HEADS-ON, HANDS-ON, HEARTS-ON:
EDUCATORS PERCEPTIONS ON VIDUKIDS CONTRIBUTIONS TO INTEGRAL EDUCATION

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ABSTRACT

Heads-on, Hands-om, Hearts-on: educators' perceptions on Vidukids contribtutions to integral education. The integral development of the child is nowadays one of the goals of the education, which implies the use of activities and strategies that involve the various dimensions of the human being in a comprehensive way. This paper aims to describe and analyse the potential of the pedagogical model of the Erasmus+ Vidukids project to develop 'Heads-on', 'Hearts-on', 'Hands-on' activities. The project aims to explore the use of video production about mathematics, by children aged 4-8 years old. The pedagogical matrix involves different levels of complexity in video production, mathematical topics such as numbers, shapes, space and tasks such as 'An explorer mission', 'A story with mathematical content', 'Solving a mathematical problem'. Based on a Vidukids

activity in which participated 60 trainees from bachelor courses in educational areas, there was immediate involvement in the video production task and the resources needed for the narrative. The analysis of the videos produced and the answers to a questionnaire showed high levels of satisfaction, a perception of various learning experiences, either in terms of video production, the visual representation of mathematical concepts and also transversal competences. This demonstrates how an activity can enhance different skills and contribute to integral education.

Keywords: heads-on; hands-on; hearts-on**;** vidukids project; educators perception; integral education

RESUMEN

Con la cabeza, con las manos, con el corazón: percepciones de los educadores del proyecto vidukids de educación integral. El desarrollo integral del niño constituye en la actualidad uno de los objetivos de la educación, lo que implica el uso de actividades y estrategias que involucren de manera articulada las distintas dimensiones del ser humano. El objetivo de este artículo es describir y analizar el potencial del modelo pedagógico del proyecto erasmus+ vidukids para implementar actividades "heads-on", "hearts-0m, "hands-on". El proyecto pretende explorar el uso de la producción de vídeos sobre matemáticas, por parte de niños de 4 a 8 años. La matriz pedagógica implica diferentes niveles de complejidad en la realización de vídeos, temas matemáticos como los números, las formas, el espacio y tareas como una misión de exploración, una historia con contenido matemático, resolver un problema matemático. A partir de una actividad de vidukids en la que participaron 60 alumnos de cursos de formación inicial en áreas educativas, hubo una implicación inmediata en la tarea de producción de vídeo y en los recursos necesarios para la narrativa desarrollada. El análisis de los vídeos producidos y las respuestas a un cuestionario muestran altos niveles de satisfacción, la percepción de varias experiencias de aprendizaje, en términos de producción de vídeo, la realización visual de los conceptos matemáticos y también las competencias transversales. Por lo tanto, es una actividad que puede potenciar diferentes habilidades y contribuir a la educación integral.

Palabras clave: heads-on, hands-on, hearts-on, proyecto vidukids, percepción de los educadores, educación integral

INTRODUCTION

The integral development of the child is currently one of the objectives of education, which implies the use of activities and strategies that involve the various dimensions of the human being in an articulated manner. This way, it is necessary to provide children with conditions to increase their potentialities and become agents of their action, valuing the different competences. It is up to the educator, therefore, from the respect to the individualities, desires and interests of children, to invite the child to participate and build new knowledge.

It is therefore fundamental that the planning of activities and strategies is designed for the fullest possible development. This implies favouring interaction in different groups, tot allow children to expose their ideas and respect those of their colleagues, find new paths, confront, argue and validate new points of view, find possibilities for problem-solving, expand communication and others.

Integral education may take different names and approaches. One example is the so-called 3H perspective, which encompasses Heads-on, Hands-on and Hearts-on and is characterised by 'take a whole-child perspective to engage students' cognitive, social, communicative, physical, and psycho-emotional skills' (Inan & Inan, 2015). In the scope fo 3H pedagogy, 'Hands-on learning focuses on project-based and active engagement with a subject; heads-on learning encourages student-led inquiry and independent problem-solving processes; and hearts-on learning emphasizes interest in and enjoyment of learning about specific topics. Using the 3Hs, researchers simultaneously view children as independent, competent entities, as well as social beings who work collaboratively' (Inan & Inan, 2015).

Mathematical knowledge, in turn, contributes to the learning process and integral development of the child, when expanded and systematized beyond those immersed since birth, such as numbers, quantities, spaces and

measures (Lorenzato, 2006). If appropriate pedagogical resources are used, mathematics learning may also contribute to the children opportunity to express and develop their ideas and thus become protagonists of their learning, establishing meanings and senses of their own and developing diverse skills. Mathematics may contribute significantly to the development of intellectual autonomy, critical thinking, logical thinking, interpretation, argumentation, social and affective relationships, as well as, when necessary, making interventions in the environment in which one lives.

Being one of the fundamental dimensions for the integral development of the children, mathematics should make sense in their learning and in their daily lives. In this scope, it becomes necessary the use of differentiated methodologies and techniques that understand transversal and differentiated competences in respect also the abilities of each child. The Erasmus+ ViduKids project aims to contribute to mathematics learning in an integral approach, using video production to support mathematics understanding. The core idea of ViduKids is that children themselves become an active part of the video production process. The pedagogical approach developed in Vidikids project include core ideas as: 'Children playfully discover mathematical concepts like space, numbers and shapes; Children document their ideas and discoveries themselves on video; Other children are engaged as viewers of the videos: Children self-reflect on the process; educators support the children appropriately; in particular, provide ideas and examples, and technical support (Vidukids goals). In the scope of these process, children are challenged to visualise and reflect on abstract mathematical concepts to support learning and understanding. The moving images can help to illustrate mathematical concepts like space, numbers and shapes and can easily connect them with the real world.

Vidukids pedagogical model thus aims to complement school tasks such as reciting, reading, writing numerals and learning basic operations, promoting relations of the tasks presented to the child with the world and the most varied situations and objects. The work with video resources, narratives, geometric and visual forms, from an integral perspective, aims to enable children to give new meaning to the knowledge they have gained, contributing to new challenges, problem situations, hypotheses, comparisons, records, sharing, interaction and communication, as well as thinking about actions and solutions from a movement of mathematical thinking.

In order to implement Vidukids pedagogical approach, a matrix has been developed. It involves different levels of complexity in video production, mathematical topics such as numbers, shapes, space and tasks such as 'An explorer mission', 'A story with mathematical content', 'Solving a mathematical problem'. In the scope of Vidukids, the quality of the video is not essential and the children do not need to produce professionally-looking videos, as it is the process that matters. However, in order to guide educators and children, three levels of video production were defined: one shot videos, stop motion and creative explorations.

This paper describes a workshop with educators were stop-motion video production was used. 'Stop-motion app' is a basic type of video animation where still images are put together in a software or video editing software. Objects are moved slightly and a still image is taken after each motion. The images are put on a video timeline with a short duration between each – and they will start to move automatically (Vidukids matrix).

The workshop was implemented following the principle of methodological isomorphism and the aim was to analyse which perceptions of learning and developed competences during the wotkshop. Results can contribute to understand Vidukids potential to implement integral education.

RESEARCH OBJETIVES

This paper aims to analyse educators' perceptions of the potential of the Vidukids pedagogical approach to promote mathematics learning and skills inherent to an integral education.

PARTICIPANTS

Participants in the workshops were 60 Educational Sciences students, 55 females, 6 males, 19 to 45 years old. Five teacher educators also participated in the workshops, three from Pedagogy and Educational Psychology subject areas and two Mathematic Educators.

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METODOLOGY AND INSTRUMENTS

Two Vidukids workshops were implemented. The workshops were integrated in the activities of an Educational Sciences course. Due to the limited available seats in the room, the class had to be split so approximately 30 students participated in each workshop. The plans for both workshops were similar. However, during the implementation some changes to the initial plan had to be done. Following, the general steps of the workshops are described as well as adaptations that occurred.

Previously to the session, a paper about stop motion technique was sent to all participants and they were also asked to install stop motion studio app in their mobile phone (Rodrigues, 2020).

The workshops started with the presentation of Vidukids project, its aims, target groups, main activities. The pedagogic approach and Vidukids matrix were presented as well as examples of activities and videos already developed. There were also short presentations about Integral Education, Hands-on, Heads-on and Hearts-on approach and about using narratives to teach mathematics. Then participants were challenged to produce a stop motion video that illustrated a short narrative with mathematics inside. Participants worked in groups, spontaneously created.

Participants were immediately engaged in the task. However, at this moment, there was a difference in the way participants in workshop A and B decided to work. In this scope, it is necessary to explain that previously the Vidukids workshop, participants took contact with the Poly-Universe game, a set with geometrical shapes, with different size and colours. Participants in workshop A decided to produce the Stop motion video using Poly-Universe materials (Figures 1-5). Each group produced a Stop motion video using these materials. They were also asked to produce another video using other materials or resources, but outside the workshop time.

Figures 1-5 Workshop A. Poly Universe materials were used to produce stop motion videos.
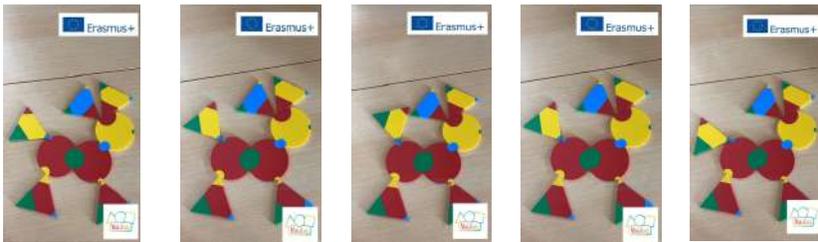
Participants in workshop B contacted with the Poly-Universe materials but did not use them to produce the videos. So each group produced a stop motion video using materials available, colour paper sheets, scissors, glue, sitcks, legos, plasticine (Figures 6-11).

Figures 6-11. Workshop B. Producing a Stop motion video

Following the workshop, participants, developed a report about the work done and later they presented their videos and ideas to the all class. At the end of the activity, a link with an evaluation questionnaire was sent to participants.

The questionnaire included open questions about the workshop experience, aiming to explore deeper perceptions about Vidukids pedagogical proposal: 'What did you learn?', 'Which competences did you develop?', 'Which competences does the activity promote?', 'How do you consider the link between stop motion video production and the learning basic mathematical concepts?', 'Did you experience difficulties when producing a stop motion video?', 'Will you use this in your training activities?'. Other questions aimed a general evaluation of the workshop, namely strong and weak points: 'What in the training went particularly well?', 'What could have been better?'

The questionnaire also included statements about the workshop experience to be rated in a scale (1= not at all true to 5 = very true). Statements were adapted from Center for Self-Determination Theory (2022) and addressed dimensions as interest, autonomy, self-efficacy, effort, usefulness: 'I enjoyed doing this activity very much', This activity was doing following my ideas', 'I think I did pretty well at this activity', 'I was anxious while working on this task', 'I put a lot of effort into this', 'I think that doing this activity is useful to learn how to produce a stop motion video', I think that doing this activity is useful for linking produce video production to mathematics, 'This activity is useful to promote problem solving', 'This activity is useful to promote creativity'

Reports about the activity were also considered, namely to analyse description about the competences that may be developed in the scope of a Vidukids activity.

Notes from teachers' educators during the sessions were also considered, as well as the videos produced.

RESULTS

Following main results are presented.

Results about previous knowledge (Figure 12) evidenced that most participants in both workshops did not know about the project and stop motion technique to produce video.

Figure 12. Previous knowledge (No=Não; Yes=Sim)
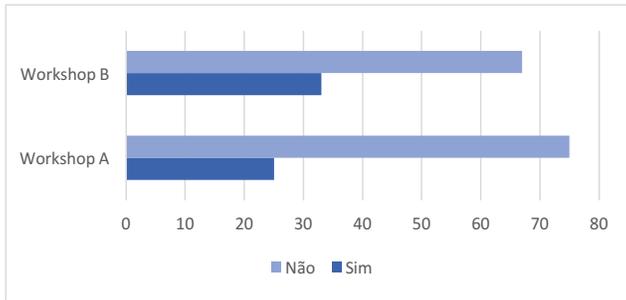
Analysis of the videos produced evidenced that each group developed one or two videos, in a total of 16 videos. All videos were produced with stop motion technique, but they were different from each other. This means that each video presents a specific narrative or idea. Videos using Poly-Universe materials worked with geometric shapes as well with a narrative topic. For instance, moving shapes were used to present a dog wagging his tail, a girl with an ice cream, a princess that went by boat to her castle. Some videos followed the explorer mission of Vidukids matrix, e.g, counting how may leafs were found in street, or how many people were going up and down the Monumental stairs. The different ideas and narratives can be considered an indicator of creativity. In addition, videos diverged in how explicit the maths content was presented. They also diverged in duration, from 5 seconds to approx. 45 seconds.

Most participants referred no difficulties when developing the activity (Figure 13). However, when difficulties were expressed, they were mostly related with the process of video production, getting familiar with stop motion technique and scenarios production. Managing time was also considered a challenge- Participants referred as difficulties 'Know how to work with stop motion application '''; 'The first difficulty was learning how to use the app but I quickly learned. Then it was a bit tricky to change scenery without changing the camera position. recreating the shapes for the video'; 'Time was limited considering the requirement to recreate an interesting scenario for the creation of the video, with the limited materials we had. However, it was a challenge met with plenty of interest for the activity'; 'Construction of the scenario and editing the images'.

Figure 13. Difficulties during the workshop
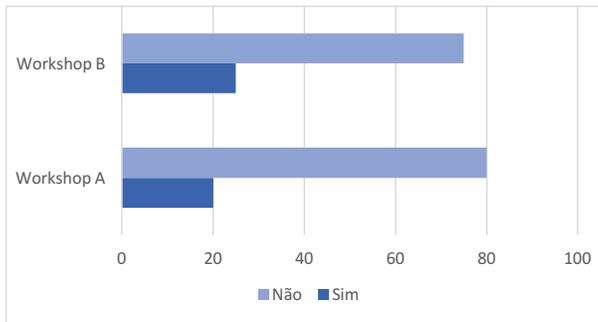
Despite the difficulties, all participants referred that they learn to work with stop motion application and to produce a stop motion video. Some participants also referred that they learned about creativity. Creativity was referred by almost all participants when answering to the question about the most positive aspect of the activity: 'Challenge to be creative', 'Promotes creativity'. Working in group and cooperating were also considered very positive aspects of the activity, as well as autonomy, interpersonal skills, cognitive skills.

Answers to the statements about workshop also pointed to a very positive perception about the interest and usefulness of Vidukids pedagogical approach. Participants referred they put a lot of effort to developed the activity, but also that they experienced low levels of stress and anxiety. Participants also referred that the activity was developed following their ideas (Figure 14).

Figure 14– ViduKids participants' perception of workshops interest and other motivational variables

Participants also perceived high levels of usefulness for learning about videos and mathematics bur also for transversal competences (Figure 14). These results are also in line with those referred in open questions about main learning and the most positive aspect of the activity. The main learning was about video production using stop motion. Other aspects were creativity and cooperation. The potential of the activity to promote creativity was considered tis most positive aspect.

All the participants agreed that they will use the activity in their training activities.

Finally, 'What could have been better?' 'more time'.

DISCUSSION

Considering the challenges faced by integral and mathematics education, this paper aims to analyse perceptions of educators about Vidukids pedagogical proposal to promote mathematics understating as well as transversal competences. Vidukids aims to develop pedagogical pathways that combine mathematics learning and video production in early ages. The children are in the centre of the process and photos or videos production are used to promote deep understand of math concepts. Results pointed to the interest and engagement associated

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with the activity. Participants perceived its usefulness for math education and development of transversal competences, as creativity or cooperation. The analysis or videos produced evidenced the creativity referred. This analysis also evidence that the main challenge is to bring math content more visible and explicit.

CONCLUSIONS

Vidukids pedagogical approach may contribute to implement Mathematics education in an integral education model. The characteristics of the two workshops in which Vidukids was carried out with both structured material (workshop A) and occasional material (workshop B), highlight its flexibility, also associated with the various video techniques that can be used. Results obtained so far point that it is worthwhile to continue exploring pedagogical pathways that bring together videos production and mathematics deep understanding in early ages.

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