https://doi.org/10.36315/2022v1end126
Education and New Developments 2022

# PHILOSOPHICAL GAMES IN PRIMARY EDUCATION: AN INTERDISCIPLINARY APPROACH

**Maria Anagnostou[1], Anna Lazou[1], Enea Mele[2], & Aphrodite Ktena[2]**
*National & Kapodistrian University of Athens (Greece)*
*[1]Department of Philosophy*
*[2]Energy Systems Laboratory*

## Abstract

Philosophical games provide an innovative transformative structure in the learning process for all levels of formal education. The motivation is to provide elementary school teachers with an innovative methodology for Game-based-Learning of Philosophy/in Philosophy teaching. A combination and attentive collaboration of Philosophy, Art and games/ Game-based Learning provides new tools in approaching and solving the problems that education faces today. Since Game-based Learning constitutes a strong trend in technologically enhanced learning, is the, where/with the employment of gaming elements both in learning content and learning pathways, the proposed methodology leads to a series of novel applications about teaching philosophy that enable young agents to cultivate hypothetic-deductive and critical thinking with a positive attitude towards others and developing feelings of constructive antagonism. The teaching scenario proposed aims at cultivating hypothetic – deductive and critical thought/moreover, enhances the linguistic ability in the vocabulary of ancient Greek philosophy as well. The scenario is part of a game suite entitled "Entering the Socratic school" and targets 10–12-year-old children. It is easy to implement on any digital platform with open-source tools used by almost every teacher. The game elements rely on the structure of the learning content rather than on the digital tools themselves. The methodology consists in designing a concept map and defining the game narrative, the game levels and transitions between levels, the mechanics to be used, such as polls, badges, and leaderboards. Online activities include digital games such as quizzes and crossword puzzles, student generated comic stories, and a digital guide. They are complemented by physical activities involving movement and dialogue using fishbowl techniques and Socratic circles. The proposed teaching scenario will be implemented in the classroom in the following academic year and our work team applies interdisciplinary approaches inspired by at least three different fields of expertise.

***Keywords:*** *Socratic games, gamified learning, philosophy, art, Moodle.*

## 1. Introduction

Philosophical reflection on games was present from the beginning of the history of thought (Heraclitus, Plato, Aristotle) until the interest in this theme stopped in Middle age and came back to the attention of philosophy only in the 18th century and later (Kant, Schiller, Hegel, Huizinga eta.). Games involve cultural and anthropological elements depending on the period, place, human beings themselves, and their needs. Human activity in general consists in interactive mechanisms and symbolisms; according to Ludwig Wittgenstein, philosophy and language are to be understood on the whole as a series of games and a rule following activity in general.

A game is a basic/fundamental/essential linguistic and cultural element in all European languages (e.g. in ancient Greek, *παίγνιον*, modern Greek *παίγνιον*, *παιχνίδι*, *latin iocus*, ital. *gioco*, fr. *jeu*, sp. *juego*, engl. *joke*, here & after "*game*"). A game can be understood as a free activity, regulated by internal principles, carried out individually or by groups, sometimes competing, to realize itself, with no other immediate purpose than the recreational, and, at the same time, to develop physical, spiritual, and intellectual attitudes and skills. Main game elements are: goals, rules, challenge, and interaction. Games generally involve mental or physical stimulation, and often both.

The work presented in this article is part of a larger project aiming to use gamification technology towards interfacing philosophy and philosophical games with state-of-the-art ICT learning platforms. Gamification, the use of game elements in non-game environments, often displays a persuasive intent, ranging from enhancing engagement and affective response with a system to the triggering of specific behaviors such as buying or interacting (Rao, 2013). Another gaming application is the use of game data in non-gaming situations.

Over the last two decades, gamification's potential as a learning methodology has been thoroughly investigated. It has been applied in both formal education in the traditional classroom environment as a complementary learning tool or in e-learning and distance learning platforms (Dominguez, et al, 2013; McCombs and Vakili, 2005; Lee and Hammer, 2011) as well as in informal education and behavior intervention or modification (Carr, Taylor, Hunt, and Mejia, 2014; Mohr, et al., 2014). Its application in learning activities are based on the inherent features of cognitive interaction, sensory triggering, and motivation all of which enhance the student's attraction and engagement. According to Karl Kapp, it is a teaching approach which/that facilitates learning and increases motivation using gaming elements and mechanics as well as game-based thinking (Kapp, 2014). The game elements and approach used do not constitute a game in themselves, but they are employed to attract and engage people, regardless of age, in interactive activities of continuous feedback, as in an actual game. Gamification as a learning strategy is an excellent methodological tool for the teacher since it facilitates cognitive processes throughout the learning taxonomy due to the inherent elements of challenge for individual development (Kapp, 2014).

Philosophical games develop practical skills (such as learning the main vocabulary used in ancient Greek philosophy), serve as a form of exercise, or otherwise perform an educational, simulational or psychological role. That is why a main aspect of our research deals with language and concepts, among else because the philosophical games we design teach young people and adults the vocabulary of ancient Greek philosophy. According to Demeurt (2014: 797), linguistics, and particularly, sociolinguistics, focuses on gaming as a socialization tool for L2 learners (Second Language Learners). Demeurt (2014: 797), also, states that up to now there is a little linguistic research promoting new players to negotiate interaction in highly synchronous and frequently multimodal settings and this would be another fruitful area for additional exploitation. It has been supported that computer games are not just changing the way we use language; they are changing the way we think about it. When the most visible medium for written language was print, our metaphor for language was the book: fixed, authoritative, slow to change. Now that most of written language is informal and online, our collective metaphor is shifting to language as a network: fluid, collectively negotiated, constantly altered. Language, as McCulloch (McCulloch, 2019) puts it, is humankind's largest open-source project; and the internet, like computer games, makes it much easier for all of us to interact as and become, contributors. Further liaisons with linguistics can be also found in the relationship of the digital games for the teaching of ancient Greek language and history. For example, history digital games like *Assassin's Creed* or *Civilization* are an active teaching tool that does not impose the "consumption" of history in a one-dimensional way. On the other hand, we must note the fact that in Greece for now there is not any philosophical digital game that can help adolescents and adults to learn ancient Greek philosophy in an alternative and pleasant way.

Another element that can be traced in the philosophical type of digital games we explore is their pedagogical dimension. A philosophical digital game has an educational character based on theories about motivation, "flow", and self-determination. This means that a variety of creative and enjoyable learning starting points converge in games. Since generation Z entered the education field, due to their familiarity with the use of internet and social media, students require adaptive learning methods in all educational levels and in any type of learning activity. New tools and methodologies do therefore become necessary for enhancing the learning process.

Motivation and positive emotions, not only support by enhancing the learning process, but also they can be an important stimulus, a trigger to learn the basics in ancient Greek philosophy. Although they are not an exclusive condition for achieving learning outcomes, they must be supported by the teaching of the fundamentals of ancient Greek language (vocabulary and grammar). With the use of philosophical games by the students, this will help them to reinforce their linguistic competence in contemporary Greek language together with and plus the development of critical thought and an /interactive and experiential approach of the philosophical *logos*. And this is a strong motive for other researchers or teachers to take this type of game as a base to go further with their research or to refer to the cognitive and social dimensions that a digital philosophical game can support.

Additionally, in the educational practice of gamification we apply and expand previous philosophical elaborations of teaching philosophy through forms of art in general proposed in bibliography by members of the work team (Lazou-Patios, 2017).

In our work, as previously said, we use παίγνια/games or playing as a means for promoting and cultivating hypothetic – deductive and critical thought, as well as the linguistic ability in the vocabulary of ancient Greek philosophy; we are elaborating on the other hand a specific kind of knowledge - educational games, that will provide the users with the opportunity to learn while having fun. Moreover, since games have been always related with the human efforts to orientate positively in the actual space and facilitate creative activity by allowing the emergence of new abilities and imaginative qualities of man's intelligence for a better emotional and social life, through philosophical digital games we intend to

transfer the creative gamifying influences in the sphere of obtaining and teaching philosophical knowledge.

Ultimately, our project may be seen as a first attempt at a paradigm shift: philosophy is not a luxury for the few selected ones (elitism), it does not reside in the clouds, it is not at odds with technology: it is part of everyday life as much as technology, it is as necessary as technology, must be linked to technology and be accessible and useful to everyone.

More specifically, the teaching scenario presented in this work targets primarily 10-12 years old school students, which means that they are at the final stage of primary education.

Our philosophical and pedagogical approach is based on the human learning theory of social constructivism. Lev Vygotsky, one of the main representatives of social constructivist learning theories, highlighted the role of social interactions in the full-fledged development of the individual establishing that the specific qualitative characteristics of the social framework, within which the individual grows, constitute a significant learning factor. Furthermore, there is no age-dependent background as prerequisite for the knowledge base that a child must construct. The cognitive development is not linear, but it is enhanced by appropriate triggers which form the zone of proximal development which will enable the child's transition from the actual to the potential development (Vygotsky, 2000). In his work 'Imagination and Creativity in Childhood' (Vygotsky, 2004), a creative activity is determined as the action that generates something new, is oriented towards the future and recreates the present. As far as children are concerned, they fully manifest their creativity in game activities where they not only reproduce their actual experiences, but they recreate them with imaginary content: 'He combines them and uses them to construct a new reality, one that conforms to his own needs and desires (Vygotsky, 2004).

## 2. Methods

The scenario presented here starts from an existing proposition for new teaching material which exists in the 'Photodentro' repository used by primary school teachers in Greece (Photodentro-ugc: Socrates...a model philosopher and teacher). The content and flow of the original scenario have been restructured to take advantage of the game dynamics and mechanics as well as the digital learning tools and capabilities. The gamified version presented here is particularly appropriate for group distance learning. It is also inspired by the Attention, Relevance, Confidence, Satisfaction (*ARCS*) model which aims at motivating the engaged learners through pleasant experiences and positive feedback (Keller, 1987), which is particularly important for children. The digital implementation of the gamified content is based on the open-source Learning Management System Moodle. The flipped classroom methodology is also employed to partially shift of teaching from the space of group learning to that of individual learning for each one of the students, mainly through video-lectures to allow more time in the classroom for interactive activities (Bishop & Verleger, 2013).

## 3. The design

### 3.1. The Scenario

The scenario is part of a game suite entitled "Entering the Socratic School". Its aim is to introduce students 10-12 years old to the life of Socrates and his theory. The module - game is divided in three phases.

In the first phase, the young learners watch a video on the life and work of the philosopher. The video is uploaded on the online platform so that they may watch it as many times as they want on their own and keep notes (asynchronous mode). This first phase individual "mission" will allow them to prepare for the topic in question and get ready for the next phase.

In the second phase, they work as a group under the guidance of the teacher. They engage in a guided discussion about the video, through successive cycles of observation and dialogue, for about two hours (Anagnostou, 2021a). Acting on the information they have acquired, they reenact live dialogues with emphasis on active listening and oral expression aiming at enriching their vocabulary with extra lingual and paralinguistic elements (Anagnostou, 2021b). The activity is coupled with the mission to follow the directions stated in the student worksheet and carry out the assignment on the digital platform (asynchronous mode). The students are given instructions and clarifications about the digital tools they are going to use so that they may create their own content. This lasts for one teaching hour.

In the third phase, children are divided into groups. Every group creates their own avatar and carries out digital tasks – challenges in the form of cooperative assignments using the gamification mechanics of the Moodle platform. While carrying out a given task, members of each group communicate via chat. The first assignment is to build their own digital games using LearningApps.org - interaktive und multimediale Lernbausteine, and the information acquired through the video and the game experiences of the second phase in the classroom. When the task is completed by all groups, the games are uploaded to be evaluated. Each student votes through the platform using the scale 1-10 (workshop).

The results are visualized by a progress bar block. The next mission challenges each group to develop comics using Create Comics Online, it's Fun & Free at MakeBeliefsComix!. Each comics story will also be evaluated by all students in the classroom based on the following criteria: a) humor, b) content, and c), use of graphics. Each criterion is graded using the scale 1-10. The final mission consists in the development of a Dialog Guide which is a multimedia presentation via Lino: a digital and cooperative bulletin board. - EdTech.gr proposed by the children as a means of communication with emphasis on rational arguments and active listening.

The designed missions are of increasing difficulty, each with the respective immediate feedback and rewards. The results are summarized in a leaderboard in the form of a bar graph where the final score of each group is shown. Upon the successful completion of each mission, a special badge is awarded. The badges are designed as to strengthen the motivation of each student and their engagement in the learning process. For example, for the first digital mission of the third phase, the badge is the icon of a star which reads: 'You are awesome game creators!'. The badge for the second mission is a pen icon carrying the comment: 'To the team of the most fantastic comic writers!'. Finally, the third mission leads to the big award of the icon of Socrates himself with the comment: 'Well done! You made it!'. The scenario concludes with an individual questionnaire with short answers for the teacher to receive feedback on the content for future fine tuning and improvement. Upon completing the questionnaire online, each student receives the digital "Diploma of Cooperation and Participation". It is also possible to extend the editing of the diploma during a meeting in the classroom, where all students discuss the role of rewards and get to draw their own badges.

## 3.2. The gamified content

In this section we present the Moodle gamification plugins (Mele, Tatsiopoulou, Ktena, 2020) that are used to support the scenario presented in the previous section. More specifically, we briefly discuss the learning maps, the progress bar, quizzes, the leaderboard, badges, and awards.

The learning map is used to improve the visualization of the succession or course of activities inside the gamified course. Activities are presented as locations on the map, using colored dots, which relate to paths. The user must complete a given activity to move on to the next location. Every time an activity is completed, the corresponding location changes its color (e.g., from red to green) and the relevant paths and locations are gradually revealed. It is possible to have more than one map in the same game, e.g., smaller maps may be embedded in a mega-map where each bullet represents the completion of all activities contained in one of the smaller maps. In Socrates game presented here, the map features at least 5 locations: About Socrates (video in asynchronous mode), Digital Game, Comic Story, Dialog Guide, Questionnaire.

The progress bar is a simpler way to present the progress of the course. It offers immediate feedback to the students about what they have accomplished and what they must accomplish to reach the next location.

The video, which is to be watched in asynchronous mode, is compatible with the Sharable Content Object Reference Model (*SCORM*) module which enables interoperability, accessibility, and reusability of web-based learning content. By using this plugin, after a student has completed viewing the video, the activity will be set as completed and the student will be able to move to the next location. The presentation may be accompanied with quizzes through which the students receive extra points. This is easily accomplished via the H5P Moodle plugin which provides a variety of quiz types such as multiple-choice questions, drag and drop, true or false, memory games, flashcards et al.

The second phase takes place in the classroom. We have not designed any digital or gamified content for this phase; however, the previous plugins may be used to revamp it so that it may be offered online if needed.

In the third phase, students work in groups. They first must decide on their own avatar/group banner and carry out all activities-challenges online through Moodle. The plugins used in this phase vary from badges, levels and leaderboards to quizzes, sticker boards and interactive content.

Where specific applications, external to Moodle, are used, as in the case of the digital game or the comic story, each group carries out the activity via the respective application. The output is then exported and integrated into Moodle. The output of each group will be visible to all through the platform.

The poll with a scale 1-10 is also implemented via Moodle. The results are visualized using the leaderboard plugin to depict the relative position of a group with respect to others. They are considered as an effective way to motivate students since it appeals to both their emotional and social areas.

The final group mission is the Dialogue guide which may be supported by the Board plugin.

Each mission completed by a group grants level points as well as badges. Badges reflect the level of expertise attained or the type of mission accomplished. They are designed to motivate and engage the group towards achieving certain objectives and to provide feedback and social recognition.

The scenario will be implemented during the following academic year in classroom and the results will be reported in our future works (here we may note the delay in the implementation of the project in the classroom, because of the covid-19 pandemic).

## 4. Conclusion

The gamification approach has been employed to develop a teaching module for introducing students of 10-12 years old to the life and work of such an exemplary philosopher, as Socrates. The scenario is designed based on a social constructivist approach aiming at the active participation of students and the playful promotion of knowledge. The proposed approach allows children to communicate authentically with each other, co-create the content of the work plan and increase their commitment to the learning process, gradually enriching their knowledge in an environment of challenges and escalating trials. The proposed module will be offered to students and evaluated regarding its efficacy on making lessons more attractive to students while at the same time cultivating their social skills. In future works, we shall also assess whether the cultivation of students' digital literacy in combination with/involving artistic expression (e.g., dramatization of Socrates figure) might strengthen internal learning motivations in children.

### *References*


Anagnostou, M. (2021a). Socrates … a model philosopher and teacher. (in Greek) Retrieved 10/05/2022, from Photodentro-ugc: Σωκράτης...ένας μεγάλος φιλόσοφος και δάσκαλος

Anagnostou, M. (2021b). Philosophy for children: The gang who charmed arrogant friendship. (in Greek) *7th International Conference for the Advancement of Innovation in Education*, Larissa 15-17 October 2021. Retrieved 30/03/2022, from http://synedrio.eepek.gr

Bishop, J., & Verleger, M. A. (2013). *The Flipped Classroom: A Survey of the Research* Paper presented at 2013 ASEE Annual Conference & Exposition, Atlanta, Georgia. 10.18260/1-2—22585. Retrieved 2/05/2022, from ASEE PEER - The Flipped Classroom: A Survey of the Research

Carr D., Taylor H., Hunt R., Mejia T. (2014). *Gamification and adult literacy*, Report of Literacy Link South Central's Job Creation Partnership Project.

Deumert, A. (2014). *Sociolinguistics and Mobile Communic*ation. Edinburgh: Edinburgh University Press.

Domínguez A, Saenz-de-Navarrete J, de-Marcos L, Fernández-Sanz L, Pagés C, Martínez-Herráiz JJ. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers & Education* 63, 380–392.

Kapp, k. (2014). *Separating fact from fiction*, Chief Learning Officer, Vol. 13 Issue 3, p.p 45-52. 5p. Retrieved 10/05/2022, from Educator Resources (nheducatorresources.com)

Keller, J. M. (1987). Development and use of the ARCS model of instructional design. *Journal of instructional development*, 10(3), 2-10. Retrieved 5/04/2022, from Development and use of the ARCS model of instructional design (tudelft.nl)

E. Mele, A. Tatsiopoulou and A. Ktena, "Gamifying E-learning Course Content," 2020 9th Mediterranean Conference on Embedded Computing (MECO), Budva, Montenegro, 2020, pp. 1-4, doi: 10.1109/MECO49872.2020.9134195.

Lazou, A.- Patios, G. (eds.) (2017). *Art, Philosophy, Therapy*, Vs. A & B (in Greek), Arnaoutis Books, Athens.

Lee, J.J., Hammer, J. (2011). Gamification in Education: What, How, Why Bother? Definitions and Uses. *Exchange Organizational Behavior Teaching Journal*, 15(2), 1-5.

McCombs B, Vakili D. (2005). A Learner-Centered Framework for E-Learning. *Teachers College Record* 107 (8) 1582-1600.

McCulloch, Gr. (2019). BECAUSE INTERNET: Understanding the New Rules of Language. NY Times, August 2019. https://www.nytimes.com/2019/08/16/books/review/because-internet-gretchen-mcculloch.html

Mohr DC, Schueller SM, Montague E, Burns MN, and Rashidi P. (2014). The Behavioral Intervention Technology Model: An Integrated Conceptual and Technological Framework for eHealth and mHealth Interventions, *J Med Internet Res.* 16(6): e146.

Rao, V. (2013). Challenges of Implementing Gamification for Behavior Change: Lessons Learned from the Design of Blues Buddies. *Chi*, 5–8.

Vygotsky, L. (2000). *Mind in society*. USA: Harvard University Press.

Vygotsky, L. (2004). Imagination and Creativity in Childhood, *Journal of Russian and East European Psychology*, vol. 42, no. 1, pp. 7-97. Retrieved 2/05/2022, from 01vygotsky-imagination.p65 (ucsd.edu)