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ASERS Publishing

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# Call for Papers
## Volume XVI, Issue 2(20)
# Journal of Research in Educational Sciences

The Journal is designed to promote scholars' thought in the field of education with the clear mission to provide an interdisciplinary forum for discussion and debate about education's most vital issues. We intend to publish papers that contribute to the expanding boundaries of knowledge in education and focus on research, theory, current issues and applied practice in this area.

The Editor in Chief would like to invite submissions for the **Volume XVI, Issue 2(20), Winter 2025** of the **Journal of Research in Educational Sciences** (JRES).

The primary aim of the Journal has been and remains the provision of a forum for the dissemination of a variety of international issues, empirical research and other matters of interest to researchers and practitioners in a diversity of subject areas linked to the broad theme of educational sciences.

The aims and scope of the Journal includes, but is not limited to; the following major topics as they relate to the Educational Sciences:

- Educational Psychology;
- Engagement and Community;
- Leadership in Education;
- School Improvement;
- Human Resources in Education;
- Education and Information Science;
- Global strategies in Higher Education;
- Learner's Needs in the 21st Century;
- The Role of Education in The Globalization World;
- Technology-Based Learning.

All papers will first be considered by the Editors for general relevance, originality and significance. If accepted for review, papers will then be subject to double blind peer review.

| | |
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| **Deadline for Submission**: | 25th November 2025 |
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# Formation of Leadership Skills of Students in the Process of Interdisciplinary Integration

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**Abstract:** Interdisciplinary integration facilitates the development of systemic thinking, creativity, and leadership skills necessary for students to successfully adapt to contemporary challenges. The integration of arts, computer science, and English broadens students' opportunities for self-realization and enhances the effectiveness of the educational process.
The relevance of this study is driven by the need for modern education to cultivate leadership skills among students that respond to the challenges of globalization, rapid technological advancements, and dynamic social realities. Leadership skills, such as critical thinking, initiative, communication, and teamwork, are key factors in personal development, socialization, and competitiveness in the modern world. The use of interdisciplinary integration in the educational process acts as an effective tool for creating conditions that foster the comprehensive development of these competencies, ensuring students' holistic worldview and their ability to address complex interdisciplinary tasks. The aim of the article is to explore the potential of integrating arts, computer science, and English in developing leadership skills among students in general secondary education institutions.

The research utilized analysis of scientific publications and regulatory documents addressing interdisciplinary integration and leadership skill development, observation of educational processes, and synthesis of practical experience in project-based learning.

The study substantiates the significance of interdisciplinary integration in forming leadership skills, such as initiative, creativity, critical thinking, communication, and teamwork. An example of the integrated project "Castles and Fortresses of Ukrainian Heritage" is detailed. This project aims to foster civic awareness, social and digital competencies. It combines research into cultural and historical heritage, the creation of informational booklets using digital tools, and presenting results in English.

**Keywords:** leadership; leadership skills; interdisciplinary integration; project-based learning; arts; computer science; English language.

**JEL Classification:** A12; A22; I29.

## Problem Statement

The formation of students' leadership skills is a crucial component of modern education, aimed at preparing competent and socially active individuals. In the current conditions of globalization and rapid technological advancement, there is a need for leaders capable of effective interaction, critical thinking, and making responsible decisions. Leadership skills not only contribute to students' personal development but also determine their competitiveness in the labor market and adaptability to change.

Interdisciplinary integration is an important pedagogical approach that combines knowledge from various subject areas to solve complex tasks. Applying this approach in the educational process enhances students' motivation and creates conditions for the development of their leadership qualities. Students gain opportunities to take responsibility for implementing joint projects, demonstrate initiative, and work in teams, which are essential components of leadership.

Regulatory documents governing the educational process outline the main directions for integrating interdisciplinary components, developing key competencies, and fostering leadership skills in students. They

emphasize the importance of creating conditions for personal development and active participation in collective activities. The State Standard of Basic and Complete General Secondary Education (On the approval of the State Standard for Basic and Complete General Secondary Education: Resolution of November 23, 2011, No. 1392) specifies requirements for the content of education, interdisciplinary integration, and the development of students' key competencies. This standard focuses on fostering skills necessary for teamwork, initiating new ideas, and taking responsibility - skills inherent to leaders. The "New Ukrainian School" concept (http://surl.li/vjbuvo) specifies the strategy for modernizing the educational system, emphasizing student-centered learning, critical thinking development, and the ability to integrate knowledge from various fields. Project-based activities, integrated courses, and methods that combine theory and practice play a crucial role in implementing this strategy. The instructional and methodological recommendations of the Ministry of Education and Science of Ukraine regarding teaching subjects/integrated courses in general secondary education institutions for the 2023/2024 academic year (https://osvita.ua/legislation/Ser_osv/89974/) provide practical advice for teachers on organizing integrated lessons. These recommendations also define how to create an educational environment for student collaboration and use modern technologies to stimulate initiative and responsibility.

## Analysis of Recent Studies and Publications

The key studies informing this research include works on creating a favorable learning environment (Kovalchuk 2011a), building effective lessons (Kovalchuk 2011b), forming students' leadership skills (Ermak 2022; Ermak and Kozlova 2023; Baranovska 2015), and interdisciplinary integration (Baranovska 2017; Luchko and Zhytaryuk 2024; Ermak 2023; Kovalchuk *et al.* 2021). These studies provide a theoretical basis for implementing innovative approaches to organizing education aimed at developing well-rounded individuals capable of critical thinking, collaboration, independent knowledge acquisition, and adaptation to rapidly changing conditions. Integrating these approaches into the learning process enables the formation of competencies that meet the challenges of modern education and societal life.

## Unresolved Aspects of the General Problem

Despite the current format of scientific research, there is, in our view, a lack of a systematic approach to studying the interdisciplinary integration of arts, computer science, and English, as well as its impact on forming leadership skills among students in general secondary schools. Modern research often examines these disciplines separately, limiting the potential for a comprehensive analysis of their integration. Given the importance of interdisciplinary integration for student development, a deeper analysis of how the synergy of these subjects can foster critical leadership qualities such as creativity, communication, critical thinking, and self-development is needed.

The aim of this study is to determine the potential of interdisciplinary integration of arts, computer science, and English in forming leadership skills among students of general secondary education institutions.

The article will achieve its purpose through the following: by revealing the essence of interdisciplinary integration as a modern pedagogical approach; by describing an example of implementing an integrated project and its role in forming students' leadership skills; and by evaluating the impact of interdisciplinary integration on the development of students' cognitive, social, personal, and civic competencies.

## Research Material

The problem of integration at the interdisciplinary level is significant for both theoretical and practical aspects of education. Its relevance stems from new social demands placed on modern general secondary education institutions and changes in science and industry in the context of globalization (Ermak 2023).

Interdisciplinary integration in schools is a modern approach to organizing learning that involves combining knowledge, skills, and competencies from various disciplines to create a holistic view of phenomena or problems. This approach not only facilitates effective material acquisition but also helps students develop systemic thinking, interdisciplinary connections, creative abilities, and leadership qualities essential in contemporary society.

T.M. Zasekina defines the integrative approach as a methodological framework for the educational process, based on the integration of its components (Kovalchuk *et al.* 2021, 77). This highlights the importance of a comprehensive approach to organizing learning. The integrative approach involves the interaction of various components of the educational process, such as the content of learning, methods, and forms of activity organization, ensuring the coherence and harmony of education. This creates conditions for students' development not only within individual subject areas but also fosters interdisciplinary connections. In the context of modern educational demands, integrating different components of learning is essential to create a more flexible and adaptive educational system capable of responding to social, economic, and technological changes. The integrative

approach promotes the development of critical thinking, creativity, and other skills essential for successful socialization and professional activities.

We identified four main groups of students' leadership skills:

**Personal:** Initiative, time management, adaptability, goal-oriented behavior, responsibility, and stress resilience.

**Social:** Emotional intelligence, communication, teamwork, social responsibility, and autonomy.

**Cognitive:** Critical thinking, creativity, problem-solving, self-directed learning, and digital and media literacy.

**Civic:** Civic awareness, volunteering, safety, community participation, and tolerance (Ermak 2022).

O.V. Baranovska examines the issue of interdisciplinary integration in the context of specialized education, particularly its practical orientation and role in reducing the load on the invariant part of the educational content (Baranovska 2015). According to the author, the modern approach to understanding the problem of integration in education is based on key principles such as the fundamentality and integrity of education, as well as systemic and personality-oriented approaches. The integration process is viewed as a strategy for developing a personality with the qualities of a highly educated individual capable of easily adapting to any conditions. The modern resolution of integration problems lies in the ability to study natural and humanities disciplines as components of a unified human culture, emphasizing the value-based aspects of scientific cognition and the use of historical and cultural elements in studying natural sciences (Ermak 2023).

We believe that the effective formation of students' leadership skills is possible through active participation in practical activities that foster the development of these qualities. In this regard, Lyceum No. 157 has implemented an effective system of project-based learning, providing students with real opportunities for the practical application of leadership skills. This system includes various projects in which students actively engage in planning, implementation, and result evaluation, enabling them to develop responsibility, initiative, teamwork, and critical thinking skills (Ermak 2023). In our previous research, we analyzed the implementation of projects using computer modeling within STEM education, which significantly differs from traditional forms of learning. This educational system creates conditions for the development and improvement of students' analytical and creative abilities, providing them with the opportunity to work in teams, enhance independence in acquiring new knowledge, and improve key competencies.

STEM-based project learning also ensures the integration of educational disciplines, equipping students with skills to apply modern technologies and computer modeling in educational and practical contexts.

Such activities contribute to the integration of educational disciplines, fostering students' skills in applying modern technologies and computer modeling in both educational and practical contexts (Kovalchuk *et al.* 2021).

Within the framework of academic freedom, Lyceum No. 157 in the Obolonskyi district of Kyiv implements the educational project "Leadership Based on Values." This project aims to develop leadership skills among general secondary school students and cultivate the value-oriented sociocultural orientation of their personalities. The philosophy of this project lies in fostering students' value-based orientation and their ability for sociocultural self-expression. An innovative aspect of this project work is the flexibility of the educational system, which allows the inclusion of all participants in the educational process, including stakeholders, to create new educational products.

Through the integration of subjects and the application of project-based learning, students and teachers develop creative and critical thinking, enhance digital competencies, and improve communication and self-presentation skills. Moreover, this process broadens students' cognitive skills, enriches their intellectual experience, and facilitates mutual learning across different disciplines.

Specifically, by using self-presentation skills in project work, students engage in socialization, presenting their research that reflects aesthetic taste and collective creativity. This is a crucial step in understanding their achievements and ensuring their preservation and development in the future.

The integration of arts, computer science, and English in the educational process is a powerful pedagogical tool that enables students to develop multifaceted competencies that complement one another, ensuring a comprehensive approach to learning. This integration has several key features that contribute to the development of both creative and technical skills among students while enhancing their capacity for interdisciplinary thinking.

The integration of these subjects provides students with opportunities to demonstrate creativity and an innovative approach to learning. Arts, in its various forms, enables students to express their ideas through graphic, video, and multimedia products. This, in turn, is enriched by knowledge of computer science, as students learn tools for creating and editing digital media. Simultaneously, the use of English as a medium for describing and presenting their work deepens their understanding of terminology and context, expanding their opportunities for communication at the international level.

Integrating arts with computer science and English fosters interdisciplinary skills among students. Creating projects that combine knowledge from different subjects allows students to develop the ability to solve complex problems requiring both creative approaches and technical skills. This may involve using software for creating artistic products as well as writing texts and presentations in English, enabling students not only to master professional tools but also to enhance their linguistic and communicative abilities.

Additionally, the technological aspect of this integration provides students with access to the latest digital technologies, which is an important element of preparation for modern professional demands. For example, students can use digital resources to create multimedia projects that combine art and information technology, while English serves as a means for presenting results on international platforms, fostering their global competencies.

Equally important is the development of communication skills through the use of English to present the results of project-based activities. Students learn to articulate their thoughts and present their achievements both orally and in writing, which is a crucial aspect of academic and professional communication. This contributes to developing students' ability to communicate effectively in various contexts, including international environments.

Integration also fosters the cultural dimension of students' development. Arts not only enable the exploration of cultural characteristics of different nations but also allow students to express their own cultural identity through creative works. Computer science and English provide opportunities for these cultural products to be showcased in a global context, promoting intercultural communication and mutual understanding.

Thus, the integration of arts, computer science, and English creates an effective environment for forming a wide range of competencies encompassing creative, technical, communicative, and cultural aspects. This approach enables students to not only acquire knowledge in individual subject areas but also prepares them for active participation in global society and professional environments.

The organization of project implementation depends on the initiative of the teacher, who acts as the primary coordinator and moderator of project-based activities. The success of the project's implementation is directly related to the teacher's understanding of the importance of developing leadership skills in students. The teacher serves as a mentor and leader in collaborative work, ensuring the effectiveness and productivity of the learning process. As an example, let us consider the project plan for the subject of arts integrated with computer science and English (Kovalchuk, Ermak and Kozlova 2023) (Table 1) and the project roadmap (Table 2).

Table 1. Project Plan Arts, English, Computer Science "Integrated Project with a Leadership Focus". Grade: 11

| | |
|---|---|
| **Project name:** | Castles and fortresses of Ukrainian heritage - the inexhaustible history of the legendary people. |
| **Leadership skills:** | 1. Life balance skills.<br>2. Communication and organizational skills. |
| **During the project, students will learn to:** | Research the cultural and historical heritage of the Ukrainian nation.<br>Foster patriotism for their country.<br>Use digital technologies to create an informational booklet in English and publish it on social media.<br>Create a work plan for the project.<br>Present their project to the community.<br>Develop self-confidence.<br>Defend and justify their opinions.<br>Interact effectively with peers and make collective decisions.<br>Maintain a culture of speech. |
| **Values the teacher will instill in the educational environment:** | Leadership.<br>Responsibility.<br>Belief in success through personal efforts.<br>Creativity.<br>Resilience.<br>Enthusiasm.<br>Faith in goodness |

Table 2. Integrated Project Roadmap

| **Teacher** | **Topic from the State Program** | **Activity Goal** |
|---|---|---|
| **Arts** | | |

| | | |
|---|---|---|
| **Art Teacher** | Arts of the European Cultural Region | 1. Actualize students' knowledge about the cultural and historical heritage of the Ukrainian nation.<br>2. Conduct research on the architecture of fortification structures. |
| **Computer Science** | | |
| **Computer Science Teacher** | Preparation and Implementation of an Information System | 1. Organize collaborative work on the document.<br>2. Select a layout editor.<br>3. Develop and choose a color scheme and typography.<br>4. Apply interactive methods in development.<br>5. Export the finished product. |
| **English language** | | |
| **English Teacher** | Journey "On the Road" | 1. Actualize students' knowledge about the passive voice.<br>2. Use motion-related prepositions in speech.<br>3. Develop skills for precise and artistic retelling. |

| **Hours** | **Socially Significant Outcome of Creative Activities** | **Leadership Skills Developed During the Project** |
|---|---|---|
| **Arts** | | |
| 5 | Creation of a tour booklet "Castles and Fortresses of Ukraine" using Ukrainian and English | 1. Communication and organizational skills.<br>2. Civic skills.<br>3. Art of self-presentation and eloquence.<br>4. Creativity.<br>5. Self-learning and self-development. |
| **Computer Science** | | |
| 10 | Creation of a tour booklet "Castles and Fortresses of Ukraine" using Ukrainian and English | 1. Communication and organizational skills.<br>2. Digital skills.<br>3. Creativity<br>4. Self-learning and self-development.<br>5. Strong character skills ("Code of Honor"). |
| **English language** | | |
| 5 | Creation of a tour booklet "Castles and Fortresses of Ukraine" using Ukrainian and English | 1. Cognitive flexibility.<br>2. Self-learning and self-development.<br>3. Creativity<br>4. Art of self-presentation and eloquence. |

*Source*: Original author's development

The project described in the roadmap demonstrates a modern approach to developing students' leadership skills through the integration of multiple disciplines. Its structure is aimed at fostering comprehensive competencies by combining knowledge from arts, computer science, and English. This approach ensures the effective implementation of interdisciplinary integration, allowing students to form a holistic perception of the educational process.

One of the key advantages of the project is its focus on developing communication and organizational skills necessary for leaders. Students are engaged in collaboration, which promotes teamwork, joint decision-making, and responsible task execution. Particular attention is paid to public self-presentation skills, formed through presenting project results to an audience.

The use of digital technologies plays a crucial role in the project's implementation. Students master tools for creating informational materials, which enhances their creativity, digital literacy, and ability to work with modern communication tools. This activity also boosts students' self-confidence and motivates further self-development.

The project fosters civic awareness, as its main theme involves researching Ukraine's cultural and historical heritage. This allows students to appreciate the significance of their identity and strengthen their patriotic stance. The combination of creative and research components encourages students to actively explore the world, engage in critical thinking, and express themselves creatively.

Thus, project-based learning is an innovative educational tool that enables the harmonious integration of subjects, develops key leadership skills, and shapes the value orientations of modern youth.

The integration of arts into the educational process opens up broad opportunities for students and teachers to showcase their work through various formats such as blogs, guides, worksheets, and media resources. This approach enhances the research, cognitive, and cultural aspects of the educational process participants, allowing them to interact more deeply with the material and develop critical and creative thinking. In particular, the use of diverse media formats facilitates the integration of modern technologies into learning, an essential element in preparing students for sociocultural and professional challenges.

The result of the project activity is the creation of the booklet "Castles and Fortresses of Ukraine" (Figure 1).

Figure 1. Examples of Booklets "Castles and Fortresses of Ukraine"


Projects can be accessed via the following link: Google Drive.

During the project, a layout for the workbook "Castles of Ukraine" was developed (Figure 2).

Figure 2. Layout of the Workbook "Castles of Ukraine"


**Interdisciplinary integration significantly enhances educational opportunities for students and teachers, encouraging active participation in various project initiatives.** Through the implementation of such projects, students not only gain practical experience in knowledge sharing among peers but also actively promote the results of their own research. This approach ensures effective use of digital, communicative, and personal competencies, creating conditions for engaging a broader audience in the educational process, including stakeholders at various levels, thereby strengthening the integrative and educational aspects of learning.

## Conclusions

The research has established that developing students' leadership skills is a key task of modern education, gaining particular importance in the face of global challenges. An educational process built on interdisciplinary integration fosters the development of key competencies necessary for students to adapt successfully to a rapidly changing world. Interdisciplinary integration, particularly involving arts, computer science, and English, creates conditions for combining knowledge from various disciplines, stimulating the development of cognitive, social, personal, and civic

skills. Arts, as an integrative component, not only fosters students' aesthetic taste and spirituality but also contributes to developing leadership qualities such as creativity, critical thinking, communication, and teamwork. Developing students' leadership skills through interdisciplinary integration not only expands their opportunities but also contributes to shaping a socio-cultural personality capable of self-realization, adaptation, and active participation in societal life. This underscores the necessity of further refining methods and technologies of interdisciplinary integration in the educational process.

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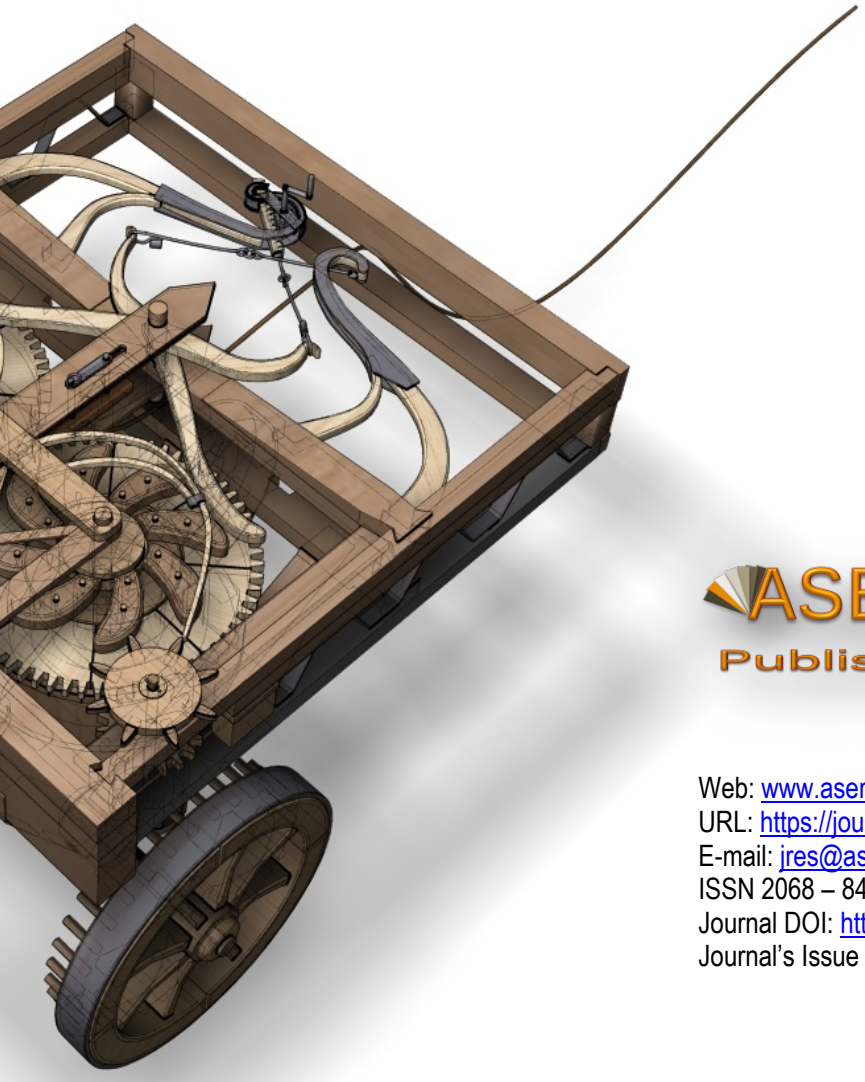

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