

COMPETITION AND COOPERATION: THE USE OF THE QUATERNITY GAME AS A PLAYFUL STRATEGY IN TEACHING



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ABSTRACT

The concern with an education that has meaning for students is a recurring theme in academic reflections and research. The objective of this study is to analyze the relationships that develop through the practice of the Quaternity game in educational environments and, specifically, to verify the perception of the game and its practice among students of basic education in the interior of Ceará, comparing various dimensions of the students' lives. The operational methodology used was the mixed procedure comprising numerical data produced from a questionnaire and open interviews, carried out with 150 students from Elementary School II and High School classes, from July to December 2024. The results indicate that Quaternity is a game that improves reflexes and requires adaptation to your pace, as well as consistency and focus. The game is fun, positive and stimulates the brain, working patience, attention and strategy, and can be an alternative and challenging game for students. Outside the universe of social networks, they were able to dialogue with our research group, in the relationship with their professors and university students, in their own institution and create expectations beyond the school space. The discussion is descriptive as to the quantitative results, presenting an analytical treatment of the findings based on the qualitative results, according to the data of students who had the opportunity to learn and practice this game during the research journey. The conclusion indicates the meanings of the Quaternity game from the experience of playing it, the effects on people from its regular practice in a learning environment and it is necessary to carry out continued research to understand approaches to sociology themes about Quaternity and broader social dynamics, as well as more in-depth pedagogical approaches on the use of Quaternity for cooperation and competition in playful activities in teaching.

Keywords: Learning. Means of Teaching. Didactic Equipment. Educational Games. Full-Time Education. Quaternity in Teaching.

INTRODUCTION

Discussions within educational institutions about meaningful learning have expanded intensely. The concern with an Education that has meaning for students is a recurring theme in academic reflections and research.

The main issue of this issue may be to perceive the relevance of educational promotions aimed at playful learning (Antunes; Birth; Queiroz, 2020).

We consider that the ludic contemplates a polysemy of meanings sometimes as a premise of necessity for human behavior in the sociological aspects of social reproduction, sometimes psychological in the aspect of group sustainability, and even more, eventually, in the pedagogical and epistemological aspects of the other sciences that make up large areas of knowledge.

Brazilian society, in the search for scientific and human development, demands basic and higher education institutions, as instances of teaching-learning, instruction, training, learning of coexistence, to meet the needs of their public in their environments of coexistence, at home and at work, preferably, considering them as active subjects in the production of knowledge (Brasil, 2021).

However, there is still a predominance in Brazilian teaching from Basic to Higher Education a lack of experiences that associate critical reflection and pleasure. Playful activities can be excellent methodologies in teaching practice that provide an understanding of the social world, in a sociological sense, and psychological in a form of learning promoted in interaction with other people, contributing to meet this demand (Verissimo, 2016).

Playfulness as a premise to corroborate a quality education that provides reflection, pleasure and human sustainability can be facilitated through board games (Antunes; Queiroz; Saints; Lima, 2018).

Games tend to reflect society in its current aspects (Huizinga, 2000). When competitive, they are win-lose games. When cooperating, they are win-win games.

Based on the premise that both cooperation and competition are behaviors inherent to the human, we propose to study the applicability of the Quaternity game in basic education.

The objective of this study was to analyze the relationships that develop through the practice of the game Quaternity in educational environments and, specifically, to verify the

perception of this game and its practice among students of basic education in the interior of Ceará, comparing several dimensions of the students' lives.

To this end, this study investigated for a period of six months, from July to December 2024, the applicability of the use of Quaternity in a public educational environment within the scope of Basic Education. The institutions involved for the empirical approach are public state schools of full-time elementary and high school, vocational schools and a non-governmental organization focused on education, all located in the interior of the state of Ceará, specifically, with elementary and high school students in the cities of Altaneira, Campos Sales, Crato, Farias Brito, Jardim and Juazeiro do Norte.

The Quaternity sessions lasted an average of 90 minutes, or two hours/class each. They were included as an elective subject in a list of other possibilities that included sports activities, which in general is the practice of soccer and volleyball, music, and pedagogical activities: school reinforcement, cinema, playful and pedagogical games.

The operational methodology used was the mixed procedure, comprising numerical data produced from anonymous questionnaires and open interviews.

The total number of students enrolled in the Quaternity sessions was 150. The questionnaires were distributed and 98 returned answers. All questions had the option "Do not know or did not answer". The monitors advised the participants about the non-obligation to answer the questions, that is, those who wished to participate in the research could freely select the questions they wanted to answer.

To systematize the data produced with the questionnaires, tabulation was performed and analysis was carried out considering the combinations: the taste for board games with age and level of education; the potential application of Quaternity according to the preference for specific games; characteristics of the socioeconomic conditions of the family of origin of the sample, combining education, income and access to opportunities; the possible influences of the gender and ethnic origin components on the choice of games and sports practice; influence of family size on the type of social interactions; and a brief diagnosis of the use of technology at school and learning possibilities with digital playful activities.

Open interviews were conducted with 49 students who were part of the first stage. The interviewed participants were initially chosen by availability among those who answered the questionnaires and, subsequently, by attendance in most of the sessions. The interviews addressed the evocation of the term Quaternity and inquired about the

perception of the game at the beginning of the workshops and at the end of the game period.

The treatment of the interview data was carried out by content analysis (*Bardin*, 2016), comprising: transcription of the material; choice of analysis categories; selection of registration units by identification of semantic content and establishment of relationships between the categories and groups by age and school year.

The final discussion about the contents produced contemplates the way the participants directly experienced the sections and the meanings attributed.

THEORETICAL FRAMEWORK

Games and games have been present in human society since its most distant past (Huizinga, 2000). The game basically consists of the manipulation and transformation of images, where with the "imagination" the human being creates another world, that is, another version of reality and the activities developed by the human being are somehow intrinsically linked in that game universe.

When we treat the game as an element of culture, in its various facets and theories, which involve functioning and objectives, it is worth noting that, being part of life in a broad way, this activity is not subject to exact definition in logical, biological or aesthetic terms. This is because it is not possible to say exactly what a game is, but only to summarize the general characteristics present in human activities considered as a game. Conceptually, a game is an activity: 1. Free; 2. Considered as "non-serious" in relation to the obligations of usual life, and at the same time serious due to the potential to absorb the player in an intense and total way; 3. Ideally take place as an activity disconnected from material interest; 4. Be practiced within its own spatial limits; 5. Have a pre-defined duration; 6. Follow a pre-established order of participation; 7. Contain predetermined rules with which participants must necessarily agree (Huizinga, 2000).

We perceive in Quaternity different possibilities of use as a playful strategy for teaching-learning, since Quaternity involves both competition and cooperation. In addition, there are other differential characteristics of Quaternity, namely: there is the challenge of being unpredictable (Romano, 2022); there is a lot of creativity involved in the moves; anyone who has never played conventional chess can learn Quaternity; anyone, regardless of generational, origin, economic and other markers, can enjoy a cultural and personal experience with leisure (Sirvent; Ferreyra, 2023).

In anthropological terms, games are present in societies even in antiquity, having always provided the establishment of a wide range of interactions between participants, both between individuals and between groups (Gallo, 2007).

The games express in singular situations the general conditions of their time. In addition to being an expression of societies with aspects of the historical context in which they arise, in phenomenological terms, games indicate parameters for understanding the world, that is, how people think and talk about it, in addition to attributing meanings to experiences.

From the individual point of view, inspiration in phenomenology indicates that there is a natural attitude in the individual in interactions with the other, with himself and with the social world, that is, an intention that turns an object into a cultural phenomenon endowed with meaning (Berger; Luckmann, 2002).

Phenomenological didactics objectify the world through perception, in which the school needs to be thought of as a historically and culturally constructed institution. "In the school-life-world, what is placed is the relationship with knowledge and with the world of culture, which cannot, from any perspective, be aligned with market needs or merely economic development strategies" (Bergamo *et al.*, 2024, p. 824). The essence of the school and the educational act that phenomenology seeks to rescue is the exposure to knowledge as it is experienced by students, teachers and other people involved in the educational process

Here, this means that the participants in a playful act are moved by intentions that can have a pacifying, agonistic, selfish, altruistic meaning, among others. Thus, assimilating these movements means perceiving them from the intentions that animate them, because within certain parameters, they are movements of social action with meaning (Weber, 1999). The science that is done in these parameters speaks of the world of living experience in which it was born as a reality of everyday life (Dartigues, 2003).

For didactic purposes, the most suitable games may be those where both competition and cooperation take place. This is because, in sociological terms, games can bring reflections on the aspects of cohesion and social rupture and their group practices, translated as cooperation and competition.

Among the games that present possibilities of competition and cooperation at the same time, we highlight a game that emerged ten years ago as an advanced alternative to

conventional chess called Quaternity, which we will focus on its possibilities as a playful instrument applied to teaching.

In advance, it is known that conventional chess has been used in teaching in several countries. This is because chess brings benefits related to the development of attention and imagination of the practitioners of the game, bringing as an example the American schools that use chess effectively in the school space (Kasparov, 2016).

The conventional chess player aims to eliminate the opponent by moving the pieces on the board, achieving victory for the one who captures the opposing king, that is, the one who checkmates the opponent wins. This conventional chess as a playful pedagogical activity allows us to understand society by analogy to aspects of social structures and contexts of dispute (Freitas; Queiroz; Carvalho, 2022), facilitating as a metaphor, the understanding of conjuncture analysis, while also developing cognitive skills, such as: memory, concentration, planning, and strategy for decision-making.

We consider that there are social dynamics that are sometimes conflictive and sometimes cooperative between individuals and between groups, which configure a weave of relationships, symbolic exchanges (Bourdieu, 2005), affection and individual disaffection that interpenetrate and blur the boundaries of dualistic understanding in group interaction. This perspective of understanding the conjuncture that is multiple and continuously changing (Bauman, 2001) is one of the challenges of our time in overcoming duality in interactions.

In the perspectives of the practice of Quaternity, there is an expansion of these possibilities. One of its characteristics is that in addition to establishing a sports rhythm, it induces an active educational process, capitalizing on the virtues of cognitive learning with the capabilities of emotional intelligence, in other words, the benefits of the game are enhanced in a new scenario of amplitude and variation of the stimuli we receive as new challenges to thinking, intuition and emotional intelligence.

Active and participatory methodologies in the promotion of socio-emotional competencies contemplate contemporary learning theories as an opportunity for innovation of pedagogical practices in Brazilian schools (Facchinetti *et al.* 2024).

The use of games in learning is important beyond play, as it helps educators to develop more inclusive and motivating pedagogical practices. Games promote organic learning and the development of socio-emotional skills, such as collaboration and empathy. This strategy diversifies teaching methods, engaging students and making them

protagonists of their own learning, especially in the face of an increasingly diverse class. (Duarte *et al.* 2025).

With Quaternity there is a practical proposal to change bipolar thinking – in the sense of duality – to multipolarity. Such expansion of thought as a result of practice happens both in the sense of group interaction and individual behavior, characterized by the synergy of collaboration and competition in the dynamics of the game, in which tactics use the position of the opponents to the benefit of our own strategy (Trombetta, 2024).

This leads us to suppose that there is a transposition to the understanding of social situations, in which scenarios occur alliances and ruptures, involving interaction, emotion and reason.

Quaternity, the object of this study, is configured as a game that brings these potentialities above. It is inspired by an ancient Indian game called Chaturaji and is configured as an evolution of conventional chess idealized to be aligned with the reality of the twenty-first century, that is, it adds new dimensions that reflect the world we live in today, a globalized, interconnected and fast-moving world, with its uncertainties, flexibilities, unforeseen events and opportunities (Romano, 2022).

The dynamics of the game are unique. Even though the pieces are the same as conventional chess and follow the same moves, it presents changes in the positioning that the pieces take on the board, suppression of moves, and in the number of players. The board has 144 positions in which four, eight or more players can participate in each game arranged in four teams. With four individuals or four teams, everyone is an opponent, that is, all against all. This is one of the characteristics in the structure of the game that makes it even more interesting, dynamic and unpredictable, so that the moves cannot always be premeditated by the opponents or by a computer. When one of the participants checkmates, the player who made the final move wins the pieces conquered from the defeated opponent. The winner is the one who has added the most points resulting from the possession of the other groups of pieces - armies (International, 2023).

Quaternity brings a diverse range of possibilities for application in the after-school period, corroborating Figueiredo and Aguilar (2024) when they highlight that comprehensive education can develop the Reference Curriculum in one shift with components of the National Common Base, and offer integrative activities in the after-school period to expand learning opportunities, promoting a broader and more comprehensive approach to education.

From the point of view of the author of this text, this game allows for greater interaction between players, taking on characteristics of a social game, where teams can play and even if the rule does not allow explicit alliances, mutual cooperation can happen, for a common interest.

As a playful activity in teaching, Quaternity proposes a praxis that involves students in collective leisure activity, which can help in the development of non-linear thought formation, contributing to the creation of more creative ways of thinking that are important in decision-making. In addition, this practice can expand and improve skills to deal with a more fluid, fast-paced, and ever-changing world.

RESULTS AND DISCUSSION OF QUANTITATIVE RESEARCH

This survey, aiming to investigate the quality of life and environment of the students participating in the research, covered several dimensions of their lives grouped by thematic affinity, the results of which are presented below.

QUANTITATIVE DATA FROM THE FIELD RESEARCH

Table 1: Demographic Characteristics of the Participants

Distribution by Age and Level of Education	
a) Elementary School: - 4th and 5th years (8 to 10 years): 30% - 6th and 9th grades (11 to 14 years): 16% b) High School (1st to 3rd year, 15 to 18 years old): 54%	
Sex	Ethnic/Racial Background
a) Male: 61% b) Female: 39%	a) White: 21% b) Black: 28% c) Brown: 45% d) Other ethnicities (Asian, indigenous): 4%

Chart 2: Family and Socioeconomic Situation of the participants

Parents' education	
a) Primary/Elementary School: 32% b) High School: 49% c) Technical training: 6% d) Higher: 8% (of which 3% with a postgraduate degree) e) Don't know/didn't answer: 5%	
Father's Occupation	Mother's Occupation
a) Farmer: 9% b) Merchant/Stallholder: 9% c) Bricklayer: 7% d) Unemployed: 3% e) Motorcycle taxi driver: 3%	a) From the home: 16% b) Cleaner/cook: 9% c) Female farmer: 5% d) Attendant/receptionist: 4% e) Merchant/marketer: 3%

f) Mechanical: 3% g) Retired: 1% h) Deceased: 1% i) General Services: 11% j) Don't know/didn't answer: 52%	f) Unemployed: 2% g) School secretary: 2% h) Retired: 1% i) Miscellaneous services: 7% j) Don't know/didn't answer: 51%
Household income	During the past 6 months, you have lived with:
a) Up to R\$ 700: 12% b) From R\$ 701 to R\$ 1,400: 51% c) From R\$ 1,401 to R\$ 2,800: 14% d) Above R\$ 2,801: 10% e) Variable (not defined): 9% f) Don't know/didn't answer: 4%	a) Father and mother: 62% b) One parent: 29% c) Grandparents: 5% d) Others: 2% e) Did not answer: 2%
Number of People in the Residence	Place of Residence
a) 2 people: 6% b) 3 people: 23% c) 4 people: 24% d) 5 people: 25% e) 6 people: 10% f) 7 people: 5% g) Did not answer: 7%	a) City: 69% b) Site: 30% c) Did not answer: 1%

Chart 3: Activities and Routine of the participants

How many meals do you eat a day?	Do you work (with or without pay)?
a) 3 meals: 12% b) 4 meals: 41% c) 5 meals or more: 47%	a) No: 87% b) Yes: 12% c) Did not answer: 1%

Do you help at home?	If you answered yes in the previous question, how many hours a day do you work?
a) No: 25% b) Yes: 72% c) Did not answer: 3%	a) Up to one hour: 41% b) Two hours: 21% c) Three hours: 8% d) Four hours: 10% e) Five hours: 7% f) Six hours: 1% g) Seven or more hours: 3% h) Undetermined: 7% i) Did not answer: 2%
What activities have you done in the last four weeks? (Multiple replies)	
a) I cleaned my room/house: 52% b) I made purchases: 15% c) I cooked at home: 15% d) I solved things, payments, "warrants": 16% e) Other: 2%	

Table 4: Access to technology among participants

Do you have internet in your home?	You have: (multiple answers)
a) Yes: 90% b) No: 4% c) Did not answer: 6%	a) Cell phone/tablet: 90% b) Video games: 6% c) PC or notebook: 7% d) Did not answer: 1%
Uses computer at school	If you answered yes in the previous question, what do you use a computer for?
a) No: 85% b) Yes: 15%	a) School activities: 100%

Table 5: Leisure and hobbies of the participants

Do you practice any sports?	If you answered yes to the previous question, what is your favorite sport?
a) No: 41% b) Yes: 57% c) Did not answer: 2%	a) Football: 35% b) Athletics: 6% c) Walking: 5% d) Volleyball: 5% e) Gym/weight training: 5% f) Swimming: 2% g) Others: 1% h) Did not answer: 41%
Do you like any board games?	If you answered yes to the previous question, what is your favorite game? (multiple replies)
a) No: 27% b) Yes: 73%	a) Chess: 47% b) Skill games (checkers/dominos/ludo): 32% c) Quaternity: 15% d) Strategy games (head-to-head, Monopoly, War): 5% e) Others: 1%
What do you do for fun? (Multiple replies)	Do you have the habit of reading books?
a) Sports: 27% b) Cell phone: 17% c) Toys: 12% d) Time with friends: 9% e) Watching TV: 7% f) Time with family: 5% g) Parties: 2% h) Reading: 2% i) Listening to music: 2% j) Walking: 2% k) Jump rope: 2% l) Others: 13% m) Did not answer: 4%	a) No: 49% b) Yes: 49% c) Did not answer: 2%
	If you answered yes in the previous question, how many books do you read per month? (Average)
	a) A book: 32% b) Two books: 18% c) Undetermined: 50%

COMPARATIVE ANALYSIS OF QUANTITATIVE DATA

Most parents (81%) have a maximum of high school education, which can impact their children's quality of life and educational opportunities. They have predominantly low household incomes, with 51% of households earning between R\$701 and R\$1,400, which can indicate significant financial challenges. Only 10% of families have an income above R\$ 2,801, suggesting that most families live in limited financial conditions. The combination of education and income may reflect challenges in quality of life and access to resources and opportunities. These data suggest a correlation between parents' schooling and family income, which can influence the quality of life and the environment in which children and young people are inserted. From this it can be inferred the responsibility of the State in guaranteeing a public and free quality education.

The sample is predominantly male, with a significant difference in relation to the female gender. This can influence sports preferences and participation in physical activities.

Most respondents identify themselves as brown (45%), followed by blacks (28%) and whites (21%). Although ethnic diversity can impact sports culture and opportunities to access different modalities, in the specific case of board games, this relationship is not evident.

The majority of respondents (57%) practice some sport, which indicates a general interest in physical activities. However, a significant portion (41%) does not practice it, which may be related to social factors such as lack of access to equipment and cultural factors, such as misinformation and lack of interest due to the lack of influence of the environment.

Football is the most popular sport, with 35% of respondents indicating it as their preference. This reflects the prevailing sports culture in Brazil. The other sports have a smaller participation, but still show a diversity of interests. Chess is not perceived as a sport, but as a game.

The male predominance in the sample is probably what most influences the choice of sport, especially soccer, which is traditionally more popular among men. The same is true of conventional chess, which is traditionally seen as a man's game.

The relatively high rate of sports practice (57%) suggests that, despite differences in ethnic origin and gender, there is a significant interest in staying physically active, although 41% still do not practice sports, which may indicate the absence of programs aimed at encouraging physical activity. These data can be useful to understand the social and cultural dynamics that influence sports practice and participation in physical activities in the analyzed sample.

The majority (85%) do not use a computer at school, which is indicative that schools are not equipped with technology and, in the case where there are computers, didactics and teaching practices have not yet incorporated activities that require the use of computers. For those who use a computer at school, 100% do so for school activities, which shows that the use is focused and directed to learning. When only 15% use computers at school, there is limited access to digital resources for teaching and learning. Even so, the high rate of internet access and the possession of cell phones/tablets indicate that the interviewees are well connected, which can facilitate learning outside of school and the practice of digital playful activities.

Family size can contribute to a more dynamic and interactive family environment. The majority of respondents live in households with 4 or more people, with 25% living with 5 people and 24% with 4. This suggests that many are in relatively large households, which can influence family dynamics and social interactions.

The majority of respondents (90%) have internet access at home, which suggests that most are connected and can access information and resources online. Only 4% do not have access, which is a very low percentage.

As well as internet access, the possession of cell phones or tablets is high (90%). However, the ownership of video games (6%) and PCs/notebooks (7%) is much lower, which may indicate a preference for mobile devices for internet access and communication. The high rate of internet access and the possession of cell phones/tablets indicate that the interviewees are well connected, which can facilitate learning outside of school.

The low percentage of computer use in school may indicate an opportunity to improve the integration of technology into the educational environment, especially considering that most students have access to mobile devices

The majority of respondents (72%) help around the house, which indicates a sense of responsibility and involvement in household chores. Only 25% do not help, which may reflect different family dynamics or ages. The distribution of hours shows that helping at home is an activity that can be managed along with other responsibilities. This data indicates how connectivity and responsibilities at home influence the lives of respondents, as well as highlighting areas where technology can be better utilized in the educational context.

The majority of respondents (88%) eat 4 or more meals per day, with 47% eating 5 or more. This may indicate eating habits that prioritize nutrition and regularity in meals, possibly reflecting a culture that values eating throughout the day.

The majority of respondents (62%) live with both parents, which suggests a stable family structure. Only 29% live with a parent, and a small percentage (7%) live with grandparents or other relatives. This may indicate a familiar environment that offers support and stability.

In the relationship between meals and family composition, the high percentage of people who eat 4 or more meals a day may be related to the fact that most live with both parents, which can facilitate the preparation of meals at home and promote more regular

eating habits, but also to school meals in accordance with law 11.947/2009 for school meals for public school students in Brazil.

Most respondents live in households with 4 or more people, which can contribute to a more dynamic and interactive family environment. This can influence both the amount of meals eaten and the way meals are shared. The predominance of living with both parents and in larger homes may indicate family support that can positively impact eating habits and quality of life. These data offer insight into how family structure and living environment can influence respondents' eating habits and social dynamics.

Regarding the taste for board games, the majority of respondents (73%) like board games, which indicates a significant interest among the groups.

Regarding age, level of education and interest in games, the high school group (15 to 18 years old) represents the largest percentage (54%) of the interviewees, and it is likely that this age group has a greater maturity and interest in more complex games, such as chess, which is the favorite game (47%) and this paves the way for Quaternity that trains a multifocal vision. Elementary school, especially 4th and 5th grades, has a considerable share (30%), but the preference for skill games (32%) suggests that they may be more inclined towards interactive games. In this sense, there is a potential application of Quaternity due to the fact that it is played in four or more people.

In game preferences, chess is the most popular game among all groups, which may indicate that, even among younger people, there is an appeal for games that involve strategy and reasoning. Skill games are also quite popular, especially among younger people, which may reflect the search for games that bring fun to this age group. The data shows that regardless of age or grade level, there is a strong interest in board games, with a notable preference for chess and skill games. High school students seem to have a greater inclination towards games that require more strategy, while younger people prefer more interactive games

RESULTS AND DISCUSSION OF THE QUALITATIVE RESEARCH

The evocation of the game Quaternity was made with questions alluding to participation in matches: What is your impression of Quaternity? What happens during a match? How do you feel about playing?

The interviews conducted were considered as spontaneous testimonies and selected in registration units for identification of semantic content related to the categories of analysis

related to Quaternity, that is: characteristics, qualities, meanings, effects of practice and personal experience.

The content of the testimonies includes the way in which the participants directly experienced the game, the sections and the meanings attributed which, after transcriptions, were summarized, revealing relationships between the categories and groups by age and school year.¹

These testimonies were treated in two groups: 1. Elementary School Participants, and 2. High School Participants, namely:

TESTIMONIALS FROM MALE AND FEMALE PARTICIPANTS, IN THE RANGE OF 10 TO 14 YEARS OF AGE, ATTENDING FROM THE 5TH TO THE 8TH YEAR OF ELEMENTARY SCHOOL.

"I thought it was very cool. How different it is from normal chess! It's like there's more life in the game. I've had my moments of stupidity, but also of pride." L.D. - f, 10, 4th grade.

"The best part is the thrill of checkmating. Sure, there are those moments of anger when everything goes wrong, but that's part of it. It was amazing to learn and play with everyone." L.A. - f, 11, 5th grade.

"I think quaternity taught me to think better before acting, but I confess that sometimes I lose patience. Even so, it is worth continuing to play." C.S. - f, 12, 6th grade.

"Playing quaternity was kind of challenging at first, because it's unlike anything I've ever seen. After a few matches, I started to like it a lot. It's always a mix of tension and excitement." K.S. - m, 12, 6th grade.

"The game was a total novelty for me. At first it was messy, but after a few matches you could already feel that I was improving. It was very good to play with the guys here." H.M. - f, 12, 7th grade.

"I never thought I would have so much fun playing something that requires so much attention. Quaternity has a lot of strategy, but also some funny moments. It was a very cool year of gambling." P.B. - m, 13, 7th grade.

"I felt adrenaline at first. It was kind of hard, but then it worked out and I want to keep playing Quaternity." B.F. - f, 12, 7th grade.

"The Quaternity journey has been very good and I intend to continue playing." E.S. - f, 12, 7th grade.

"It was amazing to see how the group got better throughout the year. And I see it as a really cool weekday." B.C. - f, 13, 8th grade.

"I thought Quaternity was boring, but over time I've realized that it's a lot of fun and competitive." K.S. - m, 13, 8th grade.

"I think it's cool, different and interesting. It's challenging to focus on more than one opponent." C.S. - m, 13, 8th grade.

"The game is very good and challenging because you face four people at the same time." K.S. - m, 13, 8th grade.

"A different and unique game. You have to pay attention to playing a lot of fun and I enjoyed it a lot." L.F. - m, 14, 9th.

¹ The references of the interviews appear in the text in the following order: Two random capital letters to differentiate the interviewees; the lowercase letters "m" or "f" identifying the male or female sexes, respectively; a two-digit number indicating age, and year of study. All interviews were conducted between June and November 2024 in the cities where the survey took place.

"I find Quaternity interesting and quite complex. It's a good challenge." A.S.F. - m, 14, 9th grade.

"I had never played chess, so quaternity was like a double challenge. I love the part of thinking about strategies, even if sometimes I make a big mistake. I want to keep learning and evolving." Y.A. - f, 14, 9th grade.

"Train logical reasoning." C.R. - f, 14, 9th grade.

TESTIMONIALS FROM MALE AND FEMALE PARTICIPANTS, IN THE RANGE OF 15 TO 18 YEARS OF AGE, ATTENDING FROM THE 1ST TO THE 3RD YEAR OF HIGH SCHOOL.

It's a really cool game because you can play with several people and it includes everyone. J.L. - m, 15, 1st year.

The game is good for having more friendships. It's a 10. P.R. - m, 16, 1st year

Stimulates the brain. G.S. - m, 16, 1st year.

Quaternity symbolizes balance and wholeness. Trains accuracy and reflexes. G.O. - m, 15, 1st year.

It's very cool. Liked. J.M. - m, 16, 1st year.

Quaternity for me symbolizes balance and wholeness, representing the union between the conscious and the unconscious. It improves reflexes. The difficulty is to adapt to the pace of the game and maintain consistency and focus. M.S. - m, 16, 1st year.

Quaternity for me symbolizes balance and wholeness, representing the union between the conscious and the unconscious. It improves reflexes. The difficulty is to adapt to the pace of the game and maintain consistency and focus. M.S. - m, 16, 1st year.

It's a good game. It works on patience, strategy and attention. It's hard to win. J.M. - m, 17, 1st year.

Quaternity's weekly matches have been very good. It has similar concepts to normal chess, but it is not the same thing. This dynamic of looking not only at one opponent, but at three at the same time is very challenging. R.C.S. - m, 16, 2nd year.

This project with Quaternity on Tuesdays and Thursdays has been very incredible. I've experienced a lot of emotion in matches with alliances, discords and miraculous victories. I'm loving these moments without a cell phone. I have to use my mind to the fullest. V.G. - m, 16, 2nd year.

It's a very positive game. I.S. - m, 16, 2nd year.

Quaternity symbolizes completeness and balance integrating opposites to create a harmonious whole. Sometimes I can't pay attention to the plays. J.M., - m, 16, 2nd year.

A game that involves a lot of strategy and development of the way of thinking, with the added bonus of being for four simultaneous players that makes it difficult to create a strategy that is not compromised by the other players, but is fun. J.L. - m, 16, 2nd year.

My experience was very different from what I thought, I'm getting used to playing like this four-person game. J.P. - M, 17, 2nd year.

I started playing Quaternity and since then I have noticed significant changes in my problem-solving and critical thinking skills. The game requires me to develop a strategic mindset, anticipating moves and considering different outcomes. I.T. - f, 17, 3rd year.

The game is good. He works on the changes. J.S. - m, 18, 3rd year.

ASSIGNED MEANINGS

The meanings attributed corroborate the thinking as a result of the practice in the sense of group interaction, characterizing synergy of collaboration and competition, as stated by Trombetta (2024). Such broader meanings in the testimonies can be summarized in the first person as follows:

Quaternity symbolizes balance and wholeness, uniting the conscious and the unconscious. It's a game that improves reflexes and requires adaptation to your pace, as well as consistency and focus. With a dynamic that allows the participation of four players simultaneously, it challenges the creation of strategies that are not compromised by the others. The game is fun, positive and stimulates the brain, working patience, attention and strategy.

The weekly matches have been exciting, with moments of alliances, discord and surprising victories. I'm getting used to playing in a group and I appreciate these moments disconnected from my phone, which force me to use my mind to the fullest. Since I started playing, I've noticed significant improvements in my problem-solving and critical thinking skills, developing a strategic mindset by anticipating moves and considering different outcomes.

Initially, I thought Quaternity was boring, but over time I realized that it is a fun and competitive game, challenging because it requires focus on multiple opponents. The experience is unique, bringing an adrenaline rush that I didn't expect. Although it faced difficulties at first, the journey has been rewarding, and the thrill of checkmating is second to none.

Quaternity has taught me to think better before acting, even if I sometimes lose my temper. It's a game that surprised me, and after a few matches, I started to have a lot of fun. The complexity and strategy involved make each game interesting and entertaining. I'm looking forward to continuing to learn and evolve, and it's amazing to see how the group has improved throughout the year. Tuesdays and Thursdays have become very special days to play.

THEMES

The most relevant themes and main feelings articulated in these testimonies reflect the most frequent expressions associated with the game: Balance and totality; strategy; reflection; fun; challenge and change; attention and patience; people/opponent/friends; game, cool/good/different/fun/challenging; mind and time. The set of this theme unveils an initial perspective of understanding the group dynamics in a situation of intense coexistence and, by extension, the changing conjuncture described in Bauman (2001).

The emphasis in the students' speeches during the interviews was for the following ideas: 1. Quaternity is a training of strategy and patience in the face of challenges and changes; 2. The practice of Quaternity develops attention to the totality, in the dynamics of all against all and eventual temporary partnerships that are not explicit; 3. Interaction with friends, opponents in the game, in which time is an important determinant; 4. Among the characteristics of Quaternity are the claims that it is a good game, a "cool and different" fun;

5. Quaternity is an exercise for the mind that also promotes the development of reflexes and emotional balance.

Relating these data to the answers of the interviewees, we can affirm that Quaternity can be an alternative and challenging game for students, which in line with the premises of Romano (2022), to an adaptation to the playful needs in interconnection in the twenty-first century, to the extent that outside the universe of social networks they were able to dialogue with our research group, in the relationship with their professors and university students, in their own institution and create expectations beyond the school space.

We also observed the universe of possibilities that they were able to develop in a short period of time, to meet and dialogue with their peers and members of the research group.

For the School, the opportunity for professors to dialogue with the group, to know what is being done in terms of renewal and creation at the university, is to know that they can have permanent partnerships in new actions.

CONCLUSION

According to the elementary school students participating in the survey, Quaternity is a game of strategy, patience and personal development, but it is more than just a game. It represents a true training of resilience, especially in the face of the challenges to social changes that present themselves in the twenty-first century.

When playing, participants are led to develop a strategic mindset, where anticipation of moves and consideration of different outcomes become essential. This dynamic not only encourages logical thinking but also teaches the importance of adapting to the pace of the game while maintaining consistency and focus, even when circumstances change rapidly.

One of the most striking features of Quaternity is the interaction with opposing friends. The game is designed for four simultaneous players, making the experience even more challenging and engaging. The need to pay attention not only to one, but to three opponents at the same time, requires attention to totality, fundamental to success. Playtime, as an important determinant, adds an extra layer of complexity, as players must act quickly but accurately so as not to miss out on valuable opportunities.

In addition to being a fun and interesting game, Quaternity stands out for promoting the development of reflexes and emotional balance. Regular practice of the game stimulates the brain, helping players improve their problem-solving and critical thinking

skills, while the experience of playing Quaternity is full of emotions, from the adrenaline rush of the plays to the moments of tension and excitement that arise during the matches. This mix of feelings contributes to an environment of learning and growth, where each player can evolve and improve.

According to these students, Quaternity is, without a doubt, a game that provides "cool" and different fun. The ability to play with multiple people makes the experience even richer, promoting socialization and building new friendships. Weekly matches turn into awaited moments, where the thrill of checkmating mixes with the joy of sharing laughter and challenges with friends. Even those who may initially find the game complicated or boring end up being surprised by the fun and competitiveness it offers.

In conclusion, according to the students who had the opportunity to learn about and practice this game during the research, Quaternity is an exercise for the mind that goes beyond entertainment. It teaches the importance of patience, strategy, and mindfulness, while promoting personal and social development. The journey of learning and evolution that the game provides is a valuable experience, which can be lived in each match. With its unique and challenging features, Quaternity stands out as an activity that not only entertains but also enriches the lives of those who are dedicated to playing it.

Eventually, we would have liked to have perceived, in analogy the analysis of social context, approaches to sociology themes on group studies and broader social dynamics. As well as more in-depth pedagogical approaches on cooperation and competition in playful activities in teaching. This would require monitoring the effects of this game from its permanent adoption as a playful component of integral education. However, for the moment, these perspectives present themselves as possibilities for continuing the study.

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