Designing for Children
- With focus on 'Play + Learn'

Back to Our Roots

A Board Game Approach to Active Vocabulary

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Abstract: In this paper, we propose an entirely different approach to linguistic learning through board games - through contextual learning of roots, a direct method of enriching vocabulary. Learning through roots offers a powerful tool to enhance and nurture vocabulary development. The game introduces learning about word roots through context and morphological analysis, but does so without appearing to be a test or quiz.

Key words: Board Games, Vocabulary Development, Word Roots.

1. Introduction

1.1 Vocabulary Development

Vocabulary is an important part of literacy development of a student. Research has established a strong link between students' vocabularies and their prospects for academic success. A lack of academic vocabulary translates into lower academic achievement that leaves those students constantly struggling to keep up, much less to excel. Students with poor vocabularies—including those from diverse cultures and economic levels and those with learning disabilities—need strong and systematic educational support to become successful, independent word learners. Vocabulary acquisition is crucial to academic development. Not only do students need a rich body of word knowledge to succeed in basic skill areas, but they also need a specialized vocabulary to learn content area material. (Baker, Simmons, & Kaméenui, 1995).

A comprehensive vocabulary development program should include four components: engaging in wide reading, teaching individual words, teaching word-learning strategies, and fostering word consciousness. (Graves, 2000) Based on analysis of vocabulary in

materials students encounter in school, studies have asserted that for every word a child learns, there are an estimated additional one to three related words that should also be understandable to the child. While many schools teach vocabulary through rote memorization of words and definitions, that method has proven the least effective instructional method, resulting in little long-term effect. (Kaméenui, Dixon, & Carnine, 1987)Teaching specific terms in a specific way, however, is probably the strongest action a teacher can take to ensure that students have the academic background knowledge they need to understand the content they will encounter in school. (Marzano & Pickering, 2005). It is generally accepted that students learn vocabulary more effectively when they are directly involved in constructing meaning rather than in memorizing definitions or synonyms.

School texts and reading materials, today, include more that 180,000 different words. Since most of the words found in these texts come to English from Latin and Greek roots, knowledge of these word parts is a powerful tool in unlocking the complex vocabulary of math, science, literature and social studies. (Graves and Fitzgerald, 2006).Word roots instill a curiosity about words in the minds of the students and develop a confidence that when confronted by a new and difficult word, they more often than not have the resources within themselves to grasp its meaning.

1.2 Games for Vocabulary Development

There are a lot of vocabulary based games available today, in the form of board games, puzzles, computer games, and teaching aids. Some of the most popular board games are scrabble, taboo, hangman, boggle, balderdash etc. Most of these require a subset of the following skills - having a good passive vocabulary, a good active vocabulary, creativity and good communication. Most of these games reward a good vocabulary, and hence promote children to develop it through external means such as reading as well as through peer communication in the course of playing the games. Games like these are useful for developing children's vocabulary in 2 contexts. One is through repetitive play, with family or friends. The main drawback in this scenario is that only children already possessing a good vocabulary are more likely to be interested in playing these games. The second important drawback is that most of these games do not actively contribute to vocabulary development. They depend on the players' existing knowledge, and enthusiasm to discuss and look up words in the dictionary, for direct vocabulary development. The other scenario is when such games are used as classroom supplement. In such cases, games serve the important function of keeping the children's interest alive in the classroom, adding a

fun element to regular coursework and to reduce levels of anxiety thus contributing to better learning .While these are important factors, vocabulary learning still happens indirectly.

The most common examples of word puzzles are the crossword puzzles, anagrams, and various other variants. These games are also traditionally played only by people who have a love for words. There is little or no visual appeal, strategies or peer interaction involved in the puzzles, which makes them unattractive for children with no inherent love for such games.

There are also a lot of computer games designed to improve vocabulary, such as Bookworm, Text Twist, etc. and online variants of many of the traditional board games. All these are essentially based on almost the same principles as board games, with the difference being the presentation, which often enables online games to capture a child's attention for longer than a regular board game might. There are online games such as "rooting out words" available for explaining roots to children. The game introduces simple roots through cognate words, and has different difficulty levels. Such games though useful, are just well presented lessons in roots rather than typical board games which involve more creativity, strategies, and an element of competition.

1.3 Why we chose board games

Board games consist of boards and various kinds of pieces (dice, pawns, counters, etc.), a system of rules, and most importantly players. A study in the New England Journal of Medicine found that challenging your brain with mentally stimulating leisure activities (including playing board games or cards, doing crossword puzzles, reading, writing, and playing musical instruments) is great for your mind. Board games involve the right mix of luck, strategy and diplomacy. While playing board games the child develops the ability to focus on the game. This helps to increase the ability to concentrate. Determination to fight and win as well as patience is promoted by playing board games. There are board games that require clues, rules or specific information to be remembered. Such board games enhance memory that helps the child in academic career. . Board games score over video games such that during the course of the game, a child learns to interact with others, communicate and learns how to enjoy sharing.

2. The Amazon Adventure

2.1 Mechanics of the Game

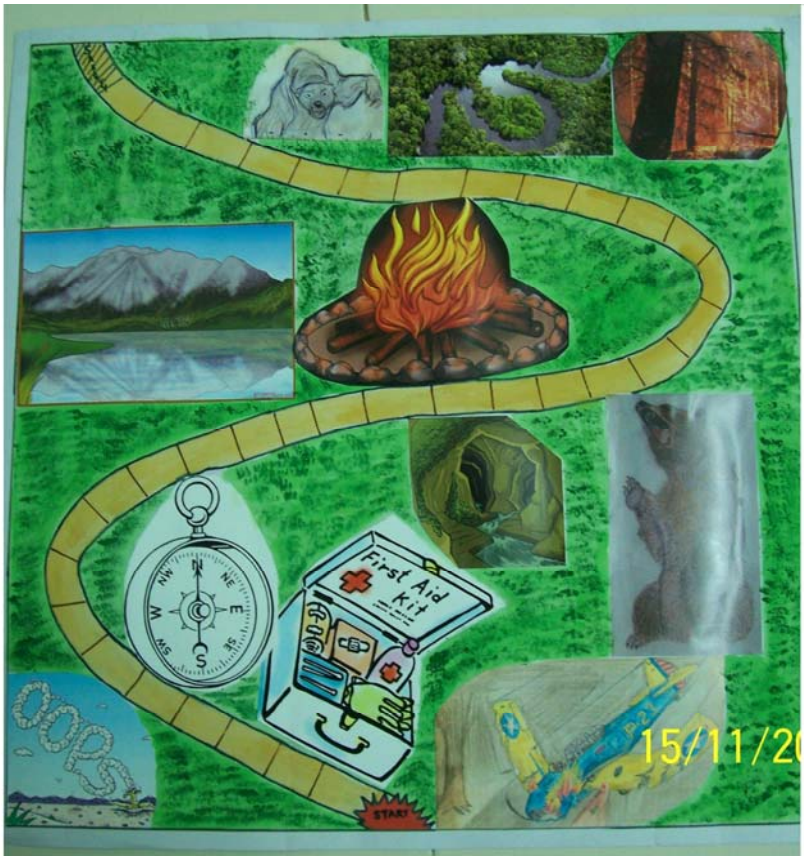

Figure 1. The game board.

The Amazon Adventure is a word game which simulates a person's adventure as they try to navigate their way out of the forests of Amazon after an unfortunate plane crash in the middle of a dense forest. The goal of the game is to choose an appropriate word root as a solution to the danger or the task ahead. The game features an active competition between players and a heuristic approach along with a playful and interactive environment provided by a board game. The main aim of the game is to get out of the forest as fast as possible and also collect and retain as many points as possible to win the game.

The board recreates the forests of Amazon with its share of dangers and obstacles along the path to safety. The player will traverse a winding path along the way to find his or her way to a point of safety from where they will find help. At the beginning of the game, all players will be dealt some power cards from the stack. Each power card will have a word

root on it which will enable the players to conquer any danger or task encountered along the way. They will advance by the throw of a die, but will be stuck in a place due to an obstacle until they manage to use one of their powers to overcome it.

At each square, along the path, a player picks up a "Danger Card" which defines his obstacle for that square. The card will also have three clues for the player to decide which power card he has to play. The first clue reveals two cognate words in the form of their meanings. The second clue will identify the first two cognate words and reveal meanings of two more cognate words. Similarly, there will be a third clue. All the three these clues will help the player identify the word root that must be used. Failure to do so, the Danger Card will also have the answer which, albeit, will result in no points being given out for that square. The player, nonetheless, will be able to proceed with the game.

For example, if the Danger Card drawn by the player, reads "There's a forest fire, find some water before it spreads!" the player must try to locate a power card with any one of the roots for the word water. If he doesn't know the root, he can trade some points for the first clue which will tell him some common words related to water- "What is the place to keep your pet fish called? Or think of what electricity generated from water is called" If he cannot guess these words, or cannot figure what power to use even after guessing either of these words, he can ask for the second clue. In this case, the second clue will read - "That was aquarium and hydroelectricity. You can also think of the name of a blue green color often associated with water, or you can think of what fear of water is called". These should lead the player to 2 pairs of cognate words for each root that could be the answer. If he still cannot get it, he has the option of reading the 3rd clue, "That was aquamarine and hydrophobia. Think also of water based sports - aquatic sports, and hydrolysis - separation of water molecule into its constituents". The player then realizes that he has to look for an AQU or a HYDRO power card. If he fails to do so, he can ask for the answer. Each clue will be traded for points and asking for no clues thus earns him maximum points.

Along the path, there are some strategic locations where the players can choose to use what are called as "Strategy Cards" to gain an advantage over their opponents. For example, the GRESS card (from Latin gradi, which means to stop) can be used in conjunction with RE or RETRO to send an opponent back one space.

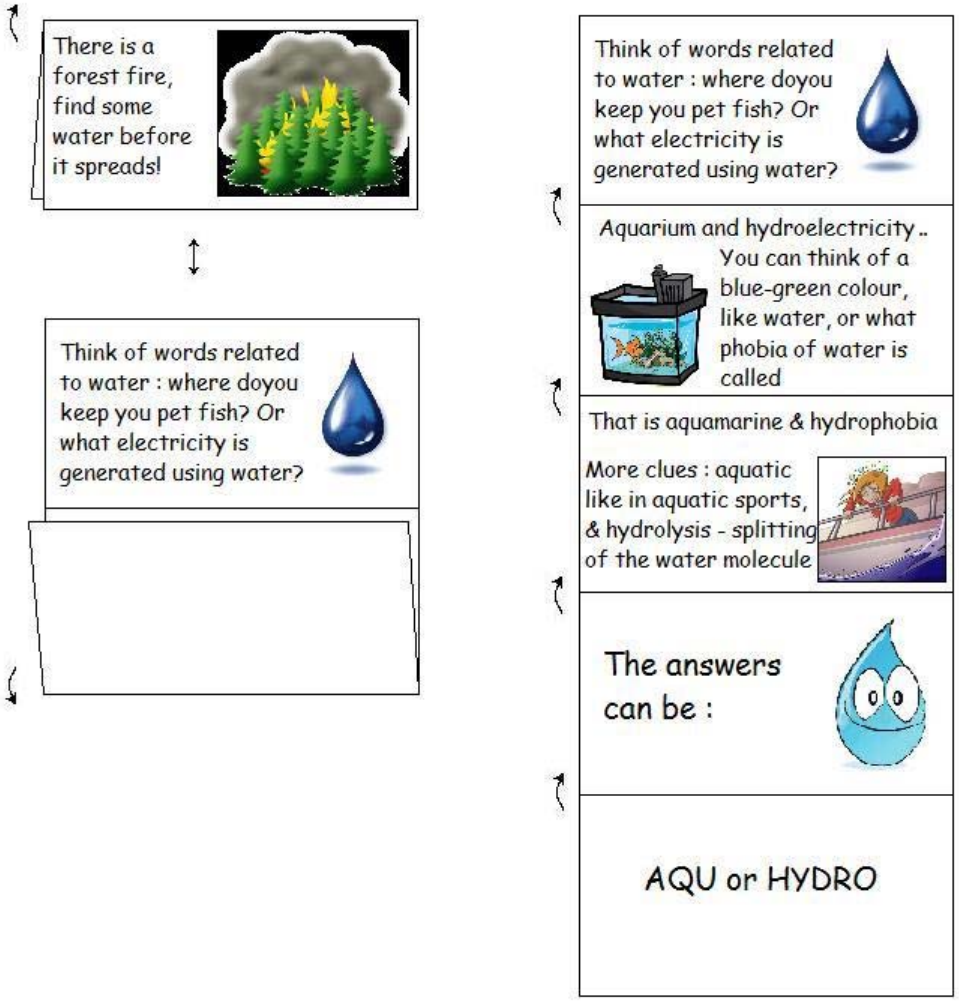

Figure 2. A sample danger card.

2.2 Discussions and Results

We conducted game-play sessions with 24 students of the Kairalee Nilayam High School in Bangalore. There were 13 students from 9th grade and 11 from 8th grade. None of the students who played the Amazon Adventure had been taught word roots before. Most of them were familiar with common word games like scrabble and crosswords.

Once they started playing the game and were explained how the clues worked, they were intuitively able to locate the correct "powers" or roots required to overcome each hurdle. Every new root they were able to correctly identify as the power to be used, elicited various excited comments such as - "Oh that is why when there is *equal* time for day and night we call it equinox!" Some of the children were even interested in going a step

further, to understand the entire etymology of a word, and made requests for dictionaries and additional resources.

One of the first observations during game play was that the number of power cards should be neither too many (which would confuse children and make it difficult to search for the right one) nor too few (which would lead to repetition and very little replay value). We finally have 70 tasks and 50 distinct roots with some of the common roots on multiple power cards. The construction of the danger cards is in the form of a folded card, with each progressive clue being visible as you open a fold, and the answer visible when the card is completely open (figure 2). This meant that all cognate words were visible once the card is opened for verification of the answer. This had the added advantage of introducing different cognate words to the children, even if they guessed the correct power without requiring all the clues.

We found that strategy cards evoked mixed feelings from the players - since they did not have the luxury of looking up clues for these. Some players were able to think of words containing the strategy card powers, and use them to figure out the usage of that particular card. Combining various cards to create one strategically action was something that needed a lot of external inputs from us, so we decided to print out a list of all strategies possible, and the players were then better able to use strategy card by mapping the cards they had with the actions on the list. The one important advantage of these cards was that the children began to think in terms of roots rather than just finding out a common set of letters between cognate words which could be done easily for the dangers.

A sense of competition was enhanced through the cards, and we observed players discussing meanings of the roots amongst themselves and collaborating in order to scheme against (invariably) the player who was ahead in the game.

3 Conclusions and scope for future work

We have observed that children in the age group of 12-16 quickly grasp the concept of the game, and are able to relate different cognate words with each other based on the common root. After playing the game, if they are presented with a previously unknown word, they try to apply their new found knowledge of the concept of roots and cognate words to relate it with words they know, and try to guess its meaning. In this respect, we would say that the game fulfills one of its primary aims of introducing cognate words to

children of this age group, and does this through engaging students in a fun filled activity rather than a class room session.

The selection of the roots used in the game also ensures that children have come across a few words derived from these roots earlier, through their school curriculum and expected average vocabulary. The additional cognate words associated with each root, thus serve the purpose of increasing the vocabulary of the children directly, through knowledge of roots. What remains to be studied is how long are the children able to retain the new words so learned, as also whether they sustain the habit of using cognate words and roots to figure out meanings of new words they come across. In future work we would like to carry out more extensive user studies to evaluate these questions. Along with that, we would like to develop versions of the game for different scenarios apart from a forest environment, in order to explore different types of words roots, as also to differentiate between different difficulty levels for players with varying vocabulary knowledge.

Additionally, based on interactions with English language teachers, we believe it would be interesting to modify the game for use as a teaching aid in schools, and study its benefits in the context of such a setting. From game play, we observed that having someone in the role of a game master could enhance the game in certain ways - the game master could use discretion to accept and reward certain creative uses of the powers, he could give hints subjectively depending on the root in question, and reference cognate words the player has recently come across to improve the learning process. We would like to evaluate whether using this game in the classroom with the teacher in this role could involve active participation of more students and substantially influence their vocabulary. We hope that the game will encourage more children to explore etymology and enhance their vocabulary, as well as vocabulary building skills.

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