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The birth of a child's educational toy

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NORTHERN ILLINOIS UNIVERSITY

The Birth of a Child's Educational Toy
A Thesis Submitted to the
University Honors Program
In Partial Fulfillment of the
Requirements of the Baccalaureate Degree
With University Honors
School of Art
By Jessica Witkowski
DeKalb, Illinois
May 11, 2002

University Honors Program

Capstone Approval Page

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The Birth of a child's
Educational Toy

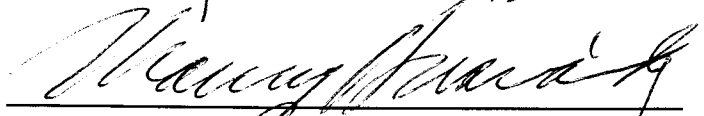
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Honors Thesis Abstract

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This objective of this project was the research, design, and prototype of a preschool learning game. Research was done via the Internet and various texts. There was also field research at Happy Hands Preschool in Lemont, Illinois. The Consumer Product Safety Commission was consulted regarding materials used in the creation of the two prototypes. Several designs were considered. Two were chosen and tested. All the designs considered are submitted as exhibits to this thesis. A fully functional model of the game is also submitted as a portion of this thesis.

The Birth of a Child's Educational Toy

Before discussing the development of children's toys you must first begin with the development of the child. I chose to create a toy for nursery school-aged children because it is almost impossible to separate preschool from kindergarten. Children from ages as young as three and as old as six can really benefit from the instruction, guidance, and stimulation of educational toys before and during their first years in organized school settings. Margaret and Rachel McMillan started one of the first nursery schools in Great Britain in 1914 (Morrison 242). The focus of this innovative and unprecedented school was health care, healthy living and cognitive stimulation.

Caroline Pratt opened the Play School, which is presently called the City & Country School, in New York in 1914 (Morrison). This was the first school of its kind in the United States. It was based on John Dewey's philosophies and was designed to make the most out of what Pratt deemed was children's "natural and inevitable" desire to learn (242).

By 1921 Patty Smith Hill had started a laboratory school at Columbia Teacher's College in New York (Morrison 243). In 1922 nursery schools spread to Boston with the opening of the Ruggles Street Nursery School started by

Abigail Eliot, and the Merrill-Palmer Institute Nursery School in Detroit started by Edna White (Morrison 243).

In 1940 the creation of the Lanham Act provided mothers employed in defense-related industries with money for childcare and schools to put their children in (Morrison 243). The Kaiser Child Service Centers were government supported childcare centers where the children of the Kaiser shipyard workers could be taken while their parents made a living. Each center was created to provide care for about 1,000 children from 18 months to six years of age. These centers were also staffed day and night, all year round, every day with professionals in the field of child development. Unfortunately, programs such as Kaiser's lost their government funding when the War ended in 1945 (243).

Since the 1940's parent co-ops, churches, and other organizations have privately funded many nursery schools. One of the major reasons in recent years for the growth of nursery school programs was the creation of the Head Start program (1965) and support for other childcare programs directed at the children of low-income families, supported by the federal government (Morrison 243).

Because of the critical importance of skills developed in early childhood these programs are especially important.

Preschoolers are in the preoperational stage of development. Which means they are not capable of reversing mental action, they are growing in their ability to use symbols, including language, they often center on one thought or idea and are egocentric (Morrison 246).

There are several ways to promote learning during this early stage of development. Providing concrete materials to help children visually see and physically experience concepts and processes greatly increases their learning when compared to looking at a pictures, stories, or videos. If children are learning about oranges they will get a lot more stimulation from feeling, smelling, and tasting an orange for themselves, as well as sharing it with others, than they will if they are to be shown a picture and listen to a teacher talk about it (Morrison 246).

Using hands-on activities and making children active participants in their education encourages them to build concepts about themselves, others, relationships and processes. Through interactive play, preschoolers learn how to organize concepts and information about the objects they are handling (Morrison 247). For example, children playing on a playground learn about movement, speed, and gravity.

By allowing children to have lots of varied experiences they acquire a wide variety of skills and different kinds of knowledge. There should be many environments: indoor and outdoor play are both very important (Morrison 247). Outdoor activities such as playing tag, jumping rope, and other large-movement games are significant in the development of gross motor skills. Indoor activities such as coloring, cutting, and gluing objects together increase skill in fine-motor development. They need programs that provide lots of active play, backed up by healthy habits and lots of rest.

One of the most important things a preschool teacher can do is to be a good model. Children should see their teachers reading and writing everyday as a way to encourage them to do the same. Not only should they see their teachers doing these things, but also other professionals within the school and their peers. Teachers should show students different ways to use concepts that they learn in the classroom in various situations. For example, just after children have been given a lesson in math, teachers should encourage them to continue to explore the concepts from class in their own creative play.

In order to stimulate interest and development in language and literacy, the environment of the classroom

should be rich in printed materials and meaningful text (Morrison 248). Names of furniture and other items throughout the classroom should be labeled. There should be posters with children's songs on the walls; easy to read, large print books at their fingertips; and most important of all: their own works or art and writing. Paper and writing tools, such as pencils and crayons, should be at their disposal. There should be opportunities for shared and individual reading time, song-singing, and creative skits. Reading to children everyday should be a top priority.

The last two concepts just described greatly interest me and are what inspired me to want to create a child's educational toy as my capstone. As a psychology major and art minor that wants to specialize in child psychotherapy, I am intrigued by how the combination of design and play can have such a great impact on how a child develops.

After reading different material on educational toys and programs on today's market that are aimed at giving children a little boost before they reach the primary grades, I decided that counting and identifying numbers in their written form is an important skill that definitely aids children when they enter kindergarten. When I discussed my choice with Michelle McCoy, mother of Mary

Beth (5 yrs. old) and Mackenzie (4 yrs. old), she agreed and I began to brainstorm for ideas.

Why design a preschooler's educational toy? This is the first issue that had to be addressed. Design is a process intended to bring about change.

"Planning means a careful, systematic, analytical approach, which results in a logical process to a deliberate action. The process involves identification of a problem, information gathering, generating solutions, selecting ideas and materials, building prototypes, and testing and evaluation (Ndahi, 2001)."

My purpose is to create a new way for children learn early mathematics skills. Children learn through play. It's as simple as that. I needed to come up with a way for children to learn as they were playing. So I began sketching out the beginnings of a life-size game board, at least it's life-size to a 4 year old. The little details that make my idea unique are completely mine, but I actually got started by looking at old games from my childhood that had been collecting dust on a shelf and a few helpful suggestions from my friends.

Play is not only important to children, but also to parents. The education of our children is a major concern

for today's busy parents. Many parents are going all-out to find really fun products that encourage the learning and growth of their children while they are happily playing. Many manufacturers have responded to this sudden surge in demand for educational toys and have expanded a market that only existed in specialty stores in the past. By creating my own educational toy I not only serve a purpose I am interested in, but in one that has been growing by leaps and bounds in the world of consumers. "Bounce 'n' Count", as it has been named, is a new and unique product that, if put on the real market, could really take off such as products from The Baby Einstein Company's and Leap-Frog's educational toy lines have.

In order to explain why this game is helpful to a young child's development you must first know how to play. "Bounce 'n' Count" is best played with an adult to start because some of the rules are a little complicated the first time through. The basic goal is to get to the end of the colored squares by counting. The complete rules can be found in Appendix 1. The youngest player goes first, the oldest goes last. Each player begins on the red start square and picks up a red game card. On the other side of the card are various objects ranging from fruit to animals. The player must count how many objects there are on the

card, the matching numerical answer is on the inside of the card. The child then must bounce (like jumping from square to square in hopscotch), hop on one foot, skip, or walk backwards the number of squares he/she counted on the card. If they counted incorrectly he/she must wait until next turn to try again. If successful he/she must name the color of the square he/she is standing on before picking up the corresponding game card. Game cards are stacked around the game in four piles according to color. Each player has a bean bag to mark their spot on the board when they pick up their game card. This continues until someone reaches the finish circle.

There are many skills cultivated through the playing of "Bounce 'n' Count". Children learn how to follow instructions and take turns. Gross motor skills are improved by the various movements required to get from square to square, mathematical skills are improved by the practice they receive in counting the objects on the game cards, and memory/recognition skills are improved by identifying the colors of the cards and the written numerals in the inside of the cards.

After I decided on the skills I wanted the game to cultivate and then the actual rules and instructions, I had to figure out what kind of materials I was going to use to

create such a large project. I was very fortunate to find a rubber-coated painter's drop cloth at the first store I went to, perfect for the purposes of my game. It's a soft, yet durable and washable material that will stand up to the wear and tear of preschooler's bouncing on it. I used non-toxic, waterproof acrylic paints and paint markers. For the game cards I used a program called print artist to generate the pictures of the objects to be counted and the numbers inside the cards and they are printed on cardstock for color printers. The total cost of the materials for two complete games came out to be around \$98; almost \$50 a piece. Pretty expensive for a child's toy, but hopefully in mass production materials will be cheaper because they would be purchased in bulk. The really pricey items were the ink cartridges that I used to print the game cards and the rubber-coated canvas for the game mat.

I consulted the coordinator of the Illinois SAFEKIDS Coalition through the Consumer Product Safety Commission's website and asked them if "Bounce 'n' Count" would be violating any of it's major rules. I made sure that all of the materials and individual pieces of the game follow the guidelines for safe products for children.

Once I had my materials I began to test things out and construct the actual game board. I cut out a 5'x 6' sheet

of canvas and laid out on of my sketches. It took several hours to measure things out, paint the squares, and finally outline everything in black. I then proceeded to search for graphics and lay out on the computer what the game cards would look like. Once this was done I printed out a few examples and took this prototype back to Michelle McCoy who brought it to her Early Childhood Development class at Joliet Junior College so her peers and instructors could critique it for me and give me some suggestions for improvement. My faculty advisor, Manny Hernandez, examined the prototype and suggestions for improvements made by Mrs. McCoy. Together we decided on a final design for the game and the package design.

Lastly, it was time to think about how to market my new product. According to Paul Tiffany and Steven Peterson, Authors of Business Plans for Dummies, the most important things to think about when you are ready to sell your product is who, what, and why (76). Parents will be the purchasers of the game, but only if it is something that their children want. Today's parents are seeking educational and entertainment value for their children. "Bounce 'n' Count" is something that parents will want to purchase because it has educational value and it is fun and entertaining for their kids.

"Timing is everything", in other words, if you don't put time into getting your product out there, it will never be successful in the market place (Cooper 279). You must set realistic objectives. Knowing whom you are targeting and where to find them is imperative. You must specify a time frame and stick to it (Cooper 281). Find out who your customers are and find out the best way to reach them.

If my customers are children and children's parents it is wise to advertise through daycare centers and preschools. "Marketing is war, and the first principle of warfare is the principle of force. The larger army, the larger company, has the advantage" (Ries & Trout 107). As a non-marketing, non-business major I am not equipped with the knowledge or funds to mass-produce this product successfully. In order to do so I would construct a number of handmade copies of the game and distribute them to area daycares and preschool facilities. I would distribute a survey to determine the popularity and demand for "Bounce 'n' Count". Upon completion of the surveys I would then submit a report to educational toy manufacturers with the goal of selling my copyright to a firm far more qualified to mass-produce, market, and distribute "Bounce 'N' Count".

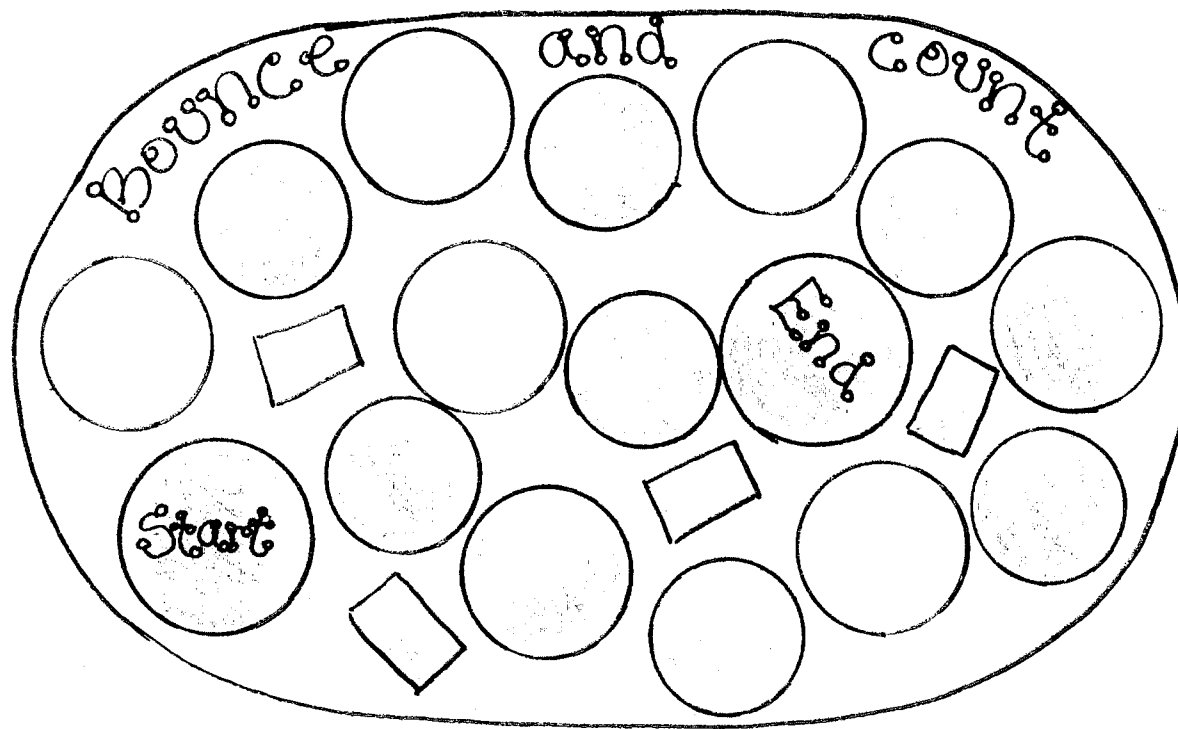
Appendix 1:

Instructions

Bounce and count is an exciting and fun way for parents to play with their children, teach them how to follow directions, and boost their counting and motor skills.

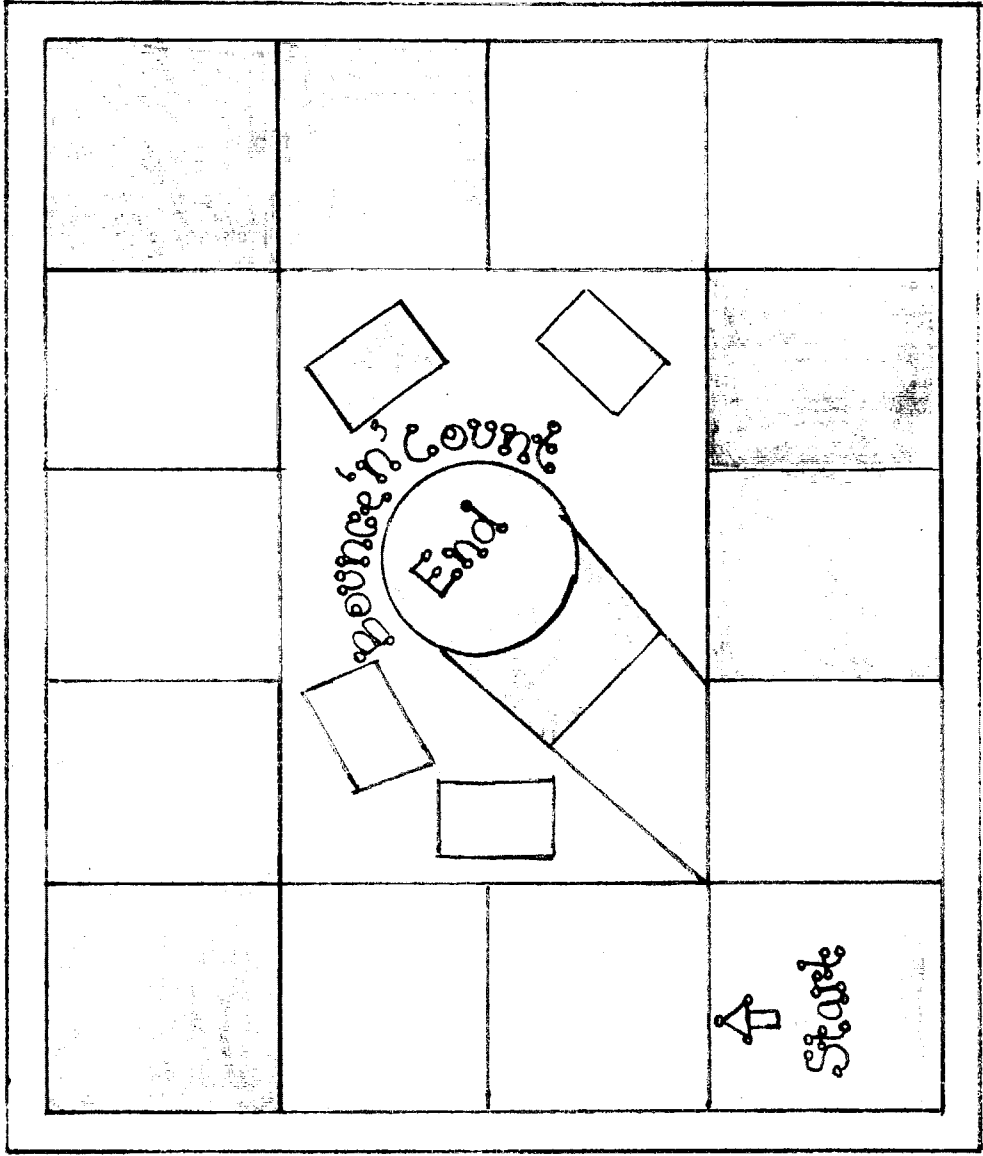
Object of the game: To get to the finish circle at the center of the board.

How to play: Players begin starting from youngest to oldest. This is a no-shoes game, socks or bare feet are best. Stand on the red 'Start' box and pick up a card from the red pile. Flip the card over and count the number of objects on the card, the matching numerical number is on the inside of the card. If you count correctly bounce, hop on 1 foot, skip, or walk backwards the same number of squares as counted on the card, and the next player goes. If incorrect, stay on same square and wait for next turn. For each turn pick up and identify the color of the card that matches square you are standing on. Whoever gets to the blue circle first wins! Good luck and have fun!

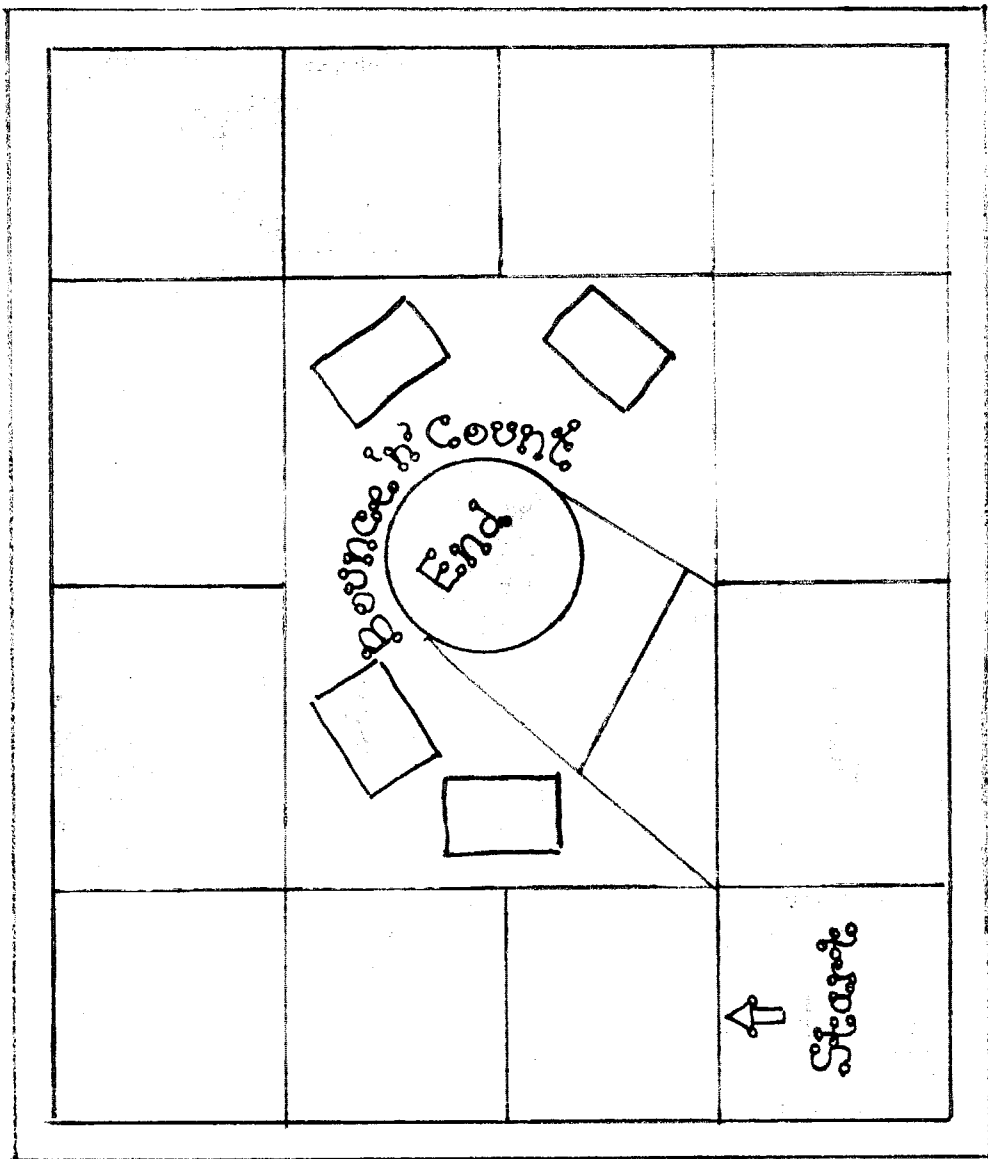


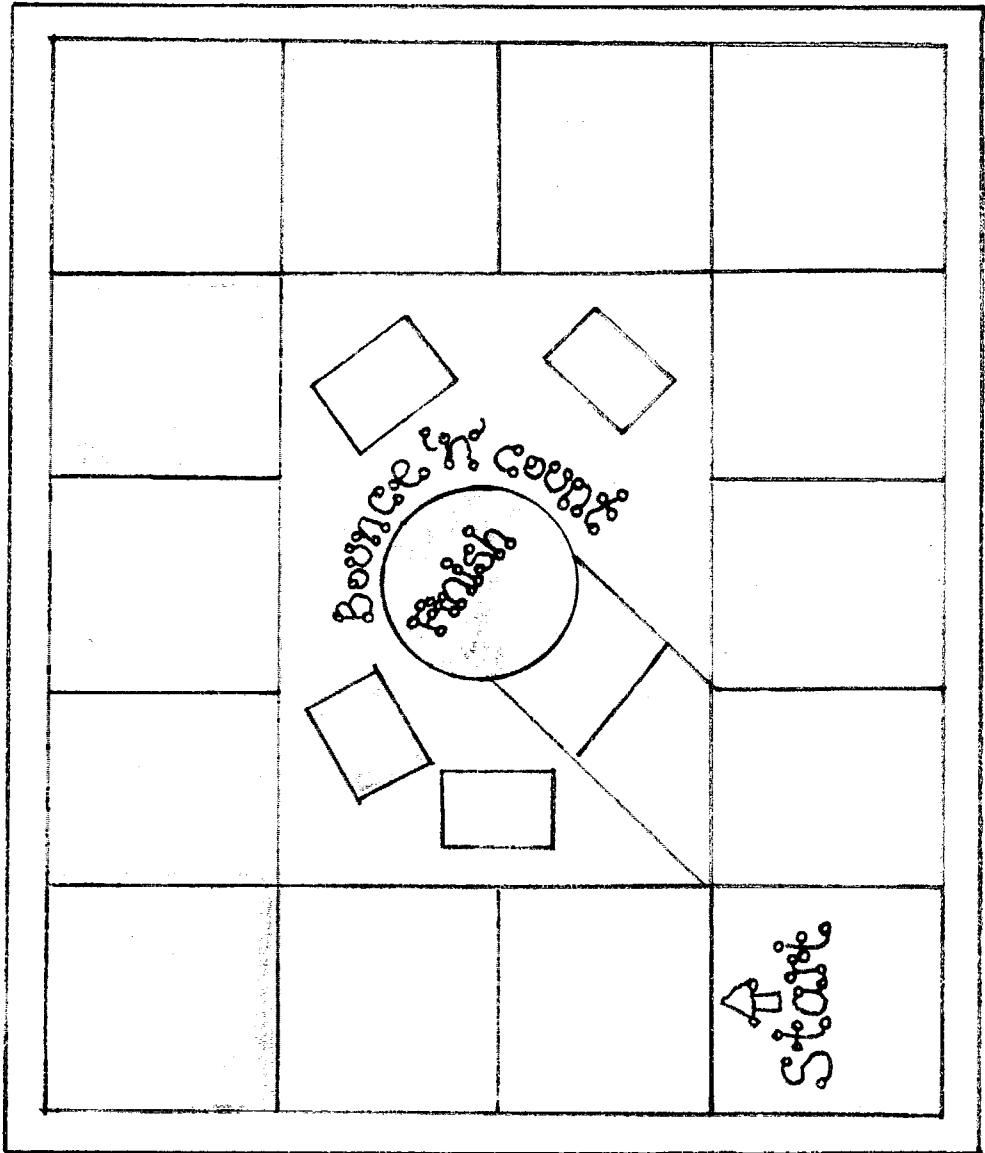
Bounce'n'Count

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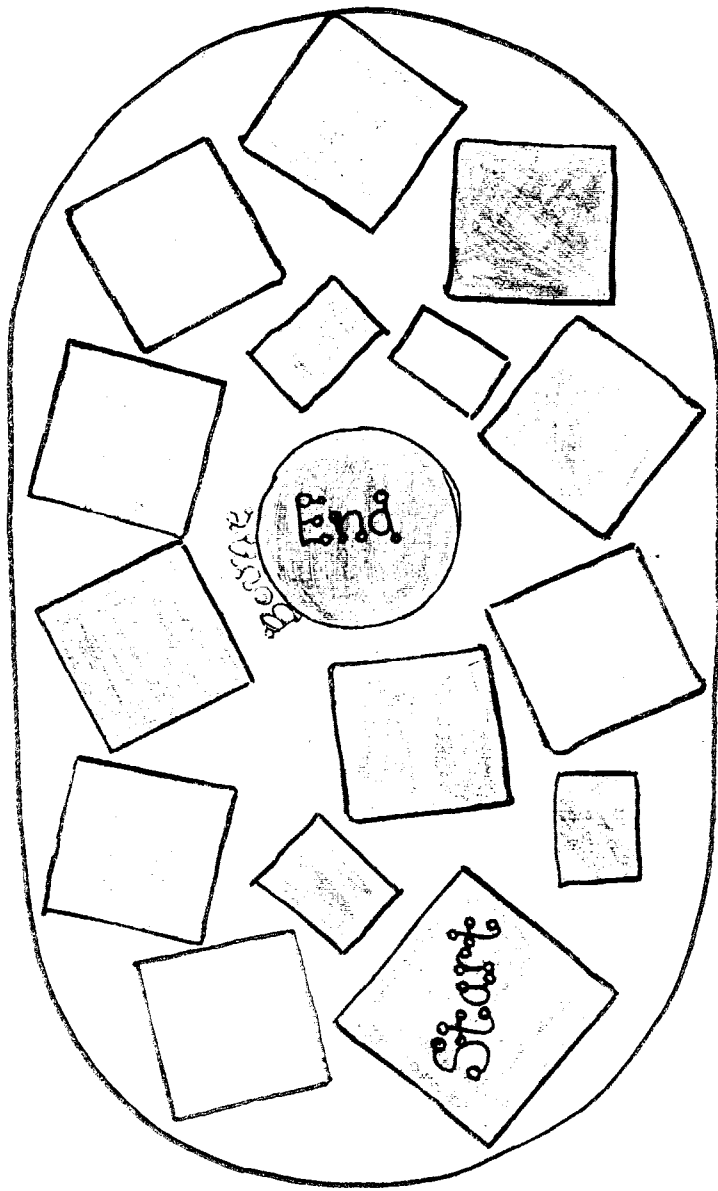


This is a rough sketch of the design I used for the prototype I used to survey the parents of preschoolers I know and the early childhood development class at Joliet Junior College.









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