

Aristotle, Comenius, Dewey, Plato and Pokémon GO: Walking with Location-based Games in the Footsteps of Didactic Giants

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Abstract. The rapid development of digital technologies has the potential to revitalise contemporary education. Location-based games built on satellite-based navigation system technologies in smartphones is a new technology that truly opens up new forms to orchestrate didactic ideas that can unlock the classroom constraint in traditional education. This study aims to describe and discuss the orchestration of concepts from the history of didactics in location-based games settings. Building on Aristotle, Comenius, Dewey and Plato, it combines the ancient idea of learning by walking with the ideas of flipped classrooms, game-based learning, and learning by interplay with the surrounding society.

Keywords: Aristotle, Comenius, Dewey, Didactic, Game-based Learning, Location-Based Games, Plato, Pokémon GO.

1 Introduction

In the 21st century, we have witnessed a rapid development of information and communication technologies that have the potential to revitalise contemporary education. However, to support learning goals and high-quality outcomes technological novelty needs curriculum alignment. Location-based games (LBGs) built on satellite-based navigation system technologies in smartphones is a new technology that truly opens up new forms to orchestrate didactic ideas that can unlock the classroom constraint in traditional education [1, 2].

An emerging trend in research since the pioneer works by Malone [3] and Lepper [4] is Game-based learning (GBL). A concept that has shown positive results in a wide range of educational settings [5, 6]. However, GBL should not be seen as an isolated concept that always brings success on its own, but rather to be combined with various

other didactic methods [7]. What seems like a promising extension of GBL is to involve a social perspective to support learning as a social practice based on dialogue [8].

However, the idea of using GBL to support learning as a social practice based on dialogue has a long tradition that goes way back in the history of didactics [9, 10]. The main aim of this study is to describe and discuss how some concepts from the history of didactics might be orchestrated with the use of location-based games. Furthermore, this paper has investigated how features in different location-based games could be aligned to curricula aligned teaching and learning activities.

1.1 The Ancient Idea of Learning by Walking

The combination of physical activities and play-based learning was a frequently used didactic idea already in ancient Greece. A well-known example is the peripatetic sessions that were led by Aristotle and Plato in the Lyceum of Athens. 'Peripatetic' is a term that in this century has been defined as "walking about place to place, traveling on foot" [11]. Today in the 21st century, the concept of peripatetic education has got a renaissance, with the ancient Greek idea that body movement can stimulate thought processes [12]. As pointed out by Gros [13], several great philosophers as Kant and Thoreau were inspired by regular walks, a concept that was taken to the extreme by Nietzsche [14] who claimed that "*It is only ideas gained from walking that have any worth*".

In the ancient world Greeks, as well as Romans, were both keen on competition and games. An important part of these ancient cultures was the wide variety of different game types, and not only gladiatorial combats and the Olympic games [15, 16]. The view on games in ancient Greece was that games should be used to relax from the more disciplined school work. In *Politics* (1337b-1338a), Aristotle presented the concept of *paidia* (play) as a recommended form of relaxation or rest from school studies. Aristotle seems to see the value of playing as instrumental: children should be encouraged to play, because it is healthy, and that it also can improve the study results. However, Aristotle separates play from serious study.

On the other hand, Plato suggested in his *Laws* (643B-C), a more constructive role for play and the use of games in educational settings. The educators in ancient Greece never spoke of game-based learning and the term was first used in the late 20th century. However, the ancient ideas have in several aspects influenced modern educators and game-based learning research. One example is that Malone's [3] seminal article 'Towards a theory of intrinsically motivating instruction', begins with a quote from Plato's *Republic*: "No compulsory learning can remain in the soul ... In teaching children, train them by a kind of game, and you will be able to see more clearly the natural bent of each" [3, 17].

1.2 Comenius Game-based and Flipped Classroom

The Czech philosopher and educationalist Jan Amos Komenský, more known as John Amos Comenius, are sometimes regarded as the founder of modern didactics. As early as in the 17th century he emphasised the concept of learning by doing and advocated

the today still controversial “art of turning all our schools into games” [9]. Another still modern Comenian idea is the one of flipping the classroom, a concept that he outlined as a four-hour school day, with two hours in the morning and two hours in the afternoon. He recommended that the time in between should be spent on preparation, play and exploring the surrounding nature. Comenius posited play as an important didactic strategy since play is an imitation of life itself. Furthermore, Comenius wished games/play and learning to be integrated into his ‘Scola Ludus’, a truly game-based arrangement, to create “a school in which the serious and the fun are mixed” [9, 18].

Compared to educators in the ancient era, Comenius outlined a more systematic theory of education, in which he presented play (*ludus*) and the use of games to be an optimum form of learning. A fundamental idea in his Scola Ludus was to make all forms of learning into play, and “to make all schools into games” [9]. Comenius was revolutionary in the sense that he suggested a total integration of play and games in the learning process, and his vision of that the fun and the serious should walk hand in hand. Furthermore, he argued that all students should take the role of participators, and not lazy bystanders, with the support of games to activate students. Comenius, like the ancient Greek educators, pointed out the importance of that playing and gaming should be based on free will, in a strive to combine the pleasant and the useful. His recommendation was to offer variation, to suit students with different forms of talent [9].

1.3 Learning by Interplay with the Surrounding Society

Like the Greeks, John Dewey emphasized that the child’s inherent will to move should not be hampered. He claimed that the body supports the development of the mind. To reach the full potential of each individual, the human the body should not be separated from the mind. Therefore, education should foster both the body and the mind. Such educational philosophy also emphasizes the hybrid character of the relationship between education and the surrounding society. The inseparable relationship between body, mind and society include play as an aspect of education that enables moral and intellectual development. Dewey emphasized play has the capacity to foster social skills and explore issues that otherwise is hard to achieve [19].

As pointed out by Shaw [20], the ideas by Dewey might be one of the most significant influences on developmental education during the last century. Dewey’s new ways of establishing more active learning emphasized that interplay with the surrounding society should begin in the early grades of the educational system [20]. Around a century ago Dewey [21], questioned the idea of education with a sole focus on classroom studies with the advice to “direct the child’s activities, giving them exercise along certain lines”. As expressed by a contemporary Dewey interpreter, this could be part of the strive to acquaint learners with the past “in such a way that the acquaintance is a potent agent in appreciation of the living present and future for the learner” [22].

2 Location-based Games and Pokémon GO

The implementation of satellite-based navigation system technologies in smartphones has opened up for the creation of location-based games (LBGs). Many LBGs are built around the idea of mapping real-world settings to a virtual game world where players are engaged in adventures stretching across both these worlds. Like in the well-known game ‘Ingress’ interplay between the real-world and the virtual mainly occur at points of interest (POIs). Navigation between POIs in the gameplay often involves the use of physical or digital maps [23]. The LBG category is an emerging field that today contains a wide variety of applications from exergames and augmented-reality games such as ‘Zombie Run’ [24] or ‘Harry Potter: Wizards Unite’ [25] to LBGs tailored for particular educational purpose like ‘Frequency 1550’ [26].

The by far most well-known LBG is ‘Pokémon GO’, which has been classified both as an exergame and as an augmented-reality game. There were several other well-designed LBGs before the release of Pokémon Go in June 2016, but Pokémon GO was the first global success in the genre, with over 100 million users within a few weeks after its release [27]. Pokémon GO is a typical LBG built around the combination of realistic real-world maps and a pure fantasy world. In the game, players should collect Pokémon monsters from the Japanese collectable card game from the 1980s. In Pokémon GO, these virtual monsters pop up on the smartphone screen possible to capture by throwing virtual balls. The gameplay also involves visiting real-world POIs capturing monsters and collecting game points [28].

3 Findings and discussion

Findings from the literature show several examples of how teaching and learning activities preferably can be situated in an augmented reality setting outside the traditional school premises. The first and most obvious application of learning on the move is to use mobile games to explore interesting geographical settings. This has been tested in urban settings both in a mobile game without geolocalisation to discover contemporary Paris [29], and with geolocalisation to explore medieval Amsterdam [26]. For the exploration of more rural settings, the Swedish game ‘Turf’ could be an interesting alternative [30]. Such interplay with the surroundings would with a high probability have been accoladed by both Comenius and Dewey.

Turf could, like its more well-known siblings Ingress, Pokémon GO, and Harry Potter: Wizards Unite, also be used as an exergame to fulfil the ancient Greek idea of walking and playing for relaxation and recreation. Before the appearance of exergames, most digital games were associated with a sedentary lifestyle and a risk of developing obesity. In a recent study by Laato et al. [25], playing Harry Potter: Wizards Unite had a positive impact both on both the physical and the social well-being. If Plato and Aristotle had lived today, they would probably not embrace the philosophy around the zombie renaissance in popular culture [31], but maybe that they could appreciate the relaxing outcomes of discovering new worlds with the exergame ‘Zombies, run!’ [32].

Back to the most serious challenge of curriculum-aligned learning and teaching activities, there are some interesting examples. Like most other types of games, LBGs seem to be easy to involve in language learning [33], and that the augmented reality dimension can offer unique affordances to teaching and learning in language education [34, 35]. Another way of using LBGs in more formal education could be in Computer Science, with the congenial idea of illustrating the Geographic Information System concept that all LBGs are based on [36]. Authors' own positive experiences are on how Pokémon GO could be a vital part of curriculum-aligned outdoor activities in Social Science and Mathematics [37]. Furthermore, Pokémon GO has also been tested for more informal learning activities in the subjects of Biology, Geography and Mathematics [38]. Finally, to return to where we began, the idea with the peripatetic sessions in ancient Greece: the exergame aspect of LBGs could preferably be used in physical education [39].

4 Conclusion

Findings show that several classic concepts from the history of didactics preferably can be orchestrated with the use of LBGs. Firstly, the ancient Greek idea of using play-based walks for relaxation and to stimulate education was confirmed. Secondly, Comenius's more serious Renaissance view on games as educational games seems also realistic, and that both tailored LBGs and leisure games such as Pokémon GO could be used for curricula aligned activities and to facilitate the idea of a flipped classroom. Thirdly, the Comenian and Deweyan idea of learning by interplay with the surrounding society could be orchestrated with the help of the LBG built-in points of interest. Finally, authors believe that outdoor sessions with location-based gaming could be a way to fulfil Dewey's vision that "imaginative use of new technology may bring the ideal closer to our grasp" [21].

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