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DEVELOPMENT OF CREATIVITY IN ART EDUCATION WITH THE HELP OF DIGITAL TECHNOLOGIES

Abstract

This case study examines the perspectives of art education and design students on the role of digital technologies in fostering creativity in art classrooms. The use of digital technologies in education is evident, and the growing understanding of the need to enhance creative performance has led to numerous efforts in art education. However, exploring students' viewpoints regarding the role of digital technologies in improving creativity can assist us in developing new strategies in art education. To achieve the research objectives, a survey was conducted among 40 master's students in the «Art Education» and «Design» departments of the Abai Kazakh National Pedagogical University. The research method employed was descriptive and case study. The data analysis focused on three aspects: idea generation, idea experimentation, and idea quality. The findings indicate that art education and design students at this university have a positive outlook in two areas: generating artistic ideas and enhancing the quality of ideas through digital technologies. However, they expressed that technology has not significantly helped them in experimenting with and manipulating ideas, as well as creating new ideas based on existing ones, or that students still lack sufficient mastery to fully use the capabilities that technology offers them. Based on these findings, this study can contribute to developing new strategies for integrating digital technology into the art education and design curriculum.

Keywords: creativity, digital technology, art education, idea generation, art education and design students.

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КӨРКЕМ БІЛІМ БЕРУДЕГІ ШЫҒАРМАШЫЛЫҚТЫ ЦИФРЛЫҚ ТЕХНОЛОГИЯЛАР АРҚЫЛЫ ДАМУ

Аңдатпа

Бұл зерттеу жұмысында «Көркем білім беру» бойынша білім алып жатқан студенттердің «Бейнелеу өнеріне» қатысты пәндерін оқуында цифрлық технологияларды қолдануы мен оның негізгі рөлі салыстырмалы тұрғыда талданды. «Көркем білім беру» саласында шығармашылықты белсенді түрде арттыру білім берудегі цифрлық технологияны қолдану мен дамуының айқын көрінісі екендігін көрсетті. Дегенмен, «Көркем білім беру» саласында білім алып жатқан студенттердің цифрлық технологияларды қолдануы арқылы шығармашылығының белсенді түрде артуы жолында жаңа стратегиялық дамуына әсерін тигізуі әбден мүмкін. Зерттеу мақсаттарына жету үшін, Абай атындағы Қазақ ұлттық педагогикалық университетінің "Көркем білім" және "Дизайн" кафедрасының 40 магистранты арасында сауалнама жүргізілді. Қолданылған зерттеу әдісі сипаттамалық болды және кейс-стадиді қамтыды. Деректерді талдау үш аспектке бағытталған: идеяларды құру, идеялармен тәжірибе жасау және идеялардың сапасы. Алынып отырылған нәтижелер мынадай көзқарасты көрсетіп отыр, яғни осы университетте «көркем білім беру» бойынша білім алатын студенттердің екі бағытқа қарай бөлінген оң жағымды көзқарас бар екендігін айғақтайды. Олар: көркем идеяларды қалыптастыру және цифрлық технологиялар арқылы идеялардың сапасын арттыру. Алайда мынадай пікірге тоқталуда, технология оларға идеялармен тәжірибе жасауға және манипуляциялауға, сондай-ақ бұрыннан бар идеяларға негізделген жаңа идеяларды жасауға айтарлықтай көмек көрсетпегенін айтты. Студенттерге технология ұсынатын мүмкіндіктерді толық пайдалану үшін әлі де жеткілікті

шеберлік жетіспейтінін көрсетіп отыр. Осы тұжырымдарға және зерттеулерге сүйене отырып цифрлық технологиялардың «Көркем білім беру» оқу бағдарламасына жаңа стратегиялық тұрғыда әзірленуіне ықпал ететіндігі көрсетіледі.

Түйін сөздер: шығармашылық, цифрлық технологиялар, көркем білім, идеяларды қалыптастыру, көркем білім беру студенттері.

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РАЗВИТИЕ ТВОРЧЕСТВА В ХУДОЖЕСТВЕННОМ ОБРАЗОВАНИИ С ПОМОЩЬЮ ЦИФРОВЫХ ТЕХНОЛОГИЙ

Аннотация

В данном исследовании анализируются точки зрения студентов, получающих художественное образование, на роль цифровых технологий в развитии творчества в классах изобразительного искусства. Использование цифровых технологий в образовании очевидно, и растущее понимание необходимости повышения творческой активности привело к многочисленным усилиям в области художественного образования. Однако изучение точек зрения студентов относительно роли цифровых технологий в повышении креативности может помочь нам в разработке новых стратегий в художественном образовании. Для достижения целей исследования был проведен опрос среди 40 магистрантов кафедры «Художественное образование» и «Дизайн», Казахского национального педагогического университета имени Абая. Использованный метод исследования был описательным и включал тематическое исследование. Анализ данных был сосредоточен на трех аспектах: генерации идей, экспериментировании с идеями и качестве идей. Полученные результаты показывают, что студенты, получающие художественное образование в этом университете, имеют позитивный взгляд на две области: генерирование художественных идей и повышение качества идей с помощью цифровых технологий. Однако они заявили, что технология не оказала существенной помощи им в экспериментировании с идеями и манипулировании ими, а также в создании новых идей на основе существующих, или что студентам все еще не хватает достаточного мастерства, чтобы в полной мере использовать возможности, которые технология им предлагает.

Основываясь на этих выводах, данное исследование может способствовать разработке новых стратегий интеграции цифровых технологий в учебную программу художественного образования.

Ключевые слова: творчество, цифровые технологии, художественное образование, генерация идей, студенты художественного образования.

Basic provisions. Research on the development of creativity in art education serves as the cornerstone for understanding the dynamic interaction between traditional artistic methods and emerging digital tools. This study delves into examining the impact of digital technologies on the creativity of art students, providing educators, policymakers, and researchers with insights into innovative teaching methods and their influence on students' creative processes. By exploring this topic, researchers can uncover effective strategies that harness the potential of digital tools to enhance the creative abilities of students. Through a systematic investigation, this research contributes valuable knowledge that can inform curriculum design, teaching methods, and the overall evolution of art education in the technology-centric era.

Problem Statement. At the core of any significant change in our lives lies a type of technology increasingly reliant on machine learning and artificial intelligence. Educators, students, and educational policymakers cannot overlook the impact of digital technologies on art education. The non-acceptance and utilization of digital technologies in the classroom can create a gap between schools, students' practical experiences, and the modern art world. Among all fields of study, art is a prominent domain that thrives on creativity, expecting students to engage in creative endeavors. Therefore, failing to explore the creative potentials of digital technologies in art is

detrimental to students. Additionally, using digital technologies can provide unique assistance to creative processes. Understanding this crucial point, several frameworks are available to describe and support artistic creativity. Designing strategies to assess students' creativity with complex digital technologies requires understanding ways to illuminate the interaction between creativity and digital technologies through practice and reflective thinking. Reflecting on the potential of digital technologies for enhancing education and artistic creation and fostering students' creativity raises various issues, including teacher training and students' awareness and skills.

In the Central Asian region, Abai Kazakh National Pedagogical University is one of the leading institutions in teacher training and education. Like many other universities, this university has been actively involved in activities related to the global trend of technology-based education. It utilizes various digital technologies for teaching, especially in art education. Students at this university are familiar with interactive whiteboards, graphic tablets, digital pens, AR technology, intelligent design software, and other digital technologies. However, has the familiarity and use of these technologies positively impacted the creativity of art students?". Considering the role of this university in training future artists and art teachers in Kazakhstan, as well as its influence on the educational processes of other universities in Kazakhstan and neighboring countries, the objectives of this research are to provide a framework for topics related to creativity, digital technology, and art education and design from the perspective of Abai University students. The research objectives are as follows:

Can the use of digital technologies lead to an enhancement of creativity among art students?

Are the Abai National Pedagogical University art students aware of technology's unique capabilities and opportunities in fostering artistic creativity?

This research relies on the students' viewpoints to investigate the extent and manner in which digital technology affects creativity in classroom settings. It is worth noting that there are numerous influential factors in developing a framework for assessing creativity. However, the goals of this study are exclusively focused on the students' perspectives and experiences.

Introduction. This study focuses on the perspective of art students regarding the creative features of digital technologies, which play a distinct role in the art education and design process. The term “creativity” refers to the act of constructing or generating something new, a novel solution to a problem, a new method or device, or a new artistic object or form.

“Creativity involves invention, discovery, curiosity, imagination, experimentation, and exploration. During the creative digital process, there is a transformation from something known to something not previously known” [4]. In digital arts, this involves more than simply learning new software. Crucial to this process is the understanding that, through creation, students express themselves. Creativity is critical for twenty-first-century learning and teaching. Similar to the positioning of creativity, the ability to use digital technologies is also commonly seen as a core skill in the twenty-first century. Indeed, it is often argued that the connection between technology and creativity is crucial for twenty-first-century education.

Today’s students, called “screenagers” by some, are indeed different from even a decade ago. They immerse themselves in interactive technologies, become creators of new digital media, and socially collaborate on a scale we have not seen before. Along with our students, our world has changed.

However, comparatively little scholarship has explored the complex relationship between technology and creativity, though some work has recently emphasized the connection [6].

Today's world has become heavily infused with technology, and it is increasingly rare for individuals to abstain from utilizing these resources for progress. This digital-centric lifestyle profoundly affects our creativity and productivity, making it crucial to address its significance.

How has creativity been defined? Numerous definitions of creativity and creative individuals have been proposed thus far. Creativity is one of the fundamental human qualities and, in fact, one of the most valuable skills for generating and producing things. A common characteristic in most

definitions is creating something novel or a departure from conventional traditions. In this regard, creative individuals must possess specific features that support these aspects.

Historical definitions of creativity varied widely across fields of study [12,14] and often portrayed creativity as inaccessible to the masses. Early conceptions were primarily associated with the arts, prompting misperceptions regarding creativity and potential. For example, early researchers posited that creativity was a genetic gift, creative skills could not be learned, creative people tended to be nonconformist and reclusive, and the creativity construct was unmeasurable. Moreover, early research suggested that creative abilities were fixed and reserved only for the fortunate few [2]. While creativity is used to create something new, it also has the feature of dynamicity. It is seen that this concept, which expresses both emotional and intellectual life, has been perceived as a phenomenon unique to the field of fine arts for a long time, even though its history dates back to old times. However, creativity is not only a skill for art or art education and design but also an essential skill in all areas of human life [3,5,16].

Ideas in the formation of the concept of artistic creativity are diverse. Fromm talks about two kinds of creativity in the field of art. The first is a work that can be developed and learned by practicing with different methods, depending on ability, such as painting, writing poetry or novels, and composing music, and revealed after this process [1,13]. The second is the creative attitude and behavior that is the basis of creativity in all areas. This type of creativity may not produce a work. While the first is defined as ability, the second is the character trait formed by developing competencies such as seeing, perception, and reacting [15].

Most definitions of creativity identify novelty and effectiveness as two critical characteristics of creative ideas or solutions [12].

Plucker et al. [12] synthesized common elements across definitions of creativity and, in turn, offered a clear and helpful description to guide future research: Creativity is the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context.

Creativity can be described as "extraordinary thinking." Bartlett says it means "getting away from the main track, breaking out of the mold, and being open to experience." Getzels stated, "Regardless of the field, it is based on the unity of rational imagination and emotion and decoding skills, imagination, and control, outward thinking (divergent) and inward thinking (convergent)" [15].

No one can deny the role of technology in the exponential growth of creative ideas. Technology has brought together minds and creative ideas, making advancing these ideas more accessible. This fusion of technology and creativity has ushered in new innovative ideas and approaches through which individuals can express themselves. Digital technology and communication enable creative individuals to collaborate, breaking boundaries and reducing distances.

It is not uncommon for creativity to be talked about as being enabled by and through technologies. Unsurprisingly, enacting creativity with and through digital technology is equally unclear and needs greater clarity [6]. Based on recent studies over the past few decades, science and creativity have converged [11], and myths have been debunked.

Creativity and Technology in Art Education. Digital tools, devices, and applications are affording a new world of opportunities in which people can imagine, make, and share creatively [19]. Digital technologies exhibit provisionality, interactivity, capacity, range, speed, and automatic functions, enabling users to do things that could not be done as effectively or using other tools. People who are 'technology capable' can undoubtedly use various skills and techniques with particular technologies.

More importantly, they can also understand why digital technologies might be appropriate for particular tasks and situations, make informed choices, evaluate their impact, and be open to new developments and possibilities [10]. As communication technologies offer a powerful union with creative and imaginative expression, the breadth of these technologies offers opportunities for creative synthesis and hybrid forms of information representations [18].

Amid the shifting context of globalization and rapid digital change, creativity has become much more necessary in contemporary society. It also becomes increasingly vital in learning discussions, particularly in technology-rich contexts [6].

Societies and cultures can both enhance and detract from creativity, and technology plays a crucial role in providing access to cultural means.

Technology often mesmerizes students.; nevertheless, creative play allows them to express their ideas using new software. The interaction between the distinctive features of digital technologies and the characteristics of creativity opens up new perspectives on the development of creativity in art education.

In digital visual arts classes, students actively exercise their creativity as they learn new software applications and complete assignments related to digital visual arts. Students can nurture their creative skills in digital art by continuously experimenting and exploring various digital effects tools. As part of a visual arts curriculum, students can develop a comprehensive understanding of digital software applications and their creative potential. Creativity is essential for twenty-first-century education but also an open-ended and contested ground.

Teaching creativity with digital technologies presents challenges in some areas – using digital technology to support creativity in traditional settings such as schools and developing resources to support innovation in new learning environments for creative activity and collaboration.

According to Loveless [10], within the more familiar settings of schools and classrooms, models of access to digital technology should reflect characteristics of creative environments and teaching strategies, which include:

- awareness of how creativity is related to knowledge across the curriculum
- opportunities for exploration and play with materials, information, and ideas;
- opportunities to take risks and make mistakes in a non-threatening atmosphere
- opportunities for reflection, resourcefulness, and resilience
- flexibility in time and space for the different stages of creative activity
- sensitivity to the values of education, which underpin individual and local interest, commitment, potential, and quality of life
- teaching strategies that acknowledge ‘teaching for creativity’ and ‘teaching creatively.’

Digital technology has brought many features to support creative activities in the art classroom. Learners can participate in various activities, from using interactive whiteboards and wireless portable computers to working together in virtual spaces to exchange and build ideas and using multiple 2D and 3D programs to design, draw, improve, and create new artworks.

The potential of new technology to provide resources for arts education was recognized in many countries [17].

Software designed to support creativity encompasses simulations for 2D and 3D modeling, design, representation of reality, or the creation of virtual reality. These simulations are controlled and executed through programmable toys or software applications. Various types of digital technologies in art classrooms include graphic tablets, microphones, video conferencing, interactive whiteboards, 3D printers, gamification, virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and different 2D and 3D design and drawing software.

According to [7], creative computer environments are employed to:

- encourage motivation in specific topics
- explore, visualize, and demonstrate relations and dependencies
- simulate and model
- act as a microworld for discovery... creating and building...
- solve problems with constraints
- test...?

What Does it Mean to Be Creative? The creativity about ‘Developing ideas and making things happen’ is often associated with using digital technology to explore the question ‘What would happen if...?’

The creativity construct includes general and context-specific knowledge, skills, and dispositions. Moreover, aspects of creativity vary across individuals and shift in the application as a

learner develops domain-specific expertise. In the context of assessment, judgments of creativity can occur through multiple lenses:

person: personality features and dispositions of an individual.

The creative person demonstrates motivational, affective, and cognitive habits of mind that influence the creative process. Relevant factors include openness to taking intellectual risks, tolerance for ambiguity, resilience, independent thinking, and propensity for nonconformity [8].

process: the observable learning and thinking involved in a creative act.

The creative process refers to how people approach problems and arrive at novel and valuable solutions. The Australian Council for Education Research (ACER) recently proposed a framework for assessing creative thinking, which is primarily concerned with process rather than the creativity construct. ACER defined creative thinking as the capacity to generate many different kinds of ideas, manipulate ideas in unusual ways, and make unconventional connections to outline novel possibilities that have the potential to meet a given purpose elegantly [14]. ACER's definition encompasses three overarching strands and seven aspects, as shown in Figure 1.

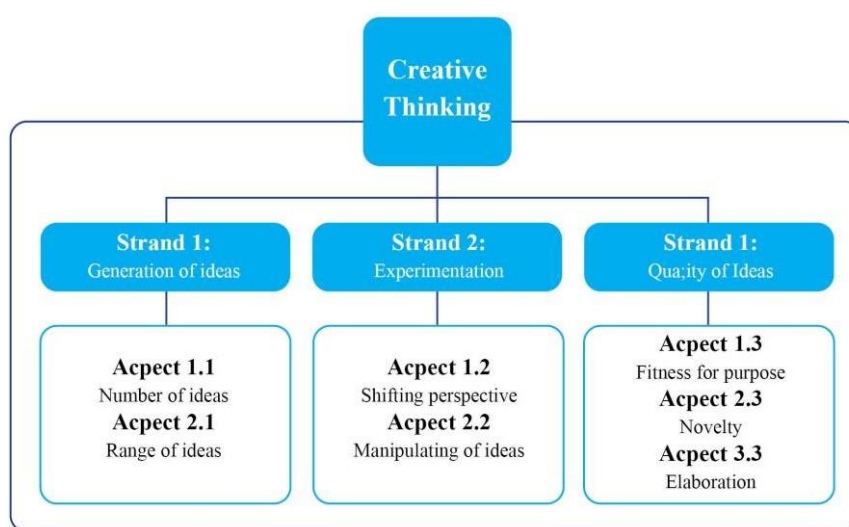


Figure 1: ACER's Creative Thinking Skill Development Framework

Strand 1: Generation of ideas. At its core, creative thinking is a generative process involving the production of many different ideas through divergent thinking. Although divergent thinking is an essential element of creativity, it is only part of the creative process and one of several indicators of creative potential [9]. The number and range of novel or unusual ideas— captured in fluency, flexibility, and originality—are critical aspects of idea generation.

Strand 2: Experimentation. Experimentation involves the ability to consider ideas from multiple perspectives and generate new ideas within the constraints of a problem. The ability to shift across multiple perspectives allows the creative thinker to redefine a problem's context (i.e., the problem's goals, constraints, and environmental conditions) and arrive at new ways to approach the problem. Experimentation also involves manipulating and synthesizing ideas and, in turn, adapting them to develop new approaches to a problem.

Strand 3: Quality of ideas. The quality of an idea entails three aspects: (a) fitness (i.e., usefulness) for a purpose, (b) novelty, and (c) elaboration, or the ability to sufficiently communicate the idea and explain how it solves a problem. According to [14], A caveat is that the learner's prior knowledge may limit that elaboration. For example, a learner may be able to develop novel ideas but unable to explain how the idea improves upon more common ideas.

product: a tangible result of the creative process.

The creative product provides evidence of two essential elements of creativity: novelty and usefulness [8]. While the creative process produces something new and different, such originality is

insufficient. Instead, something creative must also be helpful or appropriate for achieving an aim or solving a problem.

press: the environment and other social factors influencing the creative process.

The creative press includes environmental conditions influencing an individual's creative development and potential.

Materials and methods. Research design and participants:

In line with the research objectives and utilizing the ASCER framework, a questionnaire was developed to investigate the effectiveness of digital technologies and their role in fostering creativity in art education. This questionnaire was designed to align with the creation of artistic ideas. It was used to conduct an in-depth analysis of art students' perspectives regarding the role of digital technology in enhancing their creativity.

The descriptive method was used in this research. The data were collected through questionnaires and interviews. The quantitative data were first collected and then analyzed. The statistical population of this research includes the master art students of the Department of Art Education, Abai Kazakh National Pedagogical University, consisting of 40 students as respondents.

The quantitative data were collected through a questionnaire. The questionnaire was used to collect accurate data on the development of creativity through digital technology in art education. The structured questionnaire was designed by experts based on previous research on three primary strands: generation of ideas, experimentation, and quality of ideas. This study adapted quantitative findings, including three main variables. After the content validity evaluation, the number of valid questions for the final questionnaire was determined as ten questions. Interviews were conducted with the participants for their contributions.

The research ethics were approved by the head of the International Relations Department of Abai Kazakh National Pedagogical University, Dr. Karim Baigotov. The researcher explained the purpose of the research to all respondents. All responses, kept confidential and anonymous, are assigned by codes and numbers. Moreover, the researcher asked the survey respondents for a written consent form acknowledging their willingness to complete the questionnaire honestly.

Results and Discussion. According to Table 1, the results of the collected data analysis indicate that students in the strand of artistic idea generation have a positive attitude toward digital technologies. During the interview process, participants were also informed that the idea-generation process consists of four sub-skills:

Fluency: the ability to generate a large number of ideas.

Flexibility: the ability to produce a variety of ideas.

Originality: the ability to generate novel and unusual ideas.

Elaboration: the ability to fully develop ideas.

Participants expressed their perspectives on the positive impact of digital technology on their idea-generation process. The results showed that the average idea production score (including the number and diversity of ideas) was evaluated at 4.38 out of 5.

The strand of experimentation serves as a point where technology strives to facilitate the shifting of multiple perspectives among participants and empower them to redefine a problem or issue and even generate new solutions. In this context, participants were informed that experimentation involves manipulating old and new ideas together, executing ideas differently, and considering diverse perspectives. During the interview process, participants exhibited some skepticism towards the capabilities of technology, indicating that digital technology may not significantly assist them in these aspects or that students lack complete awareness of the features and possibilities of technology in the realm of idea manipulation. The average score for the field of experimentation is 3.18 out of 5, encompassing two subcategories, namely "Shifting perspectives on creating ideas" and "Manipulating artistic ideas." It obtained the lowest percentage among the three factors examined.

In the strand of Idea Quality, three key factors were examined (Fitness for purpose, Novelty in creating ideas, and Elaboration). Since the participants were primarily young and inexperienced, they were told some tips about the quality of the ideas strand. First of all, learners may generate novel ideas, although not necessarily unknown in an absolute sense. That is, generating novel or original ideas is relative to, and dependent on, the social context. For example, learners may generate highly unusual ideas compared to their classmates, but they may be similar to ideas generated in a different class. Ideally, learners can work in a context in which the evaluation of the novelty or originality of an idea is generous enough that it provides opportunities for success while also challenging learners to think differently.

Based on the above explanations, the participants had a positive perspective regarding the quality of artistic ideas created through digital technology. According to the results, their satisfaction percentage with the quality of the generated ideas was 4.01.

Table 1: The scale of ACER’s creative thinking factors in student’s artistic creativity employing digital technology

Item	Factor	Percent	Mean	Cronbach Alfa
Generation of artistic ideas	Number of artistic ideas	4.48	4.38	0.85
	Diversity of artistic ideas	4.28		
experimentation	Shifting perspective on creating ideas	3.20	3.18	
	Manipulating artistic ideas	3.17		
Quality of ideas	Fitness for purpose	3.82	4.01	
	Novelty in creating ideas	4.10		
	Elaboration	4.13		

During the interviews, participants were asked to express their views on the role of digital technology in developing creative skills in artistic activities and education. Over half of them stated that using digital technology improves creative skills and provides them with tools that make the ideation process easier. Furthermore, in the questionnaire, more than half of the participants evaluated the impact of technology on creative performance as high or very high. Despite the weakness and lack of satisfaction in testing new ideas, no participants expressed negative opinions regarding using technology to create and teach art in the classroom. This is evident in Figure 2, which clearly shows the students' point of view about their creativity development.

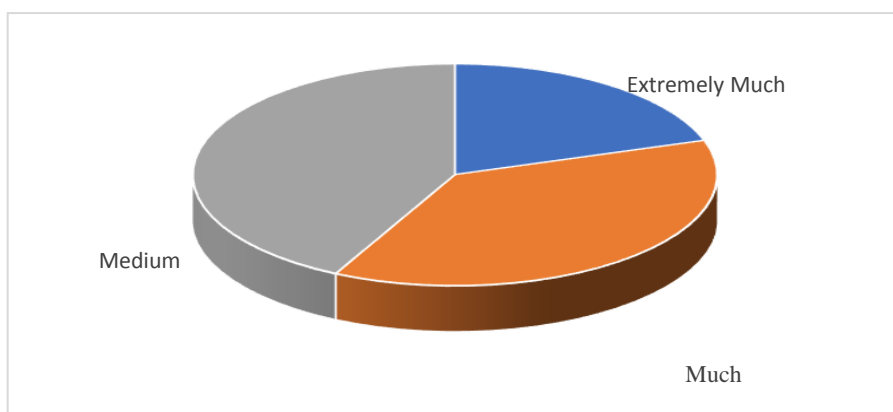


Figure 2: The impact of digital technology on developing the creativity of art students

Based on the results of data analysis in this study, students expressed that they primarily use digital technologies to increase the quantity and diversity of ideas, and technology provides them with numerous capabilities for diversifying their designs. In the second stage, they stated that working with digital technologies significantly enhances the quality of their artistic ideas. Furthermore, the findings demonstrated that students generally assess technology's impact on increasing creativity positively.

Therefore, it can be concluded, according to the perspective of art students at the Abai National Pedagogical University of Kazakhstan, that digital technologies significantly influence the quantity, diversity, novelty, and quality of art ideas. However, when it comes to manipulating ideas and creating new ones from old ideas, students are somewhat dissatisfied with digital technologies. They are slightly skeptical about the capabilities of technology. In their view, digital technologies have not yet provided the necessary features, or students cannot effectively use the features of technology for renewing or reconstructing ideas.

Hence, an in-depth case study of students' perspectives can be utilized to develop appropriate educational strategies for the art curriculum and serve as a foundation for further studies. The author also recommends a more detailed investigation into why art students predominantly use digital technology to increase the quantity of ideas. Are the characteristics of digital technologies still inadequate for experimenting with ideas to enhance their quality and reconstruction?

Conclusion. The growing recognition of the need to enhance creative performance has led to numerous efforts in art education. Among all academic disciplines, art is a prominent field where students are fully engaged in creative activities. In the era of technology and communication, with the continuous advancement of digital technologies, their application in art education and design is evident. Students are often mesmerized by technology. In art classes, students complement their creativity by embracing digital technologies and learning various new design software. Moreover, the adoption of innovative technologies such as graphic tablets, video conferencing, interactive whiteboards, 3D printers, virtual reality, augmented reality, and artificial intelligence can enhance students' levels of creativity. Creative art is nurtured through constant experimentation and play with digital tools and effects. Students can access a rich source of creative knowledge through practical software and digital devices. Exposing students to technologies as creativity tools can prepare them for innovative applications in digital visual arts.

Finally, the participants in this study evaluated digital technologies for the process of creatively generating valuable art ideas. They stated that traditional and digital arts could coexist meaningfully.

References:

1. Anand Divya, and Laura M. Hsu. 2020. "Think Outside the Book: Transformative Justice Using Children's Literature in Educational Settings." *Journal of Curriculum Studies Research* 2 (2): 122–43. <https://doi.org/10.46303/jcsr.2020.13>.
2. Baer John. 2012. "Domain Specificity and the Limits of Creativity Theory." *The Journal of Creative Behavior* 46 (1): 16–29. <https://doi.org/10.1002/jocb.002>.
3. Biçer Ali. 2021. "A Systematic Literature Review: Discipline-Specific and General Instructional Practices Fostering the Mathematical Creativity of Students." *International Journal of Education in Mathematics, Science and Technology* 9 (2): 252–81. <https://doi.org/10.46328/ijemst.1254>.
4. Browning Kathy. 2008. "Art as Transformation." In *Palgrave Macmillan US eBooks*, 211-21. https://doi.org/10.1057/9780230610576_14.
5. Daher Wajeeh, and Ahlam Anabousy. 2020. "Flexibility Processes of Pre-Service Teachers in Problem Solving with Technology." *International Journal of Technology in Education and Science* 4 (3): 247-55. <https://doi.org/10.46328/ijtes.v4i3.96>.
6. Henriksen Danah, and Punya Mishra. 2018. "Creativity, Technology & Education: Exploring Their Convergence." *Springer Briefs in Educational Communications and Technology*. <https://doi.org/10.1007/978-3-319-70275-9>.
7. Kalaš Ivan, and Andrej Blaho. 2003. "Exploring Visible Mathematics with IMAGINE." In *IFIP Advances in Information and Communication Technology*, 53-64. https://doi.org/10.1007/978-0-387-35668-6_6.
8. Kaufman James C., Ronald A. Beghetto, and Anna Dilley. 2016. "Understanding Creativity in the Schools." In *Plenum Series on Human Exceptionality*, 133-53. https://doi.org/10.1007/978-3-319-28606-8_6.

9. Lai Emily R., Jessica Yarbro, Kristen DiCerbo, and Els de Geest. 2017. "Skills for Today: What We Know about Teaching and Assessing Creativity." London: Pearson: 32-64
10. Loveless Avril. 2007. "Literature Review in Creativity, New Technologies and Learning." A NESTA Futurelab Research report. Available at: <https://telearn.archives-ouvertes.fr/hal-00190439>
11. Patston, Timothy J., James C. Kaufman, Arthur J. Cropley, and Rebecca Marrone. 2021. "What Is Creativity in Education? A Qualitative Study of International Curricula." *Journal of Advanced Academics* 32 (2): 207-30. <https://doi.org/10.1177/1932202x20978356>.
12. Plucker, Jonathan A., Ronald A. Beghetto, and Gayle T. Dow. 2004. "Why Isn't Creativity More Important to Educational Psychologists? Potentials, Pitfalls, and Future Directions in Creativity Research." *Educational Psychologist* 39 (2): 83-96. https://doi.org/10.1207/s15326985ep3902_1.
13. Raba, Ahmed Awad Amin Mahmoud., and Hussam Tawfeeq Harzallah. 2018. "Palestinian Teachers' Views on the Factors That Limit Students' Creativity and Some Possible Strategies to Overcome Them." *Research in Social Sciences and Technology* 3(2): 40-57. <https://doi.org/10.46303/ressat.03.02.3>
14. Ramalingam Dara., Prue Anderson, Daniel Duckworth, Claire Scoular, and Jonathan Heard. 2020. "Creative thinking: Skill development framework, Camberwell, VIC." *The Australian Council for Educational Research Ltd*, Available at: https://research.acer.edu.au/ar_misc/40
15. San Inci. 2017. "Sanat ve eğitim yaratıcılık temel kuramlari sanat eleştirisi yaklaşımları." Ankara: Ütopya Yayınları: pp. 65
16. Saricam Uğur., Mehtap Yildirim. 2021. "The Effects of Digital Game-based STEM Activities on Students' Interests in STEM Fields and Scientific Creativity: Minecraft Case." *International Journal of Technology in Education and Science* 5(2): 166-192, <https://doi.org/10.46328/ijtes.136>
- Sharp Carolin., Joanna Le Metais . 2012. "The Arts, Creativity, and Cultural Education." London: *International Review of Curriculum and Assessment Frameworks, Creative Education* 3(8): 35-42
17. Tillander Michelle. 2011. "Creativity, Technology, Art, and Pedagogical Practices." *Art Education* 64(1): 40-46, <http://doi.org/10.1080/00043125.2011.11519110>
18. Zhao Yong. 2013. "World Class Learners: Educating Creative and Entrepreneurial Students." *Choice Reviews Online* 50 (09): 50-5135. <https://doi.org/10.5860/choice.50-5135>.

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ФОРМИРОВАНИЕ УПРАВЛЕНЧЕСКОЙ КОМПЕТЕНТНОСТИ БУДУЩИХ УЧИТЕЛЕЙ ФИЗИЧЕСКОЙ КУЛЬТУРЫ В УСЛОВИЯХ ОБНОВЛЕННОГО СОДЕРЖАНИЯ ОБРАЗОВАНИЯ

Аннотация

Актуальность управленческой компетентности в образовании, особенно в подготовке будущих учителей физической культуры, обусловлена современными вызовами, требующими от педагогов не только профессионализма, но и навыков эффективного управления образовательными процессами. В статье раскрывается, что менеджмент в образовании включает планирование, координацию и контроль учебных процессов. Эффективное управление требует компетенций в планировании, принятии решений, коммуникации и мотивации коллектива.

Управленческая компетентность учителя означает способность принимать обоснованные управленческие решения, используя навыки планирования и эффективного использования учебных ресурсов и педагогических технологий и практик. В статье раскрывается, что результаты оценки формирования управленческих компетенций будущих учителей физической культуры и спорта могут предоставить информацию о текущем состоянии компетентности и выявить потребности в дополнительном обучении. Подчеркивается необходимость развития управленческих навыков в