READING MAGIC PRODUCT DESCRIPTION

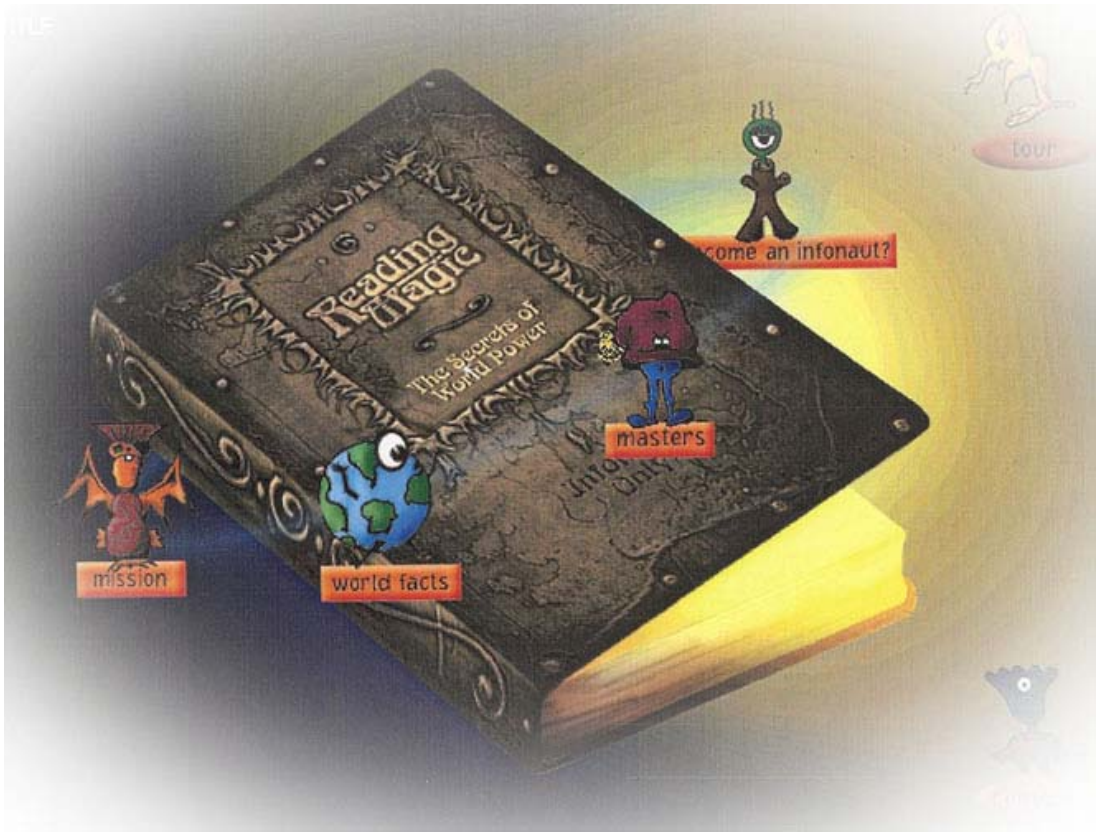

Table of Contents

I. Product Vision

Reading Magic is an on-line WORLD designed to improve reading literacy across all ages. Different product offerings will be developed to address four distinct markets:

- Beginning Readers (preschoolers - age 6)
- Young Readers (age 7 - 11)
- Adult Literacy
- ESL (English As A Second Language)

The initial product focus will be to target Young Readers. All product offerings will include materials for both "learners" and "mentors." An overarching design consideration across all target markets is to *get target users excited about reading and motivate them to read more by appealing to their personal interests and natural desires to have fun, to explore, to satisfy their curiosity and ... to be rewarded for their efforts.*

The acquisition of any skill (whether it be a physical or mental skill) requires practice. The more you practice, the better you get. Thus, *a primary goal of Reading Magic is to make reading a pleasurable experience for children so they will want to spend increasingly more time reading.* To accomplish this goal, Reading Magic will provide an environment in which children are rewarded for following their hearts desires and consuming as much information as they can about the things they like and find interesting. These rewards can take many forms including positively reinforcing feedback, opportunities to win prizes by participating in performance based "challenges," sharing ideas with others kids who are interested in the same things, etc.

While practice is key to improving one's reading ability, it must also be accompanied by mentoring. In the same way that athletes need coaches/trainers to teach them good techniques, methods and strategies for improving performance and achieving distinction, readers

need help and guidance in developing good reading habits, skills and strategies. Thus, *another primary goal of Reading Magic is to provide "mentoring" in the form of a rich set of interactive reading tools and learning aids to help users improve their reading abilities.* Reading Magic's unique set of on-line reading tools will combine the Internet and rich multimedia technologies with natural language processing technologies and effective reading pedagogic models to facilitate the development of phonetic skills, word skills, vocabulary, sentence syntax and higher-order comprehension and cognitive skills.

The vision to create an on-line Reading World that will motivate children to read more and facilitate the development of reading skills is directly in line with current market trends. At the national level, the White House is promoting the integration of advanced computing and communications technologies into the fabric of education. There is now a building consensus that improving literacy is of paramount importance to ensuring our nation's global competitiveness in the 21st century. The increased public awareness and parental concern about providing quality education in order to better prepare our children for success in an information and technology based world and economy is creating a growing demand for programs, products and services to help children read -- both in school and at home. There is also growing demand for programs, products and services to support life-long learning for everyone.

Accompanying the push for 21st century education reform, is the growing need for performance assessment tools and metrics to quantify improvements and demonstrate the effectiveness of technology-enhanced approaches. *Reading Magic will integrate a variety of reading assessment and performance measures to allow for quantifying reading improvement and providing individual diagnostic information and standardized scores.* From the perspective of data gathering, Reading Magic performance and assessment tools will be built around a comprehensive set of positively reinforcing and fun "challenges" with challenge results being presented in very different ways to children, parents and teachers.

II. Product Concept - It's An "Infonaut's" World

Reading Magic is an immersive on-line world/environment. From a child's point of view, Reading Magic is a world that they can "step into" where reading is a fun thing to do. In order to create the illusion of a "first person" experience, children are cast into the role of an "Infonaut." The site is for "INFONAUTS ONLY!!" It's where Infonauts come and do what they do -- READ!!

Simply stated, An Infonaut's quest is to master knowledge through reading. Children start out as Infonaut Novices and strive to become Infonaut Masters in content areas of their choosing, that they find fun and interesting. Infonauts must commit themselves to following their hearts desires and consume as much information about the things they like. The more words they read and truly understand about the things they think are fun and interesting, the more points they will earn, and the more powerful they will become. The Infonaut world/story line/culture is built around the Infonaut . THE Great Infonaut Master· Word/Knowledge Power concepts in a similar way that The Star Wars metaphor is built around the JEDI . YODA . The Force concepts where young JEDIs are trained by YODA to master The Force.

As children journey from Infonaut Novice to Infonaut Master, they will "meet" many other Infonauts with similar interests that they can befriend. Children will discover how Infonaut "Buddies" can gain more power by sharing knowledge with one another. Along the way, "Great Infonaut Masters" will serve as instruments for establishing real-world relevancy and serving as role-models. As children strive to increase their Word/ Knowledge Power they will face many challenges. The Great Infonaut Master will always provide tools to guide and help children in their quest to master everything they choose to read. Every request for help and every challenge attempted will be rewarded.

III. Reading Magic Product Overview

CONTENT

The centerpiece of Reading Magic content will be its *reading materials database.* This database will consist of a wide range of books, magazines, newspapers, etc. for Young Readers age 7 - 11, in grades 2 through 6, organized according to topics/subject areas (e.g. Animals, Fairy tales, Magic, Spooky Stuff, Sports, Dinosaurs, etc ...). A variety of strict criteria for inclusion in the Reading Magic reading material database will be used to guarantee both age appropriateness in terms of reading difficulty as well as subject matter. High quality children's literature recommended for use in schools and homes by various educational, publishing and parenting organizations will be included in this content database along with a wide variety of popular interest materials. The reading materials database will include text, audio and visual (graphics and video) information, and will be built around an enhanced version of the Electric Library fully-indexed text engine developed by Infonautics. *This engine will be extended to support a rich set of on-line multimedia reading tools and performance assessment metrics* based on natural language processing technologies and effective reading pedagogic models.

A key *motivational tool* used by Reading Magic for getting children "hooked on reading" is *creating customized reading worlds built around personalized content tailored to an individual's child's interests.* When children register to become Infonauts they will specify their personal reading interests by choosing topic areas they like. In addition to selecting from existing topics, children will be able to create their own custom topics (e.g. bugs, presidents, tornadoes, princesses, etc ...). This *personalized content profile* will be used to tailor the way information will be presented to each child. Thus, in the World of the Infonaut, where "infocreatures" represent different topic areas, each Infonaut's Reading Magic world will be populated by different Infocreatures. Surprise "sightings" of unexpected Infocreatures that carry special bonuses will be used to gently guide children to broaden their horizons and

interests.

Since the printed word is just one of many mediums available for engaging children's minds and imaginations as they seek to explore and experience the things they find interesting, Reading Magic content will include a *"related stuff" database* that will contain related content from other mediums such as television shows, films and videos. Information about location-based activities such as museum and library programs, theme parks and other speciality event centers (e.g., NASA Space Camps) along with a directory of related "happenings" at both the local community and national level will also be included in the "related stuff' database.

In addition to the "reading materials" and "related stuff' content databases, the Reading Magic site will have a *"retail" database* with a variety of high-quality, specially selected items that parents and children (with parental authorization) will be able to purchase in an on-line Reading Magic STORE. The content for this "retail" database will include books, videos, tickets, educational and enriching toys designed to facilitate learning, cognitive development, creativity, problem-solving, cooperative social skills, etc. as well as a variety of "approved" merchandise.

Reading Magic will secure quality content for it's "reading materials," "related stuff," and "retail" databases through strategic alliances with key content partners.

THE ON-LINE READING EXPERIENCE

The objective of Reading Magic's on-line reading world for young readers is *NOT* to replace printed books and expect children to sit in front of a computer screen and read a book from cover to cover. Quite to the contrary, the objective of this on-line world is to use interactive technologies to create new kinds of activities that will get kids more excited about reading in general, and motivate them to want to read more printed books. Reading Magic recognizes

that today's children are "media-junkies." It uses the power of hybrid Internet/CD-ROM multimedia technologies to make the difficult and practice-intensive process of learning-to-read and the actual experience of reading more engaging and enjoyable so that children will come to view reading as a fun way to explore the world.

The Reading Magic on-line reading experience is designed to enhance a child's reading experience in many ways:

- *A personalized library of reading materials* will be tailored to an individual child's interest and reading level. Children will have at their figure tips and command immediate access to a huge database of reading materials covering topics they select. Materials can be filtered to match a child's reading level, or selected to challenge them to higher levels. Reading Magic will always present suggested reading materials in a given subject area to help guide children in their selection/search process.

- *On-line reading toolsl learning aids* will be available to help a child get through difficult reading material by providing "Say-It" audio help as well as more in-depth **"Explain-It"** help for reader selected words, sentences, and story passages. Reading Magic's unique set of on-line reading tools will facilitate the development of phonetic skills, word skills, vocabulary, sentence syntax and higher-order comprehension and cognitive skills, and will combine Internet and advanced multimedia technologies with natural language processing technologies and effective reading pedagogic models. Example constructs taught at the phonetic level include sound blends, long/short vowels, unusual sounds, silent letters, syllables etc ... Word level constructs include spelling, meaning, parts of speech, syllabic structure, homophones, homonyms, synonyms, etc ... Sentence level constructs include subject-verb-object syntax, active/passive, simple/complex, embedded clauses, metaphors, etc ... Higher-order comprehension and cognitive skills include main idea, sequencing, predicting outcomes, etc ... along with more general story line/plot and

character development constructs. Reading Magic will track a child's use of these on-line reading tools in a *"performance" database* and will use this information to create diagnostic reports for teachers and parents indicating patterns of difficulty along with help suggestions.

- *Fun "challenges"* will provide performance data for assessing a child's mastery of reading materials and overall reading achievement. Challenges will test the same types of pedagogic reading skills and strategies taught with Reading Magic's on-line learning aids, as well as test content specific knowledge at the word, sentence and story level. Additionally, "extra credit" challenges will be designed to enable children to further develop their *keyboarding* and *writing* skills.

  Challenge results will be stored in the Reading Magic "performance" database and presented in different ways to children, parents and teachers. For children, performance data will be fed into a reward Challenge Points system (see next section). For parents, performance data will be merged with diagnostic information and a summary report card will be generated that presents overall reading ability and difficulties. For teachers, performance data will be interpreted and translated into standardized scores and performance measures with diagnostic indicators so that teachers can identify areas needing remedial or enrichment intervention.

- *A "Challenge" Point system* will be the core of the Reading Magic motivational and reward system that will drive young readers age 7-11 to want to be part of this entertaining and educational reading world. From a kid's point of view, Challenge scores will be seen as an individualized measure of on-going improvement and achievement just like video game "high scoring" systems. There will be two primary ways for children to earn Challenge points:

  1. They can earn bonus Challenge reading points during reading by using Reading

Magic's interactive learning aids to get help with words, sentences or passages that they do not understand.

2. They can earn the most Challenge points by participating in "Challenge Me" games which have been designed to be taken after a reading "unit" has been completed to test mastery of that unit. (NOTE: A reading unit could be a book chapter, an entire book, a short story, an article, etc ...).

Children will be given the opportunity to earn additional "extra credit" Challenge points in a variety of ways. For example, they can get extra points for challenging themselves and trying to read above grade level, or they can choose to demonstrate and develop their keyboarding or writing skills in special bonus challenges.

The motivational and reward aspect of the Reading Magic Challenge point system is built around several different social and behavioral factors:

1. As we know from video game scoring systems, kids (especially boys) are driven to attaining "high scorer" status, and all kids like to see their name on the screen. The Reading Magic Challenge Point system affords children the opportunity to reap the pubic recognition and personal satisfaction rewards associated with increasing ones Challenge points and progressing from Infonaut Novice to Infonaut Master.
2. Everyone likes to win prizes. Through sponsoring and co-marketing partners, Reading Magic will offer performance-based contests that will enable children to enter contests and win prizes based on their accumulated Challenge points.
3. Frequent flyer/buyer and Affinity programs are successful because everyone likes to get things for free. Children will be able to use accumulated Challenge points for increasing their purchasing power in the Reading Magic STORE.

- *The "community" of Infonauts* will provide children with a network of friends who share common interests. Reading Magic will foster "user-driven" communities around personal

reading interests. The Infonaut Zone "Buddies" Center will use email, chat and bulletin boards to provide children with forums for sharing their ideas with other like-minded kids. Other multi-user network and gaming technologies will be used to facilitate the development of collaborative and cooperative social skills. **In** addition to encouraging interactions with other kids and providing opportunities for peer-mentoring, the Infonaut Zone will encourage parent-child and teacher-child relationship building.

- *A bridge across multiple-mediums and the real-world* will help children see how integral reading is to their every day lives. Infonaut Masters will provide real-world relevancy and serve as role-models demonstrating how knowledge gained through reading can be key to achieving success and fulfilling one's dreams, as well as to discovering new aspirations. Direct ties will be shown between children's interests and career paths and real life experiences. Ideas and interests sparked by books will be linked to information and experiences available in other mediums such as television, videos, films and location-based activities. In additional to encouraging informational exploration of ideas and interests in other mediums through the Reading Magic "related-stuff' database, the Reading Magic "retail" database will make specially selected, high-quality commercial products and services available in order to afford further opportunities for children to pursue recreational enjoyment of their reading interests.

INTERACTIVE READING TOOLS AND PERFORMANCE MONITORING ENGINE

Reading Magic's on-line reading tools and challenge games for performance monitoring will use state-of-the art Internet, advanced multimedia technologies, spoken and natural language processing technologies and effective reading pedagogic models to teach reading skills and measure achievement.

On-line Learning Aids

A "read-to-me" engine using pre-recorded, digitized speech will be used to provide "Say-It" audio help. Children will be able to select words, sentences or entire passages that they are unable to read, or do not understand, and request the system to "say it." If, after hearing the system recite troublesome selections, a child still does not understand, they will be able to request "Explain-It" help for more detailed explanations.

In the case of words, "explain-it" help will present information about a words phonetic and syllabic structure, give its meaning, present the word in an understandable sentence, indicate what part of speech the word is, and list synonyms, antonyms and homophones (when applicable). Some of this "explain-it" word information will be accessed from a dictionary/thesaurus database, and some of this word help will be computed in real-time using natural language processing. Again, digitized spoken language will be used to provide the reader with audio help when requested.

At the sentence level, natural language processing will be used whenever possible to generate simplified versions of troublesome sentences *on-the-fly*. For example, difficult vocabulary words will be replaced with easier words at a lower reading level; complex sentences will be decomposed into component simple sentences with simplified syntactic structure; passive sentences will be converted into active sentences, etc ... This on-line computation of sentence "explain-it" help will be augmented with pre-processed, manually created sentence help information that will be stored in the "reading material" database along with the source reading content.

At the story level, most of the available "explain-it" help will be created manually and stored with the source content since natural language processing systems have greater difficulty dealing with higher-order comprehension constructs. Natural language processing technologies may be used in pre-processing materials to help streamline the manual process of

identifying story level constructs such as main idea, sequence of events, predicting outcomes, making inferences, etc. Such natural language pre-processing will be followed by a manual review and correction process. Natural language processing systems that are augmented with adaptive learning/ neural network technologies, may, over time, get better at generating accurate explanations of higher-order comprehension constructs. However, initially, the approach for dealing with story level "explain-it" will rely heavily on manually pre-processmg.

Performance Based Challenges

When a child first signs up to "Become An Infonaut," they will be given an *Infonaut Initiation Challenge* which will be a *standardized reading test* in the guise of a fun challenge that kids will want to participate in so they can (1) win bonus "start up" Challenge points, and (2) get an "Initiation Secret Code" worth double Challenge points for "Master Challenge" reading materials. Content that is rated at a higher reading level than a child's current reading level will be identified by the system as a Master Challenge reading selection. A child will need an Initiation Secret Code to earn double Challenge points when selecting difficult reading material. A child's current reading level will be continuously updated based on diagnostic information derived from tracking a child's use of on-line reading tools as well as results on performance Challenges.

Performance Challenges will test mastery of phonetic skills, word skills, vocabulary, sentence syntax and higher-order comprehension and cognitive skills. A library of "game templates" will be created to present performance tests as fun challenges. It will be possible to use these templates with natural language processing technologies to create challenges *on-the-fly* to test a wide variety of reading skills for different content, especially at the word level. For example, natural language technologies can be used to identify target words for mastery based on the basis of different criteria and plug them into stored templates designed to test/reinforce specific types of word knowledge. A set of "Word Wizard" games can be

designed requiring children to build words by reconstructing decomposed compound words or multi-syllabic words; vocabulary can be tested by requiring children to match words with their meanings or synonyms or antonyms; sentences can be presented with missing words that children must fill-in; jumble exercises can be used to teach spelling by requiring children to unscramble "mystery" words, and so on ... Natural language technologies may also be useful in generating tests measuring some basic sentence level ahd story line comprehension concepts. Reading Magic will supplement these on-the-fly challenges with manually designed challenges that are stored with the source content. Through strategic partnerships, Reading Magic can obtain access to a huge number of existing children's reading test materials and modify them for use as on-line "Challenge Me" activities.

All of Reading Magic's challenges are intended to reinforce children's reading efforts and motivate them to read more. Thus, while children will earn the most challenge points for cfmpleting challenges without any help, children will always be able to get hints and earn points when they complete a challenge activity with help. While most challenges will be designed as single-user activities, multi-user network technologies will be used to create a sense of comradery among Infonauts and allow for "cooperative competition" and support collaboration and peer-mentoring.

TEACHER/PARENT GUIDES

Reading Magic will track all of a child's on-line activities so that teachers and parents will be able to get information about:

- A child's personal profile.
- What materials have been read.

- Words/sentences/passages that were difficult to understand.
- Challenge results.
- E-mail, chat and bulletin board participation.
- Browsing.

For teachers, information derived from a child's challenge scores and use of on-line reading tools/learning aids will be interpreted and presented in the form of diagnostic information and standardized performance scores. Teachers will be able to identify problematic areas needing remedial intervention as well as achievement areas meriting enrichment programs. Teachers will be able to update reading level information contained in a child's Profile and set filters for ensuring that a child will be presented reading materials with appropriate levels of difficulties. The Reading Magic Teachers Guide will include suggested classroom activities and lesson pl!ans for different reading interest areas. A "Teacher's Lounge" will provide a forum for sharihg ideas with other teachers as well as communicating with parents and stu‹dents. A "What's Up" area will present hot topics and special promotions tied to school agendas and programs at the local and national level as well as to community events. Special teacher/school contests will be sponsored to help facilitate the integration and adop‹ tion of technology-enhanced learning programs into classrooms.

Parents will have a variety of parental controls that they may use to "oversee" their child's on-line reading experience. They may review and edit their child’s Profile and set access privileges based on subject matter and maturity level. They can define what kinds of educational and recreational purchases are authorized and set spending limits. Parents will receive report cards summarizing their child's current reading abilities and highlighting areas where their children excel and areas where they need help. The Reading Magic Parent's Bulletin Board will include suggested home activities tailored to a child's reading interests. Parents will have access to their child's complete reading activity log and receive information about all on-going contests and promotions. The parents "What's Up" area will keep families

informed of local events, school activities and other "hot-happenings." A "Stay-in- Touch" area will encourage parent-parent, parent-teacher and parent-child relationship building.

The Reading Magic teacher and parent guides will afford strategic partners a vehicle for targeted direct marketing for products and services that support Reading Magic's ultimate goal of enriching children's lives through the power of reading.