02
BLUE ARROW MOOC

BLUE ARROW PROJECT CONSORTIUM

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Introduction

The present document intends to report the IO2 BLUE ARROW MOOC showing the main results. The MOOC is online on the EduOpen platform and it is open and free for any student.

The first course was open in December of 2022, while a next reopening of the course will be the 15th of May 2023.

Few MOOCs on teacher education in digital era are available, they mainly focus on digital competences or in technology enhanced learning, but few involve competences and solution for distance teaching. In addition, this MOOC has the strong added value to include innovative elements as the application of laboratory activities for teacher education of pre-primary and primary schools with ground-breaking Tangible User Interfaces. The MOOC will include procedural teaching for children with a game-based approach and exercises co-created with teacher educators and teachers based on a scientifically relevant pedagogical model (O1).

BLUE ARROW MOOC will have a broad audience. Partnership foresees six main target groups:

1) Teacher Educators in Universities.

2) Initial Teacher Education and Continuing Training program developers.

3) Pre-service and in-service teachers in kindergarten and primary schools.

4) Students in pedagogy and psychology.

5) Caregivers of child with special needs between 4-7.

6) Parents.

Title

Innovative Distance Teaching Methods

Link

The course is located on EduOpen platform in the following link:

https://learn.eduopen.org/eduopenv2/course_details.php?courseid=538

Otherwise it is possible to access to the BLUE ARROW MOOC using the website.

https://www.bluearrowproject.eu/wp/o2/

The Course

The MOOC includes lessons based on digital creativity topics and strategies and solutions for the management of distance teaching for children between 4-7. The course offers online materials, such as videos and slides and it is defined in order to provide a mix of theoretical and practical inputs for teachers in formal and informal contexts.

The Innovative Distance Teaching Methods course aims to provide a complete scheme of information in order to fill the gap in the application of new tools for teaching in distance education. This represents an important asset after the revolution in teaching and learning brought by the COVID-19 outbreak.

The MOOC aims to furnish innovative solutions, with detailed road maps, easily to implement in the real learning environments.

Each lesson contains two different sections, one theoretical unit that provides information about the models and the methodologies that represents the fundamental concepts and the basis for the application. A second unit has a practical approach, giving to all the teachers the keys to learn how to implement innovative pedagogical practices in real contexts.

One specific topic of the course is to present and implement solutions for the application of multisensory objects in distance education, starting from the framework of digital storytelling.

This innovative approach is able to engage children and support learning activities at distance and interactive storytelling based on practical activities by manipulating objects and experience with senses (including also smell and taste) with a direct recognition of the digital side.

Lessons

The list of the lessons are above:

Lesson 1: Creativity in teacher education

- Creativity in education (Marc Alpiste-Fuertes)
- Digital creativity in teacher education (Mario Barajas)

Lesson 2: Co-creation strategies

- Theoretical approach (Mirko Perano)
- Practical approach (Mirko Perano)

Lesson 3: Active learning approach

- Gamification (Alessandra Antonaci)
- Examples of gamification in education for distance learning (Raffaele Di Fuccio)

Lesson 4: Tangible User Interfaces paradigm

- Introduction to the TUIs with examples (Federica Somma)
- Use of BLUE ARROW Authoring tool and Kit (Federica Somma)

Lesson 5: Storytelling in distance learning

- Role of the digital storytelling (Marco di Furia)
- Applications of the BLUE ARROW stories (Raffaele Di Fuccio)

Learning Outcomes

Lesson 1: Creativity in teacher education

In Lesson 1, students will learn about what is creativity, as well as creativity characteristics in educational settings. Additionally, this lesson deals with the key creative pedagogical principles that have been identified in learning, each one characterized by different components: a) learner-centered approaches; b) open-ended ethos; c) synergistic collaboration, and d) knowledge connection. This principle drives teachers to improve their creativity competences.

The second part of Lesson 1 is about applying digital creativity in practice. First, students will learn about the creativity competencies involved in teaching and learning in primary education. These competencies are adapted and selected from the DigCompEdu teachers' competencies.

The second unit deals with the need of both pre- and in-service teachers to design basic lessons adapted to children and digital tools, considering the identification of digital competencies involved.

Lesson 2: Co-creation strategies

In Lesson 2 on Co-creation that aims to provide a new lens to better understand phenomenon in which multiple actors interact with common interests and aims. The theoretical approach can be linked, in a specific framework, with other managerial and organizational theory (such as value (co)creation, stakeholder theory and engagement, and others) trying to allow the better preconditions to create a greater value from the Blue Arrow core project and provide a lens through which a better comprehension of the role and relationship or among each of multiple actors involved can be assumed.

In the second part of Lesson 2 are defined the practical examples of the application of co-creation starting from the methodological background described in the first Unit of the lesson 2.

Lesson 3: Active learning approach

In Lesson 3 the student will learn about active learning approaches. In the first part the focus will be on gamification. Students will understand the main concept of gamification, in a nutshell the transfer of game design elements in a non-game scenario/context, with the purpose of solving a problem (typical of the context) or/and generate a behaviour change in the users, for instance make them more active/engaged/involved.

In the second part of lesson 3, the student will have the opportunity to see different examples of gamification in education, strongly addressed to the application of strategies for distance teaching and learning. This section will focus on practical examples about how to implement these tools in real contexts. In particular, the students will learn three main areas: 1) pools and ice-breaking methods (Mentimeter), 2) formative and summative quizzes with a gamification approach (Quizziz), 3) collaborative 3D environments (Minecraft Edu).

Lesson 4: Tangible User Interfaces paradigm

In Lesson 4, the student will learn about the Tangible User Interfaces (TUIs). TUIs are technologies that allow interaction of the digital world with physical objects, making use of touch and manipulation, that play a crucial role in education and special education: physical and manipulatives objects are specifically designed to foster learning and are fundamental in influential pedagogical approaches. The focus will be on the most famous psycho-pedagogical theories of Montessori, Dewey, Piaget, Vygotskij, Bruner up to Clark and his Embodied Cognition theory that brings the idea is that our mind is embodied in our motor-sense system, in the environment and context in which we interact. The lessons will provide some examples to show the application of Tangible User Interfaces in school contexts. The objects will be based on well known psycho-pedagogical practices as logic blocks, number cards, tangram, teaching tiles, everyday objects.

In the second part of Lesson 4, the student will learn how to use the authoring tool created in the Blue Arrow project. The authoring tool will allow to create new exercises and scenarios that will be released in the form of Open Educational Resources (OERs). The lesson will describe a set of specific tangible objects for the kit based on the exercises delivered and co-created with teacher educators and teachers. All exercises will exploit Tangible User Interfaces (TUIs) allow the children (and teachers) to interact with tangible and multisensorial objects, then physical objects could be recognized by a digital component.

Lesson 5: Storytelling in distance learning

In Lesson 5 the students will learn basic concepts about digital storytelling. The focus will be on storytelling practices in pre-primary and primary schools. The learning objectives that can be pursued through a storytelling activity are manifold, not only but specially in schools, such as: concept comprehension, language development: lexical, phonetic, morphological, syntactic, as well as pragmatic development, cognitive skills' enhancement: attention and memory processes; narrative skills: sequencing of events, story planning, promotion of social skills': participants to the storytelling activity can learn to interact with peers during the narration; fantasy, creativity and divergent thinking development; emotional expression.

In the second part of Lesson 5 will be presented some exemplar stories created by the editors (teacher educators, teachers, and caregivers). These editors will create their own exercises both as digital as tangible activities (TUI approach). Each additional editor could apply the scenarios delivered from other editors, allowing the use and reuse of the resources.

Text books and suggested readings

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- Miglino, O., Di Ferdinando, A., Di Fuccio, R., Rega, A., & Ricci, C. (2014). Bridging digital and physical educational games using RFID/NFC technologies. Journal of e-Learning and Knowledge Society, 10(3).

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- Di Fuccio, R., Ponticorvo, M., Ferrara, F., & Miglino, O. (2016, September). Digital and multisensory storytelling: narration with smell, taste and touch. In European Conference on Technology Enhanced Learning (pp. 509-512). Springer, Cham.

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- Ishii, H. (2007). Tangible user interfaces. Human-Computer Interaction: Design Issues, Solutions, and Applications, 141-157.
- Frossard, F., Barajas, M., & Trifonova, A. (2012). A learner-centred game-design approach: Impacts on teachers' creativity. Digital Education Review, 13-22.
- Frossard, F., Trifonova, A., & Barajas, M. (2015). Teachers designing learning games: impact on creativity. In Video Games and Creativity (pp. 159-183). Academic Press.
- Somma, F., Di Fuccio, R., Lattanzio, L., Ferretti, F., & Gigliotta, O. (2020). Usability and engagement of a digital and multisensorial tool for immersive storytelling: A pilot study. In 2nd Symposium of Psychology-Based Technologies, PSYCHOBIT 2020 (Vol. 2730). CEUR-WS.