

Using Boardgames to Foster Critical Thinking and Communication Skills



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Question

- **A couple already has two kids. I tell you one of them is a boy. What is the probability the other is a boy?**
- **based on the Monty Hall Paradox**

Answer?

33%

Answer

Re-read the question - the couple *already* has two children. The question isn't asking what are the odds of their *next* child being a boy.

Here are the four ways the couple could have had their two kids (oldest kid listed first):

1) Boy/Boy, 2) Boy/Girl, 3) Girl/Boy, 4) Girl/Girl

As you can see, there are only three cases where the couple has at least one boy, and in two of those cases, the other child is a girl.

Only in one of the three cases where one child is a boy is the other child a boy as well.

The answer to your question is 33.33%

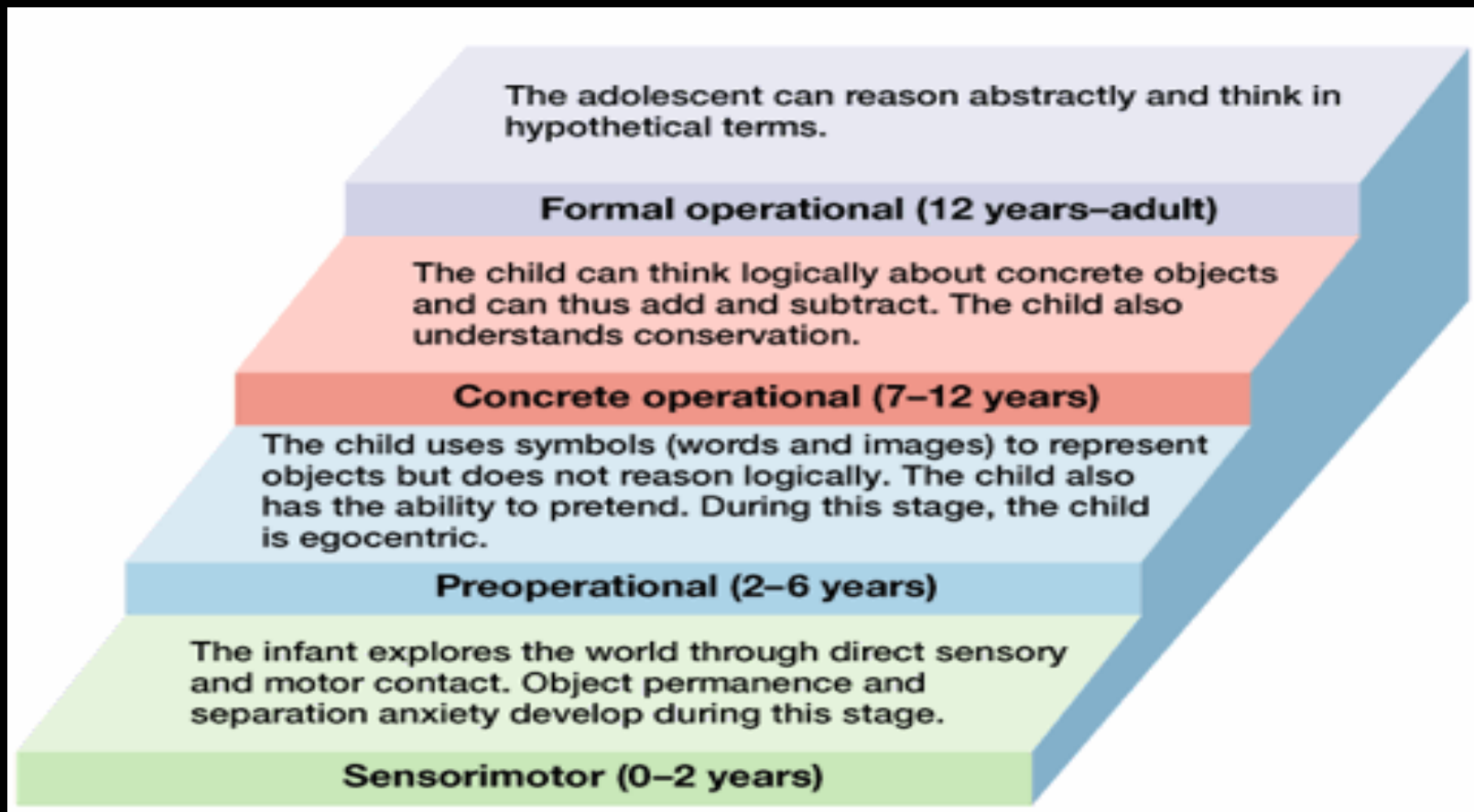
Common Pitfalls to this Question/Answer

The problem most people fall into is forgetting that the "one boy/one girl" situation happens twice as often as either "two boys" or "two girls".

1) Boy/Boy, 2) Boy/Girl, 3) Girl/Boy, 4) Girl/Girl

Cognitive Development

Piaget





Piaget's levels of cognitive development were developed by observing children and young adults playing games and asking them about rules.

Social Collaboration

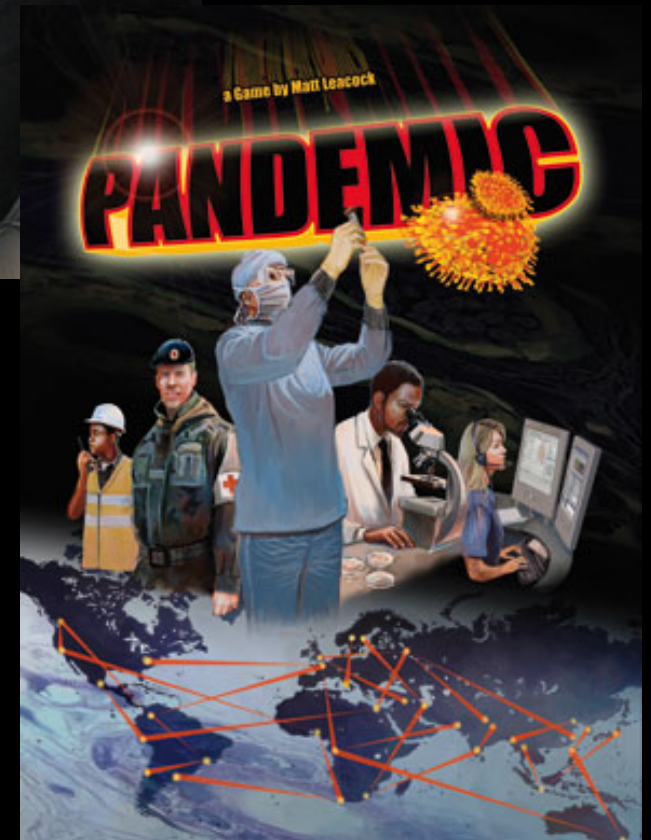
- Some games are specifically designed for cooperation (e.g., Pandemic).
- Many in the autistic spectrum find social interaction easier with games and symptoms of autism are diminished with more play.

Prisoner's Dilemma

	Prisoner B Stays Silent	Prisoner B Betrays
Prisoner A Stays Silent	Each serves 6 months	Prisoner A: 10 years Prisoner B: goes free
Prisoner A Betrays	Prisoner A: goes free Prisoner B: 10 years	Each serves 5 years

Real World Application: Coca-Cola's Dilemma

	Pepsi Holds Prices	Pepsi Drops Prices
Coca-Cola Holds Prices	Each maintain profits	Coca-Cola: < Market share Pepsi: > Market share
Coca-Cola Drops Prices	Coca-Cola: > Market share Pepsi: < Market share	Both lose market share



Not just brain games!

Hidden Learning





Students that haven't worked with their hands had a much harder time problem solving.

Emotional Competence

- Educators are currently too focused *(or are forced into such a focus)* on curriculum excellence.
- Continuous learning process which everyone makes throughout their lifetime.
- Developing appropriate skills and intelligence for dealing with inner (self-esteem/confidence) and outer (communication skills) surroundings.

Human Development

- Research shows that social and emotional development plays an important part in children's academic success and health.
- Unlike IQ, emotional competence can be nurtured and developed, and is a key factor in physical and mental health, social competence, academic achievement and other aspects in the personal and social development of children and young people.

Prioritizing

Today's best games are all about presenting the players with choices and decision points, but not allowing them the freedom to have it all. They must choose.

This reinforces the basic premise of life that one does not just go from one entitlement to another, but that one must make choices based on current and future circumstances and that there are consequences for those decisions.

If both A and B are good, but you can do only one, which do you choose? This is the key to both good game design and how one learns to navigate the choices in life.

Why games after school or in the classroom?

- Improved attitude and motivation
- Improved social and communication skills.
- Improved ability to deal with feelings, take responsibility, and think creatively and positively.

Why games after school or in the classroom, cont.

- Build self-esteem and teach individuals to act with assertiveness.
- Deal creatively with conflict situations and develop a stronger sense of identity.

Why These Games?

From an educational and mathematical sense, Eurogames are deeper than classic games like chess.

Their boards are often irregular, turns may consist of several separate decisions, and the game usually has many sources of randomness.

The dynamics grow even more complex when you play three or four (or more) opponents at once.

Common Core Standards?



Students have 10 days to travel in the USA. They may travel the country by jet, car, and on foot. Students must plan their trip from start to finish using destination and transportation tiles.

Sample Common Core Standard areas matching 10 Days in the USA

- *Integration of Knowledge and Ideas*
 - Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
 - Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts
- *Reading Standards for Literacy in History/Social Studies*
- *Using Probability to Make Decisions*
 - Use probability to evaluate outcomes of decisions
 - Analyze decisions and strategies using probability concepts

Thank you!

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**WHERE LEARNING
CAN BE FUN & GAMES!**





MISSION STATEMENT

The Youth Boardgaming League is a non-profit organization established to develop critical thinking and communication skills in people of all ages. Using European-designed board games as teaching tools, it is our intent to provide a safe, fun, interactive and challenging program. Our system can be implemented in a variety of settings including: K-12 schools, colleges and universities (private or public), libraries, clubs and organizations, community and senior centers.

ABOUT THE PROGRAM



The Youth Boardgaming League (YBL) proposes to offer after school programs a new opportunity to engage students. Currently, the YBL operates more than 40 after-school and library programs from Los Angeles to Merced, CA. The implementation team has extensive cross-cultural experience and the games chosen will be culturally-tailored so they meet the unique needs of each school. The YBL will tailor the program to individual sites, train and evaluate the site implementation staff and deliver to your school an exciting, innovative program that increases the critical thinking and communication skills of your students.

This program is best held in campus libraries or cafeterias. It has been determined that one project administration specialist staffing a program should be able to serve up to 30 participants. If you anticipate a larger number of participants, it is recommended that more staff be trained. As an indoor activity, the program is not hindered during weather extremes or “bad air” days and is accessible to all participants, regardless of age, mental or physical ability. Board gaming is an inclusive experience that encourages people of all types to enjoy an activity together developing community! Further, as an option for those that show interest, tournaments may be coordinated to provide validation of improvement in the games and offer a competitive piece to the program. This tournament activity will also be combined with an already existing YBL program component where students have the opportunity to compete in the Central Valley Boardgaming Championships held annually at Fresno State.





The YBL program utilizes a wide variety of critical thinking and communications-based board games, often referred to as Eurogames.

Through the “hidden” learning provided by these games, the program focuses on helping people build life skills such as setting realistic expectations, determining ideal maneuvers in a dynamic situation, understanding the need to practice in order to improve, learning how to positively celebrate success and graciously handle defeat, and most importantly, how to have fun in a constructive and beneficial way.

These board games are a broad class of tabletop games, mostly originating from Germany, that generally have simple rules, short to medium playing times (20 - 90 minutes), direct and indirect player interaction and attractive physical components.

The games offered by YBL emphasize strategy and communication, downplay luck and conflict, lean towards economic rather than military themes, and usually keep all the players in the game until it ends!

Recent research in the communication field has proven that gaming can teach adolescents valuable life skills.

Citizenship Skills

Games are used to teach children that following the rules and respecting authority often leads to success.

Games teach valuable civic skills such as voting and participation in organizations.

Leadership Skills

Games allow players to practice leadership roles, giving them valuable experience and confidence.

Games teach valuable leadership skills such as wisdom, courage, and patience

(Raphael et al., 2010).

Games have been proven to teach young adults valuable skills and procedures that can be utilized throughout their entire lifetimes. Board gaming has also been proven to develop leadership skills, build critical thinking skills, and help develop skills referred to as “executive function”. These are the skills that educators and researchers believe lead to a person’s ability to formulate and pursue goals.

“We learn from games quite differently than we do from news and books”

– [Gee, 2010].

Games

Performance before competence

Perform an activity (game), and read about it later

Games give young adults lived experience that can be applied to the concepts learned in class

Lecture

Competence before performance

Read about something, and possibly perform it later

Many concepts learned in school are hard for adolescents to relate to because they have little relatable lived experience



KEY POINTS

- **Participation in YBL has shown to increase adolescents' ability to exert self control and reach personal and life goals.**
- **Games encourage players to use critical thinking skills to solve problems.**
- **The YBL is an inclusive (and community building) activity for all individuals.**
- **Game play enhances better attitudes and moods.**
- **Playing games teaches us to deal with feelings, identify needs, formulate demands, listen and communicate efficiently, take responsibility, and think creatively and positively.**

CREATIVITY

The ability to produce unique and thoughtful ideas at the individual & collaborative level

PROBLEM SOLVING

The ability to create a plan of action in order to achieve a desired goal

Games Teach 21st Century Skills

SOCIAL SKILLS

The ability to interact appropriately with others based on the social context

COLLABORATION/ TEAMWORK

The ability to coordinate with others to make decisions and accomplish tasks

-[Romero et al., 2015].

Educational game-based learning can be used as a tool to teach valuable 21st century skills. Not only do games require communication and collaboration, but they also teach innovation and decision making skills. Serious games can be used to help young adults learn the skills that they will need to be successful in life (Romero et al., 2015).

Serious Games: Games that focus on education instead of entertainment

-Romero et al., 2015

GAME CHARACTERISTICS THAT FOSTER LEARNING



-[Charsky, 2010].

These four game characteristics have been proven to motivate children, as well as teach them valuable life skills.

- **Competition and Goals:** Competition encourages players to try their hardest and reflect on their choices. Players can create goals to improve their performance future plays.
- **Rules:** Rules in games can be set to match real life phenomenon in order to teach kids about structure and authority.
- **Choice:** There are three different types of choices that players make during gameplay
 - Expressive choice: Choices made in gameplay that do not necessarily affect learning, but allow players to increase motivation and engagement.
 - Strategic choice: Allows players to make choices that affect certain aspects of play such as level of difficulty.
 - Tactical choice: Allows players to choose how they want to play the game
- **Challenges:** In order to complete a task, players are faced with many challenges during gameplay. Challenges increase motivation and allows players to reflect on their actions to improve future performance (Charsky, 2010).

After conducting an evaluation, Dr. Greg Thatcher [an expert in adolescent behavior change programming], found the YBL program yields several positive results for students.

Increase in Critical Thinking Skills

Decrease in Abusive Behaviors



Improved Self Efficiency

Higher GPA

Cognitive Benefit: Games have been proven to improve children's overall attention, focus, and reaction time.

Motivational Benefit: Games encourage players to adopt an optimistic motivational style.

Emotional Benefit: Games often increase positivity within players, and can teach emotional control.

Social Benefit: Skills that are learned through games transfer into real world skills. Games provide children with confidence.

(Engels et al., 2014).

EXAMPLES IN OUR PROGRAM

Example 1: 10 Days in the USA, 2-4 players, 30-40 minutes

Students have 10 days to travel in the USA. They may travel the country by jet, car, and on foot. Students must plan their trip from start to finish using destination and transportation tiles.

With a little luck and clever planning, students just might outwit their fellow travelers. There are 50 state tiles, 10 colored airplane tiles, and 6 car tiles. Players all flip tiles one at a time, examine them, and put them in the 10 “days” of their tile tray, in any order. Then in turn, they draw a tile from one of three face-up piles or a face-down pile. The new tile may replace one tile in their tray, with that tile (or the unused drawn tile) discarded onto any of the face-up piles. Tiles may not be rearranged. When a player has all their days connected correctly, they win the game.



Sample Common Core Standard areas matching 10 Days in the USA:

- Integration of Knowledge and Ideas
- Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
- Reading Standards for Literacy in History/Social Studies 6–12
- Integration of Knowledge and Ideas
- Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Example 2: Bohnanza, 4-7 players, 30-40 minutes

Bohnanza is a card game that allows players to engage in deal making and business-like transactions. The rules of the game require players to play cards in the order that they draw them, with no rearranging of the deck allowed.

The cards depict a beautiful variety of beans and players are encouraged to use their cards to plant crops and yield crops. Overall, the game teaches individuals political and social skills that can be utilized throughout their entire lives.



More Example Games For Students

- **10 Days in the USA**
- **Bohnanza**
- **Camel Up**
- **Can't Stop**
- **Carcassonne**
- **Catan**
- **Dixit**
- **For Sale**
- **Ingenious**
- **King of Tokyo**
- **Liar's Dice**
- **Love Letter**
- **One Night: Ultimate Werewolf**
- **Pandemic**
- **Piece o' Cake**
- **Saboteur**
- **Say Anything**
- **Splendor**
- **Ticket to Ride**
- **Timeline: America History**
- **Word on the Street Junior**

ABOUT THE AUTHOR

The YBL has evolved from the research and creative work of Dr. Greg Thatcher, Executive Director. Dr. Thatcher is a tenured, Associate Professor of Public Health at Fresno State. He received his PhD in Health Behavior and Promotion from the Arnold School of Public Health at the University of South Carolina. He is an expert in adolescent and young adult behavior change programming.

As the former Director of the State of Florida's Safe and Drug Free Schools Program, Dr. Thatcher is well versed in behavior change curriculum and designed the YBL program to meet the needs of adolescents struggling to find a normal balance between school, family, friends, and everyday life stressors.

If you would like additional information on how to bring the Youth Boardgaming League program to your school or community organization, please contact Dr. Thatcher anytime.

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