

Wordsmithin':

Written analysis of a web-based learning module

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This online educational product is designed for an audience that would like to increase their vocabulary. The words that are included in the instruction are often found on the GRE verbal test. The website uses basic web design as well as dynamic PHP pages and a mySQL database that houses the word list and user registration information. Also included is a short stop-motion animation, flash video that was edited in Adobe Premiere. The 1165 words and definitions come from a university website that offers them freely online. (<http://www.csun.edu/~vceed002/ref/spreadsheets/xls/vocabulary.xls>).

Background

While preparing for graduate school, I decided to take the GRE test. After pouring over GRE books and taking simulation tests, I realized I would have to increase my vocabulary if I was to improve my verbal score. I borrowed a palm pilot and imported a word database, using the handheld device as a digital flash card system. I was learning definitions, but had difficulty understanding under what context I would ever use these words. Recognizing that many of the words were of a pejorative nature, I decided to write a “battle-rap” (a lyrical form in which a rapper directs aspersions toward anonymous rivals in order to sharpen his rap abilities) using some of the new words I had learned. It was a great way to learn context for the words and remember their meanings. I took the project a bit further by creating a music video with definitions to go along with the rap.

These previous projects were the basis for my final ITEC 800 Project. I have created an online module that mimics the digital flashcard system and builds upon it using the learning theories and instructional design tools we have touched upon this semester. I have incorporated my rap video and asked the user to create their own rap. Learning support and evaluation of skills are also included so that the module is a stand-alone tool for learning GRE vocabulary words.

Gagne's Nine Events as a Framework

In this project, I have used Gagne's Nine Events of Instruction as an organizational framework. The nine events do not appear in absolute consecutive order, but are instead used as a guide to shape the instruction. Gagne's theory states that parts of the nine events may be omitted or moved throughout the process (such as Event 9 being built into instruction at an earlier phase, 377 Driscoll). This instructional product follows the the nine events in the following manner:

1. **Gain attention** by personalizing instruction through a user login and use of first name when addressing the learner. This touch of personalization is integrated throughout.
2. Inform users of the **learning objective**, which is to learn vocabulary words that are found on the GRE verbal section.
3. **Stimulating prior recall** by asking the user how they learned words as a child growing up and asking them to implement these strategies going forward.
4. **Presenting stimulus** in the form of word introductions, providing definition and pronunciation to assist in learning.
5. **Provide learning guidance** with word root guide, digital flash cards, and word rap video.
6. **Elicit performance** by allowing the user to write and save a GRE word rap
7. **Provide feedback** users provide their own feedback by saving words they have learned
8. **Assessing performance** occurs when the users take the word quiz toward the end of the module.
9. **Enhance retention and transfer** by providing links to realistic test simulations and other relevant websites.

Next we will look at some of the other theories that have been incorporated in the instructional design of this educational product.

Other Theories

Though Gagne's Nine Events are used as a framework, this design decisions that made this

product are based on learning theories that span the three paradigms: Constructivism, Cognitivism, and Behaviorism.

Beyond the fact that this project uses *hypermedia design* (Driscoll 403) by linking to educational resources, there are other aspects of constructivism that have guided the design. In the introduction, learners are reminded that the module will teach content that is *realistic and relevant* to personal goals such as improving vocabulary and getting a good score on the GRE test.

In the next section, the learning module encourages *self-awareness of knowledge construction* (Driscoll 401). Learners are asked how they have learned words in the past and they are reminded to use these strategies when learning new words in the future. In a way, this is also an example of Ausubel's superordinate learning concept (Driscoll 121). Learners are aware of how they have learned words in the past, but we are now asking them to subsume these established ideas in their word-learning strategy umbrella. Though the project does not incorporate social learning, questioning how one learns is an attempt to move toward situated cognition based on the word learning research of Miller and Gildea (Brown, Collins and Duguid 32-42).

In the word roots section, learners are introduced to another strategy to help them understand new words. Since it is probably impossible to learn every word in the dictionary, there are techniques that will help learners break down the components of a word to understand meaning based on word root origins. This design choice can be attributed to Gagne and his Taxonomy of Learning Outcomes (Driscoll 359). Using word roots is not simply a verbal skill, but also includes intellectual skills. The learner must identify the word roots, define them, and combine simple rules about their definitions into a higher order rule in order to understand the full meaning of the word.

After these introductory sections, we arrive to the core of the learning module, which is an exercise in cognitive information processing. Here the new words are the learning stimulus, presented to the user along with a definition. If the user already knows the word, they can click a checkbox that will remove the word from future evaluations. Omitting known words lets the user concentrate on new

words, economizing their time spent in front of the application. To assist in encoding, words and definitions are accompanied by links to extended definitions at MerriamWebster.com and a link to an audio player that will pronounce the word (or word root due to a bug in the software).

After a user has been sufficiently exposed to new words, they can move on to an application of their new vocabulary. By using their new words to make a rap, learners use a cognitive mnemonic tool to enhance long-term memory encoding and contextual understanding of the words. Users are presented a music video with an example word rap with definitions. They are asked to type a word rap of their own which can be saved to the database for reference in the future. If they are having trouble rhyming words they can see the full word list or use an online rhyme helper (<http://www.rymezone.com>). Besides using cognitivism, learners explore language through various ways of knowing, a constructivist idea. By writing a rap, young learners are using a native cultural tool to construct knowledge within themselves, thus following Vygotsky's social construction theories.

After applying learned words, learners are asked to recall words through the use of digital flash cards. Users are given the word and asked to say the definition in their own words. When they click, the database definition will be exposed so that they can check their own understanding. Again, users can select words to be omitted from further quizzing. This section will hopefully promote automaticity through repetition and practice.

In the next section, users are ready to evaluate the knowledge they have learned. A short quiz featuring some of the most difficult words from the database will test word learning through a multiple choice quiz. As is the convention, the correct answer is embedded among incorrect choices in multiple choice tests. This “cueing” moves toward what is the actual learning environment of the GRE test, where answers are chosen from a list. Based on the learners performance, a score is given along with a graphics that become more celebratory of performance as the learner improves their score. This feedback is similar to behaviorism's golden star technique that teachers use to motivate young learners.

In the final section, users are provided links to GRE simulation tests, where they can utilize

their new skills in a realistic test situation. Constructivism encourages us to embed learning in realistic situations and it is a testament to this theory that expensive testing companies such as Princeton Review and Kaplan require their students to take many simulation tests before their actual GRE test day.

Scaffolding tools such as links to other GRE study websites and other “rap learning” sites (flocabulary.com) will give learners the resources they need to map out their own future learning. Motivated learners will imagine their own personal learning strategies, incorporating their interests to the learning process (Rock music instead of rap?).

Future Product Innovations

If this project was to move to a production environment, the login security would have to be improved. Currently, any two users with the same first or last name would create conflicts. Future innovations to the product could take advantage of constructivist social technologies and let users share their raps with one another. Because the GRE test is adaptive and changes based on user input, future iterations of this product might customize the word evaluations based on users previous tests, repeating questions the learner is struggling with. It would be great to incorporate actual GRE questions into the application itself so users can get a realistic vision of the test from the point that they start their studies. To help users improve their studying, summary statistics (Driscoll 180), could be implemented. Motivated users could save their scores and compare or analyze their performance over time, creating goals with deadlines.

Works Cited

Driscoll, Marcy P. Psychology of Learning for Instruction 3rd Ed. Boston: Pearson. 2005

Brown, John Seely. Collins, Allan. and Duguid, Paul. Educational Researcher; v18 n1, 1989. (Online, Inst. for Inquiry <http://www.exploratorium.edu/ifi/resources/museumeducation/situated.html>)