The Place of Intelligence Games in Philosophy and Logic Education

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Abstract: *Education is an applied field of science and so what is expected is that it must respond to the practical needs besides theoretical field. These needs are of importance with the indication of active nature of students in learning in 21st century. For that reason, it has started to give places for many applications in practice to increase the permeance of information by internalizing the theoretical side of education. One of the applications in question is intelligence games. Intelligence games is a tool for individuals in revealing their own potentials, in developing different and original strategies for the problems, in making a fast and true decision, and what is more in making them attain a systematic structure of thinking. Therefore, it would not be surprising to associate this tool with the education of philosophy and logic. It is because intelligence games are a material to be used in philosophy education in using philosophical knowledge and seeking for the solutions of philosophical problems; in using logic education in conveying true thinking ways to daily life, being aware of contradictions by thinking consistently and basing their thoughts. As a result, it is believed that intelligence games will make the theoretical-based structure practical in philosophy and logic education and will add variety with the current study.*

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Introduction

UPON having a look at the application of learning and teaching activities by organizing them from a larger perspective, it is likely to see significant differences resulting from the attitudes, behaviours, knowledge, and cultural infrastructure together with their experiences. These differences in question prevent educational activities to reach the determined targets. In the current age of information, the search for new and applicable educational technologies is going on with an increasing speed to be able to overcome the problems preventing further success in education and teaching activities (Engin et al., 2004). This speed will be attained through material developing works in terms of the dimension of course tools and materials.

The world we live in also affects the features that individuals must have. The expectation of the world from the individuals is that they can produce original and different solutions the problems they experience, they put the solutions they produce into practice rapidly and they have any kind of mental competence that will help overcome a difficulty (Ulusoy et al., 2017). In this period when students' learning by experiencing and practicing will be a basic principle, it will be likely to see that complementary games which can increase participation up to highest levels are ideal reinforcing components. It is because using games in education will be an effective way to realize the determined objectives.

Game has a history as far back as humanity. Despite such an old history, its effect upon human development has still been investigated. Basically, game is the most natural learning tool having an impact on all development fields of child whether it is on a certain purpose or without purpose, with a rule or without a rule, in which every child can be involved on purpose, and enjoyment, realized directly or indirectly (Koçyiğit et al., 2007). Game is comprised of learning by discovering. It provides to speed up such mental processes as knowing the objects and naming them, their functions, reasoning, making a cause-and-effect relation, making a choice, focusing attention, guiding oneself to an objective, thinking, perceiving, sorting, classifying, making an analysis, making a synthesis, evaluating and problem solving. At the same time, the mental development of an individual within a game is supported through the development of such skills as commenting, perceiving, evaluating, making a decision since he is in a mental activity (Özer et al., 2006). Besides that, game activities include open-ended learning; children are not directed to the correct answer. Game experiences produce ideas rather than memorising certain information chunks and individuals learn actively in a game. They talk to each other and share ideas, make predictions, work in cooperation in learning groups. Experiences are repeated in a game, and new things are tried. Games as a dynamic process are done freely and automatically (Uskan & Bozkuş, 2019).

Game stimulates all development areas (language, mind, social, emotional, physical, personality and morality development) and constitutes a base for the attainment of skills. Individuals playing the game have an experience on life skills, social skills, research skills, problem solving skills, thinking skills, communication skills and the skills of personal management and administration skills in the process of playing a game (Tuğrul, 2018, p. 15). The contribution of game to mental development, to the development of upper cognitive skills, healthy mental mood, linguistic skills, representing, self-regulation has evolutional, sociological, and psychological evidence. As an example, the researchers investigating game in an evolutional process put a premium on the increasing size of their brains and of their problem-solving skills with the skill of driving by mammals (Whitebread, 2012). In this way, it is likely to say that game and the tools used in a game led to an increase in the mental capacity.

Besides being a tool, in which students can actively be interested and carry out their activities individually, games also offer some settings allowing them to learn by doing and experiencing. They allow them to make a true-false evaluation by giving feedback to their activities directly and to be aware of their mistakes instantly. By helping them to turn back to the same point in a wrong action or proceeding, they can find what is true. By addressing more than one sense, they help learning to be permanent. While providing all these things, they entertain students, and in this way, they learn better when they are active, when they control themselves and when they search and discover. Upon the review of these relations between game and learning, it is likely to think that game-based learning settings are of a quality to respond all these needs, and they are the very thing to be used in education (Akın & Atıcı, 2015).

Game can be defined as the whole of the rule-based activities bearing competition components which are the targets, gains and results where one or more than one player. As for the using of games in education ore educational games, it means educative entertainment derived from the concepts of education and entertainment. Accordingly, when these games are used in the purpose of education, they have such benefits that they motivate learners more, they spend more time with the teaching program, education turns into an entertaining thing rather than an obligation and it increases internal motivation (Demirel, T., 2021, p. 3-5). Games used in education (educational games) can be defined as a teaching method supporting the shaping of information in a comfortable setting, making a connection of learning information with each other, and reinforcing them, and the development of skills in an enjoyable way (Güler, 2011, p. 26). Thanks to these games, subject matters in the courses can be made more attractive, it can be possible to teach new concepts and reinforce the newly learned information, and the interests of students in the course can be increased. In addition, learning will be more

comfortable and easier thanks to the settings provided by the active involvement of students through educational games (Kaya, 2007, p. 30). Educational games make such many supports as changing attitudes, special behaviour change, increase in motivation, developing analytical thinking, making changes in role meaningful, helping people in having possible role in the future, developing skills with the adopted principles, facilitating the understanding of high-level problems, being sensible to the roles of individuals except himself (Atay, 2018, p. 23). These games are valuable as they offer learners the opportunity to learn through structured experiences (Lynne, 2004); they increase social skills of students as they give a group responsibility together with an individual responsibility, affect self-confidence, creativity and entrepreneurial skills in a positive way, students learn how to deal with fear, excitement, anxiety and stress, by making a connection between old and new learnings, they provide a meaningful and permanent learning thanks to educational games, they make the abstract subject concrete and reinforce information, making a permanent learning (Karataş, 2021, p. 28-29). Giving such a big contribution to active learning, educational game is encountered in intelligence games as an efficient method today.

Intelligence Game

With the skill of saving one from a trouble, taking him out of a hole, being aware of a whole mind is something to set up similar barricades, barbs and exits. If mind is the competence to differ what is tight, think what is difficult and make the difficult easy, mind game is the task of construction for fictionalized tight and difficult ones. If mind is the competence to find a solution and a skill to find a way in a place where there is no way out, make a trace where there is no trace, mind games is the construction of designing all these. It is the fictionalized way of finding the truth in the true path. If mind is something making the tight world loose, making the hard world easy, mind games is the mind construction producing services for human in both directions (Ünal & Ünal, 2005, p. 13-14). As for intelligence, it is one of the most powerful sources human being has. Developing this source opens new horizons for human and humanity, makes him attain new opportunities and new powers. Intelligence games in finding the truth enhance the intelligence level of human being. The outcome obtained is the skill to define the question in hand and solve the problem (Ünal & Ünal, 2005, p. 18-19).

Intelligence games are such kind of games that require deep thinking and reasoning power independent from knowledge and competence in school subjects. The features differentiating intelligence games from other games are that these games improve reasoning and logical thinking skills of individuals, and their imagination, memory, logic and strategical judgements with original and constructive, creative thinking. The aim of these games is

not only to entertain, but also to solve a hard problem mentally and achieve a given task (Sütçü N. D., 2021, p. 183-184). Therefore, these games in question could be used as a teaching material that is likely to be used in different courses and grades.

It is known that the mind, logic, cognitive capacity and reasoning that allow us to think differently and produce different solutions are improvable qualities throughout human life. Just transferring information to students at schools is not enough to develop students' cognitive capacities, problem solving skills, thinking skills and the skills of forming different strategies and using them. It is necessary for students to develop their mental capacities and skills through various games and activities. Intelligence games could be used as an effective tool in developing their skills. It is because intelligence games are the gamed position of any problem comprising real problems as well. For that reason, it is a good tool to be used to teach problem solving (ME, 2013, p. 1). The tool in question provides individual with a lot of outcomes in terms of cognition. As an example, it improves visual memory skill, helps develop the spatial perception, develops attention and concentration, focusing perception, prediction skill, rapid thinking skill, sequential thinking skill and the skill of perceiving the relation between part and whole, also develops the skill of thinking possibilities in a rapid way, paying attention to the details, and of imagination (Oruç, 2019, p. 18-19).

In the basis of these outcomes lays thinking. Thinking is the heart of cognitive skills, because it is a cognitive process but resulting from behaviour, coming out of mind or cognitive system, comprising the whole or some variables of a whole of processes based on information in the cognitive system (Başerer, 2017); it is a function of judgment valuing evaluating various events and conditions by means of objective and analytical ways and making rational decisions accordingly (Saban, 2014, p. 11). One of the objectives of education is to teach the ways of true thinking. Critical and creative thinking skills are of great importance for individuals in thinking truly. It is because individuals make an evaluation by taking a criterion into consideration and make a decision in this way. Making an analysis, judging, putting a hypothesis forward, making an explanation, making a decision, problem solving, making an observation, reasoning, making an inference etc. bare a great number of skills in them (Kızıltan & Dombaycı, 2020). By means of creative thinking, they develop the skills of originality, flexibility and detailing in the cases where what is in hand is not sufficient. In this way, when he uses critical and creative thinking skills as is required, it will contribute to cognitive thinking because it comprises such cognitive processes as making an analysis, evoking and making an inference (Bacanlı, 2012; Dombaycı, 2012). These thinking forms are a skill each. For that reason, people can develop their skills by means of intelligence games both cognitively and affectively. Thanks to games, everyone playing the game could be aware of their power-

ful sides peculiar to them. As an example, while some can solve problems in rapid way through the method of trial and error, some other will be in a tendency to solve them slowly but in a systematic way (ME, 2013, p. 5). The self confidence of the individuals playing the game will increase, their skill of obeying the rules will develop, he will respect to teammates and opponents make empathy and have an opportunity to test his patient if he plays the game in a group.

Intelligence games are defined as the activities that require deeply thinking and reasoning independently from their knowledge and competencies in their school subjects (Sütçü, 2021), developing their individual cognitive skills, reasoning and logical thinking skills by making brain do exercises (Ott & Pozzi, 2012), developing imagination, memory, combination, logic and strategical judgements, relaxation and improvement, original and positive, creative thinking; and the activities offered for individuals to be able to be aware of their own potentials, make a quick and true decision, produce peculiar ways of solution and the last but the least is that renew themselves consistently (Devecioğlu & Karadağ, 2014, p. 43). Children playing intelligence games could learn a great many mental processes. Besides such concepts as proximity, ordering, time, space, they could have the chance of learning such processes as classifying, matching, analysing and synthesising (Ergin & Köse, 2008, p. 206). Pushing individuals to think, intelligence games require individuals to develop strategies and find solutions by carrying out logical processes. In this process, brain discovers new ways for a solution through exercises (Howard-Jones, 2009). These games are the ones having certain rules and an objective, putting a problematic context waiting for a solution with the least factor of chance, requiring employing special thinking skill, psychomotor skills, memory and attention power, basic mathematical skills and cognitive strategies (Erdoğan et al., 2017). Intelligence games facilitate learning by keeping intelligence active, attain the skill of moving in a plan, strengthen the capacity of predicting events, improves the skill of producing solutions and thinking multiply, and use logical reasoning away from memorising (Oruç, 2019, p. 13).

The Place of Intelligence Games in Türkiye

Games are regarded as effective tools to learn and improve skill at education since learning through games is a skill acquisition process. As individuals encounter with the same or similar challenges repeatedly, their skills improve. As a matter of fact, a lot of studies have been carried out in Türkiye in order to encourage game-based learning and skill development at schools in 21st century.

First one of these studies is the foundation of the Federation of Whole Mind and Intelligence Games (FWMIG). The mission of this federa-

tion is to follow up the studies regarding mind and intelligence games in order to keep up with the ever-developing world and conduct studies in order to increase its use in Türkiye in a conscious way. The vision of the federation is to represent Türkiye in national and international competitions and similar activities, carry the national organizations to international settings and help successful Turkish competitors in mind and intelligence games to gain ground in in international arena (FWMIG, 2023). This federation has organised tournaments regarding such intelligence games as Q Bitz, Equilibrio, Pentago, Mangala, Reversi, Kulami and Küre and the first one was in 2018. It has organized workshops regarding these tournaments and trainings over mind and intelligence games with the Ministry of Education.

Another study carried out in Türkiye regarding intelligence games is the championship of intelligence games organized by Zeka Vakfı (the Foundation of Intelligence). The purpose of this championship is to improve the thinking, decision-making and problem solving skills of students and make them attain different team-work habits. It is content is the competitions organised over twelve grades, which are primary school (Grades 1-2-3-4), secondary school (Grades 6-7-8-9) and high school (Grades 9-10-11-12) (TZV, 2023).

Another organisation working in intelligence games in Türkiye is Türkiye Satranç Federasyonu (Turkish Federation of Chess). The foundation that was founded for the purpose of spreading the sport of chess throughout Türkiye, introduce it and make it widespread, represent Turkish chess in international arena, attain more championships and master sportspersons in the country with an innovative and reasonable approach (TSF, 2022).

The most basic element taking place in the educational system in Türkiye with regard to intelligence games is the curriculum for intelligence games. Intelligence games are an optional course included in the program by the Ministry of Education for 5th, 6th, 7th and 8th grades. As for the general objectives of the course, it is aimed that students know and develop their intelligence potentials, develop different and original strategies against problems, make a rapid and true decision, improve a systematic structure of thought, and develop a positive attitude for problem solving. The course of intelligence games provide students with developing their capacities of perceiving and evaluating the problems, form a different perspective, improve their habit of focusing on a subject or solution, and develop their capacity of using their reasoning and logic in an effective way (Ministry of Education [ME], 2013, p. 1-2).

The reason for the start of the course of intelligence games as an optional course at secondary schools in the educational year of 2012-2013 depends on these basic acceptances. In this sense, intelligence games contain games not only to develop their mathematical skills but also the ones that will develop such critical thinking and creativity skills as logic, verbal and

visual intelligence, problem solving, producing ways of solution, thinking three-dimensionally, developing peculiar approach, making designs, forming shapes, developing tactics (Devecioğlu & Karadağ, 2014, p. 43). It is thought that intelligence games will make a contribution to thinking skills in terms of the fact that they contain various problem cases and require using problem solving processes and that students are required to use some of the strategies, and they allow different ways of solution (Terzi, 2019, p. 18).

With the start of teaching the course of intelligence games at secondary schools as an optional course, a great number of researches have been made regarding intelligence games in recent years and it still goes on. Upon the review of the researches in this field, the effect of intelligence games on various mental skills and some attitudes of primary and preschool period students was investigated in some studies (Şen, 2020; Altun, 2017; Yağlı, 2019; Marangoz, 2018; Şahin, 2019; Esen, 2019; Aşuluk, 2020; Ott, Tavella & Bottino, 2013; Kula 2020; Zengin, 2018; Altıner; 2018); while the effect of intelligence games on the attitude and mental skills of secondary school students was studied in some studies (Sütçü, 2017; Demirkaya, 2017; Demirel & Yılmaz, 2019; Çağır & Oruç, 2020; Yılmaz, 2019; Demirel T., 2015; Aksakal, 2020, Bayramin, 2020; Kurbal, 2015; Yöndemli, 2018; Gençay et al.,2019), teachers views were given place in some other studies (Adalar & Yüksel, 2017; Sargın & Taşdemir, 2020; Çalışkan, 2019; Sadıkoğlu, 2017; Yılmaz Ş., 2019; Güneş D., 2021; Kul & Kel, 2021). And in some studies, the views of prospective teachers upon intelligence games were investigated; in their studies Yüksel et al. (2017) examined the contribution of geometric-mechanic games taking place in the curriculum of the course of intelligence games to the cognitive, affective, and psychomotor development.

As is seen, there are a great number of studies regarding intelligence games in the related literature. These studies are the ones carried out into the mental skills and attitudes of preschool, primary and secondary school students with the views of prospective teachers and teachers as well. For that reason, intelligence games were investigated from different perspectives aiming at different masses in the related literature. Therefore, since the lack of a study carried out into the place of intelligence games in philosophy and logic education makes the current study significant, it is believed that this study will fill in this gap in the literature and make a good contribution. This study offers recommendations regarding the fact that the intelligence games taking place in the educational games could be related to the courses of philosophy and logic. In this study, it is highlighted that the objectives of both philosophy and logic educations and of intelligence games are similar. In this way, it is thought that using intelligence games in philosophy and logic education will both make a positive contribution thanks to the skills that will be

attained in the development of the individual, and it will offer a recommendation for the educators who are also the practitioners to reinforce the subject.

In the current study, document analysis method, a qualitative research design, comprising the analysis of written materials having information about the phenomena which are aimed to be investigated, (Yıldırım & Şimşek, 2016: 189) was used. The documents to be used as a data source in the study are teaching program of intelligence games and philosophy and logic curricula to make connection given in the purpose of the research.

The Relation between Curricula, Cognitive Skills and Intelligence Games

The education given at schools and just transferring knowledge to students is not enough to develop students' cognitive capacities, problem solving skills, thinking skills and the skills of forming different strategies and using them. It is because cognitive skills are a concept related to the changes happening in thinking, reasoning, memory and perception systems of individuals. It allows individuals to understand their environment, to acquire knowledge and use it. In addition, cognitive skills become active at such points as paying attention, perceiving the information, attaining the concepts, making a comparison, classification, ordering and making a cause-and-effect relation (Kızıltepe et al., 2017). In this way, the attainment of the skills in question has become one of the basic objectives of education. As a matter of fact, students will be aware of their own aptitudes and potentials more in individual and group works, they will improve them and their self confidence will increase, they will attain systematic and disciplined working habits for success and in the case of a failure, they will develop attitudes and behaviours to form alternative solutions and strategies without giving it up. Depending on sequential teaching program, intelligence games provide students with learning opportunities moving from simple to complex, from easy to difficult, from concrete to abstract, from known to unknown and showing the relation of sequence, so a road going from teaching basic information and skills to acquiring high-level skills will be followed thanks to these stages (ME, 2013, p. 1-2).

Developing these skills is within the objectives of philosophy and logic disciplines as well as those of intelligence games. When it comes to the visions of the curricula where there are these disciplines, it is likely that to see that they aim at training individuals who can make criticism, questioning, reasoning, problem solving, and being aware of the relations and differences, just as intelligence games do. It is because they aim at developing cognitive skills that will be obtained through logical thinking. Based on this target, curricula are prepared, and which skills will be made to be attained is deter-

mined. Such kind of skills in this group as being able to differentiate the relation between two cases, determining similar and different cases, making various comparisons require logical thinking structure. In this way, individuals conduct a cognitive process as a result of logical thinking. The process in question shows their cognitive skill (Arslan, 2018, p. 156). The reason why cognitive skills are insistingly focused in curricula is that the rapid change experienced in science and technology and that this change affects the expected roles from individuals directly. Today the individual producing information, using it functionally in his life, being able to solve problems, thinking critically, having enterprising, decisive and communicative skills comes to the forefront. The curricula that will serve for training individuals with these qualifications were prepared for the purpose of making students attain value and skills. In this way, curricula guiding toward using upper cognitive skills, providing a meaningful and permanent learning, integrated with life around values, skills and competencies were prepared. By means of these programs, it is aimed to make students attain such a great number of skills as reasoning, questioning, thinking analytically, thinking critically, producing original ideas, expressing and writing (ME, 2018, p. 13).

Philosophy is an act where human being tries to give the meaning of himself, his life and other things. Therefore, the purpose of the course of philosophy is to make students attain the skill of reasoning rather than forming thinking and logic and to provide the application of this skill in all areas of life (Hannam, 2017). The student can practice these skills attained to his daily and social life. In this way, he is in the field not as a spectator but as an active player. The subject that will be taken philosophically must be connected with the familiar events to the student, since the purpose of philosophy education is to include the inner voice of the student into philosophical activity and make him improve his thinking abilities (Miller, 1995). In this sense, general objective of the philosophy course is to provide students with asking questions regarding human being, information and the world he lives in, seeking for answers for these questions based on reasoning and depending on the knowledge to be acquired about the questions with the basic fields of philosophy, improving their skills of thinking and expressing what they think (ME, 2018, p. 12). For that reason, the objectives mentioned and the expected roles from the individual correspond to the objectives and expectations highlighted in the curriculum of intelligence games. It is because in the basis of intelligence games lay the training of individuals who can question, think regarding the problem, make an inference and comment, and produce ideas just as it is mentioned in the curriculum of the course of philosophy.

By means of intelligence games activities, it is possible to provide students with fictionalize the problems they encounter with the real-life materials and with real world problems. A lot of different methods could have to be used in the problems encountered since some problems could be solved

through a very simple and practical method while a detailed and more systematic work and research will need for some others. Once again, such kind of features as being able to be aware of problems and recognising them, being able to see different attitudes against the problem, questioning, forming a strategy, discovering alternative ways of solution, taking place in the solution, being able to convey problems solving skill into life by means of intelligence games in a systemic and improvising way (ME, 2013, p. 6; Terzi, 2019, p. 28). In the field of philosophy, it is also likely to see questioning, critical, creative and holistic thinking regarding basic questions in such issues as the meaning and whatness of human being, his existence, of the universe and life, the problem of values, reliability of information, source of sovereignty, the purpose of art and its value. Therefore, it is aimed that students can ask questions regarding the world they live in; express their thoughts that they prepare answers based on thinking and reasoning for the questions in a written and verbal way, and think in a consistent and grounded way that they can relate them to the real world (ME, 2018, p 12). On the other hand, intelligence games indicate the active nature of the student in learning. In a sense, using intelligence games can be regarded as an active learning technique. Active learning is a process where the learner has the responsibility of learning process, the learner is given the opportunity to make a decision with regard to various sides of learning process and make a self-arrangement, and the learner is forced to use his mental abilities during learning (Açıkgöz, 2014. P. 17). For that reason, intelligence games will address to the active nature of the student.

Since the student-centred learning where the transfer of knowledge and restraining it by the student is valid instead of repetition of information allows an opportunity to the learner to structure information, form, and comment and develop it, it is likely to relate it with the logic education. As a matter of fact, students are expected in the curriculum of the course of logic to reach the knowledge that logic is related to reasoning, which is a form of thinking, be aware of their own ways of thinking, transfer true thinking ways to daily life, attain the skill of being consistent while thinking, supervise the consistency of their thoughts, developing awareness against contradictory thoughts, and base the trueness of information (ME, 2009, p. 6-7). In this sense, it helps individual to develop a cognitive concept, make reasoning by envisioning a subject with all its sides, produce ways of solution and think logically by means of thinking developing the skills of making a decision and solving problems by activating cognitive processes (Güneş, 2012). It is because logical thinking also comprises a cognitive structure in it (Arslan, 2018, p. 155).

Logical thinking is the key to make strong decisions and solve complex problems. It is a kind of thinking providing to solve problems, use the ways realizing reasoning, and to make a decision by means of various com-

parisons and inferences. Logical thinking skills are the ones using the process of reaching to the whole from the part, from the whole in hand to the parts, and the skills of sorting and classifying the data behaviours (Başerer, 2017). In this way, cognitive development influences the attainment and development of logical thinking skills. At the same time, logical thinking skills are effective in the cognitive development process, since the more individual is encouraged for multiple thinking, his approach to the events and the way of environmental perception is dimensioned (Bozdoğan, 2007).

Why logic science was chosen as a tool in order to provide the development of information, skills and strategies for the purpose of supporting the skills of students will be possible to clarify with the explanation of what logic is both as a discipline and as a thinking way. Besides using logic as a discipline or a name of a course, it is also a sort of thinking. The science of logic is a discipline presenting the rules and laws of logical thinking (Emiroğlu, 2012. P. 13). Logic is not interested in any kind of thinking but in the form of thinking called as reasoning, discoursing and argumentation (Özlem, 2012, p. 29). The science of logic as a discipline having the opportunity to be applied in daily life and different disciplines and as a science presenting the rules and laws of true thinking is given a place at the stage of secondary education by means of the curriculum of the course of logic. Within the context of the program, it is aimed that students can transfer true thinking ways to daily life, be aware of their own thinking ways, think consistently, be aware of contradictions, think independently, produce solutions for the problems they encounter and base their thoughts (ME, 2009, p. 4-5). The relation of these objectives with such skills showing a change depending on the conditions of the day as critical thinking, problem solving, information and technology literacy, coding skill that are known as 21st century skills (Can et al., 2019). The most significant of these skills is the skill of reasoning. Reasoning is the process of reaching a reasonable decision by thinking with the information in hand, paying attention to all factors and evaluating the evidence. The very points highlighted in reasoning are making a decision and obtaining concrete results by means of true inferences.

The basis of the course of logic is to make students attain the skill of true reasoning. Similarly, success in intelligence games depends on rapid and true reasoning, since reasoning is a significant mental skill that students will use throughout their lives together with a systematic problem-solving skill. Thanks to these games, individuals will have such a great number of skills as being able to produce based on logic, improve their grouping skills, to make inferences from their experiences, to solve problems by means of similarity, to solve problems by means of deductive method, develop operant strategies, to form action strategies using abstract symbols, to develop semantic strategies in verbal games, to improve their thinking and reasoning skills and to develop prediction skills based on assessment (ME, 2013, p. 8). As in the

course of logic, there are the skill of reasoning based on the skills of thinking, forming ideas and grounding among the objectives of the course of philosophy as well. It is expected in this sense that teacher support students in developing their philosophical reasoning skills and improve their reasoning activities (Hannam, 2017). In this way, reasoning taking place in the definition of logic and comprising a significant part will help the transformation of human thought into concrete products (Ergül, 2014, p. 12) and this is realized through intelligence games.

Besides that, it is likely to say that both philosophy and logic affect communication skills in the relation of individual with others and these skills could be developed through intelligence games. It is because while logic help prevent a lot of misunderstandings, unnecessary discussions by showing the ways of telling thoughts and feelings in clear way through an understandable language (ME, 2009, p. 4), philosophy develops the discussion culture of individual, helping him use concepts in a true and suitable way while expressing his thoughts, and in his taking care of making his expressions grounded (ME, 2018, p. 13). In this sense, as intelligence games will make a contribution to the communication skills as in logic and philosophy, it is thought that they will be beneficial at the points of using vocabulary, being in a team work and expressing their thoughts.

As a result, upon the review of curricula used both in philosophy and logic education, it is likely to see that there are a lot of similarities between the intelligence games curriculum and general objectives and sub-objectives. Among the leading skills that are aimed to be attained to students in each of the three programs are reasoning, thinking critically, thinking analytically, producing original ideas, being consistent, thinking truly, being aware of the contradictions, grounding the trueness of information, thinking in an abstract way, forming different strategies, and problem solving. It is believed that these cognitive skills taking place both in logic and philosophy education will be used in education through intelligence games and develop the mental skills and competencies of individuals, offering an alternative way in making students attain basic information and skills by practicing the theoretical content of the courses of philosophy and logic by means of intelligence games.

The Troubles Encountered in the Education of Philosophy and Logic

It looks possible to use intelligence games in different processes of teaching. It gives a lot of advantages, but the most import one of these advantages might be the relation between the general objectives of education and the skills that intelligence games are likely to make an individual attain. Even though intelligence games are not related to a course, they make a contribu-

tion to the improvement of mental skills, but improving the target skill could not be possible through a course alone. For that reason, including intelligence games in different disciplines will contribute to improvement of all skills (Savaş & Kara, 2021, p. 230). Using these games in philosophy and logic courses will be a step towards improving cognitive skills as well.

The problems experienced in Turkish education system are a long way ranging from basic education to higher education. In this way, it is aimed to provide the physical, mental and emotional developments of individuals and create a suitable training environment. Therefore, an important step will be initiated in training the qualitative human power needed for a country. A similar target is present int the curriculum of logic aiming at training individuals who can transfer their true thinking ways to their daily life, think consistently, who are aware of the contradictions, think independently and produce solution methods for the problems they encounter (Arslan, 2022, p. 137-138).

In a study by Duman and Arslan (2021, p. 96-97), it was found that a change in the teaching time of the course of logic brought about a decrease in the interest in the course of logic and they developed a negative attitude towards the course since it affected both in which year the course would be taught, whether it would be a compulsory of elective course and it affected the teaching hours in the selected fields. Suggesting that teaching logic would be effective in the development of logical thinking in the case of it is thought properly, Başerer (2019, p. 90) pointed out that the course of logic would be taught in an entertaining and effective way by using such various teaching methods as question and answer, discussion, problem solving, case study, educational games, and logical thinking would be improved in this sense. This result is also present in a study by Duman and Arslan (2020, p. 137). Accordingly, using the most suitable strategy, method and technique for the content in teaching logic would make the quality of teaching, learning level and learning outcomes efficient. As for supporting logic teaching with games, it would provide with the socialization of the students their active participation and reinforce the subjects. In this way, the course of logic would be a course listened with pleasure and willingly by being away from boredom for students.

A similar case is also true for the course of philosophy. Since it would not be sufficient to merely transfer information to students in developing their cognitive capacities, there is a need for some practices to eliminate the course of philosophy from a theoretically limited area. One of the components to meet this need is intelligence games. It is because the intelligences to be used to strengthen the practical side of the course of philosophy besides the theoretical side would dramatize the content of the course and make it enjoyable for students (Duman & Petek, 2022, p. 8). The leading problem in philosophy education is that the subjects in this discipline are ab-

stract ones, the subjects are away from daily life, the course is carried out depending on memorizing them, the content comprises too many details, lack of teaching concepts in the process of teaching and learning, teaching is of secondary importance and it guides student to memorizing. Accordingly, the fact that the concepts in the course of philosophy are abstract makes the course harder and teachers try to make the subjects concrete using examples to overcome this problem (Biçer, 2013). In his study, Dombaycı (2008, p. 166-167) pointed out that mostly direct instruction method is used in teaching the course of philosophy, such methods and techniques as discussion, presentation and exemplification are rarely used, the language in the course books are hard to understand, the outcomes must contain knowledge, skill, attitude and values, and that the course content must not only comprise philosophical information and problem, but also thinking skills. Kızıltan (2012) pointed out that regarding the course of philosophy as a course which has no contribution to the university entrance scores by the students is a problem in terms of philosophy and indicated that students regard the course of philosophy as an abstract course focusing on the ideas of philosophers, away from daily life and requiring memorizing, so they have a negative attitude towards the course. Bayrak and Duruhan (2016) emphasized that teaching must be student-centred by giving places to group work in philosophy teaching, teaching settings must be diversified to develop the commenting and thinking skills of students and that the learning strategies of learning by doing must be used in order to increase the interaction between teacher and student. Therefore, the course must be attractive in a way to support the content in the course of philosophy, student must share their ideas, and they must be given opportunities to express their thoughts in various topics and to make analytical reasoning.

To sum up, it is known to us that the courses of philosophy and logic are compelling mentally, there are some troubles in understanding the courses, these troubles lead to the feeling of failure at students, a negative motivation is formed against courses and that the concern and anxiety level is high. For that reason, it is of necessity that the branch teachers must include intelligence games in the curriculum and they must eliminate negative thoughts and feelings among students. In this way, it must be taken into consideration that intelligence games are a significant factor both in the rehabilitation of course success and the attitudes of students towards the courses and in the attainment of such versatile outcomes as knowledge, skill and attitude, so these games must be benefitted at maximum level.

Using Intelligence Games at Philosophy and Logic Education

It is of importance to include games in the learning settings in terms of providing individuals with meaningful learning and increasing their cognitive skills. Among the games making a great contribution to development and learning, intelligence games are one of the earliest known game materials. According to Çağır and Oruç (2020) they could be considered as the new generation educational materials serving as an alternative against the problems caused by technology, besides being the earliest game materials. It is because some games offered by technology which are not considered as educational make individuals addicted to technology and prevent them from socializing. However, integrating games that would encourage socializing, learning, entertaining, skills and competences with the field of education turns intelligence games into a functional teaching tool.

The role of intelligence games in attaining a great many skills is a known fact, but it is an issue to be considered in applying it in a systematic way. One should bear in mind that student could be attained skills in a systematic way by means of intelligence games and that these games could be used in an active way in different courses. One of these courses is philosophy and logic. It is known that intelligence games are the games contributing the development of cognitive skills. At the same time, it is likely to see that a common sense was adopted in the curriculum of philosophy and logic courses after the latest updates and the skills that individuals must have were mentioned. In both curricula, it was highlighted that students must be equipped with such skills and competencies that could keep up with the science and technology era, meet their needs, and support them to solve problems they encounter, which are all regarded as 21st century skills. This was given in the curriculum of the course of logic (ME, 2009, p. 6-7) as follows: "It is aimed to have students completing the course of logic that they can transfer true thinking ways to daily life, they are aware of their own thinking ways, they can attain the skill of being consistent while thinking, they can supervise the consistency of their thoughts, they are aware of contradictions, they can think independently, they can produce ways of solution to the problems they encounter and they can ground the trueness of knowledge." A similar emphasis was placed in the curriculum of the course of philosophy (ME, 2018, p. 13) as follows: "there are such basic competencies that are thought to be attained by the students with the curriculum of philosophy as acquisition of philosophical concepts and information, reasoning, questioning, argumentation, analytic thinking, critical thinking, the skill of expression and writing, philosophical literacy, producing original ideas".

Considered in the category of educational games, intelligence games are the games with which the learners can practice their knowledge, skills and strategies in the roles they have. They can also be used in philosophy and logic teaching in order to develop and apply the knowledge and skills acquired beforehand, determine the gaps and weaknesses of the knowledge

and skills develop new relations and principles between concepts and principles (Demirel T., 2021, p. 5). For that reason, these games could be used as reinforcers in the philosophy and logic courses by applying in the beginning and at the end of the units. As an example, the levels of readiness of the students could be determined by means of intelligence games applied in the beginning of the unit, or they could be used as an assessment instrument at the evaluation stage to determine how much the subject was taught by practicing them at the end of the unit. An intelligence game given in the beginning of a unit where the concepts or movements are abundant in the course of philosophy will both inform the teacher for the sake of predicting the knowledge of the students regarding the issue and activate the present knowledge and skills the ones playing the game. A similar case is also valid for the course of logic. As an example the intelligence game of ABC Bağlama could be used to determine the concepts which are both frequently mixed and synonymous such as induction, analogy, assertion, assumption in the course of logic. In this way, it is likely that synonyms of concept could be related to each other and taught in an understandable and enjoyable way.

In philosophy and logic teaching, reasoning games in the form of puzzles that could be solved by evaluating the given clues and only logical assumptions, and operational games where logical assumptions as well as four mathematical processes are used (sudoku, minesweeper puzzles, and logic square) are other examples to be used. Besides that, verbal games could also be benefitted to facilitate the courses in question, since they are the kinds of games where those playing the games could benefit from logical assumptions as well as their vocabulary and general knowledge skills. Those playing such games as anagram, word puzzle, attention test, word hunt could produce meaningful words, could place the words given in lists in a table in a way that they are compatible with each other, and produce meaningful words out of the letters regarding a theme given in a mixed way. In the metal games based on visual or verbal memory, which are one of the intelligence games, such games as matching and rebus where you can find meaningful words produced out of a picture or alphabet depending on a theme could be benefitted and such other strategical games as reverse, tic tac boom, go, mangala where both the individual and the other player could apply their logical assumptions as well as intuitional tactics in their experiences at the different stages of the game could be used.

In this way, as it will be possible to make the content of philosophy and logic courses understandable and enjoyable by benefitting from the intelligence courses as an educational game or an activity, the success in these courses will increase. In this context, it is of great importance to relate the intelligence games with the learning outcomes of the courses of philosophy and logic and to apply the activities to be developed.

Conclusion

Game in the field of education comes to the forefront as an alternative activity out of courses for many years. For that reason, it did not find its place neither in school programs nor in course plans for a long time. With the changing and developing educational approaches, game is now regarded as an activity that must be benefitted for an efficient and permanent learning. Studies (Aşuluk, 2020; Atay, 2018; Karataş, 2021; Lynne, 2004; Uskan & Bozkuş, 2019; Uslu, 2022; Şentürk, 2020; Whitebread, 2012) show that game makes a positive contribution to the development child. With these developments, game has been encountered so often in recent years.

Any development and invention facilitating human life and allowing the accomplishment of a trouble is the product of unusual minds. It is known that mind, logic, cognitive capacity and reasoning that help think differently and produce different solutions that human being can develop throughout his life. However, this development serves for developing mental capacity and skills much more by means of various intelligence games and activities. Intelligence games are an activity making the active learning desired to be realized more permanent and enjoyable. Human being in the twenty-first century must have a quality of being able to think critically, analytically and creatively, having a high-level problem-solving and communicating skill, to produce original ideas, in short, a quality with high level thinking skills to respond the needs of the age. To be able attain these qualities will only be possible through educational settings. In this sense, intelligence games will offer an opportunity for the applications based on active learning by doing and experiencing in educational processes and help them attain high-level thinking skills. Therefore, it looks as a need to use it in the philosophy and logic education where a practical field is needed to increase the permanence of what is learned as there is an intensive theoretical field.

Intelligence games make a contribution to individual mostly by means of cognitive skills as they activate cognitive process of individual and improve his problem-solving skills. Developing these skills are among the objectives of intelligence games as well as those of philosophy and logic disciplines. Upon the review of the visions of the curricula of these disciplines, it is likely to see that they aim at training individuals who can make critical, questioning, reasoning, who can solve problems, become aware of the relations and differences just like those of intelligence games.

The basic importance of philosophy education is to inspire the student effort of an individual who encounter any problem to solve this problem in a rational way. Here, the combination of theory and practice is of importance, but philosophy courses are mostly taught theoretically. For that reason, there is a need for practices that will enable student to use philosophical knowledge and enter its experience area. This need of practical field could

be obtained through intelligence games. Providing students with asking questions regarding human being, knowledge and the world he lives in and seeking for answers based on reasoning, providing them with developing their skills of thinking and expressing their thoughts, which take place in the general objectives of the course of philosophy, correspond to the objectives of training individuals who can question, think regarding the problem, make inferences and comments, and produce ideas, which take place in the curriculum of intelligence games. Besides that, while it is provided that they set over the problems they encounter with real life materials and relate them to the real-world problems by means of intelligence games activities, it is aimed to question the issues regarding the world they live in such as whatness and meaning of existence, universe and life, and they can relate their thoughts with daily life in the field of philosophy. Also, the active nature of the learner was emphasized both in philosophy education and intelligence games.

On the other hand, intelligence games allowing the student-centred learning and the learner to structure, form, comment and develop knowledge could be related to logic education as well. As a matter of fact, students are expected to have such qualities as being aware of the own thinking ways, transferring the ways of true thinking to the life, developing awareness for contradictory thoughts and grounding the trueness of knowledge. Making students develop their knowledge, skills and strategies regarding how to support reasoning skills is both a result of logic education and the basic aim of intelligence games. The idea of making students attain a reasoning skill which is the objective of both of them is one of the most important skills that will be used throughout life. Thanks to intelligence games, these skills will be developed because of a practical application field. In this way, the skill of true thinking and reasoning in the logic and philosophy education will be turned into concrete products and their permanence will be increased. It is because game is a tool making the individual recognise the world he lives in and make it meaningful. For that reason, it will certainly be true to benefit from games in education system. A similar thought can be seen in a study by Uskan & Bozkuş (2019). Accordingly, when behaviour, knowledge and skills are internalized with games, they become more permanent, and they are learned in a natural way. Therefore, the power of game must not be ignored, and it must be provided to be taken more places in education system by delivering its value it deserves.

According to Uslu (2022), since game-based learning is not an education in games but a technique adopting the logic of game in education, education symbolizes the whole and game symbolizes the part. For that reason, building a sense of education based on games could mean ignoring other strategies used and diminishing education to entertainment. What must be taken into consideration is to be aware of this distinction. The purpose of

designing games could be entertainment and having a good time, but what is important in a game that will be benefited in education is not just playing it as a game but that it could be benefitted in teaching with the activity design and guidance of the teacher.

The current study was carried out into the importance of intelligence games in philosophy and logic education taking place in secondary education; however, upon the review of the related literature, it was found that there was no study regarding intelligence games related to philosophy group education and the ones found was very limited. In addition, when it is considered that most of the studies were conducted at a certain stage of teaching (preschool, primary, secondary education) in certain courses (Turkish language, mathematics, science, social sciences), it is believed that it is of importance to carry out researches at various teaching stages and disciplines.

It was found that what is learned in the practice will increase the interest and motivation and improve academic performances in the case of preparing intelligence games within learning setting suitable for the curriculum and it will have a positive effect on the school success, so they can be practiced in logic and philosophy education. Since the subjects of the two courses are hard to understand and abstract for the students, educators have significant tasks in order to eliminate this thought and make the course more effective and understandable. The first one of them is to relate the subjects of philosophy and logic to daily life with the help of intelligence games and makes them concrete, offering students some practices about how to learn philosophy and logic. In this way, using intelligence games will make the interests of students alive and increase their interest, knowledge and skills regarding these fields.

Besides that using intelligence games as a course material is of a quite efficient function in attaining students such features as increasing communication skill, empathy abilities of students, expressing their thoughts, acquiring self-esteem. In addition, students will both learn to be patient and respectful among them and peer learning will be realized thanks to intelligence games based on cooperation. In this way, the subjects both in philosophy and logic courses must be arranged by paying attention to the interests and needs of students and they must be taught in relation to daily life, and also methods and techniques where the student is active and reasoning is realized must be used in teaching process. By this means, it is believed that such problems as forgetting based on memorising caused by traditional teaching methods and developing negative attitudes towards the course will be decreased through the philosophy and logic courses that are planned in an effective way and that the importance deserved by the two courses will be regained.

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