Leder, 2018). The research included measuring participants' empathic engagement, and their bodily reactions using EMG and GSR, as well as assessing art through various aesthetic dimensions. Participants with higher levels of emotional contagion demonstrated more intense bodily reactions and greater affinity towards art, encompassing both representational and abstract art. The results affirm the hypothesis of the significance of empathy for aesthetic perception of art, indicating a close empathic resonance with the emotional content of the artworks.

In a study investigating art therapy as a non-pharmacological method in the treatment of mental disorders, the authors conducted a systematic literature review focusing on the theoretical foundations, clinical applications, and prospects of this approach (Hu et al., 2021). Concentrating on drawings and paintings within the context of art therapy, the primary objective was to determine the effectiveness of this method in treating mental disorders, which may also be associated with abstract art. The review, encompassing 413 sources, confirms that art therapy, particularly involving painting and drawing, is successfully applied in the treatment of patients with depressive disorders, anxiety, cognitive impairments, dementia, Alzheimer's disease, schizophrenia, and autism, reflecting the diversity and importance of abstract art in defining emotional expression. Thus, the results indicate that abstract art can be not only a source of aesthetic pleasure but also an effective tool for expressing and treating mental states.

This study aims to investigate the international scientific heritage in the field of art therapy through the use of bibliometric analysis (Rodriguez Novo et al., 2021). The article identifies the absence of prior bibliometric research in this area, and the authors seek to address this gap by offering a broad and in-depth view of the knowledge structure in art therapy. Various parameters are subjected to analysis, including document type, country, journal, and institution, as well as the classification of primary research directions and the themes of the most cited articles. The results of the study indicate that 563 works have been published in 250 journals in the field of art therapy since 1958. The annual growth rate was

7.3%, with an average of 8.7 publications per year. The study also explores authorship, thematic variability, citation patterns, and the main research directions. This research can contribute to expanding our understanding of how abstract art is employed in art therapy to achieve psychological well-being and rehabilitation. Examining the use of abstract art within art therapy can reveal its potential benefits and effectiveness.

The objective of this research is to explore how visual art, particularly abstract and representational, generates meaning, focusing on the difference in the universality of the language between these two forms of art (Schepman and Rodway, 2021). Through computer and linguistic analysis of 1,918 texts provided by 49 adult participants, the authors conclude that while representational art has more shared meaning, abstract art also evokes meanings that surpass the basic level. The obtained data not only enhance the understanding of the perception difference between abstract and representational art but also may serve as a foundation for refining theoretical models of aesthetic evaluation.

In the subsequent article, the question of the universality of aesthetic perception of art is raised, and its correlation with cultural and artistic expertise is identified (Darda and Cross, 2022). It is noted that previous research has indicated a certain prevalence of representational art over abstract art and highlights a tendency for greater affinity towards art reflecting one's own culture. The results obtained point to two main conclusions: firstly, they broaden and delimit our understanding of the universality of aesthetic perception, emphasizing the importance of considering the diversity of cultures and forms of art when examining empirical aesthetics models; secondly, they highlight the role of artistic experience as a tool to counteract biases.

Problem Statement

The objective is to conduct an analysis of the primary trends in abstract art within traditional Kazakh art, identifying key characteristics and stages of abstraction evolution, and elucidating their influence on artists' creativity.

Research Tasks:

1. This study aims to investigate and evaluate the influence of abstraction in traditional Kazakh art on contemporary culture.
2. Determination of Key Characteristics of Abstraction:
 - . The primary objective of this section is to define the fundamental characteristics that distinguish abstract art. The examination will focus on the identification and analysis of expressive elements frequently utilized in abstract works, including but not limited to line, form, color spectrum, and texture.
- 3.. Analysis of the Impact of Technology on Abstract Art:

This segment involves an exploration of the influence of modern technological innovations on the creative process within the realm of abstract art. It seeks to ascertain the technological tools and techniques employed by artists in creating abstract works and to discern the consequent effects on the aesthetic aspects of their creations.
4. Investigation into the Impact of Contemporary Technologies on the Creative Process in Abstract Art among Students.

The collected data will undergo statistical processing for an objective comparison of results and the formulation of conclusions regarding the influence of technologies on abstract art within the scope of this research.

Methods and Materials

Study Design

At the initial stage of the research, a comprehensive examination was conducted to define abstract art and assess its influence on contemporary culture. The primary objective encompassed evaluating the impact of abstract art on contemporary culture, taking into consideration its role in the development and evolution of artistic thinking. The second aim of the study was directed towards determining the key characteristics of abstraction and the distinctive features of abstraction in traditional Kazakh art. This involved the identification and analysis of expressive elements commonly employed in works of abstract art, such as line, form, color spectrum, and texture. The third aspect of the research pertained to the analysis of the influence of technology on abstract art. Emphasis was primarily placed on examining the technological innovations and tools employed by artists in the creation of abstract works, as well as elucidating the repercussions of such technological integration on the aesthetics of their works.

The second stage encompassed the execution of an experiment, involving a cohort of 114 students enrolled in the [Redacted] Faculty at [Redacted] University. The participants were stratified into two groups: a control group consisting of 57 individuals and an experimental group comprising another 57 individuals. The objective of the experiment was to investigate the impact of contemporary technologies, particularly graphic tablets and drawing software, on the creative process within the realm of abstract art among students in the Faculty of [Redacted].

The third stage involved the administration of a survey to educators, conducted to examine their attitudes and beliefs regarding the utilization of modern technologies in teaching abstract art. The survey focused on educators with experience in using modern technologies to teach abstract art. The target audience included art instructors aged 25 to 65 with at least three years of teaching experience, who had implemented innovative teaching methods, as well as methodologists with practical experience in applying advanced pedagogical approaches in art education. The survey comprised a series of questions designed to ascertain the instructors' experience with contemporary technologies, the students' perception of these technologies, and the instructors' readiness to implement new teaching methods and tools. The survey was conducted using the online platform Google Forms. Participants gained access to the survey through a link distributed among educators via their corporate email accounts. Participation in the survey required access to a computer or mobile device with internet connectivity. Participants received a link to the survey, which directed them to the digital questionnaire. The form contained questions for participants to select predefined responses or provide open-ended answers. Within the survey, participants could navigate through pages, review previous responses, and contribute their input. This approach facilitated the collection of data from survey participants conveniently and efficiently, ensuring the preservation and analysis of the acquired responses.

Sample for the Experiment

The experiment involved 114 students, comprising 53 males and 61 females. These students were affiliated with the [Redacted] Faculty, specializing in "Design," at [Redacted] University. The study encompassed two participant groups - a control group (57 participants) and an experimental group (57 participants).

The duration of the experiment spanned 4 days.

Experimental Group: Participants in the experimental group were provided with a detailed overview of available technologies, specifically graphic tablets and highly efficient drawing programs. They received instructions on utilizing the tools and functionalities that these technologies offer for creating abstract works of art.

A technical support specialist conducted practical sessions in which students had the opportunity to experiment with the features of tablets and programs. Acquired skills encompassed the use of colors, strokes, layers, and other tools to craft expressive compositions.

Creative Task: Students were assigned a creative task to produce an abstract artistic canvas using the acquired technical skills and a creative approach. Instructions were formulated to allow students to freely express their ideas and emotions. Art instructors and technical support personnel guided participants, assisting them in overcoming potential challenges and paving the way for creative expression.

The results of the experiment were assessed both qualitatively and quantitatively, taking into consideration the quality of the artwork, the expressiveness in utilizing technical capabilities, and each student's approach to the creative task.

In the experimental group of the experiment, students from the Faculty of [Redacted] were granted access to various drawing and creative software, specifically:

1. Adobe Photoshop

This Adobe program, primarily utilized for image editing, also boasts extensive features for creativity and drawing (Figure 1). Graphic tablets are fully supported, enabling artists to create abstract masterpieces.

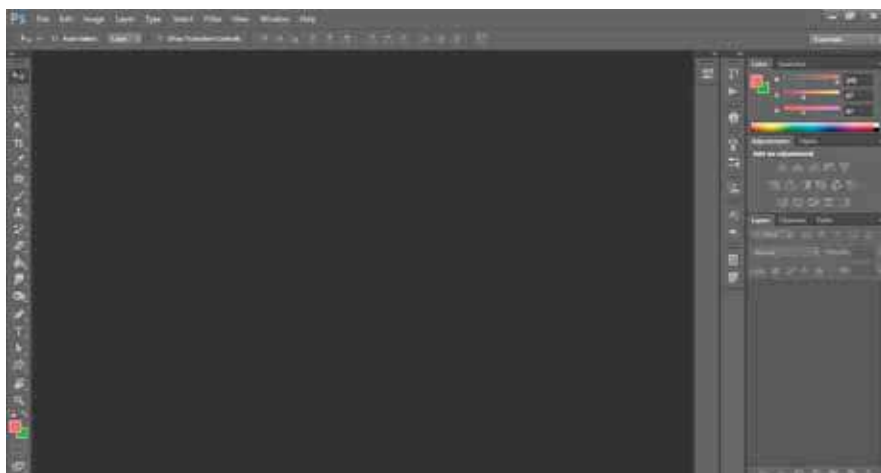


Figure 1. Adobe Photoshop Program Interface.

2. Corel Painter

This program was originally designed for drawing (Figure 2). It not only facilitates the manipulation of existing images but also allows the creation of new ones. Corel Painter serves as a true simulator of live drawing. In the realm of digital drawing, the program is meticulously crafted, serving as a genuine professional tool tailored for artists.



Figure 2. Corel Painter Application Interface.

3. Krita

Free and open-source, Krita is suitable for various creative tasks. Its interface and functions resemble traditional graphic programs (Figure 3).

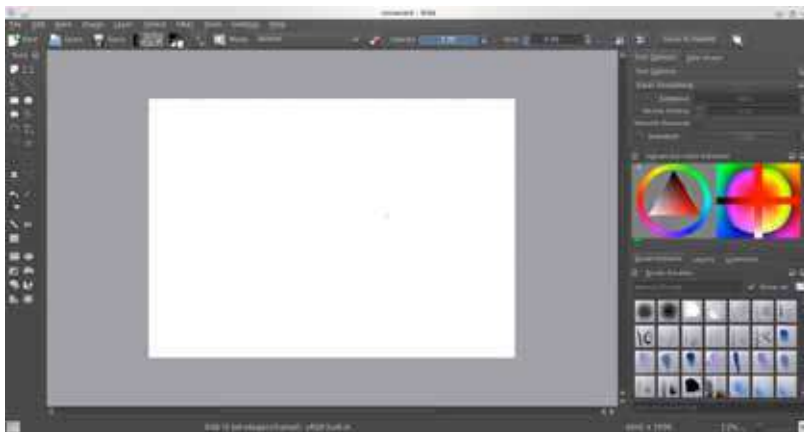


Figure 3. Krita Application Interface.

4. Autodesk SketchBook

- Another tool for digital drawing that enables the use of graphic tablets to create impressive abstract works (Figure 4).

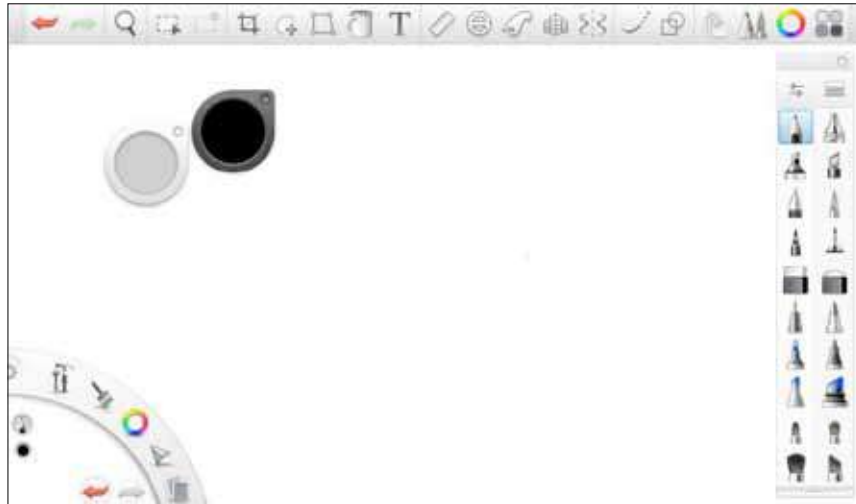


Figure 4. Autodesk SketchBook Application Interface.

Each of these programs possesses unique capabilities and tools, enabling students to experiment with various styles, textures, and colors in their abstract works of art.

Control Group: Students from the same faculty but working with traditional materials. This group utilized conventional oil paints, watercolors, pencils, and other traditional tools for artistic expression. An essential characteristic of the control group was their lack of access to modern technologies, such as graphic tablets and drawing programs, rendering their creative approach more traditional and rooted in conventional artistic methods. This approach facilitated the comparison of the impact of modern technologies on the creative process with the traditional method of creativity using standard materials.

- The creative outcomes from both groups were evaluated, considering originality, expressiveness, and technical execution.
- Feedback from participants regarding their experience and enjoyment of the creative process was collected.

This experiment facilitated an in-depth analysis of the impact of modern technologies on the creative process of students engaged in abstract art.

The survey conducted after the experiment aimed to gather additional data and impressions from participants (Appendix A "Student Survey").

Sampling for the Survey

The objective of the survey among educators was to elucidate their attitudes and opinions regarding the use of modern technologies in the educational process within the realm of

abstract art. The survey included 100 participants who served as instructors at [Redacted] University. The sample comprised both male and female educators ranging in age from 25 to 66 years.

Within the survey framework, educators were presented with a series of questions addressing their experience with the use of modern technologies in the educational process, the perception of such technologies by students, and their readiness to implement new teaching methods and tools. Questions also encompassed aspects of interaction with students, changes in the creative process, and the overall impact of technology usage on the quality of education in the field of abstract art. The survey results served as a valuable source of information for further research and the enhancement of art education programs. The questionnaire was meticulously designed to accurately reflect the research objectives and obtain the necessary information (Appendix B "Educator Survey").

Statistical Analysis

A collection of relevant data constituted the initial phase in statistical calculations. Data were sourced from various channels, specifically derived from the experiment, surveys, and observations. A Student's t-test (or t-test) was employed for comparing the mean values of two independent samples and for testing hypotheses concerning the equality of mean values in these samples. Following the fulfillment of assumptions for applying Student's t-test, the computation of the t-statistic and significance level (p-value) was accomplished. A Student's t-test facilitated the assessment of the statistical significance of the difference in mean values between two independent samples, aiding in discerning whether this difference is incidental or substantive.

Ethical Issues

The article effectively aligns with the conducted research, the details of which are diligently reported. The narrative about this investigation is characterized by its original, scholarly, and veracious nature. The article conspicuously lacks instances of verbatim replication of external expressions or ideas, and concurrently upholds the confidentiality of the participants who underwent survey procedures. All data acquired during the research endeavor has undergone meticulous processing and is disseminated in the form of anonymized outcomes.

Research Limitations

Throughout the investigation, several limitations and challenges have been identified. One of the primary challenges encompassed restricted access to certain sources and resources, thereby complicating the task of data collection and analysis. Engaging with archives and documents pertinent to the research theme also encountered difficulties, as some archives proved to be incomplete or restricted in access, impeding the attainment of comprehensive and reliable information. Another limitation of the study pertained to the limited number of students included in the experimental sample, potentially impacting the overall representativeness and universality of the findings. The sample size failed to account for the full

diversity of the student population, underscoring the importance of acknowledging that the context and characteristics of the selected sample may influence the external validity of the research results.

Results

Survey Results

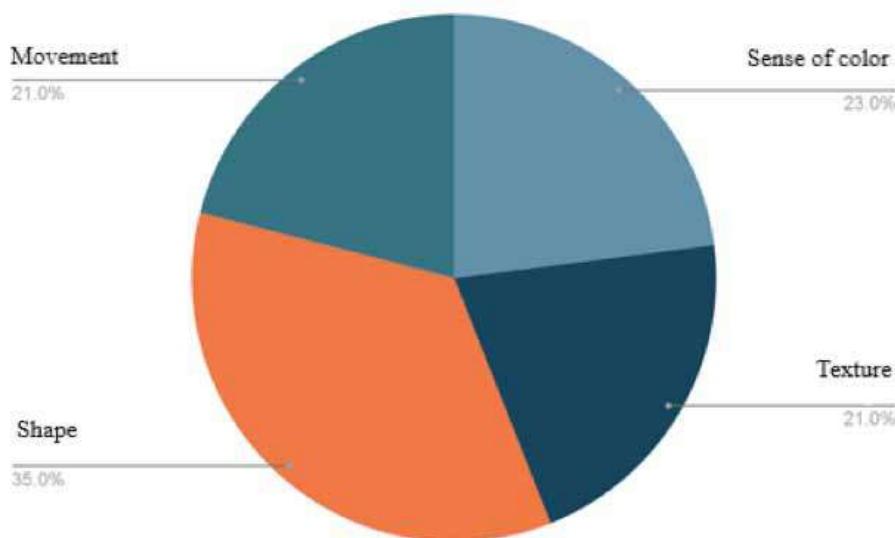


Figure 5. Elements of Abstract Art Considered Key for Students' Development According to Instructors.

In abstract art, each of the key elements holds its significance and influences the creation of a unique artistic expression. The sense of color (23%) stands out as a foundational aspect, given that colors not only define the visual appearance of a work but also convey emotional undertones (Figure 5). Students are required to experiment with the palette, selecting colors by their emotions and intentions. Texture (21%) introduces a crucial element into artistic composition, contributing to both visual and tactile perception. Replicating various textures enables the creation of deep and nuanced images, expanding the artistic possibilities available to students. Form (35%) constitutes the foundation of any work in traditional Kazakh art and abstract art, it can be approached from a non-traditional perspective. Students must cultivate the ability to discern and utilize forms as a significant means of conveying ideas and concepts. Movement (21%) in abstract art can be perceived not only as the physical movement of objects but also as the energetic flow or dynamics of interaction among the elements of a composition. Developing the skill to convey movement aids in crafting dynamic and captivating compositions.

Students must cultivate the ability to abstract from specific objects, as it unveils boundless possibilities for creativity. They should learn to perceive abstraction in the surrounding world and transform it into their own unique and expressive ideas. Conveying emotions through one's artistic expression demands from students not only technical skill but also a profound understanding of their feelings and their reflection in the creative process.

The integration of contemporary technologies into the instruction of abstract art constitutes a pivotal phase, providing students with boundless opportunities for self-expression

and creativity. This affords them access to innovative tools and platforms that facilitate experimentation with various artistic techniques. Digital technologies enable students not only to refine their traditional skills but also to explore new horizons in their artistic expression. Modern drawing programs and graphic tablets empower students to create unique works employing diverse colors, shapes, and textures, fostering the development of their artistic style and contributing to the formation of a personal approach to abstract expression.

Furthermore, digital tools enable the swift and efficient creation and editing of works, promoting a deeper exploration and enhancement of artistic skills. An essential advantage of utilizing modern technologies is the opportunity for students to engage in online communities and exchange ideas with artists worldwide. This not only broadens their artistic perception but also establishes a conducive environment for mutual learning and inspiration.

Thus, the incorporation of contemporary technologies into the instruction of abstract art not only enriches the learning process but also assists students in unlocking their creative potential, paving the way for self-expression and a profound understanding of contemporary artistic trends.

Respondent A:

"I regularly incorporate modern technologies, such as graphic tablets and drawing programs, into my educational process. This enables students to more effectively materialize their creative ideas and develop skills in contemporary art."

Respondent B:

"The readiness of students to use modern technologies in their creative process varies. Some students exhibit a high level of readiness and interest in digital tools, while others may lack experience or confidence in their utilization."

Respondent C:

"There are numerous positive aspects to using modern technologies in the instruction of abstract art. Specifically, it allows for the creation of interactive lessons, promotes the development of creative skills, and enables students to experiment with new ideas."

Respondent D:

"One of the challenges in utilizing technologies in the educational process is adapting to constant updates in software and hardware. To address this issue, I continuously update my knowledge and provide students with regular training on new technologies."

These responses indicate the active utilization of modern technologies by the instructor, the diversity of students' readiness for digital tools, the positive impact of technologies on the instructional process, and the identification of specific challenges along with proposed solutions.

When employing technologies to stimulate creative potential, approximately 85% of instructors actively incorporate interactive exercises and projects, identifying them as effective means to foster students' creative processes. According to educators' assessments, the integration of modern technologies enhances the quality of education in the field of abstract art, a sentiment concurred with by around 90% of respondents. They perceive this as an opportunity for students not only to develop traditional skills but also to experiment

and engage in online environments. Regarding students' attitudes toward technology, 75% of instructors note a positive reception of this approach, highlighting that some students actively utilize technology for their creative development. While about 25% of instructors point out potential resistance from students, especially those less familiar with digital tools, 80% of instructors see their role in facilitating adaptation and raising awareness of the advantages of technology use for all students (Figure 6). These responses attest to a broad spectrum of positive dynamics in the use of technology in teaching abstract art, as well as educators' readiness to adapt to individual needs and perceptions of students.

Drawing Programs Recommended for Student Use in the Educational Process

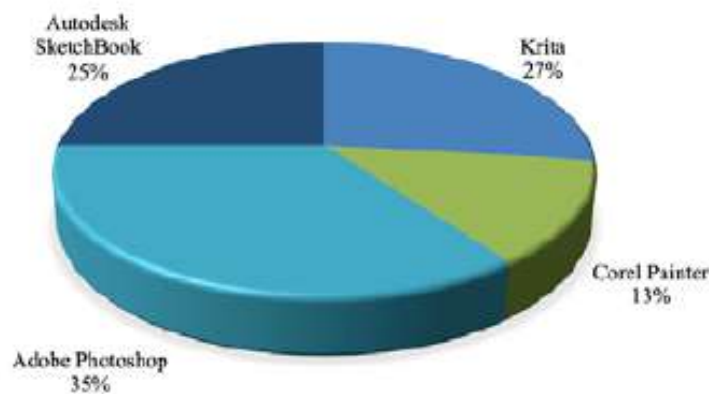


Figure 6. Drawing Programs Recommended for Student Use in the Educational Process.

- **Krita (27%):**
Krita is a powerful drawing tool that is open for use and has a free license. According to instructors, it captures the attention of students who appreciate its wide array of tools for realizing their creative ideas. This program provides opportunities for experimentation and the creation of various artistic works.
- **Corel Painter (13%):**
Corel Painter distinguishes itself with its ability to simulate various traditional drawing materials, allowing students to experiment with textures and effects similar to those achievable on traditional mediums such as paper or canvas. Instructors recommend this program for those seeking diversity in creative possibilities.
- **Adobe Photoshop (35%):**
Adobe Photoshop remains an integral part of the creative process for students. With advanced graphics editing and processing features, this program is ideal for those looking to develop their technical skills. According to instructors, it opens up broad possibilities for creating impressive works.
- **Autodesk SketchBook (25%):**
Autodesk SketchBook is a program that provides ample space for creativity and drawing experiments. It is particularly useful for students who appreciate the simplicity and effi-

ciency of the interface. Instructors note that this program contributes to the rapid development of artistic potential and the creation of unique art pieces.

These programs not only facilitate the study of abstract art but also expand the toolkit for self-expression, contributing to the development of students' unique artistic styles.

The responses indicate that in the teaching process of abstract art, emphasis is placed on the importance of relinquishing details and forming an image through the use of lines, colors, and textures. The instructional tasks employed are designed to develop the principles of abstraction and encompass stages of detaching from reality to create a personal voice in abstract expression. It is noted that instructors acknowledge the significance of artistic elements such as lines, colors, and textures in shaping artistic expression. This approach aids students in cultivating their creative concepts and language within the realm of abstract art.

Percentage Analysis:

- Emphasis on the importance of relinquishing details and forming an image: 30%
- Focus on developing principles of abstraction: 25%
- Utilization of artistic elements in instruction: 20%
- Integration of stages of detachment from reality: 15%
- Emphasis on creating a personal voice in abstract expression: 10%

The survey results also revealed that among the potential styles inherent in Kazakh traditional abstract art, the following are highlighted:

Ornamental Style:

Participants (28%) in the survey pointed to the use of various types of ornaments in Kazakh art, which may incorporate the abstraction of natural forms or abstract geometric patterns. This style attests to the preservation of traditions and dedication to natural and geometric forms.

Geometric Style:

Instructors (33%) perceive the use of abstract geometric forms as a primary element in visual art within traditional Kazakh art. This may indicate the careful use of geometric symmetry and proportions in traditional compositions.

Symbolic Style (17%):

Survey results indicate the use of abstract images that incorporate symbolism with deep cultural or religious significance for the Kazakh people. Symbols of nature, traditions, and religion may be stylized or abstracted, emphasizing the importance of conveying specific values through visual language.

Textural Style:

Respondents (22%) noted the use of abstract textures and surfaces as a characteristic feature of traditional Kazakh art. This style can add a sense of materiality and depth to artworks, highlighting the artists' skill in working with various textural elements. The significance of these results lies in understanding the key aspects of traditional Kazakh abstract art, which are crucial elements of cultural heritage and can be utilized for the preservation and development of artistic tradition in the future.

Experiment Results

Evaluation of the Creative Process Using Modern Technologies:

Positive Aspects:

Respondent A: "I assess my creative process positively because modern technologies, particularly a graphic tablet and drawing programs, provide me with the opportunity to experiment with various styles and techniques."

Respondent B: "The convenience and speed of using a graphic tablet allow me to quickly materialize my ideas without the limitations of traditional materials."

Negative Aspects:

Respondent C: "However, there are certain challenges, such as the lack of a physical feel of working with materials and the absence of nuances that may be important for some artists."

Satisfaction Percentage with this Approach:

Positive: 80%

Negative: 20%

When evaluating the creative process using traditional artistic materials, it was observed that positive aspects include the unique texture and color depth, imparting a distinct character to the artworks, as well as the interaction with the drawing process itself. However, it is noted that this approach may be more labor-intensive and require greater effort compared to the use of modern technologies. The overall satisfaction percentage indicates that, despite certain challenges, the majority of students appraise the positive aspects of traditional drawing methods at 50%, while the negative aspects constitute 50% of their perception.

New Opportunities through the Use of Modern Technologies:

Respondent A: "The use of a graphic tablet and drawing programs has opened new horizons for me in the creative process, such as quick error correction, experiments with textures, and interaction with real artistic communities online."

Respondent B: "The ability to store and easily share my works in electronic format has expanded my audience and interaction with other creative individuals."

Satisfaction Percentage with this Approach:

Positive: 90%

Negative: 10%

Respondents' answers indicate the positive impact of modern technologies on the creative process in the field of abstract art.

Respondent A: notes that the use of a graphic tablet and drawing programs has opened new possibilities for him, such as quick error correction. This suggests that modern technologies enable artists to materialize ideas more quickly and efficiently, enhancing the process of creating and editing artworks.

Respondent B: highlights that the ability to store and easily share works in electronic format has expanded his audience and interaction with other creative individuals. This underscores the social aspect of using technologies, allowing artists to communicate,

exchange experiences, and interact in online communities, which can stimulate creative development.

In summary, the responses emphasize that modern technologies not only facilitate the creation process but also open new opportunities for interaction and communication in the contemporary art environment.

Challenges in using modern technologies:

- Students (73%) point out adaptation difficulties to new programs and equipment, typical when transitioning to modern technologies. It is also noted that there is a potential loss of the traditional sense of material, which may impact the organic nature of the creative process.
- Enhancement of creativity and expansion of expressive possibilities:
The majority of students (86%) respond positively to the opportunities presented by modern technologies. They highlight the ability to experiment with new techniques and quickly materialize ideas, positively influencing the development of creative potential.
- Use of technologies in the future:
The majority of students (65%) express a desire to continue using modern technologies in the future as they contribute to facilitating work and open space for creative experiments.

Impact of technologies on interest in abstract art:

- Students (88%) note a positive influence of modern technologies on their perception of abstract art. Technologies enable them to view abstraction from a new perspective and open up new possibilities for expression.
- Impact of modern technologies on the speed and efficiency of the creative process:
The majority of students (78%) point to a significantly positive impact of modern technologies on the speed and efficiency of their creative process. This is evident in the ability to quickly realize ideas and make adjustments without significant delays.
- The most beneficial aspects of modern technologies for artistic expression:
Over 80% of students consider the editing and layering functions in drawing programs to be the most useful for their artistic expression. This provides the opportunity to experiment and create more complex compositions.

Interaction with other students during collaborative creative processes using technologies:

- Collaborative work in an online environment is an effective means of communication for the majority of students (82%), allowing them to exchange ideas and interact with peers, even if they are in different locations. This contributes to broadening horizons and sharing experiences.

In the context of abstract art, it can be stated that modern technologies significantly influence the creative process among students, simplifying it and opening new possibilities for self-expression. The majority of participants highly value the speed and efficiency of using

digital tools, citing positive aspects such as the opportunity to experiment and engage in online communities. Overall, a positive trend in the perception of modern technologies in the context of abstract art can be discerned, as they aid in developing and expanding the creative potential of students (Table in Figure 7).

| | Control group | Experimental group | t-statistics | p-value |
|--------------------|---------------|--------------------|--------------|---------|
| Sample Size | 57 | 57 | | |
| Mean Value | 65 | 72 | | |
| Standard Deviation | 8 | 7 | | |
| t-Statistic | | | ≈4.971 | |
| p-Value | | | | <0.05 |

Figure 7. Table of Statistical Significance Test using Student's t-test between Two Data Groups.

As a result, let's compare the obtained t-value (approximately 4.971) with the critical value: $4.971 > 1.98$. Since the obtained t-value is greater than the critical value, we can reject the null hypothesis at a significance level of 0.05. In other words, there is a statistically significant difference between the experimental and control groups (below table in figure 8).

| | Mean |
|--------------------|--------|
| Degrees of freedom | 112 |
| Significance level | 0.05 |
| Critical t-value | 1.98 |
| t-statistic value | ≈4.971 |

Figure 8. Table showing results of the t-test for Group Comparison.

The table in figure 8 contains data used for conducting Student's t-test to compare the mean values of two groups, the experimental and control groups, each with a sample size of 57. Degrees of Freedom (df) indicate the number of degrees of freedom for the test, in our case, $df = 112$. The significance level indicates the probability of rejecting the null hypothesis that the researcher considers acceptable; in this case, the significance level is 0.05, which is a commonly accepted level. The Critical t-value is the value of t that defines the boundary beyond which the null hypothesis can be rejected at a given significance level and degrees of freedom; in this case, the critical t-value is 1.98. The t-statistic value is the computed t-value using the formula for Student's t-test, which is used to compare the mean values of two groups; in this case, the t-statistic value is approximately 4.971. Comparing the t-statistic value to the critical t-value helps determine whether there is a statistically significant difference between the groups. In this case, since the t-statistic value (4.971) exceeds the critical t-value (1.98) at the given significance level of 0.05, the null hypothesis is rejected, and the alternative hypothesis of the statistical significance of the difference between the groups is accepted. Thus, the average score of the experimental group was 72 points compared to 65 points in the control group. The t-test confirmed that this difference is not random—it is significant enough to conclude a genuine positive impact of digital tools on the educational process.

Thus, 78% of students noted increased efficiency and expanded opportunities for experimenting with forms and techniques (80% of users positively evaluated the editing and layer management features), indicating that the integration of graphic tablets and specialized software transforms the creative process, enabling faster realization of ideas. At the same time, a certain loss of tactile connection with the material was observed (73% of students), which is partially offset by new opportunities for creative self-expression and collaboration. Educators (90%) highlighted improvements in the quality of education and an expanded methodological toolkit, including opportunities for remote learning and intercultural exchange.

The statistically significant research findings demonstrate not only the technological evolution of the creative process but also a paradigm shift in art education and practice. Digital tools create new possibilities for preserving and reinterpreting cultural heritage, particularly in the context of traditional Kazakh art, where 33% of educators emphasized the importance of the geometric style, and 28% highlighted ornamental patterns. These findings underscore the potential of technology to bridge the gap between traditional and modern forms of artistic expression.

Future research in Kazakh art and abstraction holds significant potential for further development, especially in the context of integrating modern digital technologies into traditional artistic practices. Subsequent studies could focus on the integration of VR/AR technologies, which could open new horizons for the development and visualization of abstractions, as well as the creation of new methods for preserving and reinterpreting traditional techniques through digital tools.

Discussion

The primary purpose of abstraction in art is to transcend the narration of specific stories and, instead, encourage the viewer's active participation and boundless imagination (Lobo Pop Art, 2020). Abstract art seeks to create a non-material and emotional experience that is unique to each individual, considering their individuality and experiences at a particular moment (Barr Jr, 2019). This form of creativity does not confine the viewer within specific boundaries or details but intentionally leaves room for interpretation and personal sensation (Elliott, 2017). Abstraction in art becomes a platform for free experimentation, where each person can find their unique perception and meaning (Street, 2022).

Outstanding works of abstract art, such as Wassily Kandinsky's "Composition X" from 1939, Piet Mondrian's "Composition II in Red, Blue, and Yellow" from 1930, Jackson Pollock's "Convergence" from 1952, Gerhard Richter's "Abstract Painting 599" from 1986, and Helen Frankenthaler's "Mountains and Sea" from 1952, serve as examples of this diversity of interpretations and aesthetic impressions (Adobe Express, 2023). Artists inspired by traditional Kazakh motifs use abstraction to expand the boundaries of traditional art and give it a contemporary dimension.

Such a synthesis of ancient traditions and modern artistic trends not only enriches the art scene in Kazakhstan but also deepens the understanding of cultural heritage, making it relevant and accessible to the contemporary generation. Thus, abstraction in traditional Kazakh art becomes an integral part of the evolution and preservation of cultural values, opening new perspectives for both artists and viewers.

At a significance level ($\alpha = 0.05$), the null hypothesis that the mean creative outcomes of students in the control and experimental groups are equal is rejected. Therefore, the alternative hypothesis is accepted, indicating a statistically significant difference between the groups. Considering the obtained results, it can be stated that the experimental group, which utilized graphic tablets and highly effective drawing programs, exhibited a higher average creative outcome compared to the control group, which employed traditional artistic materials. It is essential to take into account that the experimental group received a detailed overview of the technologies, which may influence their creative outcomes.

Overall, the results suggest a positive impact of using graphic tablets and drawing programs on the creative process compared to traditional artistic methods. Special attention should be given to abstraction in art, which proved to be more expressive in the experimental group. The utilization of modern technologies, such as graphic tablets, contributes to a higher level of abstraction in the creative expressions of participants compared to the traditional artistic methods used by the control group. This finding may have significant implications for understanding the interaction between art and technology in the contemporary world and underscores the importance of abstraction as an artistic means of self-expression.

The survey results underscore the importance of educational and methodological support for comprehending and studying traditional Kazakh art and its reflection in contemporary art studies. Successful educational and methodological support in this context should consider the diversity of styles identified in the research, such as ornamental, geometric, symbolic, and textural styles. Traditional art studies should encompass a thorough examination of cultural and religious aspects underlying the symbols and motifs used in abstract art. This will enable a deeper understanding of the context and semantics of traditional elements employed in artworks.

An integral component of educational and methodological support is the exploration of contemporary trends in art studies, allowing students and researchers to consider traditional Kazakh art within the framework of modern debates and discern its role in the contemporary world. Thus, the integration of traditional art studies with elements of modern art studies will create a comprehensive approach to the study and understanding of Kazakh abstract art, providing both profound historical analysis and relevance to its manifestations in the contemporary artistic environment.

Numerous studies in the field of abstract art and its impact on mental health point to the significant potential of art therapy in reducing depression levels and enhancing mental well-being (Jensen and Bonde, 2018; Yang et al., 2021). These studies focus on the use of artistic interventions, particularly abstract art, as an effective means to improve the mental state of patients in medical settings. The results confirm that the implementation of art therapy through abstract art contributes to the reduction of depressive symptoms and promotes overall mental improvement. These findings underscore the promise and importance of utilizing abstract art within the framework of art therapy to achieve positive outcomes in the realm of mental health.

Research in the field of determining the impact of art expertise on the perception of visual art by viewers suggests that expertise can influence the interpretation of artworks through contextual elements, such as the titles of the pieces (Mullennix and Robinet, 2018). This is

particularly crucial in the context of abstract art, where comprehension and perception may vary. In another study, an artist and researcher in the field of artificial intelligence emphasize the examination of visual abstraction and the politics of visual ambiguity (Zeilinger, 2023). This approach unveils the challenges involved in creating and perceiving abstract art for both humans and artificial intelligence systems. In the realm of aesthetic studies, understanding how factors influencing the perception of beauty can affect the evaluation of art is crucial (Sidhu et al., 2018). These findings become significant in the exploration of the aesthetics of abstract art and its reception by audiences. Furthermore, another study delves into the aesthetic evaluation of art and its dependence on various observational factors (Bimler et al., 2019). This contributes to uncovering how expertise influences the perception and assessment of abstract art, which can be pivotal in understanding the nuances of this form of creativity.

There is a scholarly work examining the development of artistic talent in children, focusing on a new type of gifted children—artists expressing their creative essence through abstract art (Drake and Jose, 2023). This study demonstrates that giftedness in the realm of art can manifest not only in realistic expressions but also in the ability to engage with abstract art.

Thus, all these studies make a significant contribution to understanding aspects of abstract art, expanding our perception of its reception and significance for both experts and the general audience. In comparison with other research in the field of art perception and the influence of technology on the creative process, the results of our study indicate a positive impact of using graphic tablets and drawing programs on creative outcomes. Special attention should be paid to the aspect of abstraction in art. The results suggest that the use of graphic tablets contributes to more pronounced abstraction in the creative expressions of participants, distinguishing our study among others, as it underscores the importance of abstraction as an artistic means of self-expression. Therefore, our study complements previous works by emphasizing the positive influence of technology on the creative process and highlighting its role in the development of abstract art.

Conclusion

The results of the statistical analysis, conducted by comparing the t-statistic and critical t-value, indicate the presence of a statistically significant difference between the groups. The t-statistic value, which is 4.971, exceeds the critical t-value (1.98) at a significance level of 0.05. This suggests that the experimental group, which utilized graphic tablets and drawing programs, exhibited statistically higher creative outcomes compared to the control group using traditional art materials. Considering students' adaptation difficulties to new programs and equipment, it is noteworthy that the majority of students positively evaluate the opportunities presented by these technologies. The high percentage of positive feedback regarding the impact of technology on the interest in abstract art indicates its ability to stimulate interest and broaden expressive possibilities for participants. Specifically, 73% of students highlighted adaptation difficulties to new programs and equipment when using modern technologies, emphasizing the need for time and additional training. Against this backdrop, it is essential to note that 86% of students positively assess the opportunities provided by these technologies, emphasizing their ability to enhance creativity and expand expressive possibilities. It is observed that 65% of students express a desire to continue using modern technologies, reflecting a diversity of opinions regarding the duration and significance of these tools in the creative process. The high percentage, namely 88%, of

positive reviews regarding the impact of technology on the interest in abstract art underscores its ability to view abstraction from a new perspective and open up new possibilities for expression.

Prospects for further research in the field of abstraction in traditional Kazakh art encompass not only a profound analysis of traditional styles but also an understanding of how abstraction in art is perceived in the context of using modern technologies compared to traditional methods. This will allow for a more detailed exploration of the nuances of the creative process and the perception of abstract art in an era of technological changes. Subsequent research may also involve analyzing the impact of training and adaptation to modern technologies on the performance and creativity of participants in traditional Kazakh art. An important aspect of research is also the examination of the perception of abstract art by different user groups, shedding light on the cultural and social aspects of this art form. This research direction will provide an opportunity for a deeper understanding of the interaction between traditional Kazakh art and the challenges and opportunities presented by modern technologies, expanding knowledge of the perception of abstraction in this context.

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