



Playful Learning and Skills Improvement

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Abstract

Learning is essential throughout human life. Accordingly, teachers and educators seek ways to strengthen learning. The use of play in the learning process seems to promote learning. Therefore, this research attempts to study how the integration of play in the learning process favors skills upgrading, using the quantitative research method and in particular the questionnaire. The sample consists of primary, secondary teachers and adult educators. In its context, variations in the attitudes of the participants in the sample arise, as regards their gender, the level of education, in which they work, and the years of service in it. The research results are in line with existing literature confirming the contribution of play to the improvement of skills and underline the need for further research and sensitization of the educational community so that it forms an integral part of the educational process, from formal up to adult education.

Keywords: play, skills, creativity, education, quantitative research, questionnaire.

1. Introduction

Views on the objectives of education and society have changed over the years. Educational success is not limited solely to the performance of learners (Väljjarvi & Sahlberg, 2008). An important challenge is that learning is able of producing something new, interesting and relevant (Keller, 2009). Educational organizations now face the challenge of focusing not only on the production of academic curricula but also on creating and maintaining a culture and learning environment that enhances the overall development and well-being of the individual (cognitive, emotional, social, physical and cultural) (Organization for Economic Co-Operation and Development – OECD, 2007).

Adults with low levels of skills often experience barriers to learning. As participation rates of adults in learning activities across Europe demonstrate, adults with lower levels of education and with lower levels of skills participate less frequently in learning. Low levels of motivation, negative learning experiences and other factors contribute to the ‘participation gap’ between higher and lower skilled adults. In this context, the integration of play in the learning process can positively contribute to a successful learning environment, thus promoting the learning process and therefore skills improvement.

- The use of play in the educational process contributes to the development of important skills and competences.
- Opinions, regarding the role of play in the educational process, are differentiated between women and men in the sample.
- Opinions, regarding the role of play in the educational process, vary according to the level of education (primary, secondary, adult education), in which the individuals in the sample work.
- Opinions, regarding the role of play in the educational process, vary according to years of service in education of the sample individuals.

This study attempts to explore the role of play in skills improvement, as reflected in the statements of primary, secondary teachers and adult educators, who are the sample participants. Firstly, it is attempted to define the context in which the survey is based. In particular, chapter 1 presents the theoretical framework on the contribution of play to the educational process. In particular, the role of play in the development of skills and competences is analyzed. Correspondingly, chapter 2 analyzes the methodology followed in the context of this research. In particular, the necessity, the purpose, the exploratory questions and the assumptions of the research are presented. In addition, the research strategy is analyzed, the sample of research and the research tool are described. Chapter 3 refers to the descriptive results of the survey, the discussion of the findings, the synthesis of the results and their association with the assumptions. Furthermore, the constraints of this research, suggestions for improvement, and suggestions for further investigation in this field in the future are presented. Finally, chapter 5 presents the conclusions of the research.

1.1 Play, skills and competences

In modern society, it is challenging to reduce the gap that is constantly emerging from rapid changes between reality and formal education, as the demands of society in the twenty-first century are becoming more complex. The School of the Future should not simply guarantee a successful response to a variety of issues, but also enhance the skills and competences of individuals as future citizens. Through careful planning of the curriculum, in order to ensure its suitability, the training provided can be enhanced. Otherwise, if teaching methods are ineffective or if trainees develop skills that do not correspond to the requirements of modern reality, then the learning objective will fail. The main responsibility of education is not to offer tools that may be outdated before they are fully conquered, but to help adults become self-confident and capable designers and builders of their own tools as they progress (Claxton, 2002).

The contribution of play and its effectiveness in developing and enhancing the individuals' skills and competences in the context of education seems to have been of great concern to modern researchers. In particular, relevant studies in the United Kingdom have attempted to approach how games can be used at school. The results of the survey showed that it is not just its content that differentiates play from the limits of the curriculum. In particular, the results of the TEEM report (McFarlane, Sparrowhawk & Heald, 2002) showed that teachers and parents acknowledged that the use of play in learning can promote the development of important skills such as strategic thinking, planning/designing, communication, numeracy, negotiation, decision-making in the context of a group, and data management.

Examining the interaction of children within the game, scholars have tried to find out what children are really learning when playing. The nature of play involves a trial and error process, in order to overcome the challenges and obstacles it poses, thus promoting the development of logical thinking and problem-solving skills (Higgins, 2000). It is reasonable that learning outcomes in a creative and playful learning environment are expected to be multifaceted. These foster academic performance, cognitive skills, physical skills, participation and knowledge

creation skills. Such a learning environment is designed to stimulate the desire for learning, to ensure the well-being of the participants and the fulfillment of academic as well as non-academic goals (Hofer, 2007).

As learning outcomes, we define every possible combination of mental, physical and socio-emotional engagement. Consequently, learning environments that involve play and creativity have the effect of enhancing the physical, educational, cultural and social-emotional well-being of learners, at the same time encouraging the joy of learning. Besides, learners learn to develop their own ideas, test their limits, experiment with alternatives, give information to others and create new ideas based on their experience (Resnick, 2007).

However, despite the benefits play seems to offer learning, the educational community seems reluctant to accept the value of play as an educational tool or strategy. Instead, the use of games and simulations often occurs in other educational environments, such as corporate and military training environments (Greenblat, 1987). In school education, on the other hand, play has greater acceptance in the first school years and their use is limited in secondary, tertiary and adult education.

According to Roberts, Arth and Bush (1959), play is a model or theatrical simulation of reality. In fact, games provide a socially acceptable means of preparing the necessary skills that may be needed later in real life. In this direction, it is clear that the success of a game may require extensive critical thinking and problem-solving skills. Even the simplest games contain a complex set of properties. Children usually understand the basic concepts of the game easily, depending on their level of development. The idea of the game plays an organizational role in knowledge. For example, a story provides a conceptual framework, comprising a plurality of elements, such as the environment, the goal, the composition, and the analysis. Similarly, a game frame also provides a conceptual framework with corresponding elements. This environment can include imagination, game objects, goals, and rules as well as challenges for the players, thereby enhancing organizational skills and expectations in a complex interaction (Rieber, 1996).

According to Collins, Joseph and Bielaczyc (2004), the students, when they collaborated, appreciated not only the experience of other students, only in the field in which they worked, but also the experience in computers needed in the context of their activity, or even the experience in maintaining the coherence of the group, working effectively towards its goal. In this direction, the authors propose the concept of diverse expertise, which emphasizes respect and listening to others. Learners, in the same way, can acquire expertise as skillful players and designers of games, thus teaching other learners. This specialization may include skills in using a video camera, making videos etc, thus transmitting knowledge to their peers.

Research findings (Lieberman, 1965, 1967) demonstrate a link between play and divergent thinking in children, adolescents, and adults. Both theoretical and empirical evidence (Kagan, 1965; Piaget, 1951), concerning thinking processes of children at an early age, note a stricter observance of the rules and decrease in divergent thinking. Using play as a predictive variable and considering its existence stable and continuous at all age levels, it can help in the discovery of the function of divergent thinking. Respectively, using play in learning can favor the cultivation of divergent thinking.

Furthermore, research results place particular emphasis on decision-making skills in games. In particular, the game environment seems to require and at the same time enhance complex thinking required for decision making, assigning roles, choosing a strategy, and making the necessary steps that will ensure the successful outcome of the game. On the other hand, decisions concerning the management of groups of players, the creation of alliances, rivalry and competitiveness are building blocks of the game environment (Voulgari, 2012). In addition, negotiating the concept of democracy, free expression and preservation or loss of rights and privileges lead to the management of the concept of power and the structures that this one entails.

According to the sociocultural perspective, language is the main cultural tool for the creation of knowledge (Vygotsky, 1978). The ability to communicate and reason is equally important for both cooperation and success in education. Life often does not provide sufficient experience and guidance for collaboration (Mercer, 2000). In creative collaboration, learners become more reflective, as they serve as mirrors to one another (John-Steiner, 2000). Cooperative problem solving provides the opportunity to become aware of the decision-making and thinking process. Consequently, these learning experiences provide opportunities for socially mediated metacognition (Goos, Galbraith & Renshaw, 2002).

Many studies have shown that learners, who have practiced speaking and thinking in collaboration, have been using more explorative speech than the others, and this exploratory speech has promoted their cooperative capacity in both individual and collective problem-solving. In addition, in terms of creativity in learning, they have come to the conclusion that participatory activities can be an ideal field for developing skills and creative thinking (Rojas-Drummond et al., 2006). Therefore, as games often demand close cooperation and collaboration, the introduction of the game into the educational process contributes considerably in this direction.

In addition, the concept of problem-solving within the game offers advantages in the development of cognitive skills in the learning process. Problem-solving is largely specialized in one context and one field (Brown, Collins & Duguid, 1989). As a result, problem-solving in one field fails to transfer to others. Repeated practice, however, in multiple problems, can improve problem-solving within a given domain. When games are exciting and interactive, they can potentially provide a recurring problem-solving practice thus promoting problem-solving skills (Van Eck et al., 2009).

As it is evident from the above mentioned, even though the use of play has been approved as highly beneficial to learning, the vast majority of research on the benefits of play is restricted to its use at an early age (pre-school and primary education) (Bodrova et al., 2013; Gajdamaschko, 2005; Higgins, 2000; Kappas, 2005; Kagan, 1965; Rojas-Drummond et al., 2006; Rogowsky et al., 2017; Sutton-Smith, 1997). On the other hand, in secondary education, the examination-centered educational system in Greece and the pressure to cover the curriculum limit the use of alternative approaches and therefore of the use of play in teaching (Katsarou & Dedouli, 2008; Kysilka, 1998). As regards adult education, the use of innovative methods and techniques (Kokkos, 2005), show a tendency towards the inclusion of play in it.

1.2 Play and adult education

Adult learners, according to the theory of Andragogy, enter the educational process with specific characteristics and needs, as they need to know why they have to learn something. They seek to use their experience as learning sources and place particular emphasis on linking learning to their professional and social goals (Kokkos, 2005). Studies regarding the reasons for the involvement of adult learners in learning indicate that they choose to participate in it because of the following (Cross, 1981: 89): (a) successful response to social roles; (b) professional development; (c) responding to expectations of the others; (d) for the general good; (e) due to cognitive interests; (f) in order to escape from something that concerns them.

Similarly, Carp, Peterson and Roelfs (1974, as cited in Cross, 1981: 89) add the following: acquiring new knowledge; cognitive research; improving parenting; obtaining a degree; strengthening work profiles; and personal pleasure.

Because of the different and varied conditions that cause or require adult participation in the learning process, specific obstacles emerge from them. These obstacles may be internal or external. External barriers mainly concern their access to the educational process. The internal ones, on the other hand, are mainly related to their cognitive and psychological backgrounds.

Characteristically, the difficulty and reticence of contact and assimilation of new knowledge are observed (Kokkos, 2005). In addition, adult learners have a lack of self-confidence and experience anxiety and fear of failure in their contact with the learning process (Rogers, 2002).

According to Carp, Peterson and Roelfs (1974, as cited in Cross, 1981: 99), obstacles concerning the participation of adult learners in the learning process can be divided into three categories: (a) obstacles relating to life situations (situational barriers), the adult trainee experiences during the educational process; (b) institutional barriers, concerning procedures that discourage the adult employee to participate in the educational process; and (c) dispositional barriers, associated with the attitudes and perceptions of the individual for himself/herself as a trainee.

It is evident that obstacles to adult education are many and multidimensional. Therefore, attracting and retaining adult learners in the learning process is particularly demanding. The game can be an approach to aid adult education by encouraging knowledge alongside creativity and imagination (Lieberman, 1977). In this context, educational techniques are selected depending on the subject, the learning objective, the specific characteristics of the trainees and the trainer's abilities. Therefore, the following techniques, which encompass the concept of play, are used in adult education (Game of Acquaintance, Pedagogical Contract, Role-play, Simulation, Debate, the Technique of the Ethical Dilemma, Brainstorming, Pedagogical Game, Project, Theatrical play – Dramaturgy, Problem Solving, Research)

2. Methodology

This chapter presents the methodology of this research. First, reference is made to the necessity of the research, its purpose and objectives. Following is the presentation of research axes and exploratory questions. Then, the Research Strategy and the corresponding methodological approach are presented. Subsequently, the data collection means are analyzed and the sample of the survey is presented. At the same time, reference is made to the process of granting the questionnaire, as well as to the necessary actions, in order to ensure the credibility and validity of the research process. This chapter is completed with the description of the final sample.

2.1 *The necessity of the research*

In the context of modern society and therefore in this of education, which is an integral part of society, the functions and benefits that the latter can and must provide are constantly reviewed. As Välijärvi and Sahlberg (2008) point out, educational success is not limited solely to the performance of learners but also to the positive experience, as this results from the learning process. The dynamic combination of acquiring knowledge through a meaningful and enjoyable process is a challenge for educators and those involved in educational planning. The provision of an active role for learners, both in the development of learning conditions, and in the process of improving and designing learning environments is imperative in modern reality (Awartani, Whitman & Gordon, 2008).

The goal of education fails, if the teaching methods are ineffective or meaningless without attracting the interest of the participants. Therefore, this research attempts to explore and highlight the contribution of the use of play to the educational process as well as its effectiveness in different levels. This research is considered necessary as the demands of modern society make it necessary to find techniques that transform learning in an essential and experiential process.

Criteria for selecting the subject of this research were both the personal interest of the researcher on the role of play in the educational process and the existence of relatively limited and fragmentary investigations (Voulgari, 2012; Zigouritsas, 2008; Kangas, 2010) especially in the

Greek territory, about the effectiveness of play in formal, non-formal education and adult education (Kokkos, 2005). This is precisely the originality of this research, which attempts to highlight all those particular features of play that contribute to corresponding benefits in terms of skills and abilities across the spectrum of human life and not exclusively in the context of childhood or at the narrow boundaries of primary education, on which the majority of existing research focuses.

2.2 Purpose and objectives of the research

The characteristics of modern society highlight education as a lever of growth and prosperity at an individual and social level (Säljö, 2004). In this direction, the purpose of this research is to investigate the role of play in the educational process at the level of formal and non-formal education, as well as adult education through, from the point of view of the teachers and educators of these levels. The conduct of the research, through an appropriate research methodology, intends to:

- (1) highlight the educational benefits and effectiveness of play;
- (2) draw conclusions and suggestions for feedback;
- (3) create a framework for reflection, exploitable by researchers with a relative orientation.

Moreover, in the context of this research, it will be attempted to identify differences between the members of the sample, depending on the level (formal, non-formal, adult education) they teach, gender and years of service. The aim of the research is, therefore, to focus on the use of play in the educational process for its upgrading. This is precisely why the present research attempts to clarify the role and benefits of play in learning, in order to draw conclusions about its role in the educational process.

2.3 Exploratory questions

Based on the above, the construction of the data collection tool was based on the following research axis:

- The contribution of play in the educational process.

As a result of the study of the relevant theoretical framework, the need for further investigation and personal reflection and observation of contemporary educational reality, the research questions of this research are as follows:

- Does play contribute to the development of important skills and competences during the educational process?

Accordingly, the research cases underlying this research are as follows:

- Play is expected to contribute to the development of important skills and competences during the educational process.
- Opinions, regarding the role of play in the educational process, are differentiated between women and men in the sample.
- Opinions, regarding the role of play in the educational process, vary according to the level of education (primary, secondary, adult education), in which the individuals in the sample work.

- Opinions, regarding the role of play in the educational process, vary according to years of service in education of the sample individuals.

2.4 Methodological approach – Research strategy

The purpose and objectives of the research have contributed to shaping the methodological design of its empirical part and determined the selection of the approach and the way data is collected. Subsequently, through the research axes and questions elaboration, the quantitative method was chosen. The quantitative approach is extensively applied to sample empirical surveys (Tsiolis, 2011), where social phenomena are analyzed in order to find general norms or trends as they emerge through a variety of cases. According to this approach, the phenomenon under study is considered at the level of the parameters that are the scope of the research. These parameters are, respectively, the variables, whose relationship is empirically controlled by the hypotheses. The data, resulting from the above process are standardized to be measured and analyzed statistically (correlation and variance testing).

The characteristics of this research led to the choice of the quantitative method, using the questionnaire for the data collection. Specifically,

- the need to gather a sufficient sample in order to draw safe conclusions,
- the size of the population under consideration,
- the different conditions of each institution,
- the uneasiness of exposure to an unknown researcher as well as time and financial limitations of research led to this direction.

Besides, this research, according to specific methodological axes (Andreadakis & Vamvoukas, 2005), focuses on primary, secondary and adult education in the area of study. More specifically the research is:

- individual research in terms of the number of researchers,
- on the initiative of the researcher, in terms of the way it was conducted,
- a modern, quantitative approach, in terms of its duration,
- with a questionnaire as concerns the collection medium.

Subsequently, the research strategy is implemented at specific stages. First, the population of the survey is determined in order to select the appropriate sample. On the second level, the research tool (questionnaire) is constructed and the way of its delivery is decided. Then, a pilot survey is carried out to ensure the credibility of the research tool and make the necessary corrections in this direction. Then, the questionnaires are distributed in electronic form through the Google forms tool. The following is the collection, export, and coding (Cohen & Manion, 1994) of results in Microsoft Excel. The SPSS statistical program is then used for the statistical analysis of the data. Finally, the results are presented through graphs and corresponding analyses.

2.5 The sample of the research – Questionnaire process

As the educational process extends throughout human life, the target population of the research is teachers and educators working in primary, secondary education and adult education. The questionnaire was sent to selected individuals via e-mail. Random sampling applied has proved useful in the context of eligibility checks. The sample consists of 163 participants. The questionnaires were submitted to the survey participants during the period from 1 November 2017 to 30 December 2017.

2.6 Reliability – Validity

Ensuring reliability and validity is of great importance for a successful research. The research tool used in this research is the questionnaire. In order to ensure the validity of the questionnaire, a careful selection of the questions was made so that all research axes are covered, relevant and at the same time easily understood by the respondents, thus obtaining valid responses (Creswell, 2011). In this direction, closed-ended questions were used, which ensure greater validity than open-ended ones (Cohen, Manion & Morisson, 2000).

In addition, the validity of content for this research was tested during the creation of the research tool, in particular during a pilot survey. In the framework of the pilot survey, the suitability of the questions of the questionnaire was tested. The research tool was given to selected experts with relevant experience on the research subject. The experts then assessed the relevance of the questions with a five-point agreement scale and recorded their comments in the frame of an open question. Finally, there was an analysis of the data and a corresponding adaptation of the research tool (Moustakas, 2017).

In terms of reliability, the Internal Consistency indicator was used. The testing of the reliability of internal consistency in the context of this research was also conducted at the pilot survey stage. As far as our research tool scales are concerned, Cronbach's [alpha] reliability index was used, which showed very good internal consistency as it was more than 0.70.

2.7 Methods and techniques

In order to process the research data, Microsoft Excel and SPSS for the statistical analysis are used. In more detail, data are analyzed at two levels, that of descriptive and inductive statistics. At the level of descriptive statistics, as most variables were quantitative, frequency distribution tables, mean, as a central tendency measure, and standard deviation as a dispersion measure are presented. In the questionnaire five-point Likert scales are used, this means that the maximum value is 5. Specifically, in a five-point scale question, which measured the degree of agreement of teachers/educators on a specific proposal, 4.0, for example, would mean a high level of agreement.

In particular, the Likert scales are used are as follows:

- I agree very much 5 - pretty much 4 - Not too much or too little 3 - Little 2 - Not at all 1,
- I use very often 5 - often 4 - sometimes 3 - rarely 2 - never 1.

At the level of inductive statistics, a normality test was initially performed with the Kolmogorov-Smirnov test in order to select the appropriate test. The Kolmogorov-Smirnov test showed that the normality requirements were significantly violated for all variables, as the values of the dependent variables did not follow a normal distribution. Subsequently, the use of the parametric t-test criteria for independent samples and one-way ANOVA were excluded. So, the results were carried out with the non-parametric statistical tests Mann-Whitney U and Kruskal-Wallis H.

Mann Whitney or U-test for independent samples (Andreadakis & Vamboukas, 2005) was used in the cases of a dichotomous variable with two scales, such as gender and a qualitative variable on a scale with a single number of categories for example *in your opinion to what extent participants in the game develop communication* (five-point scale of agreement). Correspondingly, the Kruskal-Wallis test was used in cases of a categorical variable with more than two categories, such as the level of education (primary, secondary, adult education), in which the participants of the sample work and a qualitative categorical variable with a single number of

categories, such as to what extent you think that *the participation in the game enhances respect and listening to the others*. It is worth noting that non-parametric tests are used to find statistically significant differences between two (Mann-Whitney tests) or more samples (Kruskal-Wallis test), by comparing the mean ranks of the respective samples. A minimum level of statistical significance (p-value) was set to .05 (Roussos & Tsaousis, 2002).

3. Results – Discussion

3.1 *Play and development of important skills and competences*

As far as the development of important skills and competences within the game is concerned, the statements of teachers/educators of the sample confirm the findings of similar studies and theoretical approaches, as they are largely in agreement with the statements of this particular category. Specifically, the participants of the sample agree to a great extent that the inclusion of play in the educational process enhances decision making and negotiation, as well as data management skills (McFarlane et al., 2002). Besides, the extensive discourse (Higgins, 2000; Rieber, 1996) that claims that the context of the game favors the development of problem-solving skills is suggested in the answers of the participants of the sample. In the same direction, research findings confirm that the integration of play in the learning process improves knowledge-building skills and enhances the ability to experiment with alternatives (Resnick, 2007).

Furthermore, the use of play improves *planning/designing skills* as relevant research findings state (McFarlane et al., 2002). Correspondingly, in the context of inductive analysis, people with fewer years of service in education appear to believe more strongly that play enhances the person's ability to plan and design, in relation to those with more years. In particular, teachers/educators with up to 20 years of service in education, especially those who have up to 4 years believe to a greater extent (mean 4.30) that *play helps develop planning/designing skills* ($H(4)=12.329$, $p = .015$).

Accordingly, research findings (Collins et al., 2004; Kangas, 2010) claim that skills that involve respect and listening to others seem to be reinforced in the frame of the game. This is also stressed by the high degree of agreement of the answers in the sample (average score of agreement 4.49). It is also worth noting that the women of the sample appear to agree with this statement to a greater extent than men, albeit with a slight deviation.

Furthermore, the notion of communication enhancement in the field of playful learning is of great importance, as the participants of the sample agree to great extent in this direction (mean 4.63) confirming relevant research findings (McFarlane et al., 2002). In the context of inductive analysis, women appear to place greater emphasis on the contribution of play to promoting communication than men. Women seem to believe more strongly (mean 4.70) that *participants in the game develop communication skills* than men (mean 4.45), ($U=2094,500$, $p= .008$). A more general conclusion emerging from the statements made by women in this particular section is that they seem to place greater emphasis than men on the contribution of play to the cultivation of communication skills as articulated through respect and listening to different opinions. More specifically women agreed to a greater extent (mean 4.56), compared to men as regards the statement that *the participation in the game enhances respect and listening to the others* ($U=2181,000$ $p= .050$). Also, in their response, in the statement that play strengthens *respect and listening to others*, teachers working in the primary school also agree more strongly (mean 4.68) than those working in adult education (mean 4.62) and those who work in secondary education (mean 4.20) ($H(2)=10.579$, $p= .005$).

The statement that play improves participation and inclusiveness (Higgins, 2000) is in accordance with the views of the persons of the sample. They strongly believe (mean 4.69), ($U=2203,000$, $p=.042$) that participation in the game enhances inclusiveness. In this case, as in

the previous one, female teachers seem to place more emphasis than men on the contribution of play to the cultivation of participation and inclusiveness. A similar emphasis on the cultivation of participation and inclusiveness through the implementation of play appears to be placed by primary and adult educators in relation to secondary education teachers. Accordingly, teachers working in primary education, believe to a greater extent (mean 4.79), that play strengthens the individual's inclusiveness, followed by those working in adult education (mean 4.70) and finally those working in secondary education (mean 4.44), ($H(2)=8.676$, $p=.013$).

The same tendency is evident regarding the statement that play enhances organizational skills. The teachers working in primary education agree with this statement to a greater extent (mean 4.47), those working in adult education agree less (mean 4.41) and so do those working in secondary education (mean 4.07), ($H(2)=5.964$, $p=.051$). Nevertheless, through the answers of all the participants, it is evident that the concept of strengthening organizational skills, within the frame of the game, is broadly supported by the findings of the research, confirming the research of Rieber (1996) Women again support the contribution of play to the enhancement of organizational skills more than men. More specifically, women express the view (mean 4.38) to a greater extent than men (mean = 4.13), that *the participants in the game develop organizational skills* ($U=2014,000$, $p=.013$). In the same direction, primary school teachers and adult educators tend to agree more than those working in secondary education.

In addition, the participants of the research strongly confirm relevant theories that claim that play improves critical (Brody, 2005; Gee, 2003) and divergent thinking (Lieberman, 1965, 1967). Women believe to a greater extent (mean 4.40), that *the participants in the game develop critical thinking skills*, than men (mean = 4.13), ($U=1986,000$, $p=.008$).

With regard to the corresponding theoretical framework concerning the improvement of the individual's numeracy skills (McFarlane, et al, 2002) and physical skills (Hofer, 2007), the respondents' statements tend to agree in this direction but more moderately. More particularly, teachers working in primary education believe to a greater extent (mean 4.21) that the development of numeracy is favored in the context of the game, followed by those working in adult education (mean 3.72) and respectively those working in secondary education (mean 3.79), ($H(2)= 6,881$, $p=.032$).

3.2 Restrictions – Suggestions for improvement

This research has got some limitations and weaknesses. The majority of its weaknesses are due to the tight timeframe for its completion. In order to shape a more accurate picture of the perspective of teachers/educators concerning the contribution of play in the educational process, the research could be expanded as regards the size of the sample. As the sample of teachers used in the research is limited, its results are not easily generalized across the population of teachers in Greece. Therefore, the research population could be broadened more systematically.

Besides, the present research focused on the analysis of the results collected by the means of an electronic questionnaire sent to the teachers/educators. In the future, it could be attempted, in addition to expanding the size of the sample, to proceed to the triangulation of the research. This could be implemented by completing it through interviews, from which the individual perspective and new ideas on the use of play could emerge.

3.3 Proposals for further investigation

The importance of approaching the educational process in such a way as to ensure the greatest learning outcomes has made it imperative to find effective techniques and methods in this direction. Researchers in education aim to raise learners' interest and increase their engagement

in the learning process, thus delivering better learning outcomes. In this perspective, the importance of integrating play into the learning process can act as a driving force both in improving knowledge and in developing important skills.

Therefore, this research attempts to promote the use of play in learning, highlighting its advantages. The conclusions of the research result in the following suggestions. The majority of research on the benefits of play is largely restricted to the context of its use at an early age (pre-school and primary education) (Bodrova et al., 2013; Gajdamaschko, 2005; Higgins, 2000; Kappas, 2005; Kagan, 1965; Rojas-Drummond et al., 2006; Rogowsky et al., 2017; Sutton-Smith, 1997). The increasing discourse, though, on the use of innovative methods and techniques in adult education (Kokkos, 2005), show a tendency towards the inclusion of play in it. Instead, in secondary education, the examination-centered educational system in Greece and the pressure to cover the curriculum are almost prohibitive for the use of different approaches and therefore of the use of play in teaching (Katsarou & Dedouli, 2008; Kysilka, 1998).

As a result of the positive conclusions of this research on the contribution of play to the educational process, this could lead to emphasize the advantages of playful learning and contribute to further research about its benefits, especially at the higher levels of education.

Interestingly, there appears a differentiation in the gender perspective on the contribution of the use of play in learning. Women seem to place greater emphasis on the communicative character of play. Therefore, further exploration of gender attitudes towards the use and positive contribution of play could highlight new axes and perspectives, as well as alternative ways of thinking and approaching learning.

4. Conclusions

The positive contribution of play to the educational process seems to be confirmed by the findings of this research. The responses of the teachers/educators of the sample are broadly in line with relevant literature.

As regards the development of important skills in the frame of playful learning, the latter seems to strengthen organizational skills (Rieber, 1996), decision making, negotiation skills. At the same time, it improves both designing/planning and data management skills (McFarlane et al., 2002), as well as critical thinking (Brody, 2005; Gee, 2003; Lieberman, 1965, 1967). Furthermore, it contributes positively to communication (McFarlane et al., 2002), enhances respect towards the others (Collins et al., 2004; Kangas, 2010) and fosters participation (Higgins, 2000). In the same direction, it enhances skills of knowledge creation, experimentation with alternatives (Resnick, 2007), numeracy (McFarlane et al., 2002) and physical skills (Hofer, 2007).

The concept of organizational skills and participation within the game are stressed more by primary teachers and adult educators than those in secondary education, possibly due to the emphasis on the importance of participatory techniques in the curricula of university schools of pedagogical education, from which primary teachers have graduated. It seems to also dominate adult education, over the past few years (Kokkos, 2005). Finally, women seem to place more emphasis than men on the contribution of play to the cultivation of communication skills and development of the individual's participation and inclusiveness.

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