Educational Live-Action Role-Playing Games in Adult Education: Constituents and Perspectives

Abstract: The primary purpose of this study is to investigate the perceptions of adult trainers in Greece about educational live-action role-playing games (edu-larps) and their utilization as a teaching method. More specifically, it is an attempt to determine the trainers' attitude in association with the cultivation of basic skills in adult education (interdisciplinarity, collaboration, critical thinking, and inquiry-based learning) while using this method. The study also examines whether there is a connection between the trainers' perceptions towards edu-larps and their demographics. The ultimate goal for the study is to act as an introduction for this particular educational community to an innovative teaching method and to set the ground for further research that will broaden the pedagogical field.

The results show that the concepts described above are an integral part of edu-larps, specifically the advancement of critical thinking and the innate interdisciplinary aspect of this teaching method. Additionally, there seems to be a statistically significant correlation between the level of specialized training in adult education and the utilization of edu-larps on behalf of the educators.

Keywords: edu-larps, creative thinking, innovative teaching methods, role-playing games, inquiry-based learning, adult learning

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INTRODUCTION

Education has evolved significantly over the years, and experienced a remarkable increase in both participation and achievement. By cultivating the knowledge, skills, attitudes and values essential for societal functioning, education molds our world. It fosters social unity and equips individuals to be effective employees and engaged citizens (OECD 2022). The very essence of education itself has changed since it does not aim at the accumulation of facts but has adopted a more supportive role, addressing the student/learner under a more holistic, humanitarian view (Prager and Jeinz 2019, 5-6). Talmage et al. (2018), claim that one of the main goals of education is the insurance of a set of learning skills and abilities that will enable learners to be independent and efficient individuals who live in a constantly changing, uncertain world (114-15). Today, more than ever, education should have in mind the progress and well-being of society on a global scale. Climate change, pandemic outbreaks, the rapid rise of artificial intelligence, and the ever present threat of another world war, mark education (and even more, adult education) as an essential asset for a better future (OECD 2022).

A decisive step towards this future, according to Kaplan (2019), is the cultivation and enhancement of social skills, such as effective communication, empathy and creativity (141). Moreover, Erdem (2019) claims that despite all the recent technological advancements and their implementation in almost every aspect of our daily lives, indispensable skills for the active citizen of the 21st century do not belong exclusively in the digital world but are intertemporal concepts like curiosity, imagination, collaboration and adaptability, as well as various metacognitive abilities and the aforementioned social skills (5-6). Most of these skills are included by the World Economic Forum on the list of the fifteen most valued work-related abilities for 2025 (WEF 2020,

36). The correlation between the applicable educational system and labour market absorption is a troubling affair that has been plaguing researchers from both academic fields for many years now. Burner (2018), in particular, referring to the necessary steps towards a more meaningful and manifold education, states that... "...what is required are unique talents, skills and knowledge, the ability to adapt to changes and creativity, – and of course educational change that aims to cultivate this diversity and encourage students to pursue their strengths" (125). A modern teaching method that can encourage all these skills and abilities without falling short of knowledge accumulation is educational live-action role-playing games (edu-larps) (Bowman and Standiford 2015).

This research can be considered a first attempt at interpreting the complex relations between the various innate characteristics of edu-larps and the perceived attitude towards this teaching method on behalf of adult educators in Greece. Although edu-larps are gradually being used more frequently, particularly in Europe and America, there seems to be a gap in current bibliography about their implementation in adult education, as well as the perception of educators towards their values as an educational tool.

2. THE HISTORY OF EDU-LARP

Live-action role-playing games (larps) represent an evolution of traditional role-playing games (RPGs). In RPGs, players assume the roles of imaginary characters and collaboratively create narratives through imagination. Montola (2009) describes RPGs not as competitive games but as "an interactive process in which a group of people redefines an imaginary world" (23). When integrated into educational contexts, larps become edu-larps, which are defined as "a learning activity in which participants act out a set of defined role behaviors or positions to acquire desired experiences" (Khan 2017, 55916). Branc (2016) expands this definition, stating, "Edu-larp is any method that uses larp as a student activity directly connected to the pedagogical goals of teaching or therapy" (37).

Edu-larps, evolving from tabletop RPGs, have been in use since the late 1990s. However, the educational application of role-playing games predates the 1974 publication of the first tabletop RPG, *Dungeons & Dragons*, which was created by Gary Gygax and Dave Arneson (Witwer 2016). The earliest recorded use of fictional scenarios with assigned student roles dates back to the 1950s-1960s. Hammer et al. (2018) note that these scenarios were utilized within the framework of Situational Language Teaching theory to practice effective communication in real-life situations. During the 1980s, the educational application of role-playing games expanded from the humanistic social sciences, which had established learning outcomes, to the natural sciences (Dorion 2009). Simultaneously, the origins of edu-larps can also be traced to Educational Drama, as it was developed in the mid-1970s, bringing to the forefront the theories of Vygotsky, Bruner, and Freire. Similarly, the beliefs of Arturo Boal, as described in the Theatre of the Oppressed, could be considered the foundations of educational live-action role-playing games (Giannouli 2021).

Torner (2022) identifies one of the earliest edu-larps as the Reacting to the Past project, created by Mark C. Barnes, a History professor at Barnard College, New York (179). Since its inception in the late 1990s, Reacting to the Past has employed numerous scenarios to reenact historical events, such as the fall of the Roman Empire and the trial of Galileo (Reacting to the Past-Barnard College 2023). Currently, edu-larps are commonly utilized in adult education, particularly within various Erasmus+ projects. Adult education refers to the practice of teaching and educating adults, often outside the traditional school and university systems. Most of these Erasmus+ projects fall under non-formal or informal learning categories, with some offering certificates via Youthpass. These scenarios enhance learners' intrinsic motivation while fostering collaboration, inclusion, and sustainability through experiential learning principles (European Commission 2022).

In recent years, interest in edu-larps has grown across all educational levels. This trend is highlighted by the BBC documentary "The Documentary Back to School: Supporting Neuro-divergent Students through

Larp" by Sarah Lynne Bowman (Bowman 2023), and the establishment of a Master's Degree Program focused on the use of analog role-playing as a tool for personal growth and social change (Uppsala University 2025). This development underscores the connection between edu-larps and Mezirow's perspective transformation theory.

3. EDU-LARP AND LEARNING THEORIES

Prager and Jeinz (2019) assert that the fundamental principle of edu-larps is rooted in the concept of experiential learning, aligning well with andragogical guidelines. Adult learners, and learners of all ages, tend to learn more effectively through active participation rather than passive reception (5-6). Lacanienta (2022) correlates the elements of a didactic edu-larp scenario with the four stages of Kolb's learning cycle, which includes: a) concrete experience, b) reflective observation, c) abstract conceptualization, and d) active experimentation. During an edu-larp, participants engage in concrete experiences by enacting predetermined roles and solving problems, leading to reflective observation of both their own and their peers' reactions. This reflection fosters abstract conceptualization and active experimentation, where participants devise strategies to progress. Critical reflection continues during the debriefing stage, where trainees discuss their experiences and insights, enhancing the experiential learning process (72).

Ertuk (2015) emphasizes that the extensive dialogue among participants at the end of an edu-larp further enriches the experiential aspect of learning by encouraging trainees to focus on how the experience has impacted them (151). Prager and Jeinz (2019) consider this debriefing stage crucial, as it allows participants to compare their thoughts and experiences, connecting newly acquired knowledge with real-world contexts (1). Other researchers (Daniau 2016; Maragliano 2019; Schmit et al. 2009) also recognize edu-larps as a teaching approach that promotes cognitive and perceptual transformation through structured conflict.

Edu-larps also align with Freire's concept of liberating education, wherein learners' actions within the gaming scenario reflect personal meanings shaped by the sociopolitical context. Kalogridi (2019) notes that this process requires advanced critical thinking and a desire for social change (118-9). Schmit et al. (2009) argue that edu-larps help participants gain a clearer understanding of their social reality and their roles within both local and global communities (92-3). The interactions and active participation of learners, combined with critical reflection during the final stage of the edu-larp, align well with Mezirow's transformative learning theory. According to Koulaouzidis (2008), edu-larps encompass all three critical aspects of this theory: a) experience, as participants engage in real-time educational scenarios; b) critical reflection, evident during debriefing; and c) communication/critical dialogue, which is integral throughout the game's construction and execution (22-26).

Kamm and Becker (2016) describe edu-larps as a "new performance art," highlighting their educational value and interdisciplinary nature due to their incorporation of theatrical elements (36). This approach aligns with Kokkos and his colleagues' (2011) proposition on the integration of art in transformative learning. The active involvement of participants in their roles marks them as active contributors to the learning process. Maragliano (2019) emphasizes the holistic nature of edu-larps, where participants utilize prior knowledge, emotions, senses, and their entire body while collaborating to analyze and synthesize information (459). This process, through critical reflection and creative application of unique skills, can lead to questioning entrenched social and political beliefs, potentially facilitating "qualitative perspective transformation" as described by Kokkos and associates (2011).

Furthermore, the constructivist nature of edu-larps fosters essential modern social skills, as teamwork is crucial for achieving collective goals (Khan 2017, 55918). Timpalexi (2011) suggests that the concept of larping aligns with Piaget's constructivist theories, where learners build on prior knowledge and gradually reconstruct it through new information acquired during the game (597). The construction of knowledge in

edu-larps parallels inquiry-based learning, a teaching method rooted in constructivism (Houghton et al. 2022, 3), reinforcing its validity as an independent variable within the theoretical framework.

4. EDU-LARP AND ADULT EDUCATION

The role of an adult educator is multifaceted and complex (Kalogridi 2019). According to Beckett's "Adult Learning: Philosophical Issues," it is crucial for teaching methods in adult education to effectively support this role, fulfilling educational goals while ensuring that the learner remains central to the learning process (115-16). A significant challenge in contemporary education is identifying methods that not only motivate learners but also facilitate changes in their attitudes and established beliefs (Burner 2018, 124). Edu-larps, as an exemplary experimental teaching method, enhance learner commitment by targeting intrinsic motivations such as personal satisfaction, a characteristic inherent in all games (Bowman and Standiford 2015, 6-7). Mochocki (2014) emphasizes that active participation in edu-larps is achieved through collaboration and healthy competition, both integral to this practice (134).

Active participation is particularly vital in edu-larps given that learning is not solely a cognitive process but involves emotional dimensions as well. The participant's body plays a crucial role since emotions and feelings are stored not only in the brain but also in nerve endings throughout the body (Meriam 2011). Torner (2022) concurs, noting that cognitive processes are intertwined with physical sensations, thereby shaping reality through sensory experiences (177). This perspective adds a holistic dimension to learning, viewing it as a dynamic process where cognitive thought, body, and emotions are interconnected. Edu-larps, as an experiential learning method with theatrical elements, leverage these factors to promote the comprehensive development of both individual and social personalities of trainees (Marini 2019).

The personal experiences that learners encounter during edu-larps enhance the acquisition of new knowledge and cultivate higher cognitive abilities valued in the modern labor market, such as problem-solving and innovative thinking (Prager and Jeinz 2019). Khan (2017), in "Role-play: a Teaching Strategy that Adds Fun in Learning," highlights the social and humanitarian aspects of edu-larps. She argues that by embodying characters different from themselves, learners can address sensitive issues from new perspectives, fostering empathy. Bowman (2014) underscores the connection between edu-larps and empathy, noting that in the Nordic countries, this method is often used to raise awareness about the effects of complex social issues such as poverty, immigration, refugee displacement, homelessness, and various forms of discrimination.

5. THEORETICAL FRAMEWORK

Adult education encompasses a wide range of learning activities, including vocational training, personal development courses, literacy programs, professional certifications, and continuing or lifelong learning. Apart from development of knowledge and skills, individuals are able to generate awareness in terms of their rights and duties, which are required to turn into effective, active citizens of the country (Kapur 2019). Today, the definition of adult education that has prevailed within the framework of the European Union is the one given by the European Commission in October 2006, which specifically states, "Adult education is defined as all forms of learning undertaken by adults after they have completed their initial education and training, no matter how long it lasted (including, that is, even tertiary education)" (European Commission 2006). Concerning the same issue, adult learners are individuals recognized as adults by legal standards—(18 years of age or older in Greece). However, it is not solely their age that should be considered; the social roles that define them are of greater significance (Kapur 2019).

More specifically, adult education in Greece is a field that is developed through various educational institutions and programs, encompassing elements of both formal education and vocational training. The

primary institutions of formal education include public Second Chance Schools, which offer adults without a secondary education diploma the opportunity to complete their basic education. In the vocational training sector, Vocational Training Institutes, which recently have been renamed as Higher Vocational Training Schools, both public and private, provide certified professional education in diverse fields, emphasizing technical and practical skills. Additionally, the Centers for Lifelong Learning, under the supervision of the Ministry of Education, coordinate general and vocational education programs for adults, expanding educational opportunities beyond traditional academic frameworks (DiaNeosis 2021). The role of the state is pivotal, as it funds and oversees most of these programs through European and national resources, with the aim of improving skills and facilitating the social inclusion of adults. Through the implementation and regulation of these programs, the state promotes the upgrading of professional and lifelong skills, particularly focusing on the needs of the labor market (Titirou 2016).

According to Branc's *Edu-Larp as a Game-Based Learning Method for Corporate Training* (2016), edu-larps encompass many characteristics that are the cornerstones of adult learning (25-6), such as the fact that they can be a tool that bridges together different teaching subjects, they are based upon the notion that participants need to work together to achieve their goals (Schmit et al. 2009), the challenges that the scenario presents to learners promote critical thinking and creativity in general (Bowman and Standiford 2015) and lastly, their whole theoretical structure promotes self-awareness, focusing on the concept that a learner needs to be independent to learn efficiently (Daniau 2016). These four notions form the backbone of this research, acting as the primary independent variables that determine the attitude (dependent variable) of adult educators about the implementation of edu-larps as a teaching method. The notions above comprise the concepts of Interdisciplinarity, Collaboration, Critical thinking and Inquiry-based learning, deeply valued conceptions that every adult educator should strive to inspire in his students (Beckett 2011; Cranton 2011).

This research draws on John Dewey's concept of education as an adaptive, socially engaged process, focusing on his call for innovative methods to align education with real-life contexts. Dewey's belief that learning should promote practical understanding, collaboration, and problem-solving provides a solid foundation for exploring how adult education can foster attitudes of critical thinking, interdisciplinary learning, and inquiry. Dewey's advocacy for "learning by doing" resonates strongly in adult education, where experiential learning and community engagement are central to meaningful, transformative experiences (Kara 2019). This approach is particularly suited to introducing edu-larps in Greece, where their use remains limited compared to other parts of the world, where their contribution to a more holistic form of education is increasingly recognized. By integrating experiential methods that foster critical thinking and collaboration, edu-larps offer an innovative approach that aligns with Dewey's ideas and addresses the needs of modern adult education in Greece, bridging learning with real-life contexts and promoting active participation and social integration.

In adult learning settings, where students often bring diverse backgrounds and practical experience, Dewey's beliefs encourage collaborative exploration of complex, interconnected ideas. His theories underline the importance of integrated curricula, where adults can benefit from interdisciplinary perspectives, developing critical insights by engaging with challenges that mimic real-world scenarios (Hung et al. 2014). This research framework uses the aforementioned four interconnected variables—interdisciplinary learning, collaboration, critical thinking and inquiry-based learning—to analyze how adult learners can enhance their capacities through educational models grounded in Dewey's progressive vision.

The notion of Attitude, as perceived in this research, matches the one described in Pandonge and Balol's "Perceptions of Certified Teachers About the Applying Scientific Approach in Teaching Process" (2021). It can be defined as the way a person can have an opinion about a particular subject, an idea that is affected, shaped and also limited by the sensory stimuli of each individual (55). Koentjaranigratm (as cited in Menali and Kuswardami 2022), in addition to the known five senses, claims that attitude and perceptions are also formed by emotions, motives, background (both educational and social), experiences and the whole mindset of each person. The corresponding items in the questionnaire examine whether adult educators in Greece have a positive attitude towards edu-larps.

Interdisciplinarity refers to a methodological approach that utilizes knowledge from different scientific fields to achieve a thorough and in-depth understanding of a specific issue (Michailidis and Zikos 2016, 16). According to Newel's "The State of the Field: Interdisciplinary Theory" (2013), this approach seems to be taking over since its ultimate purpose is the application of newfound knowledge and the subsequent improvement of our society in general. The corresponding items in the questionnaire examine whether adult educators believe that through the implementation of edu-larps two or more subjects can be taught simultaneously.

Halili et al. (2015) state that the notion of Collaboration "refers to two or more trainees that work together, helping each other in pursuance of achieving progress towards three different fields: cognitive, social and the cultivation of critical thinking" (55). In essence, it constitutes the essential link of a team-based process that enhances social constructivism, meaning the construction of knowledge through human interaction, utilizing the stating of questions, the adoption of shared goals as seen through different perspectives, all the while being in a state of constant negotiation of ideas, attitudes and beliefs (Sun and Kang 2021). The corresponding items in the questionnaire examine whether the use of edu-larps promotes collaboration among educators that implement them and among trainees that partake in educational scenarios.

Critical thinking is a rather complex notion and as thus a single definition cannot correctly express it. In this research, is effectively delineated by the words of Brookfield, as cited in Telemaque's "The Power of Critical Theory: Liberating Adult Learning and Teaching" (2011), who states that critical thinking is a thought process which is based on personal experience to attribute meaning in theoretical and abstract subjects. This process is considered the dynamic link between theory and practice (346). Moreover, Brookfield transfuses multiple dimensions in critical thinking, associating it with liberation, democracy, socialization, authority and logic. In essence, the fostering of critical thinking aims at the upskilling of a person's cognitive functions for them to realize which choice is suitable for the situation that ails them (Larsson 2017). The corresponding items in the questionnaire examine whether the implementation of edu-larps cultivates the skill of creativity/critical thinking among the trainees.

Lastly, Houghton et al. in "Truth and Reconciliation Through Inquiry-based Collaborative Learning" (2022) mention that Inquiry-based learning is about an educational "process where learners are involved in their learning, formulate questions, investigate widely and then build new understandings, meanings and knowledge" (3). It is considered a method that allows trainees to thoroughly examine a subject, promoting collaboration among themselves and also with their educator-facilitator, granting them the reins of being solely responsible for the whole learning process, according to the notion of self-regulated learning, the cornerstone of adult education (Archer-Kuhn and MacKinnon 2020; Wright 2018). The corresponding items in the questionnaire examine whether using edu-larps promotes Inquiry-based learning, enabling trainees to self-regulate their own pace in learning.

Besides these variables, this research examined whether the educators' demographics determine their perceptions. The theoretical framework that is described above is depicted graphically in the following figure (Figure 1).

6. METHODOLOGY

This study employed a quantitative research design to investigate the perceptions of adult educators in Greece regarding educational live-action role-playing games (edu-larps) as a teaching method. By utilizing a structured survey, the study aims to assess the impact of edu-larps on core skills critical to adult education, such as interdisciplinarity, collaboration, critical thinking, and inquiry-based learning. The quantitative approach was chosen to allow for statistical analysis of educators' responses, enabling robust insights into patterns and correlations between demographics and perceptions of edu-larps. This approach aligns with research on adult

learning interventions, which often leverage quantitative methods to capture current educational trends and educator attitudes (Yildirim et al. 2016; Zafiropoulos 2015).

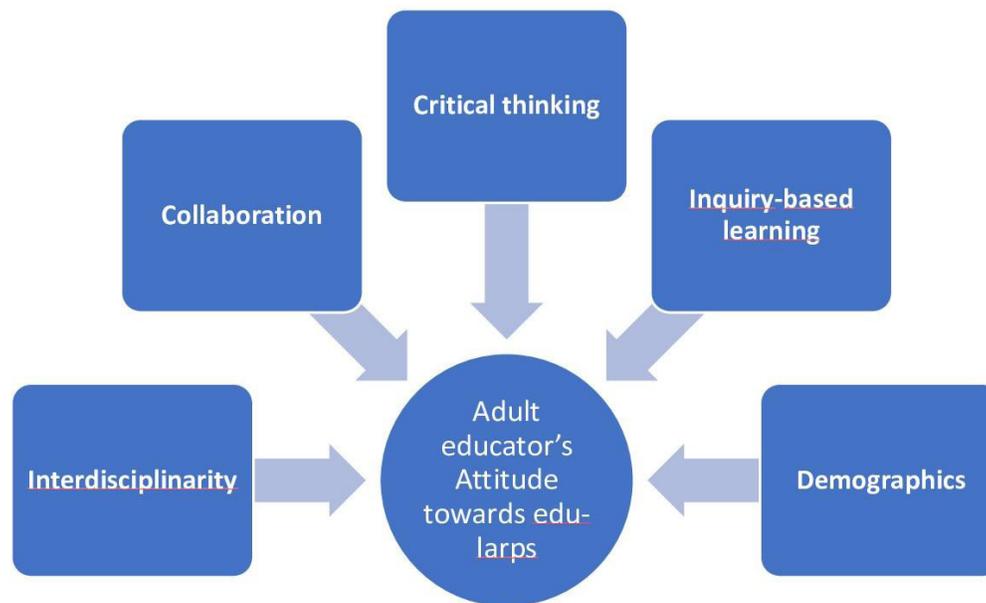**Figure 1**

Theoretical Framework

Figure 1: Theoretical framework.

The research questions guiding this study focused on the attitudes of adult educators toward the integration of edu-larps and their views on how edu-larps influence essential adult learning skills. These questions were formulated to examine not only the educators' general perceptions but also how these perceptions are shaped by factors such as prior training, years of experience, and certification level, following the example of previous surveys about attitudes (Ernawati et al. 2022). The main research questions are as follows:

1. What is the attitude of adult educators in Greece about the use of edu-larps as a teaching method?
2. Which factors affect adult educators' attitude towards using edu-larps as a teaching method?
3. To what extent do adult educators believe that edu-larps can enhance the necessary skills of adult learners?
4. To what extent do the demographics of adult educators affect the implementation of edu-larps?

Currently, there is a lack of research focusing on the perceptions of adult educators regarding the utilization of edu-larps. Moreover, there is minimal academic interest in Greece concerning the implementation of role-playing games in adult education. These factors posed significant challenges in developing a valid and reliable questionnaire. In the end, the research was conducted with a modified version of the questionnaire used by Al Basha (2018) in his research regarding teachers' perceptions and implementation of STEM Education in The United Arab Emirates. The specific research tool was chosen for two reasons: first, Al Basha studied educators' perceptions on the use of a particular educational approach, which is quite similar to methods such

as edu-larps, drawing information from numerous credible and contemporary sources. Second, the included concepts, except for Engineering and Design which was removed, are largely related to edu-larps and their application, according to numerous experts (Bowman and Standiford 2015, 8; Branc 2016, 34; Daniau 2016, 435; Geneuss et al. 2020).

The resulting questionnaire is comprised of two separate sections: the first features 32 items using a five steps Likert scale that are grouped in the five variables that were mentioned above, whereas the other is the demographics section, in accordance to Zafiropoulos' recommended format in "How to Conduct a Scientific Project: Scientific Research and Writing" (2015). The original questionnaire had one extra variable that was dropped entirely, as it was focused on Engineering and Design. Additionally, three items were dropped (one from Interdisciplinarity and two from Inquiry-based learning). Of course, some of the remaining items had to be rephrased or even slightly altered to have some meaning in matters concerning edu-larps.

In relation to the section concerning demographic characteristics of the sample, these encompassed inquiries into the gender of educators, their age, years of experience in adult education, training in principles of adult education, and certification status. The selection of these specific questions was informed by a review of recent research focusing on innovative teaching methods (Xafakos and Tzika 2022).

All the resulting modifications were based upon the observations and suggestions of a 3-member focus group that served as a small-scale pilot survey, and were completed after vast conversations. One member of this group was an academic, a seasoned researcher of a public institute with extensive knowledge about edu-larps; another was the founding member of Gamecraft, a company that first utilized larping in educational context in Greek museums and an academic, and the last one was an experienced trainer of adult educators. Each of them has at least five years of working experience in Second Chance Schools and/or Vocational Training Institutes. The composition of the focus group was purposely made in this, having an expert in each of three relevant fields: research, edu-larps and adult education. The final version of the questionnaire was translated into Greek and afterwards back to English, with the help of a native English speaker (back translation).

7. RESULTS

Research was conducted using convenience sampling via an on-line questionnaire that was distributed with Google forms from the 20th of May to the 4th of July 2023. The link for this questionnaire was sent to all the Second Chance Schools in Greece, that is the entirety of educational institutions that belong to formal adult education, three Vocational Training Institutes (the only ones that formally accepted the request for participating in the research) and Facebook groups of adult educators/trainers. Ohei and Chukwuere (2022) come to the conclusion that all social media platforms, including Facebook, can be a valid academic ground for quantitative research. Conducting research in this manner presents multiple advantages, particularly concerning cost, duration, and the ease with which statistical data is collected and coded. Simultaneously, the ubiquity of Facebook offers unique opportunities for eliminating geographical distances, thereby facilitating the creation of a sample that is not constrained by specific local cultures or particularities (Baker 2013). The questionnaire was accompanied by a cover letter that briefly explained what edu-larps are and introduced the research conductor (see Index). Second Chance Schools are educational institutes for adults aged 18 and older who have not completed the mandatory nine years of education. Currently in Greece there are about eighty Second Chance Schools operating. These institutes are considered part of the formal educational system in Greece, since their graduates receive a high school diploma (Vocational Institute of Greece 2021). Regarding the Facebook groups, the survey was distributed to two specific groups: one with a primary focus on adult education in general, boasting six thousand members and the other specifically created for educators working in Second Chance Schools or Vocational Training Institutes, totaling four thousand members. It must be clarified that there is significant overlap between the two groups' memberships. The approach used here is what

Macrì and Tessitore (2011) refer to as a massive contact approach, which is an appropriate choice for targeting a specific sampling group—in this case, adult educators.

All the stages of this process were in perfect accordance with the General Data Protection Regulation 2016/679, having acquired the relevant license from the General Secretariat of Vocational Education, Training and Lifelong Learning. The quantitative results were extracted using inferential statistics and factor analysis, applying Jamovi version 2.3.18 (Fox and Weisberg 2020; R Core Team 2021; Revelle 2019; The Jamovi project 2021). The sample was formed by 113 adult educators in total. This number means that the response rate was rather low but since the sample exceeds the minimum requirement of 100 for the statistical analysis that followed, the results that arose can be considered valid. The mean age of the sample was 42 years old. More than 70% of the sample has working experience in adult education for 1-10 years, and more than half (55%) have at least a seminar certification in adult education. Most of the adult educators who answered the questionnaire worked for a Vocational Training Institute or a Second Chance School, while a few took part in Erasmus+ programs. Nearly 70% of the sample consists of certified adult educators, which means they are recognized by the Greek Ministry of Education as possessing the necessary qualifications and pedagogical competence to teach adult learners. This particular certification is an asset for adult educators but is not considered a prerequisite for teaching.

Regarding the reliability of the questionnaire, it was proven to be relatively high. More specifically, the individual Cronbach's alpha of the five variables was between 0.934 (Critical thinking) and 0.841 (Collaboration). The overall Cronbach's alpha was even higher, scoring 0.949. The validity, convergent-divergent, was checked via Cross loading, and was proved acceptable. Further tests provided a KMO: 0.875 and Barlett's test of sphericity scored a 2169 (df= 435, p<0.001), meaning that the factor analysis used was a reasonable choice, once again taking into consideration the size of the sample. Overall, the perception/attitude of adult educators toward edu-larps is a positive one. The same is true about the notion that edu-larps can indeed enhance the various skills that are related to adult education. The means and standard deviation of these answers are shown in Table 1.

Table 1: Descriptives.

	Attitude	Interdisciplinarity	Collaboration	Critical thinking	Inquiry-based learning
Mean	4.04	3.90	3.55	4.06	3.91
Standard deviation	0.694	0.667	0.698	0.651	0.710

For this research, it was considered highly important that the way adult educators perceived edu-larps, their attitude towards this teaching method, and their correspondent relation with the four variables that comprise a vital part of the essence of andragogy and adult education. Table 2 depicts the correlation between the five variables, using Pearson's correlation coefficient (Pearson's r).

These results indicate statistically significant robust and positive correlation between all variables, except for Collaboration, which although statistically significant, can be considered moderate, positive. The four independent variables explain how the sample understands edu-larps and explains its attitude towards them. This fact led to a deeper level of analysis, to conclude to the exact extent of this connection. This was done with the R^2 test. The results are depicted in Table 3.

Table 2: Correlation matrix.

	Attitude
Attitude	—
Interdisciplinarity	0.722***
Collaboration	0.419***
Critical thinking	0.758***
Inquiry-based learning	0.710***

Table 3: R^2 Linear Regression.

R²=0.601	**B**	**t**	**p**
Interdisciplinarity	0.2733	3.030	0.003
Collaboration	-0.0406	-0.516	0.607
Critical thinking	0.5161	4.336	<.001
Inquiry-based learning	0.0872	0.800	0.426

Critical thinking and Interdisciplinarity have a linear influence on the Attitude of adult educators towards using edu-larps.

In order to assess the correctness and validity of the investigation into the correlation of variables through Linear Regression R^2 and to avoid the phenomenon of multicollinearity, the technique of Variance Inflation Factor (VIF) was used. The results are presented in Table 4.

It is observed that in the Collinearity Statistics, the values of the Variance Inflation Factor (VIF) are below 5, and the values of the Tolerance index are above 0.2. Therefore, there are no multicollinearity issues. It should be noted that also in this analysis, particular emphasis is placed on the concepts of Interdisciplinarity and Critical Thinking, underscoring the assertion that these variables exhibit a robust association with the overall stance of the sample regarding the integration of edu-larps in adult education.

As for demographics, there is no statistically significant differentiation in the teachers' perception regarding their demographics regarding sex, age, working experience and certification in adult education. There was a statistically significant differentiation in the answers that consisted of the variable of Collaboration (and only this variable) regarding the level of further education in adult education (seminar, bachelor degree, master or PhD). Those teachers who had a higher level think that edu-larps promote collaboration more. This differentiation was a result of the ANOVA test.

Table 4: Variance Inflation Factor (VIF).

Model Fit Measures						
Overall Model Test						
Model	**R**	**R²**	**F**	**df1**	**df2**	**p**
1	0.775	0.601	34.3	4	91	<.001

Model Coefficients - Attitude

Predictor	Estimate	SE	t	p	Stand. Estimate
Interdisciplinarity	0.2794	0.0922	3.030	0.003	0.2733
Collaboration	-0.0366	0.0710	-0.516	0.607	-0.0406
Critical thinking	0.5206	0.1201	4.336	<.001	0.5161
Inquiry-based learning	0.0871	0.1088	0.800	0.426	0.0872

Collinearity Statistics

	VIF	Tolerance
Interdisciplinarity	1.86	0.539
Collaboration	1.41	0.707
Critical thinking	3.23	0.309
Inquiry-based learning	2.71	0.370

8. DISCUSSION

Based on the survey results, the perspectives of the sample regarding the use of educational live-action role-playing games (edu-larps) as a teaching method are quite positive. Educators recognize that the nature and characteristics of edu-larps align well with the principles of adult education, and can be used for cultivating valuable skills and abilities that are fundamental to its philosophical core, as stated by Beckett in "Adult Learning: Philosophical Issues" (2011). This alignment is important for both educators and organizations overseeing adult education institutes, as these skills are essential for the modern, active citizen of the 21st century (Osuafor and Samuel 2015).

One significant factor that influences the usage of edu-larps is the interdisciplinary potential of edu-larps, which can adapt to any teaching subject or multiple subjects simultaneously, a versatility often lacking in traditional teaching methods (Beckett 2011). The constructivist nature of edu-larps appears to be one of the key advantages of this method, providing educators who utilize them with a valuable teaching tool. As von Glasersfeld aptly notes (as cited in Chalkia 2020), "knowledge is viable within the domain of the subject's experiences." Additionally, the findings suggest that educators' perspectives on the encouragement of collaboration are influenced by their level of further education in adult education. More informed educators are more likely to adopt innovative teaching methods, recognizing the multifaceted role they need to embrace to better address their trainees' needs (Lacanienta 2022). Furthermore, the concept of critical thinking and its cultivation is identified as the most pivotal factor affecting the implementation and efficacy of edu-larps in pedagogical practices, as reported by the instructors in the sample. The statistical analysis reveals a substantial correlation between critical thinking and the overall disposition of the sample, a discovery that merits further scholarly examination.

The sample also believes that edu-larps can significantly enhance the necessary skills of adult learners, particularly critical thinking and inquiry-based learning. Critical thinking, which tends to diminish in adults, is integral to edu-larps, making its cultivation through this method vital (Bowman 2014). Furthermore, the constructivist nature of edu-larps allows trainees to independently reach new knowledge and gives it personal meaning, thereby promoting inquiry-based learning (Khan 2017). Overall, the sample indicates that edu-larps

represent a method capable of effectively developing all the essential skills of adult learners, as defined in this study. The concepts of critical thinking and interdisciplinarity emerge as predominant factors, significantly influencing the overall attitudes of the instructors who participated in the research.

The demographics of the sample seem to play a minor role in the implementation of edu-larps. That is something that is already stated in other researches that focus on innovative teaching methods (Thurlins et al. 2015). Educators who stay updated with modern methods and possess a holistic understanding of education are more likely to implement edu-larps effectively. This approach enriches both the role of educators and the overall experience of trainees, addressing their cognitive, social, and emotional needs (Schmit et al. 2009; von Glasersfeld cited in Chalkia 2020).

9. LIMITATIONS

While the research successfully addressed its primary questions, several factors limit the extent to which these findings can be generalized. First, it is essential to highlight that this study represents an initial, exploratory investigation into adult educators' perspectives on an educational method still relatively unknown in Greece. This exploratory nature inherently raises questions about the broader applicability of the findings—a topic to be further examined in the following sections. Notably, one of the main constraints is the relatively small sample size (n=113). Although this number was adequate for conducting statistical analyses, it is not ideally representative of the larger population of adult educators in Greece, which limits the ability to claim uniformity in responses.

Additionally, the limited interest from non-formal educational institutes, likely due to the study's overlap with the end of the academic year, restricted participation from a broader range of adult educators. Many Vocational Institutes, in particular, could not engage due to their examination schedules, which prevented them from dedicating the time needed to complete the survey. Further, a lack of familiarity with the specific definition of edu-larps may have contributed to some educators' hesitance to participate or complete the questionnaire.

Another potential source of bias may stem from adult educators' limited experience with implementing edu-larps in Greece. This unfamiliarity could influence their responses and, consequently, the overall results of the survey. Responses might also vary based on each institution's infrastructure and technical capabilities, as well as the extent to which the subject curriculum aligns with the unique aspects of edu-larp methodology. Lastly, there remains the possibility that participants may not have fully understood the concept of edu-larps during the quantitative phase. Documenting participants' emails for follow-up interviews could have helped clarify any misunderstandings, providing additional insight into their perspectives

10. CONCLUSION

In conclusion, edu-larp seems to hold significant potential to benefit adult education, which has been stagnant for decades, especially in Greece. One of the European Commission's targets for member states' education policies by 2020 was to achieve a participation rate of at least 15% in adult education and training. In Greece, however, this rate stands at approximately 10.8%, indicating that adult education is not prioritized by national policy (European Commission 2020). Furthermore, a recent article from a reputable national newspaper notes that the corresponding rate for 2022 has dropped to 4% (Liakos 2023). Finally, a longitudinal study comparing adult participation in education and training programs in 2011, 2016, and 2022 reveals a general decline, with the exception of unemployed individuals (Hellenic Statistical Authority 2023). These programs, however, are funded by European funds, providing participants with financial compensation upon successful completion. Overall, although there is an intention for restructuring supported by the National Recovery and Resilience Plan, the results remain limited. The new legislative and administrative initiatives aimed at improv-

ing vocational training, evaluation, and the quality of education have not been sufficiently tested in practice, while some key issues, such as maintaining quality standards and enhancing business involvement, remain unresolved. Additionally, there are valuable practices and expertise from the past that can be utilized; however, further expansion and clarification of the existing regulations are required (DiaNeosis 2021).

The positive reception of edu-larps by the research sample indicates a strong potential for their wider implementation. Specifically, the emerging relationship between educators' perspectives and their overall attitude towards fostering creative thinking is a finding that warrants thorough investigation. In recent years, critical thinking and creativity have become central skills for educational personnel at all levels, and rightly so. As noted by Saad et al. (2021), it is imperative for trainees to be equipped with the ability to think in diverse and innovative ways to successfully navigate rapidly changing work environments and compete effectively in the global economy. Future research should explore the implementation of edu-larps in diverse educational settings and investigate their long-term effects on learners' skills and attitudes. This should also include specific scenarios that will be used in different test groups, in order to measure the trainees' reactions and perceptions. Since there is little to no research in Greece about edu-larps that focuses on adult learners, it is vital to examine the learning outcomes of this method and their resilience in time. It is necessary to investigate whether the edu-larp methodology can enable adult learners to achieve high scores in subject matter tests, as Mochocki claims that is the case for high school students who have participated in relevant quantitative researches in "Larping the Past: Research Report on High-School Edu-Larp." (2014). Additionally, more comprehensive studies could provide a deeper understanding of how edu-larps can be better integrated into existing curricula, ensuring that both educators and learners benefit from this innovative teaching method. This is something that would also be benefited via interviews and in-depth conversations with educators that frequently employ edu-larps in their teaching.

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APPENDIX A: Questionnaire

Dear Colleague,

The following questionnaire was created as part of my thesis for the Master's Program in adult education at the University of Macedonia. It contains several statements regarding the integration of educational live-action role-playing games (edu-larps) in adult education. Edu-larps are an evolution of traditional role-playing games, widely used as a teaching technique, where all learners adopt either pre-planned or improvised roles and interact with each other, attempting to complete an educational scenario. Educators assume the role of facilitators, encouraging learners to successfully meet the objectives, which often take the form of puzzles, riddles, etc. Most often, this facilitation occurs within a theatrical interaction, in which the educator also participates. The primary difference between live-action and traditional role-playing games is that, in the former, the entire class—educators and learners alike—participates collectively and simultaneously, with no one taking on a "passive" observer role. Additionally, in some cases, participants in edu-larps may use various props or even wear specific costumes, though this is not mandatory.

Your participation in this research is invaluable, and I kindly ask that you respond sincerely, following the provided instructions. Your responses are anonymous in all phases of the research, and any collected data is confidential and will be used exclusively for research purposes.

Thank you in advance for your participation.

Sincerely,

Ilias Tsiaras

Questionnaire

All the items in this part were to be answered via a 5 grade Likert scale (1: Totally disagree to 5: Strongly agree)

Attitude
- Teaching through edu-larps has a relation with what we experience in the real world.
- The implementation of edu-larps promotes trainees' critical thinking.
- The implementation of edu-larps cultivates decision making skills.
- The implementation of edu-larps enhances problem solving skills.
- Teaching through edu-larps is focused on learning outcomes.
- Teaching different class subjects simultaneously through edu-larps enhances learning more than teaching each separate subject separately.
- Teaching through edu-larps is a connection between different subjects within an authentic context that enhances trainees' learning.

Interdisciplinarity
- Through the implementation of edu-larps trainees learn concepts that go beyond the limits of one specific

subject.
- The implementation of edu-larps can address interdisciplinary, multi-perspective viewpoints to various issues.
- Instructions are an integral part of edu-larp scenarios.
- Different physical sciences subjects can be taught simultaneously through edu-larps.
- Different human sciences subjects can be taught simultaneously through edu-larps.
- Through edu-larps can be taught simultaneously in both physical and human sciences.

Collaboration
- Educators that use edu-larps share their knowledge, in order to promote the implementation of this method.
- Educators that use edu-larps share their resources, in order to elevate the implementation of this method.
- Educators that use edu-larps share their ideas and scenarios.
- Educators that use edu-larps communicate in order to refine their teaching practice.
- There is constant training/further education of educators about the utilization of edu-larps.
- Through edu-larps trainees talk to each other and negotiate their solutions.
- Through edu-larps trainees improve their communication skills.

Critical thinking
- Problem-based learning is an important element of edu-larps.
- Through edu-larps I guide my trainees to develop interdisciplinary viewpoints for each given problem.
- Through edu-larps trainees can identify the problem and what needs to be done in order to solve it.
- Through edu-larps trainees do research and gather information from different disciplines about the given problem.
- Through edu-larps trainees develop probable solutions supported by evidence.
- Through edu-larps trainees share, communicate and refine their solutions.
- Through edu-larps are presented obstacles that require problem- solving skills, challenging trainees to think critically.

Inquiry-based learning
- Through edu-larps I promote inquiry skills in my class by raising questions that the trainees need to investigate.
- Through edu-larps trainees present results and reflect on them in a critical manner.
- Before I go through with an edu-larp scenario, I first present the scientific facts.
- Scientific facts promote knowledge and skills for personal and societal decisions.
- The inquiry process provides more questions and requires higher thinking skills.

Demographics
- Gender: Male ___ Female ___
- Age: 23-30 ___ 31-40 ___ 41-50 ___ 51-60 ___ 60+ ___
- Years of experience in adult education: 1-10 ___ 11-20 ___ 21-30 ___ 30+ ___
- Further education in adult education principles: None ___ Seminar ___ Bachelor ___ Master ___ PhD ___
- In which educational institute do you use edu-larp scenarios? Second Chance School ___ Vocational Training Institute ___ Vocational Training Center ___ Parental School ___ Other institute (please specify) ___
- Certified adult educator?
- Yes ___ No ___

Ilias Tsiaras is a secondary education science teacher with a strong academic background, holding a Master of Education degree in Special Education and a Master of Arts in adult education. As a veteran *Dungeons & Dragons* player and Dungeon Master, his research interests focus mainly on the use of analog role-playing games in educational settings. Currently, he is pursuing a Master's degree in Transformative Game Design at Uppsala University.

Vasileios Neofotistos, Ph.D., is a member of the Laboratory Teaching Staff in the Department of Educational and Social Policy at the University of Macedonia. He is an expert in the domain of ICT teaching issues, with extensive experience in the field of education. His professional background includes 11 years of experience in primary education and 11 years in secondary education. In addition to his teaching experience, he has also gained expertise in educational research methodology and adult education as a researcher. In the domain of adult education, he has accumulated over 6,000 hours of teaching experience across diverse training and educational programs.