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Motivation and Learning: Toward an Intrinsic Approach

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Motivation and Learning: Toward an Intrinsic Approach

A Capstone Project Submitted in Partial Fulfillment of the
Requirements of the Renée Crown University Honors Program at
Syracuse University

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Honors Capstone Project in
Industrial and Interaction Design

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Abstract

Having always been fascinated by students' attitudes towards learning, for my Honors Capstone and for my Industrial and Interaction Design Thesis, I took the opportunity to research motivation in education. Everyone is born intrinsically motivated but this can be conditioned out of us by extrinsic motivation. Despite the known benefits of intrinsic motivation and perils of extras at motivation, extrinsic motivation is continually used, devaluing intrinsic motivation in all kinds of settings, including our schools. While intrinsic motivation cannot be taught, it can be fostered by removing the obstacles that prevent someone from motivating him or herself.

Reading is the catalyst of all learning and is also the time in school when intrinsic motivation begins to be lost because this is when children begin to fear failure. Schools all over the country are beginning to implement the common core standards, which includes the expectation that to complete kindergarten, child must be able to write a story of at least three cohesive sentences. This forces a large learning curve in kindergarten and a lot of pressure on these young children to perform. Within the current school system, how can we create an experience that minimizes frustration and encourages kindergartners to face challenges with writing within the classroom?

I designed a 2 in 1 puzzle game set for kindergartners called Puzzler Penguins that allows children to physically play with the alphabet to create words, the Letter Game, and helps children build grammatically correct sentences easily, the Sentence Game. The Letter Game allows children to physically manipulate and play with the alphabet, which reinforces phonics visually and kinesthetically. Every puzzle piece visually shows the sound(s) the letter or consonant digraph pictured makes, encouraging him or her to sound words out; in kindergarten, phonetic spelling is a success. Letters with multiple sounds are double-sided: the short and long vowel sounds and the hard and soft sounds of G. The second puzzle game is the Sentence Game, which helps children create grammatically correct sentences using visual and physical cues. This game engages multiple intelligences building the confidence of children with many different learning styles. The game features dry erase puzzle pieces that allow the student to be creative artistically and with writing. This allows the child to start without the possibility of a wrong answer, eliminating the fear of failure and paralyzing "I don't know where to start." Removing a child's need to make a decision about what verb to use and adding an element on chance, not only makes the game fun but it also eliminates the fear of making the wrong decision and makes the task of building a sentence not so scary.

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Executive Summary

Having always been fascinated by students' attitudes towards learning, for my Honors Capstone and for my Industrial and Interaction Design Thesis, I took the opportunity to learn more and research motivation in education. There are two types of motivation: intrinsic motivation propelled by internal desires, which is extremely powerful especially in the long term and extrinsic motivation fuelled by external rewards, which is effective and powerful in the short term. Everyone is born intrinsically motivated but this can be conditioned out of us by extrinsic motivation. I found that there are incredible benefits of intrinsic motivation: creativity, mental health, and success. Despite the known benefits of intrinsic motivation and perils of extras at motivation, extrinsic motivation is continually used, devaluing intrinsic motivation in all kinds of settings, including our schools. With so much pressure on standards, structure, scores and tests schools alienate every student who does not quite measure up and rob the joy and fun from learning. As a result, our children are less engaged in the classroom and end up hating school.

This led me to the questions: what is already being done about this? And what age doesn't transit motivation start to be conditioned out of students? Through interviewing elementary school teachers, I learned that, learning to read is considered to be the catalyst of all learning. They all also mentioned the implementation of the core common and the common core standards. With the common core, children are now required to meet specific learning expectations every year. For example, to complete kindergarten, child must be able to write a

story of at least three cohesive sentences. This forces a large learning curve in kindergarten and a lot of pressure on these young children to perform. As a result, this is when children begin to fear failure and thus lose intrinsic motivation and extrinsic motivation takes its place at a very young age.

My research brought me to my design opportunity and design challenge: Within the current school system, how can we create an experience that minimizes frustration and encourages kindergartners to face challenges with writing within the classroom?

I designed a fun and easy 2 in 1 puzzle game set called Puzzler Penguins that helps kindergartners create words and build sentences, independently or in groups. The first puzzle game inside is the Letter Game allows children to physically manipulate and play with the alphabet, which reinforces phonics visually and kinesthetically. Every puzzle piece visually shows the sound(s) the letter or consonant digraph pictured makes. Letters with multiple sounds are double-sided: the short and long vowel sounds and the hard and soft sounds of G. In kindergarten, phonetic spelling is a success, so being able to see the sounds and manipulate the letters into any order, encourages children to sound words out.

The second puzzle game is the Sentence Game, which helps children create grammatically correct sentences using visual and physical cues. This game engages multiple intelligences building the confidence of children with many different learning styles. The game features dry erase puzzle pieces that allow the student to be creative artistically and with writing. To build a sentence, the child first takes the “I” puzzle piece and illustrate a picture of him or her self.

This allows the child to start without the possibility of a wrong answer, eliminating the fear of failure and paralyzing “I don’t know where to start.” Next, the child grabs a verb from the puzzler pouch and connects it to the “I” piece. The elimination of needing to make a decision about what verb to use and simply pulling one out of a bag adds an element of chance or even luck to the game, which appeals to kids because it is fun but it also relieves some pressure of making the wrong decision. The color of the verb will match the connection color of all the other pieces in the box that will physically and grammatically work with the verb piece. There are several pieces that fit to any given verb so it is but to the child to decide what they want the sentence to say. All the nouns are illustrated to help the child, even if they do not immediately recognize the word or are having difficulty reading it. Many nouns have an arrow at the top right corner of the piece, which indicates that that piece is reversible, to show a different article (i.e. “a dog” vs. “my dog”). The Puzzler Penguin set builds children’s confidence to help them to face challenges, minimizing frustration with writing in the classroom.

The entire product was designed with a teacher’s budget in mind. All parts are easily replicable. Puzzle piece and packaging leave minimal waste material behind getting cut to size making efficient use of the material. The puzzle pieces are made out of 1 ply chipboard, the most common material and inexpensive material used for puzzles. The graphics are printed and attached to the chipboard with adhesive. The packaging is made out of E flute cardboard, which is known for being very thin, and light weight but strong. This also means

that it has a significantly smaller environmental impact than regular cardboard and is less expensive to ship. Having considered the manufacturing process, shipping process, all the materials and the use of the materials, should allow the product to be inexpensive for the consumer, the teacher, especially when manufactured bulk. Competitive products for the same market range in price from \$175 to \$30; I would hope that this product would be priced on the market around \$40 as a rough estimate.

The packaging appeals to both children and teacher: communicating material and benefits of the product to the teacher while the visual language still fits that of a classroom and the fun bright colors and playful penguins attract and resonate with children.

Appendices (Optional)