



The Meta-Subject Model: A Holistic Framework Overcoming the Limitations of Subject-Based Learning with an Example in TVET

Iliyan Vasilev

Sofia university- Bulgaria, Faculty of Pedagogy

ORCID: 0009-0008-0863-1516

ABSTRACT: The article explores the innovative concept of meta-subjects in education, advocating for their integration into curricula to enhance student learning and engagement. It begins by defining meta-subjects as interdisciplinary frameworks that transcend traditional subject boundaries, allowing for a more holistic understanding of complex issues. The text emphasizes the importance of promoting and cultivating critical thinking, creativity, and problem-solving skills among students, which are essential for navigating real-world challenges. Each theme integrates knowledge from various disciplines, such as science, technology, social studies, and the arts, to address pressing global issues. The article highlights the benefits of adopting a meta-subject model, including enhanced student engagement, improved critical thinking, and better preparation for future careers in an interconnected world. The article also proposes a list of hypothetical fifteen general meta-subjects, such as *Ecological Synthesis*, *Quantum Consciousness*, *Neural Harmony*, *Quantum Wellness*, *Transcendental Geometry*, *Evolutionary Synergy*, *Metaphysical Economics*, *Gaian Computing*, *Transcultural Linguistics*, *Quantum Education*, *Astrological Psychology*, *Holistic Engineering*, different fields of study. The model includes student curricula for five of the proposed areas, along with complete course one-year curriculum distributions of the meta-subject in TVET, which reflect the synergy between “Exploring Interconnectedness”, individual project ideas, and opportunities for outdoor activities. These meta-subjects aim to encourage students to explore the interconnectedness of knowledge and apply it creatively to solve complex problems. Moreover, the article outlines the challenges of implementing a meta-subject approach, such as the need for teacher training, resource allocation, and the development of coherent curricula. It suggests that schools must provide support for both educators and students to successfully transition to this model. The article advocates for the widespread adoption of meta-subjects in educational settings, arguing that this approach not only enriches the learning experience but also equips students with the essential skills needed to thrive in a complex and rapidly changing world. By embracing meta-subjects, educators can create more relevant, engaging, and effective learning experiences that prepare students for the challenges of the 21st century.

KEYWORDS: meta-subject, holistic content, meta-subject approach, TVET.

INTRODUCTION

Definition and literature review

A meta-subject model is a pedagogical approach that transcends traditional subject boundaries by integrating knowledge and skills from multiple disciplines. It promotes a holistic understanding of complex issues and promotes critical thinking, problem-solving, and creativity.

Some definitions from the dictionary state:

“*Meta-subject* (plural meta-subjects): A subject that deals with, or transcends, other subjects” [1].

“*Meta-* a prefix added to the name of a subject and designating another subject that analyzes the original one but at a more abstract, in higher level: meta-philosophy; metalinguistics” [2].

“*Metatheory* is theory about theory... *metadata* is data that helps you further analyze other data—for example, the number of surveys that were taken on a given subject... *more comprehensive: transcending*” [3].

But also, *Cambridge Dictionary* states that it means “*involving change: metamorphose* (= to change into a completely different form), *metabolism* (= the processes in the body that change food into energy)” [4].



Based on these definitions, it can be concluded that: *a meta-subject is a discipline that transcends the conventional linear boundaries of traditional school subjects. It incorporates metadata that facilitates the analysis of subject data and involves a transformative process of learning and studying. This definition constitutes the foundational framework for the article's analysis exploration.*

The Russian school of pedagogy has made significant contributions to the field of meta-subject education. Key concepts such as meta-subjects, meta-subject teaching, meta-subject approaches, meta-subject learning outcomes, meta-methods, and meta-skills have been extensively defined by scholars such as *Yesnazar et al. (2024)*, *Zhumabayeva et al. (2019)*, *Dammer (2015)*, *Aytac et al. (2019)*, *Gromyko (2014)*, *Khutorskoy (2012)*, and others. Contemporary research, exemplified by the work of *Aleksandrova et al. (2021)* *Nagimov and Tarasova (2015)*, extensively describes various aspects of meta-subject teaching technology in the context of school instruction. Several studies have directly addressed the challenges of training specialists in the field of higher education, including *Bissenbayeva et al. (2014)*, *Dammer (2015)*, and *Ratikova (2014)*.

Despite substantial foundational research, the methodological underpinnings of meta-subject education remain a critical challenge within pedagogical science, particularly in the domain of professional teacher training. It is evident that effective meta-subject teaching necessitates a highly competent teacher.

This research, therefore, aims to investigate the meta-subject approach in the training of future primary school teachers. *Ahmetshina et al. (2020)* and *Gutorova (2020)* discuss the formation of *meta-subject competencies*, which encompass the integration of fundamental knowledge, skills, and practical experience, within the context of secondary TVET.

Russian academicians *Gromyko (2014)* and *Khutorskoy (2014, 2012)* have made significant contributions to the field of meta-subject education. Their work focuses on the concept of meta-subjects as a pedagogical approach that transcends traditional disciplinary boundaries.

Khutorskoy (2012) defines educational meta-subjects as integrated systems of knowledge, skills, and competencies that span multiple disciplines. *Gromyko (2014)* views meta-subjects as a new type of educational subject that emphasizes an activity-based approach to learning and a reflexive attitude towards fundamental thinking processes.

The meta-subject approach in this context promotes a holistic and imaginative perception of the world, transitioning from fragmented knowledge to a more integrated understanding. It emphasizes not only the mastery of knowledge systems but also the acquisition of universal methods of action that facilitate information gathering and critical thinking.

Key features of the meta-subject approach that *Gromyko* and *Khutorskoy* postulate include:

- **Meta-subject competencies:** The development of transferable skills and abilities that can be applied across various disciplines.
- **Subjective-subjective relationships:** Fostering connections between students' personal experiences and the subject matter.
- **Structural and content transformation:** Adapting the structure and content of educational material to promote a different type of thinking.

According to *Galustyan et al. (2019)*, the meta-subject approach involves:

- **Trapping of key concepts:** Focusing on the most essential ideas and principles.
- **Educational activity:** Engaging students in active learning experiences.
- **Formation of basic subject abilities:** Developing foundational skills within each discipline.
- **Rediscovering knowledge:** Applying scientific inquiry and discovery to educational content.
- **Reflexive activity:** Encouraging students to reflect on their learning and understanding.

Thus, in the opinion of *Galustyan et al. (2019)*, the meta-subject approach implies the trapping (and not remembering!) of the most important concepts of a subject, the presence of educational activity, the formation and development of basic subject abilities in pupils and the use of the rediscovering knowledge method on different educational material (repetition of a scientific discovery in the educational process) and the presence of reflexive activity (*Guseva, 2019; Truong & Vuong Pham, 2020*).

Spencer & Bill Lucas (2021: 2) analyze the **meta-skills**: "... is just one word of many used to describe these wider skills. Terms include attributes, capabilities, character, competences, dispositions, habits, non-cognitive skills, soft skills, transferable skills, transversal skills, twenty-first century-skills and wider skills, with each word/phrase bringing certain associations with it." The authors posit that key factors for improving *meta-skill transfer* in vocational contexts include: *Contextual relevance*- Aligning learning environments with real-world applications; *Clear definitions*- Establishing shared understanding of meta-skills; *Stakeholder engagement*- Involving educators, employers, and learners; *Diverse assessment*- Using both qualitative and quantitative



measures; *Supportive environment*- Fostering experimentation and collaboration; *Continuous training*- Providing ongoing development opportunities; *Feedback mechanisms*- Implementing regular feedback for learners; *Curriculum integration*- Embedding meta-skills within vocational training programs (*Spencer & Bill Lucas 2021: 54*).

In the current paper an accent is made that a meta-subject model transcends the boundaries of traditional interdisciplinary studies. While interdisciplinary studies often combine theories from existing subjects, a meta-subject model integrates knowledge and skills from various fields in a more holistic and synergistic manner. It is not merely a collection of existing subjects but a novel approach that focuses on the underlying concepts, connections, and applications across different disciplines. The article further elaborates on the definition of meta-subjects as multidisciplinary and interdisciplinary entities that encompass arts, humanities, and technical fields. This approach emphasizes a holistic perspective that transcends traditional categorical and scientific divisions. The meta-subject model enhances critical thinking and problem-solving skills by encouraging students to engage with complex, real-world issues that demand interdisciplinary approaches. By integrating knowledge from various fields, students learn to analyze problems from multiple perspectives, promoting and cultivating a deeper understanding of the interconnectedness of concepts. This model promotes inquiry-based learning, where students are encouraged to ask questions, explore different solutions, and evaluate the implications of their findings. As they navigate through diverse disciplines, they develop the ability to synthesize information, draw connections, and apply their knowledge to novel situations, ultimately enhancing their critical thinking and problem-solving capabilities.

Integrating multiple disciplines in education is significant because it reflects the complexity of real-world problems, which often cannot be understood through a single disciplinary lens. This approach promotes a holistic understanding of issues, encouraging students to see the relationships between different fields of knowledge. By breaking down traditional subject silos, students can develop a more comprehensive skill set that includes critical thinking, creativity, and collaboration. Furthermore, interdisciplinary learning prepares students for the workforce, where they will need to work across various domains and apply diverse skills to solve complex challenges. This integration also promotes engagement and motivation, as students can relate their learning to real-life contexts and see the relevance of their education.

METHODOLOGY

The methodology encompasses the development of the Meta-Subject Model, its implementation framework, and an evaluative analysis of its potential. Utilizing secondary data analysis and a critical literature review, the research explores the *meta-subject approach* in education to elucidate its theoretical foundations, implementation strategies, and associated outcomes across various educational settings. The model was conceptualized through a thorough examination of existing literature on interdisciplinary education and holistic learning theories.

The methodology includes the *development of the model*, its *implementation framework*, and an *analysis* to evaluate its potential. The methodology framework consists of three essential elements: *Data sources*, *Model conceptualization*, and *Implementation strategy for TVET*.

Data Sources:

- *Secondary Data*: The study analyzes academic articles, reports, and case studies discussing the meta-subject approach, leveraging empirical evidence and theoretical frameworks from diverse educational contexts.

Conceptualization and Design: The author developed an implementation framework for TVET, which includes:

- *Curriculum Design*: Transitioning from traditional subject-based courses to interdisciplinary meta-subjects organized around real-world themes.
- *Course Distribution*: Creating a one-year curriculum for five selected meta-subjects, incorporating project-based learning and experiential outdoor activities.
- *Teacher Training*: Emphasizing the necessity of professional development in cross-disciplinary instruction and project-based methodologies.
- *Resource Allocation*: Identifying essential tools, technologies, and support systems required for effective implementation.

Meta-subjects are defined as integrated, thematic frameworks that transcend disciplinary boundaries, thereby enhancing critical thinking, creativity, and problem-solving skills.

Creating a Meta-Subject

According to the *concept of Khutorskoy*, meta-subject is present in education in several functions, in particular: – as an integration principle of the education content at the horizontal levels of academic subjects (interdisciplinary function). – as the basis for the organization of meta-subject activity of pupils (*Khutorskoy, 2012*).

To implement the meta-subject approach in teacher training, educators must:

- *Integrate meta-subjects across the curriculum:* Connect different disciplines and foster a holistic understanding of knowledge.
- *Organize meta-subject activities:* Create learning experiences that promote critical thinking, problem-solving, and creativity.
- *Develop meta-subject competencies in teachers:* Equip teachers with the skills and knowledge needed to effectively implement the meta-subject approach.

Creating a meta-subject involves several key steps that focus on integrating knowledge and skills from multiple disciplines to promote a holistic understanding of complex issues. The process steps of creating a meta-subject is given in *Figure 1*.

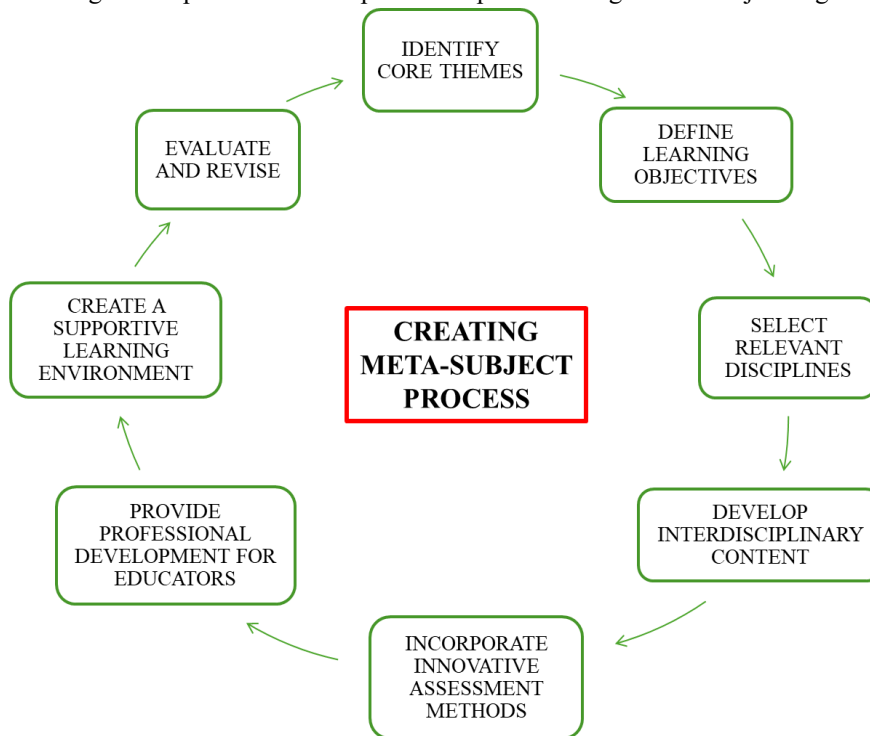


Figure 1. Process steps of creating a meta-subject: summary

Criteria for implementing meta-subject methods and teaching technologies at school. The totality of the features considered included:

1. Multidimensional goal-setting.
2. The problematic presentation and development of educational material.
3. Integrability, a wide context, interdisciplinary and meta-subject communications.
4. Innovativeness, creativity, nonlinearity of perception of problems and situations.
5. Orientation to the formation of a holistic worldview and professional–linguistic picture of the world of trainees.
6. The use of interactive ‘hypertext’ learning technologies.
7. The introduction of alternative methods for the diagnosis of meta-subject learning outcomes.

Core Components:



1. *Interdisciplinary Integration:*

- Combines elements from various subjects to create a unified and coherent learning experience.
- Encourages students to see connections between different fields of knowledge.
- Break down silos and promote a broader perspective on issues.

2. *Holistic Learning:*

- Focuses on the whole student, considering their cognitive, emotional, and social development.
- Emphasizes the importance of real-world applications and practical skills.
- Promotes a sense of purpose and relevance in learning.

3. *Synergistic Approach:*

- Encourages students to work together collaboratively and leverage their individual strengths.
- Promotes a sense of community and belonging within the learning environment.
- Creates opportunities for peer-to-peer learning and knowledge sharing.

4. *Critical Thinking and Problem-Solving:*

- Develops students' ability to analyze complex information, evaluate evidence, and solve problems effectively.
- Encourages students to think critically about real-world issues and propose innovative solutions.

5. *Creativity and Innovation:*

- Promotes students' creativity and imagination by providing opportunities for experimentation and exploration.
- Encourages students to think outside the box and develop new ideas.

Benefits of the Meta-Subject Model:

1. *Vast Holistic Understanding:* Meta-subjects promote a comprehensive understanding of complex issues by integrating knowledge and skills from multiple disciplines. This approach helps students see the interconnectedness of different subjects, promoting and cultivating a more profound grasp of real-world problems.
2. *Enhanced Critical Thinking and Active Problem-Solving:* The meta-subject model encourages students to think critically about real-world issues and propose innovative solutions. By engaging with interdisciplinary content, students learn to analyze information from various perspectives, enhancing their problem-solving abilities.
3. *Relevance and Active Engagement:* Meta-subjects focus on real-world applications, making learning more relevant and engaging for students. When students can relate their education to actual challenges and see the value of their learning, they are more motivated and invested in their education.
4. *Preparation for the Workforce:* In today's interconnected world, employers seek individuals who possess a broad range of skills, including critical thinking, communication, and collaboration. The meta-subject model equips students with these essential skills, preparing them for the complexities of the modern workforce.
5. *Promoting and cultivating Creativity and Innovation:* By breaking down subject boundaries, meta-subjects encourage students to think creatively and develop innovative solutions. This is crucial in a rapidly changing world where adaptability and creativity are key to success.
6. *Enhanced Development of Essential Skills:* The meta-subject approach helps students develop a wide array of skills, including collaboration, communication, and creativity. These skills are increasingly important in both academic and professional settings.
7. *Strong Support for Diverse Learning Styles:* Integrating multiple disciplines allows for varied teaching methods and learning experiences, catering to different learning styles and preferences. This inclusivity can enhance student engagement and success.
8. *Encouragement of Lifelong Learning:* By promoting and cultivating a mindset that values interdisciplinary connections, meta-subjects encourage students to become lifelong learners who seek knowledge across various fields, adapting to new challenges and opportunities throughout their lives.

Challenges of Implementing a Meta-Subject Model in Schools:

While the meta-subject model offers significant benefits, there are also potential challenges that schools may encounter when implementing this approach:



1. *Resistance from Teachers*: Some teachers may be resistant to change and may find it difficult to adapt to a new teaching approach that requires them to integrate knowledge from multiple subjects.
2. *Lack of Resources*: Implementing a meta-subject model may require additional resources, such as professional development for teachers, new curriculum materials, and technology.
3. *Curriculum Alignment*: Aligning the curriculum across different subjects and departments can be challenging, especially in schools with traditional subject-based structures.
4. *Assessment Challenges*: Developing appropriate assessment methods to measure student learning in a meta-subject model can be difficult, as traditional subject-based assessments may not be suitable.
5. *Teacher Expertise*: Teachers may need to develop expertise in multiple subject areas to effectively implement a meta-subject model.
6. *Student Readiness*: Some students may not be prepared for the interdisciplinary nature of a meta-subject model and may require additional support.

To address these challenges, schools may need to:

- *Providing professional development for teachers*: Offer training and support to help teachers develop the skills and knowledge needed to implement a meta-subject model.
- *Allocating resources*: Ensure that schools have the necessary resources, including funding, technology, and curriculum materials, to support the implementation of a meta-subject model.
- *Developing a coherent curriculum*: Create a curriculum that integrates knowledge and skills from multiple subjects and aligns with the goals of the meta-subject model.
- *Implementation innovative assessment methods*: Develop assessment methods that measure students' ability to apply knowledge and skills across different subjects.
- *Providing support for students*: Offer additional support and resources to students who may struggle with the meta-subject approach.

Meta-Subject Themes in TVET (Computer Science Profile)

A meta-subject approach in computer science can integrate concepts from various disciplines to provide a more comprehensive and holistic understanding of the field.

1. *Ecological Computing*: Integrating principles of ecological synthesis with computer science to develop sustainable technologies and practices.
2. *Quantum Computing and Consciousness*: Exploring the intersection of quantum consciousness and computer science, focusing on how quantum principles can influence computing technologies.
3. *Cosmic Algorithms*: Investigating how cosmic resonance and patterns can inform algorithm design and optimization in computer science.
4. *Neural Networks and Harmony*: Studying the relationship between neural harmony and artificial intelligence, focusing on optimizing neural networks for better performance.
5. *Morphogenetic Computing*: Examining how morphogenetic fields can influence computational models and simulations in computer science.
6. *Quantum Wellness in Technology*: Applying concepts of quantum wellness to develop health-focused technologies and applications in computer science.
7. *Transcendental Geometry in Data Structures*: Utilizing transcendental geometry to enhance data structure design and spatial computing.
8. *Evolutionary Algorithms*: Integrating evolutionary synergy with computer science to create adaptive algorithms that evolve over time.
9. *Metaphysical Economics and Digital Systems*: Exploring the implications of metaphysical economics on digital systems and their societal impacts.
10. *Psychedelic Anthropology and User Experience*: Investigating how psychedelic anthropology can inform user experience design in technology.



11. *Gaian Computing*: Focusing on the relationship between computing technologies and ecological systems, promoting sustainable computing practices.
12. *Transcultural Linguistics in Natural Language Processing*: Applying transcultural linguistics to enhance natural language processing and understanding in computer science.
13. *Quantum Education Technologies*: Developing educational technologies that incorporate principles of quantum education to enhance learning experiences.
14. *Astrological Psychology in AI*: Exploring the integration of astrological psychology with artificial intelligence to create more empathetic and user-centered AI systems.
15. *Holistic Engineering in Software Development*: Applying holistic engineering principles to software development processes, emphasizing sustainability and user well-being.

Details on the Content of Exemplary Meta- Subjects in TVET

Table 1. Fifteen Proposals of nonexistent meta-subjects: content review

<i>Meta-subject</i>	Synergetic Content	Heuristic Content	Holistic Content
<i>Ecological Synthesis</i>	Studying ecosystems' interconnectedness for sustainable solutions	Developing models to predict ecosystem changes	Exploring the interplay between biodiversity and climate
<i>Quantum Consciousness</i>	Investigating quantum phenomena in relation to consciousness	Developing techniques for exploring consciousness	Exploring the interconnectedness of mind and universe
<i>Cosmic Resonance</i>	Understanding how cosmic forces influence earthly phenomena	Developing methods to harness cosmic energies	Exploring the harmony between celestial bodies and life
<i>Neural Harmony</i>	Exploring the interconnectedness of neural networks	Developing algorithms for optimizing brain function	Investigating the relationship between brain and behavior
<i>Morphogenetic Fields</i>	Studying how collective consciousness shapes reality	Developing techniques for accessing morphogenetic information	Exploring the influence of collective thought on society
<i>Quantum Wellness</i>	Applying quantum principles to holistic health practices	Developing personalized wellness strategies based on quantum	Exploring the mind-body connection through quantum physics
<i>Transcendental Geometry</i>	Exploring geometric patterns in higher dimensions	Developing methods for accessing transcendental geometries	Investigating the relationship between geometry and spirituality
<i>Evolutionary Synergy</i>	Studying the synergy between organisms and their environment	Developing strategies for promoting and cultivating evolutionary cooperation	Exploring the emergence of complexity in biological systems
<i>Metaphysical Economics</i>	Investigating the metaphysical aspects of economic systems	Developing heuristic models for understanding economic behavior	Exploring the relationship between wealth and consciousness
<i>Psychedelic Anthropology</i>	Studying the impact of psychedelic substances on culture	Developing frameworks for understanding altered states of mind	Exploring the role of psychedelics in human evolution
<i>Gaian Computing</i>	Exploring computing paradigms inspired by natural ecosystems	Developing algorithms based on ecological principles	Investigating the relationship between technology and nature



<i>Transcultural Linguistics</i>	Studying linguistic phenomena across cultures	Developing heuristic approaches to language translation	Exploring the role of language in shaping worldviews
<i>Quantum Education</i>	Applying quantum principles to pedagogy	Developing heuristic methods for accelerated learning	Exploring the interconnectedness of knowledge and consciousness
<i>Astrological Psychology</i>	Investigating the psychological effects of celestial events	Developing techniques for integrating astrology with psychology	Exploring archetypal patterns in human behavior
<i>Holistic Engineering</i>	Integrating engineering practices with holistic principles	Developing heuristic approaches to sustainable design	Exploring the balance between technology and ecology

Table 1. presents the structural composition of the hypothetical non-existent subject, outlining its general content areas and the corresponding approaches that would coherently integrate these elements. In contrast, **Table 2.** presents the curriculum structure with specific thematic nuclei for selected meta-subjects within the context of TVET.

Table 2. Five proposals for meta-subject, along with details on the content thematic nuclei

PROPOSAL NAME	CURRICULUM OVERVIEW
1. INTEGRATED SYSTEMS STUDIES	1. INTRODUCTION TO INTERCONNECTED SYSTEMS: Principles of systems theory; examples in ecology, quantum mechanics, and sociology. 2. ECOLOGICAL SYNTHESIS: Ecosystem dynamics; case studies on ecological balance. 3. CONSCIOUSNESS AND QUANTUM PHENOMENA: Relationship between consciousness and quantum mechanics; implications for neuroscience. 4. HOLISTIC PERSPECTIVES ON ECONOMICS: Metaphysical approaches to economics; alternative models prioritizing sustainability. 5. TRANSDISCIPLINARY APPROACHES TO CULTURAL STUDIES: Impact of transcultural linguistics; psychedelic anthropology. 6. DESIGNING SUSTAINABLE SYSTEMS: Applying principles from various fields to design sustainable solutions; collaborative interdisciplinary projects.
2. SYNERGETIC EXPLORATIONS: UNIFYING THE MULTIVERSE	1. FOUNDATIONS OF SYNERGETICS: Understanding synergetic principles across disciplines. 2. QUANTUM MECHANICS AND CONSCIOUSNESS: Exploring the intersection of quantum theory and human consciousness. 3. ECOLOGICAL INTERDEPENDENCE: Studying the interconnections within ecosystems. 4. CULTURAL SYNERGY: Examining the fusion of diverse cultural practices through technology. 5. INNOVATIVE PROBLEM SOLVING: Developing creative solutions to global challenges through interdisciplinary collaboration.
3. HOLISTIC ENVIRONMENTAL STUDIES	1. ECOLOGICAL AWARENESS: Understanding ecosystems and biodiversity. 2. SUSTAINABLE PRACTICES: Exploring sustainable technologies and practices.



	<p>3. CLIMATE CHANGE SOLUTIONS: Role of technology in addressing climate challenges.</p> <p>4. HUMAN IMPACT ON NATURE: Analyzing the social implications of environmental changes.</p> <p>5. COMMUNITY ENGAGEMENT: Projects that involve local communities in sustainability efforts.</p>
<p>4. QUANTUM AND CONSCIOUSNESS STUDIES</p>	<p>1. INTRODUCTION TO QUANTUM THEORY: Basic principles of quantum mechanics.</p> <p>2. CONSCIOUSNESS EXPLORATION: Theories of consciousness and their implications.</p> <p>3. MIND-BODY CONNECTION: Investigating the relationship between mental states and physical health.</p> <p>4. ETHICS IN QUANTUM RESEARCH: Ethical considerations in the study of consciousness.</p> <p>5. PRACTICAL APPLICATIONS: Exploring real-world applications of quantum principles in various fields.</p>
<p>5. TRANSCULTURAL INNOVATIONS</p>	<p>1. CULTURAL DYNAMICS: Understanding the impact of technology on cultural practices.</p> <p>2. LANGUAGE AND COMMUNICATION: The role of language in transcultural interactions.</p> <p>3. ART AND TECHNOLOGY: Exploring the intersection of digital art and cultural expression.</p> <p>4. GLOBAL COLLABORATION: Facilitating international projects that promote cultural exchange.</p> <p>5. FUTURE OF CULTURAL STUDIES: Investigating emerging trends in cultural innovation.</p>

Detailed Annual Breakdown of a Meta-Subject: Exploring Interconnectedness [1-Year Curriculum for Secondary TVET School Students]

This section provides an in-depth analysis of the curriculum developed for the meta-subject entitled “Exploring Interconnectedness,” including a detailed breakdown of the annual school schedule.

Time Allocation: 2 Hours Per Week allocated for each section.

Meta Studies: Exploring Interconnectedness

Weeks 1-4: Ecological Synthesis

1. Theme: Understanding Ecosystem Dynamics
 - Lesson: Introduction to ecosystems and their components.
 - Activity: Conducting field trips to local ecosystems for observation and analysis.
2. Theme: Biodiversity and Resilience
 - Lesson: Exploring the importance of biodiversity for ecosystem resilience.
 - Activity: Research project on the impact of human activities on local biodiversity.

Weeks 5-8: Quantum Consciousness

1. Theme: Quantum Principles in Consciousness
 - Lesson: Introduction to quantum mechanics and its relevance to consciousness.
 - Activity: Group discussion on the implications of quantum theories for the nature of mind.
2. Theme: Altered States of Consciousness
 - Lesson: Exploring different altered states of consciousness induced by meditation, psychedelics, etc.
 - Activity: Mindfulness meditation sessions and reflection on experiences.



Weeks 9-12: Cosmic Resonance

1. Theme: Cosmic Influences on Earth
 - Lesson: Understanding cosmic forces and their impact on Earth's systems.
 - Activity: Observing celestial phenomena and discussing their potential influence on life.
2. Theme: Harmonic Frequencies in Nature
 - Lesson: Exploring resonance and harmonic frequencies in natural phenomena.
 - Activity: Experimenting with sound vibrations and their effects on living organisms.

Weeks 13-16: Neural Harmony

1. Theme: Brain Waves and Cognitive Function
 - Lesson: Understanding different brain wave patterns and their relationship to cognitive states.
 - Activity: EEG demonstration and analysis of brain wave patterns during various activities.
2. Theme: Neuroplasticity and Mindfulness
 - Lesson: Exploring the concept of neuroplasticity and its implications for mindfulness practices.
 - Activity: Engaging in mindfulness exercises and reflecting on changes in perception and awareness.

Weeks 17-20: Morphogenetic Fields

1. Theme: Shaping Patterns of Form
 - Lesson: Introduction to morphogenetic fields and their role in shaping biological structures.
 - Activity: Modeling morphogenetic processes using clay or digital simulations.
2. Theme: Collective Consciousness and Social Behavior
 - Lesson: Examining the concept of collective consciousness and its influence on social dynamics.
 - Activity: Analyzing historical events through the lens of morphogenetic field theory.

Weeks 21-24: Quantum Wellness

1. Theme: Quantum Healing Modalities
 - Lesson: Exploring alternative healing modalities based on quantum principles.
 - Activity: Guest speaker session with a practitioner of quantum healing techniques.
2. Theme: Mind-Body Connection in Health
 - Lesson: Investigating the mind-body connection and its implications for holistic wellness.
 - Activity: Yoga and tai chi sessions to experience the integration of mind and body practices.

Weeks 25-28: Transcendental Geometry

1. Theme: Exploring Higher Dimensions
 - Lesson: Introduction to higher-dimensional geometry and its implications for consciousness.
 - Activity: Visualizing hypercubes and other higher-dimensional shapes.
2. Theme: Sacred Geometry in Nature and Art
 - Lesson: Discovering patterns of sacred geometry in nature, architecture, and art.
 - Activity: Creating mandalas and exploring their symbolic meanings.

Weeks 29-32: Evolutionary Synergy

1. Theme: Cooperative Evolutionary Strategies
 - Lesson: Analyzing cooperative behaviors and strategies in biological evolution.
 - Activity: Simulation game on evolutionary dynamics and the role of cooperation.
2. Theme: Symbiosis and Mutualism
 - Lesson: Studying examples of symbiotic relationships in ecosystems and their evolutionary significance.
 - Activity: Research project on a specific symbiotic relationship and its ecological importance.

Weeks 33-36: Metaphysical Economics

1. Theme: Holistic Approaches to Economics
 - Lesson: Exploring metaphysical perspectives on economics and wealth distribution.
 - Activity: Debate on alternative economic models such as gift economies and resource-based economies.



2. Theme: Conscious Consumption and Sustainable Living
 - Lesson: Investigating the impact of consumer choices on the environment and society.
 - Activity: Designing a sustainability action plan for reducing ecological footprint.

Weeks 37-40: Psychedelic Anthropology

1. Theme: Cultural Perspectives on Psychedelics
 - Lesson: Examining the historical and cultural context of psychedelic use.
 - Activity: Analysis of psychedelic art and literature from different cultures.
2. Theme: Psychedelics and Consciousness Expansion
 - Lesson: Exploring the role of psychedelics in expanding consciousness and promoting psychological healing.
 - Activity: Guest lecture from a researcher or advocate in the field of psychedelic studies.

Weeks 41-44: Gaian Computing

1. Theme: Biomimicry and Nature-Inspired Design
 - Lesson: Introduction to biomimicry and its applications in technology and engineering.
 - Activity: Design challenge to create technology inspired by natural systems.
2. Theme: Sustainable Computing Practices
 - Lesson: Investigating the environmental impact of computing and strategies for sustainability.
 - Activity: Calculating carbon footprints of digital devices and exploring energy-efficient computing solutions.

Weeks 45-48: Transcultural Linguistics

1. Theme: Language and Cultural Identity
 - Lesson: Exploring the relationship between language, identity, and culture.
 - Activity: Language exchange program with students from different cultural backgrounds.
2. Theme: Translation and Cross-Cultural Communication
 - Lesson: Analyzing challenges and techniques in translation for effective cross-cultural communication.
 - Activity: Translating literary works or media content into different languages and discussing cultural nuances.

Weeks 49-52: Quantum Education

1. Theme: Quantum Learning Strategies
 - Lesson: Applying quantum principles to pedagogy and accelerated learning techniques.
 - Activity: Experimenting with mind mapping, spaced repetition, and other cognitive enhancement methods.
2. Theme: Education for Conscious Evolution
 - Lesson: Exploring the role of education in promoting and cultivating consciousness evolution and social transformation.
 - Activity: Brainstorming ideas for educational reforms that promote holistic development and critical thinking skills.

Additionally,

Table 3. Outdoor activities and experimental work suggestions: summary

ACTIVITY TYPE	DESCRIPTION
OUTDOOR ACTIVITIES: ECOLOGICAL EXPLORATION	Conduct nature walks or hikes in local parks to observe and document biodiversity.
STARGAZING AND NIGHT SKY OBSERVATION	Organize nighttime stargazing sessions using telescopes or binoculars.
MINDFULNESS AND MEDITATION RETREAT	Arrange mindfulness retreats in natural settings such as forests or mountains.
EXPERIMENTAL GARDENS AND OUTDOOR LABS	Establish experimental gardens and outdoor laboratory stations for hands-on experiments.



FIELD TRIPS TO ECOLOGICAL SITES	Visit local wetlands, forests, or marine habitats to study ecosystem dynamics.
EXPERIMENTAL WORK: ECOLOGICAL EXPERIMENTS	Conduct experiments to investigate the effects of environmental factors on plant growth or animal behavior.
QUANTUM PHENOMENA DEMONSTRATIONS	Design and perform simple experiments to demonstrate quantum principles using everyday materials.
STRESS RESPONSE STUDIES	Investigate the physiological and psychological effects of stress on the human body through controlled experiments.
MORPHOGENETIC FIELD EXPERIMENTS	Set up controlled experiments to investigate the potential influence of morphogenetic fields on plant growth patterns.
ASTROBIOLOGY AND EXTREMOPHILE STUDIES	Cultivate extremophilic microorganisms and study their growth characteristics under different conditions.

Table.3 presents suggested outdoor activities and auxiliary experimental work able to be integrated into the curriculum planning process that can be optimized based on student motivation and learning levels.

CONCLUSION

The article posits that the meta-subject approach represents a significant advancement in educational methodology, particularly in the context of preparing students for the complexities of the 21st century. By transcending traditional disciplinary boundaries, the meta-subject model facilitates an integrative learning experience that promotes a comprehensive understanding of multifaceted issues. This approach is grounded in the principles of interdisciplinary education, which have been shown to enhance critical thinking, creativity, and problem-solving skills among learners. The article underscores the empirical benefits of adopting a meta-subject framework, including increased student engagement and motivation, as well as the development of essential competencies such as collaboration, communication, and adaptability. These competencies are increasingly recognized as vital for success in a rapidly changing global landscape, where the ability to synthesize knowledge from diverse fields is paramount. Moreover, the article acknowledges the challenges associated with implementing a meta-subject approach, including the necessity for teacher training, curriculum development, and resource allocation. It advocates for a systematic and strategic approach to overcoming these barriers, emphasizing the importance of professional development and institutional support in facilitating the transition to this innovative educational model. The conclusion calls for a paradigm shift in educational practices, urging educators and policymakers to embrace the meta-subject approach as a means to enhance the relevance and efficacy of learning experiences. By promoting and cultivating an educational environment that prioritizes interdisciplinary connections and real-world applications, schools can better equip students with the skills and knowledge required to address contemporary global challenges. The article ultimately posits that the meta-subject model not only enriches educational experience but also contributes to the cultivation of a more informed, innovative, and socially responsible citizenry capable of navigating the complexities of an interconnected world.

REFERENCES

Link:

- [https://en.wiktionary.org/wiki/metasubject#:~:text=metasubject%20\(plural%20metasubjects\),%2C%20or%20transcends%2C%20other%20subjects.](https://en.wiktionary.org/wiki/metasubject#:~:text=metasubject%20(plural%20metasubjects),%2C%20or%20transcends%2C%20other%20subjects.)
- <https://www.dictionary.com/browse/meta>
- <https://www.merriam-webster.com/dictionary/meta>
- <https://dictionary.cambridge.org/dictionary/english/meta>

Journal

- Agranovich, M. (2020). The Impact of Educational Indicators on Success in Afterschool Life. *Вопросы образования*, 3. (In Russian: *Educational Questions*), 188-213.



2. Ahmetshina, G., Amirova, L., & Yantilina, D. (2020). Forming Meta-Subject Competencies In The System Of Secondary Vocational Education. In I. Murzina (Ed.), *Humanistic Practice in Education in a Postmodern Age*, vol 93. European Proceedings of Social and Behavioural Sciences (pp. 95-103). European Publisher.
<https://doi.org/10.15405/epsbs.2020.11.11>
3. Aleksandrova, M., Khachaturova, K., & Sherayzina, R. (2021). Metasubject Skills And Interdisciplinary Connections In The Organization Of A Modern Lesson. In A. G. Shirin, M. V. Zvyaglova, O. A. Fikhtner, E. Y. Ignateva, & N. A. Shaydorova (Eds.), *Education in a Changing World: Global Challenges and National Priorities*, vol 114. (752-760). European Proceedings of Social and Behavioural Sciences. European Publisher.
<https://doi.org/10.15405/epsbs.2021.07.02.90>
4. Aytac, P., Demirbas-Celik, N., & Kiracioglu, D. (2019). Effectiveness of family involvement activities in pre-school education. *Global Journal of Guidance and Counseling in Schools: Current Perspectives*, 9(3), 131-137.
5. Bissenbayeva, Z., Aurenova, M., Aubakirova, Z., & Uaidullakzy, E. (2014). Modern technologies of communicative competence formation. *Procedia-Social and Behavioral Sciences*, 116, 4780-4784.
6. Dammer, M.D. (2014). The meta-subject content of an academic discipline. *Education. Pedagogical Sciences*, 1, 46-52.
7. Dammer, M. D. (2015). Meta-subject content of the subject [Electronic resource]. Retrieved from <http://vestnik.susu.ru/ped/article/view/484>
8. Galustyan, O. V., Vyunova, N. I., Komarova, E. P., Shusharina, E. S., Gamisonija, S. S., & Sklyarova, O. N. (2019). Formation of media competence of future teachers by means of ICT and mobile technologies. *International Journal of Interactive Mobile Technologies (iJIM)*, 13(11), 184–196.
<https://doi.org/10.3991/ijim.v13i11.11350>
9. <https://doi.org/10.3991/ijim.v13i11.11350>
10. Gromyko, N. V. (2014). Thought activity pedagogy and the new content of education. Meta-objects as a means of forming reflective thinking in schoolchildren [Electronic resource]. Retrieved from <http://1314.ru/node/24>
11. Guseva, V. E. (2019). Structural changes in the professional training of higher education students in Russia. *Amazonia Investiga*, 8(23), 693–706.
12. Gutorova, G. D. (2020). Essence And Content of Meta-Subject Approach in Pedagogical Science and Federal State Educational Standards. *Pedagogical Review*. <https://doi.org/10.23951/2307-6127-2020-5-41-50>
13. Retrieved from <https://amazoniainvestiga.info/index.php/amazonia/article/view/924>
14. Khutorskoy, A. V. (2012). Meta-subject content of general education and its reflection in new educational standards [Electronic resource]. Retrieved from <http://khutorskoy.ru/be/2012/1127/index.htm>
15. Khutorskoy, A. V. (2014). Meta-subject content and educational results: how to implement federal state educational standards (FSES) [Electronic resource] // Eidos: online journal. Retrieved from <http://www.eidos.ru/journal/2012/0229-10.html>.
16. Mendelli, S. (2019). Determination of mathematics teachers' opinions related to response and solution-based software in secondary education institutions. *Global Journal of Information Technology: Emerging Technologies*, 9(2), 41–50.
<https://doi.org/10.18844/gjit.v9i2.4421>
17. Nagimov, N. I. & Tarasova, F. K. (2015). Designing foreign language lessons basing on meta-subject approach. *The Social Sciences*, 10(4), 407–411. Khutorskoy, A.V. (2018). *Educational meta-subject*. Received from
18. <http://khutorskoy.ru/science/concepts/terms/metapredmet.htm>.
19. Nagimov, N. I., & Tarasova, F. K. (2015). Designing foreign language lessons based on meta-subject approach. *Social Sciences*, 10(4), 407-411.
20. Ratikova I. N. (2014). Meta-subject approach: theory and practice [Electronic resource]. Retrieved from <http://www.scienceforum.ru/pdf/1597.pdf>
21. Rotman, B. (1987). Emergence of a Meta-Subject. In: Signifying Nothing. Language, Discourse, Society. Palgrave Macmillan, London. https://doi.org/10.1007/978-1-349-18689-1_3
22. Spencer, E., & Lucas, B. (2021). *Meta-Skills: Best practices in work-based learning A literature review*. DOI: [https://doi.org/10.13140/RG.2\(10399.84642\)](https://doi.org/10.13140/RG.2(10399.84642)).



23. Truong, H. M. & Vuong Pham, V. T. (2020). Teachers' and students' appraisal of the ITEC English curriculum: a comparative study. *Global Journal of Foreign Language Teaching*, 10(3), 167–181. <https://10.18844/gjflt.v10i3.4933>
24. Yesnazar A, Zhorabekova A, Kalzhanova A, Zhuzimkul B and Almukhanbet S (2024) Methodological system for the formation of meta-subject skills of primary school students in the context of STEM education. *Front. Educ.* 9:1340361. <https://doi.org/10.3389/educ.2024.1340361>
25. Zhumabayeva, Z., Uaisova, G., & Jetpisbayeva, S. (2021). Meta-Subject Methodology Approach in the Training of Future Primary School Teachers. *World Journal on Educational Technology: Current Issues*, 13(1), 21-30.

Cite this Article: Vasilev I. (2024). The Meta-Subject Model: A Holistic Framework Overcoming the Limitations of Subject-Based Learning with an Example in TVET. International Journal of Current Science Research and Review, 7(10), 8077-8090, DOI: <https://doi.org/10.47191/ijcsrr/V7-i10-69>