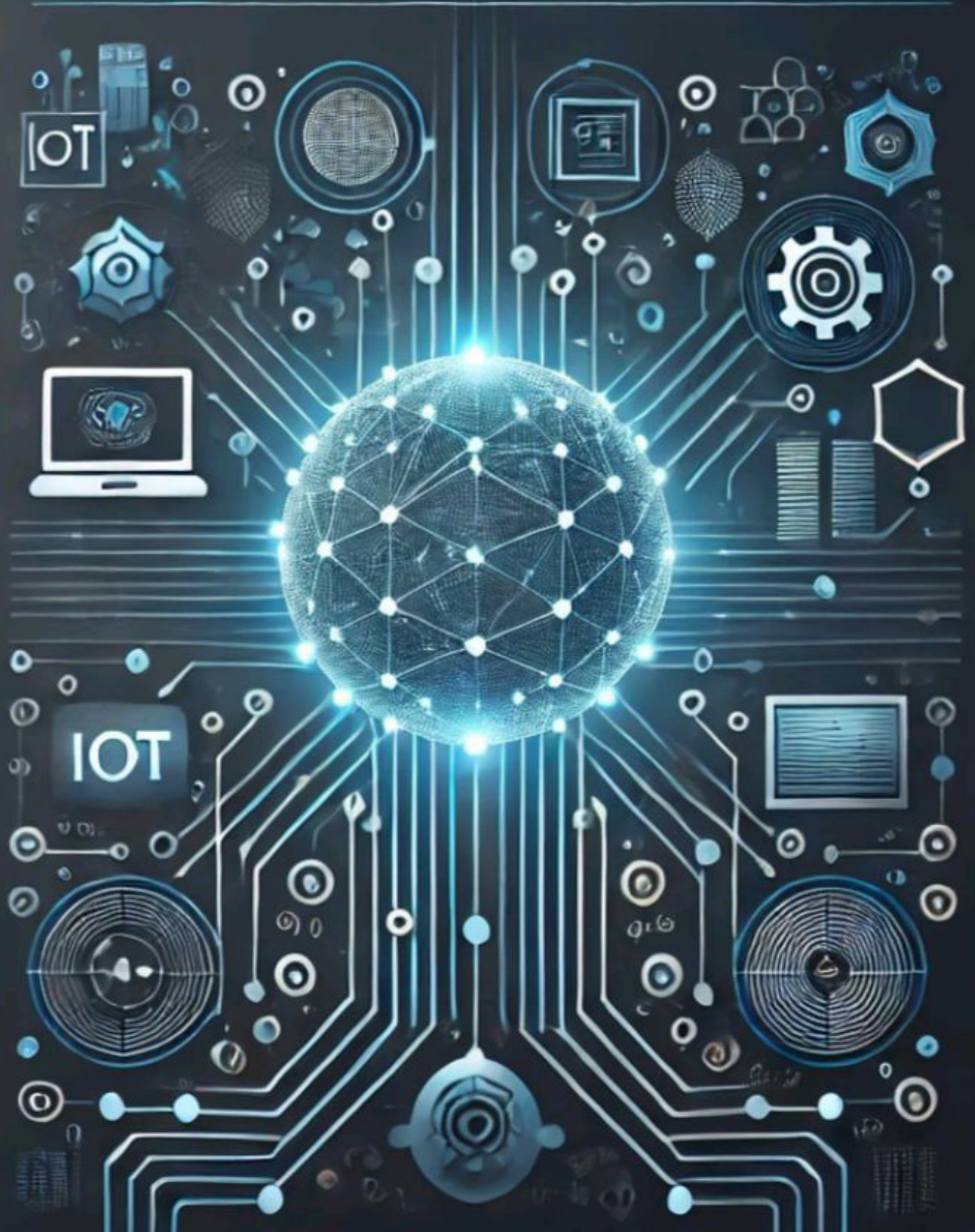


COMPUTER TECHNOLOGIES IN EDUCATION AND SCIENCE THE TECHNOLIGAL DIMENSION



**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ПОЛІСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ**

**КОМП'ЮТЕРНІ ТЕХНОЛОГІЇ
В ОСВІТІ ТА НАУЦІ:
ТЕХНОЛОГІЧНИЙ ВИМІР**

Колективна монографія

ЖИТОМИР

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Монографія охоплює широкий спектр тем, пов'язаних з комп'ютерними технологіями, від їх історії та розвитку до сучасних застосувань в освіті, науці, економіці та інших галузях. Вона охоплює такі теми, як: історія розвитку комп'ютерних технологій; сучасні комп'ютерні технології в освіті; наукові візуалізації та віртуальна реальність; комп'ютерні технології в економіці; основні напрямки розвитку комп'ютерних мереж та систем IoT; технологічні виклики та перспективи розвитку комп'ютерних технологій в ГІС

Монографія "Комп'ютерні технології в освіті та науці: технологічний вимір" буде цінним ресурсом для науковців, викладачів, студентів та всіх, хто цікавиться питаннями використання та розвитку комп'ютерних технологій в освіті та науці.

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SECTION 2. THE ROLE OF INTEGRATED TEACHING METHODS IN DEVELOPING STUDENTS' SKILLS: THE CASE OF SOCIAL ENTREPRENEUR SCHOOL IBS

2.1 Embracing Integrated Teaching Methods for Modern Education

In recent years, the landscape of education has undergone a significant transformation, driven by the need to prepare students for the complexities of the modern world. Traditional teaching methods, while still valuable, often fall short in equipping students with the critical thinking, problem-solving, and collaborative skills necessary for success in today's dynamic environment⁶³. As a result, educators have increasingly turned to integrated teaching methods, which blend various pedagogical approaches to create a more engaging and effective learning experience⁶⁴.

This paper explores the role of integrated teaching methods in developing students' skills through a detailed case study of the IBS Social Entrepreneur School. The Social Entrepreneur School IBS⁶⁵ of Fil. Dr. Jan-U. Sandal Institute offers a unique educational program that focuses on Social Entrepreneurship, Innovation Management, and Service Vision Management. These courses are designed to not only impart theoretical knowledge but also to foster practical skills through innovative teaching methods.

The primary objective of this study is to examine how these integrated teaching methods are implemented in the IBS Social Entrepreneur School and to evaluate their effectiveness in enhancing student learning outcomes. By analyzing the pedagogical approaches used in the school's courses, this paper aims to provide insights into the benefits and challenges of adopting such methods in higher education.

The IBS Social Entrepreneur School's curriculum is structured to promote active learning, where students are encouraged to take an active role in their education. This approach contrasts with traditional, lecture-based teaching methods that often place students in a passive learning role. Instead, the school's courses incorporate project-based learning, flipped classrooms, gamification, collaborative learning, and inquiry-based learning to create a dynamic and interactive educational environment.

⁶³ Bates, T. (2015). *Teaching in a Digital Age: Guidelines for Designing Teaching and Learning*. Vancouver: Tony Bates Associates Ltd.

⁶⁴ Johnson, E. M., Truluck, C. E., & Blanchard, D. R. (2019). *Learner-Centered Instruction: Principles and Practices*. Routledge.

⁶⁵ Fil. Dr. Jan-U. Sandal Institute. (n.d.). *Official site*. Retrieved June 1, 2024, from <https://www.janusandal.no/en/school>.



The IBS Social Entrepreneur School's innovative approach to education is designed to create a learner-centered environment that supports the development of essential skills and knowledge. By employing a variety of integrated teaching methods, the school aims to prepare students for the challenges of the modern world, equipping them with the tools they need to succeed in their future careers.

This paper aims to contribute to the growing body of research on innovative teaching methods in higher education. By providing insights into the practical implementation and outcomes of integrated teaching methods, it seeks to inform and inspire educators to adopt these approaches in their own teaching practices, ultimately enhancing the learning experience and outcomes for students.

2.2 Pedagogical Practice Procedure

The pedagogical internship undertaken at the IBS Social Entrepreneur School was a comprehensive program designed to provide a deep understanding of innovative teaching techniques and administrative tasks associated with educational institutions. This section outlines the detailed procedure of the pedagogical practice, highlighting the roles, responsibilities, and methodologies employed during the internship.

The primary objective of the pedagogical practice was to immerse the intern in a dynamic learning environment where innovative teaching methods are emphasized. The goal was to develop proficiency in both delivering educational content and managing the operational aspects of an academic institution. This dual focus ensured that the intern gained a holistic view of the educational process, enhancing both pedagogical and administrative skills.

The internship was structured around several key components, each designed to build on the intern's knowledge and skills progressively:

1. The intern assisted the professor in various classroom activities, including organizing classes, forming working groups, and distributing informational materials. Responsibilities included supporting the professor in delivering lessons, preparing teaching materials, and managing classroom dynamics.

2. The intern was responsible for preparing and delivering three independent lectures across different courses offered at the IBS Social Entrepreneur School. These lectures covered topics such as "Economic Development, Unemployment, and New Possibilities" in the Social Entrepreneurship course, "Business Ethics, Theory, and Discussion" in the



Innovation Management course, and "Consumer Behavior, Theory, and Discussion" in the Service Vision Management course.

3. A significant focus was placed on the use of innovative teaching methods, including project-based learning, flipped classrooms, gamification, collaborative learning, and inquiry-based learning. These methods were employed to create an engaging and interactive learning environment that encourages student participation and fosters critical thinking skills.

4. In addition to teaching responsibilities, the intern engaged in various administrative tasks such as organizing schedules, coordinating with other faculty members, and managing course logistics. This experience provided insights into the operational challenges of running an educational program and the importance of effective administrative support in achieving educational goals.

The pedagogical practice involved the application of several innovative teaching methods, each chosen to align with the course objectives and enhance student learning outcomes:

1) *Project-Based Learning (PBL)*⁶⁶. Students were assigned complex, real-world projects to work on over an extended period. This method encouraged active learning and allowed students to apply theoretical knowledge in practical scenarios. PBL promoted collaboration, communication, and critical thinking as students worked in groups to solve problems and create final products.

2) *Flipped Classroom*⁶⁷. Traditional lecture content was delivered outside of class time through video lectures or readings, allowing classroom sessions to focus on interactive, hands-on activities. This approach provided more personalized instruction and increased student engagement during class time.

3) *Gamification*⁶⁸. Game-like elements such as points, badges, and leaderboards were incorporated into the learning process to increase motivation and engagement. Gamification made learning more enjoyable and rewarding, encouraging students to achieve their goals and overcome challenges.

4) *Collaborative Learning*⁶⁹. Students worked together in groups to achieve common goals, fostering the development of social and communication skills. Techniques such as think-pair-share and group

⁶⁶ Thomas, J. W. (2000). *A Review of Research on Project-Based Learning*. Autodesk Foundation.

⁶⁷ Bergmann, J., & Sams, A. (2012). *Flip Your Classroom: Reach Every Student in Every Class Every Day*. International Society for Technology in Education.

⁶⁸ Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: defining "gamification". In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9-15). ACM.

⁶⁹ Johnson, D. W., & Johnson, R. T. (2009). *An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning*. *Educational Researcher*, 38(5), 365-379.



discussions encouraged students to appreciate diverse perspectives and collaborate effectively.

5) *Inquiry-Based Learning*⁷⁰. This method involved students actively participating in the learning process by posing questions, conducting research, and exploring solutions. Inquiry-based learning promoted curiosity and a deeper understanding of the subject matter, helping students become independent learners.

The pedagogical practice spanned the spring semester of 2024, totaling 200 academic hours. This included 20 lessons conducted at the IBS Social Entrepreneur School, as well as participation in a Summit where the intern presented the findings from the internship. The internship was conducted in an online format, combining in-person activities in Norway and Polissia National University with interactive online sessions.

2.3 Overview of the Social Entrepreneur School IBS

According to the Fil. Dr. Jan-U. Sandal Institute's website, the Social Entrepreneur School IBS offers executive business education with a focus on Social Entrepreneurship, Innovation Management, and Service Vision Management. The Social Entrepreneur School IBS is a 20 weeks full time program covering:

- International Study Course in Social Entrepreneurship, Course Code SE-03-A.
- International Study Course in Innovation Management, Course Code IM-03-A.
- International Study Course in Service Vision Management, Course Code SV-03-A.

Each course is independent. Each course is taught according to a predefined program that introduces the Social Entrepreneur School IBS student to the structure of each course and the number of hours allocated to master it. Each training course is available on the website of Fil. Dr. Jan. - U. Sandal Institute, as well as in a special manual, which is designed for each student. Each educational element of each of the courses includes not only a lecture, but also individual work, work on the Case. Each training course involves a final exam, which consists of several stages: completion of a written task; oral exam; preparation and defense of Case Study, performed in groups of up to 5 people. All participants of The Social Entrepreneur School IBS, who

⁷⁰ Barron, B., & Darling-Hammond, L. (2008). *Teaching for Meaningful Learning: A Review of Research on Inquiry-Based and Cooperative Learning*. In *Powerful Learning: What We Know About Teaching for Understanding* (pp. 11-70). Jossey-Bass.



have successfully completed the training and passed the final exam in each of the courses, receive a certificate of completion. The same participants who successfully complete all three courses receive a diploma from The Social Entrepreneur School IBS, as well as a glass statuette, which symbolizes the purity of knowledge and fragility of the status of a graduate of this School, which must be maintained throughout life.

The course *International Study Course in Social Entrepreneurship* (Course Code SE-03-A) gives extended knowledge about the social entrepreneurial process, both in existing businesses and start-ups. The need for help and empowerment of the weak and marginalized people in society has never been more challenging. Management of the social innovation process takes specific knowledge about the challenges and obstacles, that every individual and organization confront in the daily routine of business operation and process of development that characterize the post industrialized society. This course gives perspectives on innovation and entrepreneurship as power of transformation of the society. Students develop strategies for their own processes and projects. The course focuses on developing management skills that promotes the process of innovation.

Table 1

International Study Course in Social Entrepreneurship Description

(Source: developed based on information from the website Fil. Dr. Jan. - U. Sandal Institute)

Seminar content:	Terminology, production function, social innovation topics, development strategies, social value and profit, specific factors for motivation, traditional obstacles for individual contribution, myth contra possibilities and perspectives. Welfare state development. Cooperation between Government and private sectors. Visualizing of own ideas.
Methods:	Lectures, conversations, group work and individual work. High degree of participant activity where the participants use their own experiences as examples. This course emphasizes both theory and practice.
Curriculum:	Program SE-03-A and list of literature.
Scope:	5 lessons, each 3 academic hours over 5 weeks: 5 academic weeks full time.
Qualifications:	Certificate and Certificate Ceremony. For grades and credits, please confer your local university. BSc, MSc, and PhD level.
Work possibilities:	Own business or start-up. Many apply for jobs at international help organizations, charities, governmental departments or they just want to strengthen and develop their job skills as professional employees.

The course *International Study Course in Innovation Management* (Course Code IM-03-A) provides increased knowledge about the innovation process,



both in existing businesses and by new businesses. Management of the innovation process is an area that requires specific knowledge of the challenges and obstacles that every individual and every organization meet in the continuous process of change that characterizes the post-industrialized societies. Innovation has traditionally been an area that has had limited focus around the world. The course focuses on actively develop leadership skills that promote innovation process.

Table 2

International Study Course in Innovation Management Description

(Source: developed based on information from the website Fil. Dr. Jan. - U. Sandal Institute)

Course content:	Clarification of concepts, production processes, innovation areas, development strategies, profits, special motivators, traditional barriers to innovation, myths versus possibilities and perspectives. Innovation and entrepreneurship in historical perspective.
Methods:	Lectures, talks/discussions, group and individual work. A high degree of participant activity where participants use examples from their own experience. The course emphasizes both theory and practice.
Material:	Lectures supported by PowerPoint, course book, reading about 250 pages in English, course compendium.
Scope:	7 lessons each 3 hours. Written test or home/group assignment can be offered.
Participants:	Researchers, Ph.D. candidates, supervisors, lecturers, teachers, students, course participants, practitioners, business founders, social entrepreneurs, politicians, government officials, journalists, owners, CEOs and employees, in all kinds of sectors and branches with interest of or connection to the issues.
Qualifications:	Certificate and Certificate Ceremony. For grades and credits, please confer your local university. BSc, MSc, and PhD level.

The course *International Study Course in Service Management* (Course Code SV-03-A) gives extended knowledge about service management, both in businesses and start-ups. Management of the service vision is a topic, which requires specific knowledge about the challenges and obstacles, that every individual and organization confront in the daily routine of business operation and process of development that characterize the post-industrialized society. The course provides perspectives on innovation and entrepreneurship as power of transformation of the society. Students develop service vision strategies for their own processes and projects. The course focuses on developing management skills that promotes the process of innovation.



Table 3

International Study Course in Service Vision Management Description

(Source: developed based on information from the website Fil. Dr. Jan. - U. Sandal Institute)

Course content:	Definition of terms, value equation, criteria for success, service vision strategies, service quality, governments, market, people as opportunity and obstacles in service vision strategies. Perspectives on innovation and entrepreneurship as society transforming powerhouse.
Methods:	Lectures, talks/discussions, group and individual work. A high degree of participant activity where participants use examples from their own experience. The course emphasizes both theory and practice.
Material:	Reading about 280 pages in English, course compendium.
Scope:	8 lessons each 3 hours. Written test or home/group assignment can be offered.
Participants:	Researchers, Ph.D. candidates, supervisors, lecturers, teachers, students, course participants, practitioners, business founders, social entrepreneurs, politicians, government officials, journalists, owners, CEOs and employees, in all kinds of sectors and branches with interest of or connection to the issues.
Qualifications:	Certificate and Certificate Ceremony. For grades and credits, please confer your local university. BSc, MSc, and PhD level.

2.4 Conclusions: Lessons Learned

The results of the pedagogical practice demonstrate the critical need to foster an environment conducive to innovation, moving beyond traditional teaching methods. By integrating various disciplines, extending learning beyond the classroom, and achieving novel outcomes, students developed skills and abilities from the outset. Despite several implementation barriers, including student reluctance to engage with unfamiliar technologies, discipline-specific differences among students, mismatched timetables across universities, and technological issues such as limited computer access due to air attacks, the innovative approaches yielded significant benefits for the students at the Social Entrepreneur School IBS:

1. Innovative approaches motivated students to explore new tools and concepts, broadening their horizons.
2. Creative teaching methods allowed students to learn at their own pace and challenged them to brainstorm novel solutions rather than relying on textbook answers.



3. Breaking information into smaller, manageable parts helped students grasp the basics more quickly.
4. Group projects taught students time management, task prioritization, and effective communication.
5. Innovative control methods enabled teachers to monitor classes more objectively.
6. Improved self-evaluation techniques allowed students to identify their learning needs independently and understand the importance of learning specific topics, increasing their eagerness to learn.
7. Novel teaching methods provided students with something different to get excited about, encouraging more interaction and participation.
8. Students were encouraged to think critically and solve problems creatively, preparing them for real-world challenges.
9. Collaborative learning environments helped students develop teamwork and leadership skills.
10. Exposure to innovative methods made students more adaptable and open to new learning experiences.

From the executor's perspective, passing the pedagogical practice helped improve the following skills and abilities:

- *Curriculum Analysis.* Enhanced ability to analyze and adapt curricula for individual disciplines.
- *Communication.* Improved communicative components of teaching, facilitating better interaction with students.
- *Pedagogical Techniques.* Mastery of various pedagogical techniques and methods, allowing for more dynamic and effective teaching.
- *Result Evaluation.* Developed skills to evaluate the outcomes of teaching activities, ensuring continuous improvement.
- *Innovative Method Application:* Gained confidence and skill in applying innovative methods as teaching tools, fostering student engagement and enthusiasm.
- *Adaptability and Problem-Solving.* Enhanced ability to adapt to challenges and find creative solutions in dynamic educational environments.

The potential for innovative teaching is immense, and studying at the Social Entrepreneur School IBS was a remarkable learning experience for both academic staff and students, generating valuable pedagogic insights. The school is rapidly developing as an educational, creative, and interactive environment. There was a palpable sense of excitement in piloting new approaches to studying, despite the frustration caused by technical challenges.



Student opinions about the experience were largely positive. They saw the course as holding great potential for being a valuable learning experience in higher education institutions. The pedagogic potential of an innovative educational environment is significant, providing students with equal access and opportunities, and eliminating the time, practical, and cost constraints of social entrepreneurship education. In the long term, innovative methods could collapse classical education boundaries, offering creative opportunities for students from different universities and international communities to collaborate and learn together.

