Proposal Submitted By:

Ann White
Senior Project Design
Winter 2006

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Executive Summary

Introduction

Key Seeker, keyboarding for kindergarten is a learning game being developed for the Cobb County School District in Georgia. The project combines the learning and recognition of the alphabet with the keyboard used for computers. The goal is to integrate technology into the kindergarten classroom and expose the children to the computer and at the same time to assist with letter recognition. This document is designed to provide definition and direction to the Key Seeker project.

Overview of Solution

The following five phases are being used to develop Key Seeker. The completed phases (1-3) have been incorporated into this document. Development and Deployment will be completed during Spring Quarter 2006,

Phase 1:	**Planning**	Define concept goals and objectives, target audience, style guidelines and requirements for contents. (completed)
Phase 2:	**Strategy & Analysis**	Research educational implications of the game. Complete a comparative analysis (completed).
Phase 3:	**Design**	Define organization and hierarchy for all information; Produce story boards, scripts and process flows. Develop a visual and partially functional prototype.(completed)
Phase 4:	**Development**	Acquire and develop all assets for project integration as defined within the design documents.
Phase 5:	**Deployment** (testing/delivery)	Test the interactive project functionality, reviews all information for accuracy. Key Seeker is then turned over to the Cobb County School Department.

Planning Phase

Project Concept Note

The Project Concept Note was developed to identify the concept, target audience and goals of the Key Seeker project. This initial document is compiled to define the scope and feasibility of the project for the time frame of Senior Project Design and Development.

Project Concept Note

Ann White – IMD 465 Winter 2006

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Introduction

There has been some controversy over when children should begin learning keyboarding skills. Researchers of elementary learning have found that children with keyboarding skills compose faster and are proud of their work: their documents have a neater appearance, motivation is better, and composition and editing are easier. Thus, language arts skills improve. Elimination of another subject to make room for keyboarding is not necessary. Keyboarding should be incorporated into most subjects. Keyboarding is simply another method for communicating their ideas.

The Rosegrant Study [1]found that the four to five year old could at least develop logical search strategies for locating individual keys when needed. Two other studies have indicated that keyboarding may be less cognitively and physically demanding than handwriting. It is easier to locate one of 60 keys and depress it than it is to copy a single letter. Using speed as a proxy for cognitive load, keyboarding is arguably less taxing than handwriting.

In cooperation with Herman Wood, Cobb County Technology Integration Specialist, an interactive learning tool and support materials would be developed to introduce the concepts of keyboarding and initial strategies for kindergarten and first graders. The basic premise: as children are learning their letters, they can also learn recognition of those letters on the keyboard and learn what hand is used to input those letters. The curriculum would include print materials for parents and educators for additional activities to reinforce the learning skills necessary for keyboarding.

Career and Personal Goals

Education and learning have always fascinated me. I am of the opinion that education is one of the greatest gifts and precious opportunities. The ability to learn makes the world a better place. The ability to share using technology enhances our world, promotes understanding and fosters creativity.

I received my primary education when computers and keyboards were unavailable. I did not learn to "type" until I was in my late teens, there really was not a use for it until then. Times and technologies have changed dramatically. Curiousity fueled my desire to learn more about how people learn, why people learn, what is useful learning and how does interactive media play a role in learning.

I expect to meet the following goals throughout the process of this project:

* Further develop my interest in e-learning
* Utilize and strengthen my Flash Technology skills
* Apply my usability and information architecture skills
* Further develop my creative illustration skills

Completion of this project will provide me with confidence and skills to work in a variety of environments:

* Usability
* Information architecture
* Integrating technology with learning

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[1] Rosengrant, T. (1985). Using the microcomputer as a tool to read and write. Journal of Learning Disabilities, 18, pp 113-115

Communication Objectives:

The objectives listed below were developed with the help of the Cobb County School District.

Goal for Kindergartner Keyboarding:
The student should be able to recognize the letters of the alphabet on the keyboard and use the correct hand to strike the key.

The following standards should be **introduced** during kindergarten:

* The learner will be able to recognize and use the letters and function keys on the keyboard with teacher guidance.

* The learner will be able to demonstrate an understanding of standard keyboarding techniques and correct fingering techniques.

* The learner will be able to use word processing skills to type words, phrases, and sentences.

* The learner will be able to use word processing skills to edit a typed document.

It is important to keep in mind that this project will only encompass the kindergarten introduction to keyboarding. Correct fingering would prove to be a difficult physical task at this age. Again, this project is an introduction of the keyboard.

The objective of the project is to make the learning effective and fun and appropriate for this age group. It is hopeful that in time the project can be expanded to include material for first and second graders.

Business Objectives:

At this time, the project has no business objectives. It is hopeful that the project will be successful enough to find a sponsor who might host the project for free. The reasoning behind this concept is two fold. First, the creator of the project does so willing and in cooperation with the Cobb County School District will consent and assign to Cobb County School District of all right, title and interest in and to the material, including ownership of the entire copyright in the material. [2]The school district understands that this project is a learning project for the creator and that the project is to be used for educational purposes only. The second reason is personal. My belief that education is a shared experience and should be easily accessible outweighs my belief in making a dollar. I am fortunate to be in a situation at the present time where I am able and willing to provide this service simply for recognition. I am confident I will have other opportunities to create for pay in the future.

[2] I have obtained some forms that the County has requested I sign and return. I will bring them to my meeting and review them with Ameeta as well. Herman Wood has suggested if these forms are not agreeable he is still willing to work with me on the project in some other manner to be discussed in the future.

Target Audience

Primary Audience

The primary audience for this project is Kindergarten students in the Cobb County School District, Georgia. They will be the primary users and learners. The teachers of those students are also members of the primary audience as they will oversee the students and provide guidance as well as engaging the students in additional exercises to reinforce the keyboarding experience.

Secondary Audience

The secondary audience for this project will be parents and possible teachers from other districts that may be interested in implementing the materials. There may be a secondary audience of home school families as well.

Competition and Inspiration

At this time, four sites have been identified to be reviewed and analyzed.

* http://www.kiddonet.com/gb/flash/phonics/Intro.html
* http://www.billybear4kids/games/online/alphabet/alphabet.htm
* http://www.learningplanet.com/act/fl/aact/index.asp
* http://www.cogcon.com/gamegoo/games/frieda/frieda.html

Skills

Research

This project relies upon research in both e-learning and educational curriculum and methods. It is my intention to use Herman Wood's expertise in these areas to assist in guiding the project to meet the needs of the kindergarten learner and the teachers in the Cobb County School District. I have recently read Michael Allen's Guide to E-Learning and have done some initial research into teaching (introducing) keyboarding to kindergarten children. Information from these readings will be incorporated into the deliverables to support design and technical decisions for the project.

Soft Skills

The soft skills necessary for this project will be great listening and observational skills. The need to accept criticism and the ability to change or alter the design or concept as necessary to achieve the project's goals and mission is another set of important soft skills I will use to complete the project.

Time management will be critical not only for the completion of the project, but also for cooperating with both Mr. Wood and my advisor and instructor. Mr. Wood has agreed to make every possible effort to respond within a reasonable amount of time, and has agreed to meet as necessary.

Flash Technologies

The intention is to complete the interactive technology portion of this project using Flash. Flash provides sound and animation capabilities that can provide motivation for the young learner.

Illustration/Artistic

Visuals will need to be created for the supporting materials as well as simple animations. I envision I will create and deliver these as part of Senior Project 2.

Print Technologies

I believe I may need some assistance and guidance in this area. I have only taken one layout course on line at the Art Institute. I am open to suggestions in this area. I know the Art Institute has many resources that I may not know about. I believe I have enough knowledge to produce prototype materials. I am willing to find help here.

Resources

Human Resources

As has been stated, Herman Wood will assist in advising on this project. He has read the syllabus and understands the nature of the project. He has made several recommendations for the direction of the project and will assist in providing and approving additional curriculum materials (or at least to point out possible flags).

I have also asked Ameeta to be my advisor in-house at the Art Institute and she has agreed. Dara has also offered some direction as well.

Technical Resources

The technical resources necessary for this project are a PC or MAC that can accommodate

* Flash
* Illustrator
* Possibly incorporating php (not certain of this yet)

Financial Resources

None necessary at this time, but there may be some to consider for the production prototype and supporting print materials.

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Strategy/Analysis Phase

This phase of the project included conducting research in the following areas and creating the following deliverables:

- Comparative Analysis
- Branding Guidelines
- User Definition and Research

Ann White – Senior Project I
January 25, 2006

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Introduction

The competitive analysis is a review of competitive and comparative websites similar in objectives and content to the proposed Keyboarding for Kindergarten (Key Seekers) curriculum. Existing projects will be compared to each other on how well those projects meet the objectives and goals outlined below for the Keyboarding for Kindergarten.

Instructional activity is more than a multimedia response to a learner's gesture. It is interaction that actively stimulates the learner's mind to do those things that improve ability and readiness to perform effectively. [3]

Specifically examining the instructional activity and creative strategy of each site in regards to context, challenge, physical activity, and feedback will help define and design the goals for the project while ensuring a pleasant, informative and meaningful experience to the learner.

Cobb County School District Objectives

In cooperation with Herman Wood, Cobb County Technology Integration Specialist, an interactive learning tool and support materials would be developed to introduce the concepts of keyboarding and initial strategies for kindergarten children. The basic premise: as children are learning their letters, they can also learn recognition of those letters on the keyboard and learn what hand is used to input those letters.

Cobb County School District Goals for Kindergarten Keyboarding

Primary Goal for Kindergartner Keyboarding:
The student should be able to recognize the letters of the alphabet on the keyboard and use the correct hand to strike the key.
Secondary Goal for Kindergarten Keyboarding:
Incorporate elements of literacy expectations into the program to make the experience more meaningful for the learner.

The following documentation was used to define the specific goals for the project.

Kindergarten Cobb County School District Criteria/Curriculum—Language arts
http://www.cobbk12.org/~schoolimprovement/curriculum/langarts/kinder.htm

Kindergarten Cobb County School District - Technology
http://picasso.cobbk12.org/cobbcurriculum/curriculum/ParTIGrKCR005688.HTM

[3] Allen, Michael, Michael Allen's Guide to e-Learning, p240

Technology based goals

The following standards should be **introduced** during kindergarten:

- The learner will be able to recognize and use the letters and function keys on the keyboard with teacher guidance.

- The learner will be able to demonstrate an understanding of standard keyboarding techniques and correct fingering techniques.

Student Literacy Expectations for Kindergarten

- Use words that signal sequence relationships such as first, next, and last.
- Distinguish sounds in the environment.
- Distinguish sounds of letters and words.
- Follow one and two part directions.
- Classify by characteristics such as color, size, shape, structure, and function.
- Use illustrations to retell or gain information
- Phonics (letter/sound relationships):
- Develop phonemic awareness.
- Begin to identify letters by sight and sound.
- Begin to point out letters that are the same.
- Begin to point out a capital and lowercase letters.
- Begin to hear initial/ending consonant sounds.
- Begin to focus on letter sounds in own name.
- Begin to segment/blend words orally.
- Begin to use phonics to decode
- Begin to recognize own name in print.
- Begin to use phonetically spelled words.
- Begin to use appropriate initial consonants.
- Begin to write upper and lower case letters.
- Identify upper and lower case letters out of sequence.
- Use left to right pattern of writing.
- Copy simple shapes, designs, numerals, and letters.
- Print name, self-selected words, and letters of the alphabet.
- Follow print left to right, top to bottom.

It is important to keep in mind that this interactive project will only encompass the kindergarten introduction to keyboarding. Correct fingering would prove to be a difficult physical task at this age. It is hopeful that additional activities will assist the children in identifying correct fingering. Again, this project is an introduction of the keyboard. It is also intended as a supportive tool to phonics and letter recognition curriculum. A more defined picture of user skills and assumptions will follow in the User Definition and Requirements Document.) Research is still being conducted in this area)

The challenge for the project is to combine both the goals of the school district with good, effective instructional interaction that is age appropriate. Age and skill levels have been defined above. We also need to define effective instructional interaction.

Keys to effective interactive learning software:[4]

1. Build on anticipated outcomes
2. Select the right content
3. Use an appealing context
4. perform multi-step tasks
5. provide intrinsic feedback

How well does each of the comparative sites incorporate these key elements, and the above defined goals?

[4] Allen, Michael, Michael Allen's Guide to e-Learning, p157

Comparative Goals Measured

It is important to understand what is being measured in this analysis. Each site will be reviewed specifically for how the site meets the following goals:

1. Site provides opportunities for – rehearsal, repetition, practice

The process of learning uses rehearsal to strengthen the forming relationships for later recall and application. Certainly none of these programs were designed to be the only tool to teach children phonics, letter recognition, or keyboarding skills. However, using a keyboard effectively will increase a child's ability to communicate and share ideas using technology. How well does the program meet literacy expectations?

2. Engage Learners

Age and skill level play an important role of this goal. Is the software enjoyable? Is it easy to use? Do the multimedia tools used in the project make sense? Are there features that keep the child interested?

3. Build needed competencies – right hand /left hand

The needed competencies for proposed program are somewhat defined in both the technological and literacy goals defined above. Do these programs help to enforce keyboarding skills; specifically, how is the correct hand or fingering position addressed?

Measurement Criteria

Context: Is the context age and skill appropriate? Is there a story line? Are the colors appealing to the age group? Is there educational value within the context? How does the concept relate to the framework?

Challenge: Are the problems presented age or skill level appropriate? Are there multiple levels of challenge? Is the challenge presented appropriate for the age group? Are the instructions clear and understandable? Is there a method of measurement for the challenge?

Physical Activity: Does the physical effort necessary to produce the desired response distract from the desired response? How is the child encouraged or guided to use the appropriate hand for keyboarding or the appropriate finger?

Feedback: Is the feedback age appropriate? Is there feedback? Is there feedback for incorrect answers? Is help available? What types of multimedia are used to incorporate feedback?

Identified Competitors/Comparators

There are numerous typing and phonics software programs available. Here is a small sampling of programs that use a variety of those programs geared toward children. All these examples incorporate a combination of multimedia rich content (animations, illustration, sounds). As these programs are being analyzed partly on their basis of interactivity, it is recommended that the sites be visited to experience the interactivity first hand. All attempts will be made here in the document to describe the interactions.

- DanceMat
  - http://www.bbc.co.uk/schools/typing/
- Kiddonet
  - http://www.kiddonet.com/gb/flash/phonics/Intro.html
- Learning Planet
  - http://www.learningplanet.com/act/fl/aact/index.asp
- GameGoo
  - http://www.cogcon.com/gamegoo/games/frieda/frieda.html

Scoring Method

The key symbol  will be used to visually display how well a site accomplishes the goal stated at the top of each page. The more keys the better the site meets the goal. .

Values range from 0 – 5. 0= does not meet the stated goal 5 = meets the stated goal best

Site Goal: 1. Site provides opportunities for – rehearsal, repetition, practice

	Dancemat	Kiddonet.com	LearningPlanet	GameGoo
				
Context	🔑🔑🔑🔑	🔑🔑🔑	🔑	🔑
Challenge	🔑	🔑🔑🔑	🔑	🔑
Activity	🔑	🔑	🔑	🔑🔑
Feedback	🔑🔑🔑🔑	🔑🔑🔑	🔑🔑	🔑

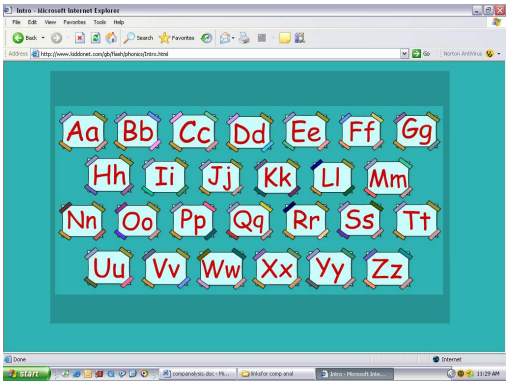
The process of learning uses rehearsal to strengthen the forming relationships for later recall and application. Certainly none of these programs were designed to be the only tool to teach children phonics, letter recognition, or keyboarding skills. However, using a keyboard effectively will increase a child's ability to communicate and share ideas using technology. How well does the program meet literacy expectations?

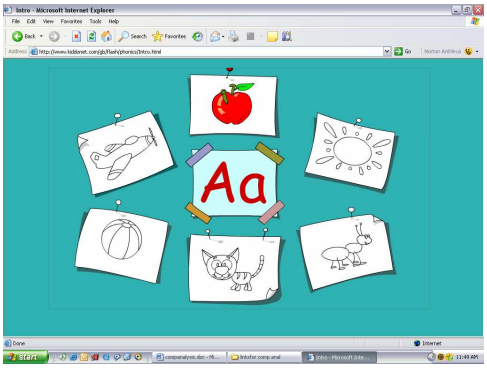
Values range from 0 – 5. 0= does not meet the stated goal 5 = meets the stated goal best

DANCEMAT – Site Goal: 1. Site provides opportunities for – rehearsal, repetition, practice

Context: Provided many instances of repetition rehearsal and practice at different levels. Consistent color usage throughout the exercises. Good use of repetition for colors on the key board. Each color represents a finger. Uses keyboard configuration. Characters and storyline are consistent throughout practice sessions. Shows correct finger placement prior to the beginning of the practice using animated characters hands. This could be effective approach for proposed program.	**Challenge:** Too advanced for the age and skill level of kindergarten children. Makes the assumptions that a child will know how to escape from the application to repeat a particular lesson. Multiple levels of challenge are incorporated, but the entry level is too advanced for children of the targeted group. Does not address any beginning literacy skills. Assumes literacy level is high enough to recognize letters and words. Sight and sound are used for instructions.
Physical Activity: The physical activity needed to accomplish the levels correctly is too advanced for the level of kindergarten children.	**Feedback:** The feedback on this application is remarkable. Sight and sound are used for instructions. There are audible reminders for correct hand and posture positioning. The use of sound and sight for the appropriate key hit are effective. When an incorrect key is pressed during practice there is an audible and visual response and guidance to the correct key.

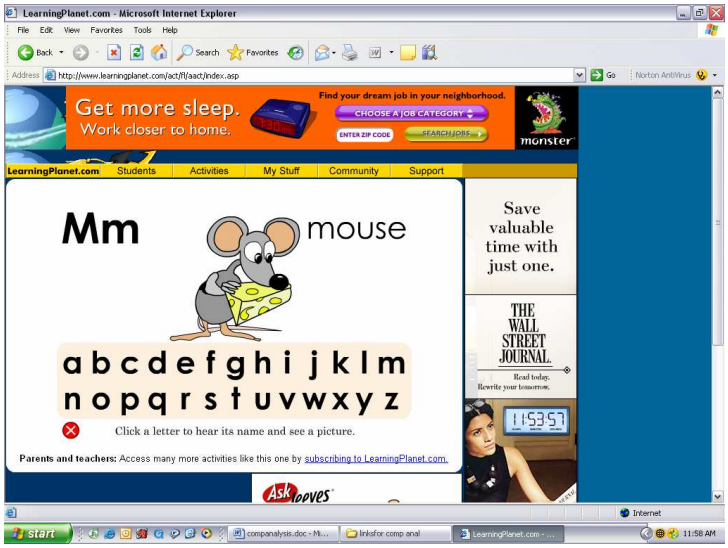
KIDDONET – Site Goal: 1. Site provides opportunities for – rehearsal, repetition, practice





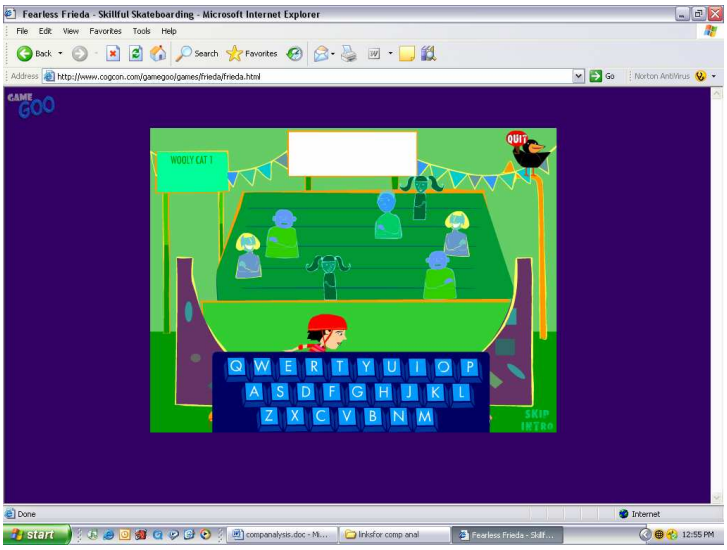
Context: Provided simple instances of repetition rehearsal and practice Consistent color usage throughout the exercises. Very simple. Uses both Upper and lower case letters for recognition. Does NOT incorporate the keyboard. There is no point system or additional level. The concept is appropriate for literacy, but not for keyboarding.	**Challenge:** Some literacy challenges are addressed here. Recognizing the letter, recognizing illustrations. Understanding letter sounds and applying the letter to the correct picture. Click on the pictures that start with the letter. NO KEYBOARD RECOGNITION is used.
Physical Activity: The physical activity needed for this application to meet the repetition goal on the keyboard is not met. The child only needs a mouse. Using the keyboard yields no results	**Feedback:** The feedback on this application is mostly visual. When a correct answer is clicked on the illustration appears in color and there is a slight animation. Very age appropriate. Sound is used for instructions. There is no feedback for incorrect answers.

LEARNING PLANET – Site Goal: 1. Site provides opportunities for – rehearsal, repetition, practice



Context: Provided simple instances of repetition only. Very simple. Uses both Upper and lower case letters for recognition. Does NOT incorporate the keyboard. Concept is too simple for literacy expectations. However animations and illustrations are appropriate.	**Challenge:** There is no challenge here.
Physical Activity: Too simple – no real opportunity for thinking here. Point on the letter, see a picture and hear the letter name.	**Feedback:** This is basically the letter names associated with pictures. Not very effective literacy tool. Click a letter see the picture that starts with that letter and hear the letter name.

GAME GOO – Site Goal: 1. Site provides opportunities for – rehearsal, repetition, practice



Context:	**Challenge:**
TOO BUSY. The level is too advanced but some features are worth investigating. Does display a keyboard but only for a very brief moment. Too noisy – constant loop in the background – distracting. Not much repetition but does use keyboard instead of mouse. Characterization may not be thing kindergarten children would identify with. Children are asked to type what they hear. Too much action for the learning process to be effective. Quit is displayed as is a replay button to hear the word again.	This program offers some level of keyboard challenge and some literacy challenge as well. A lot is assumed of the "player." The repetition is not a core element here. Child must already have an idea of how to spell the word.
Physical Activity:	**Feedback:**
Children must already know the letters they are looking for on the keyboard. Some of the phonetic sounds are not clear.	There is a score keeper device employed for feedback. It's not intrinsic. You don not know if the correct key was hit. If you incorrectly hit keys, the skater falls. Not appropriate reward system, does not help learner get back on track if mistake is made.

Site Goal: 2. Engage Learners
Values range from 0 – 5 . 0= does not meet the stated goal 5 = meets the stated goal best

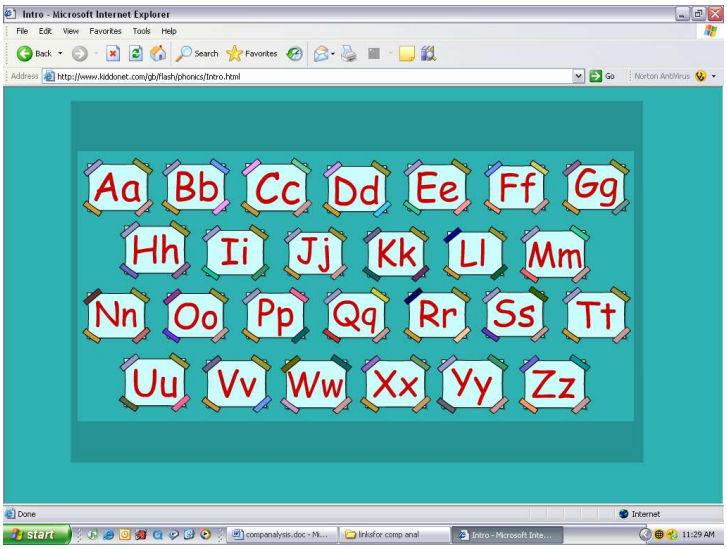
	Dancemat	Kiddonet.com	LearningPlanet	GameGoo
				
Context				
Challenge				
Activity				
Feedback				

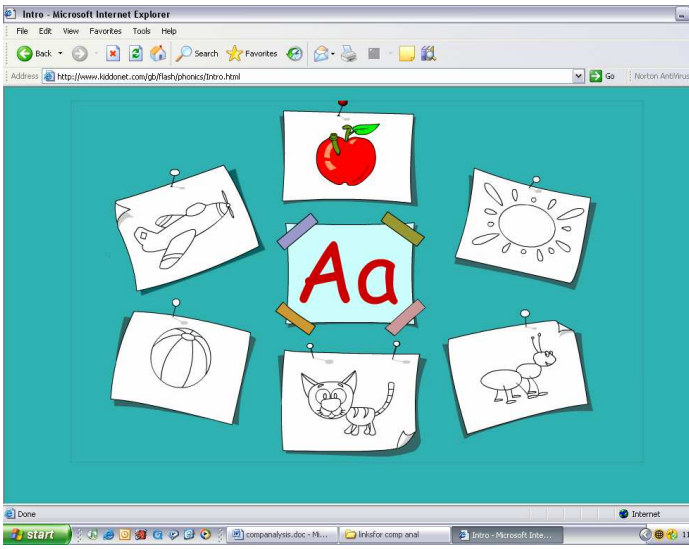
Age and skill level play an important role of this goal. Is the software enjoyable? Is it easy to use? Do the multimedia tools used in the project make sense? Are there features that keep the child interested?

DANCEMAT – Site Goal: 2. Engage Learners

Context: Provided many instances of repetition rehearsal and practice at different levels. Consistent color usage throughout the exercises. Good use of repetition for colors on the key board. Each color represents a finger. Uses keyboard configuration. Characters and storyline are consistent throughout practice sessions. Shows correct finger placement prior to the beginning of the practice using animated characters hands. This could be effective approach for proposed program.	**Challenge:** Too advanced for the age and skill level of kindergarten children. Makes the assumptions that a child will know how to escape from the application to repeat a particular lesson. Multiple levels of challenge are incorporated, but the entry level is too advanced for children of the targeted group. Does not address any beginning literacy skills. Assumes literacy level is high enough to recognize letters and words. Sight and sound are used for instructions.
Physical Activity: The physical activity needed to accomplish the levels correctly is too advanced for the level of kindergarten children.	**Feedback:** The feedback on this application is remarkable. Sight and sound are used for instructions. There are audible reminders for correct hand and posture positioning. The use of sound and sight for the appropriate key hit are effective. When an incorrect key is pressed during practice there is an audible and visual response and guidance to the correct key.

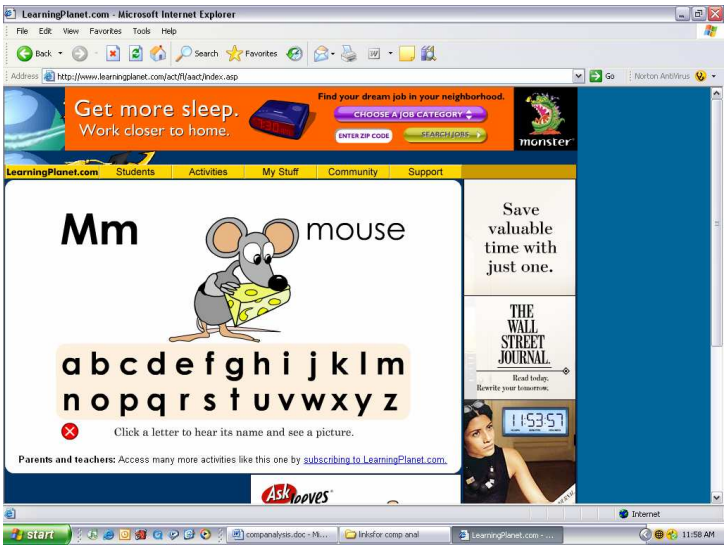
KIDDONET – Site Goal: 2. Engage Learners





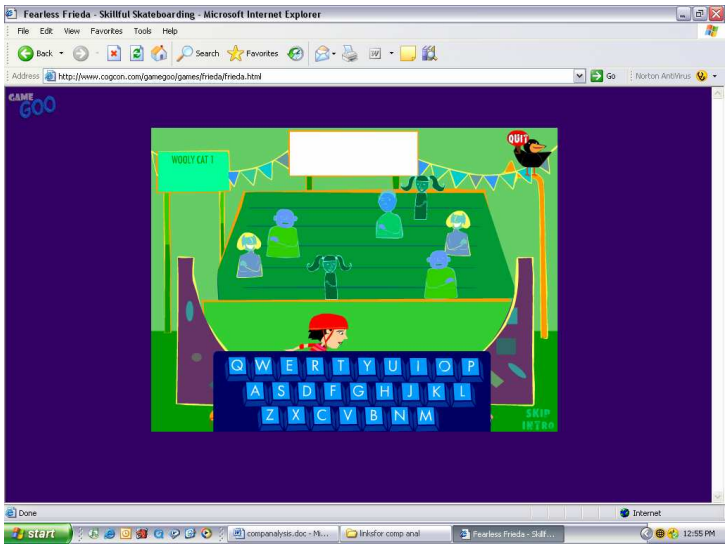
Context: Provided simple instances of repetition rehearsal and practice Consistent color usage throughout the exercises. Very simple. Uses both Upper and lower case letters for recognition. Does NOT incorporate the keyboard. There is no point system or additional level. The concept is appropriate for literacy, but not for keyboarding.	**Challenge:** Some literacy challenges are addressed here. Recognizing the letter, recognizing illustrations. Understanding letter sounds and applying the letter to the correct picture. Click on the pictures that start with the letter. NO KEYBOARD RECOGNITION is used.
Physical Activity: The physical activity needed for this application to meet the repetition goal on the keyboard is not met. The child only needs a mouse. Using the keyboard yields no results	**Feedback:** The feedback on this application is mostly visual. When a correct answer is clicked on the illustration appears in color and there is a slight animation. Very age appropriate. Sound is used for instructions. There is no feedback for incorrect answers.

LEARNING PLANET – Site Goal: 2. Engage Learners



Context: Provided simple instances of repetition only. Very simple. Uses both Upper and lower case letters for recognition. Does NOT incorporate the keyboard. Concept is too simple for literacy expectations. However animations and illustrations are appropriate.	**Challenge:** There is no challenge here.
Physical Activity: Too simple – no real opportunity for thinking here. point on the letter, see a picture and hear the letter name.	**Feedback:** This is basically the letter names associated with pictures. Not very effective literacy tool. Click a letter see the picture that starts with that letter and hear the letter name.

GAME GOO – Site Goal: 2. Engage Learners



Context: TOO BUSY. The level is too advanced but some features are worth investigating. Does display a keyboard but only for a very brief moment. Too noisy – constant loop in the background – distracting. Not much repetition but does use keyboard instead of mouse. Characterization may not be thing kindergarten children would identify with. Children are asked to type what they hear. Too much action for the learning process to be effective. Quit is displayed as is a replay button to hear the word again.	**Challenge:** This program offers some level of keyboard challenge and some literacy challenge as well. A lot is assumed of the "player." The repetition is not a core element here. Child must already have an idea of how to spell the word.
Physical Activity: Children must already know the letters they are looking for on the keyboard. Some of the phonetic sounds are not clear.	**Feedback:** There is a score keeper device employed for feedback. It's not intrinsic. You don not know if the correct key was hit. If you incorrectly hit keys, the skater falls. Not appropriate reward system, does not help learner get back on track if mistake is made.

Site Goal: 3. Build needed competencies – right hand /left hand
Values range from 0 – 5 . 0= does not meet the stated goal 5 = meets the stated goal best

	Dancemat	Kiddonet.com	LearningPlanet	GameGoo
				
Context	🔑	🔑	🔑	🔑
Challenge	🔑🔑	🔑	🔑	🔑
Activity	🔑			
Feedback	🔑			

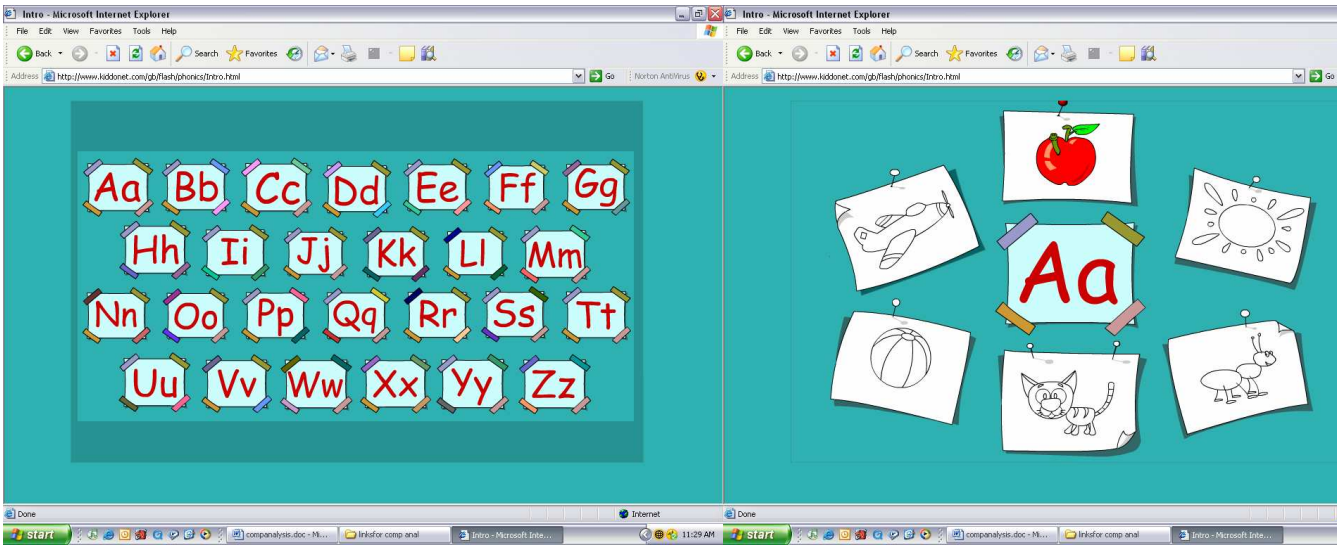
The needed competencies for proposed program are somewhat defined in both the technological and literacy goals defined above. Do these programs help to enforce keyboarding skills; specifically, how is the correct hand or fingering position addressed?

Effectiveness of this goal requires supervision and physical guidance at this level.

DANCEMAT – Site Goal: 3. Build Needed Competencies – right hand/left hand

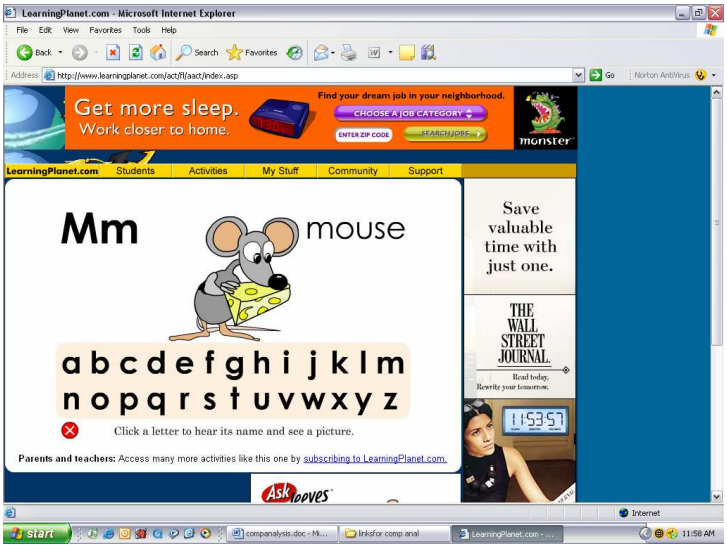
Context: Provided many instances of repetition rehearsal and practice at different levels. Consistent color usage throughout the exercises. Good use of repetition for colors on the key board. Each color represents a finger. Uses keyboard configuration. Characters and storyline are consistent throughout practice sessions. Shows correct finger placement prior to the beginning of the practice using animated characters hands. This could be effective approach for proposed program.	**Challenge:** Too advanced for the age and skill level of kindergarten children. Makes the assumptions that a child will know how to escape from the application to repeat a particular lesson. Multiple levels of challenge are incorporated, but the entry level is too advanced for children of the targeted group. Does not address any beginning literacy skills. Assumes literacy level is high enough to recognize letters and words. Sight and sound are used for instructions.
Physical Activity: The physical activity needed to accomplish the levels correctly is too advanced for the level of kindergarten children.	**Feedback:** There are audible reminders for correct hand and posture positioning. The use of sound and sight for the appropriate key hit are effective. When an incorrect key is pressed during practice there is an audible and visual response and guidance to the correct key.

KIDDONET – Site Goal: 3. Build Needed Competencies – right hand/left hand



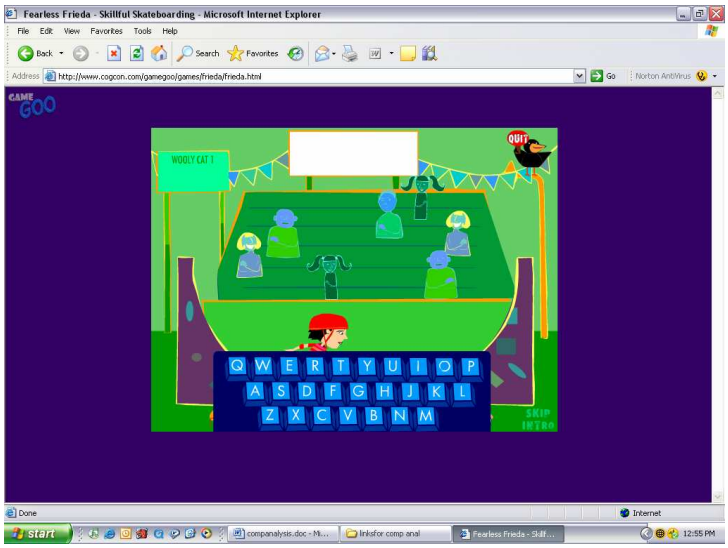
Context: literacy context good. Keyboard non existent	**Challenge:** mouse only audible instruction only
Physical Activity: mouse only	**Feedback**: none appropriate for the goal

LEARNING PLANET – Site Goal: 3. Build Needed Competencies – right hand/left hand



Context: Some literacy context – no keyboard context	**Challenge:** mouse only no audible instruction
Physical Activity:	**Feedback**: too simple none appropriate for the goal

GAME GOO – Site Goal: 3. Build Needed Competencies – right hand/left hand



Context: Did at least introduce the keyboard and showed a brief example of how to find the letters	**Challenge:** This program offers some level of keyboard challenge and some literacy challenge as well. A lot is assumed of the "player." Might work for first graders.
Physical Activity:	**Feedback:** none appropriate for the goal

Conclusion

As is exhibited in this analysis, each site has its specific strengths and weaknesses. Some sites are more effective in literacy goals while others exhibit strengths in interactive instructional goals.
Below is an overall rating of the sites based on the aforementioned criteria.

Values range from 0 – 5 . 0= does not meet the stated goal 5 = meets the stated goal best

	Dancemat	**Kiddonet.com**	**LearningPlanet**	**GameGoo**
				
Context				
Challenge				
Activity				
Feedback				

This analysis has revealed some interesting guides and design features they should be incorporated into the interactive keyboarding project. These recommendations will be used when creating a prototype providing a sound basis for technical and design decisions.

- Images can communicate to us more rapidly and with more fidelity than verbal descriptions, while animations can act as a reward for correct answers or guidance for incorrect answers – use lots of effective illustrations. The use of story telling also helps the learning process. Do not overuse animations or storytelling to distract from the learning goals. Appropriate characters may play a positive role in the learning process.

- Challenge – stimulus to action within the context—(reward of animation with correct answer – include reminders of correct hand position) Different or more challenging levels may not be appropriate at this level of introduction. Keep it simple.

- Activity – physical response to the challenge (simulate real life) Display a keyboard on the screen and a visual representation of the correct hand or finger position to be used. Use color to designate which hand or which finger is to be used (good example … DanceMat)

- Feedback – reflection of the effectiveness of the learner's action – feedback provides reward of fun activity….good feedback reflects the different outcomes of specific actions (right and wrong answers). Use of visual and audible feedback and instructions.

- Seek assistance with word choices – make certain content is appropriate and meets Cobb County School District expectations.

- Combine effective elements of DANCEMAT with simple animations similar to KIDDONET to create effective interactive introduction to keyboarding for kindergarten children.

****

Branding Guidelines:
Keyboarding Strategy for Kindergarten

Ann White – IMD 465 Winter 2006
Revised February 10, 2006

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In cooperation with Herman Wood, Cobb County Technology Integration Specialist, an interactive learning tool and support materials will be developed to introduce the concepts of keyboarding and initial strategies for kindergarten and first graders. The basic premise: as children are learning their letters, they can also learn recognition of those letters on the keyboard and learn what hand is used to input those letters. The curriculum would include print materials for parents and educators for additional activities to reinforce the learning skills necessary for keyboarding. The goal of the curriculum is to teach children to use the appropriate hand for the left and right hand side of the keyboard.

The Key Seeker logo represents the basic premise of keyboarding for kindergarten children.

With Border

Without Border

The Name:

> Key Seeker – each child will be seeking keys that correspond with images and letters. The name gives the child an identity and identifies the task.

The Graphics:

> Keys: Each letter of the name is enclosed with graphics that represent keys on a keyboard. The colors of the keys are significant as explained below. Arial is used for the font to reflect the familiar font used on QWERTY keyboards.
>
> Hands: The hands that will be used to seek and touch the keys are represented in different colors. Left hand: Purple – all letters on the left side of the keyboard will be represented in purple. Right hand: Green – all letters on the right side of the keyboard will be represented in green.

Key seeker is an easy name for children to remember. It is hopeful that once they have used the

Conditional Usage

To ensure the integrity of the Key Seeker logo it is necessary to understand certain conditions when using the logo.

Minimum Size

To maximize legibility and impact, the height in all uses should not be any smaller than 1 inches as shown: This smaller size logo could be used with additional supportive materials being developed for the curriculum as well.

1 3/4 " x 1"

Minimum Clear Area - ¼ inch

In order to protect the integrity and impact of our identity, a minimum clear area has been created around the logo. This area should always be kept free of any graphic elements and/or messages. ¼ inch.

It is important to keep children active and interested in learning. The colors used in the logo are bright and energetic. They are familiar colors to children and colors they will recognize. The contrast of the purple and greens allow for energy and activity but are not visually offensive when used together.

NEVER reproduce logo in any colors other than the approved color examples in this document. Never use a tint or screen. All other colors will be not acceptable.

	Screen Source		Print Materials	Web Design
Sample	**HSB**	**RGB**	**CMYK**	**Hexi decimal**
	252 68 93	111 75 238	56 65 0 0	6F4BEE
	241 13 83	186 185 214	27 19 14 1	BAB9D6
	247 14 95	213 208 244	16 13 1 0	D5D0F4
	124 87 58	19 149 29	95 1 100 0	139519
	77 63 93	171 214 77	33 2 73 0	A8D64D
	84 77 99	168 253 57	34 0 85 0	A8FD39

Here are approved colors for using as a background with the logo

	Screen Source		Print Materials	Web Design
Sample	HSB	RGB	CMYK	Hexadecimal
	59 96 100	255 255 9	3 2 91 0	FFFF09
	201 25 97	184 255 249	27 4 2 0	B8E1F9
	29 100 100	255 127 0	2 50 93 0	FF7F00

The recommended color backgrounds shown are simulated using four color process. (CMYK)

The logo may not be rotated

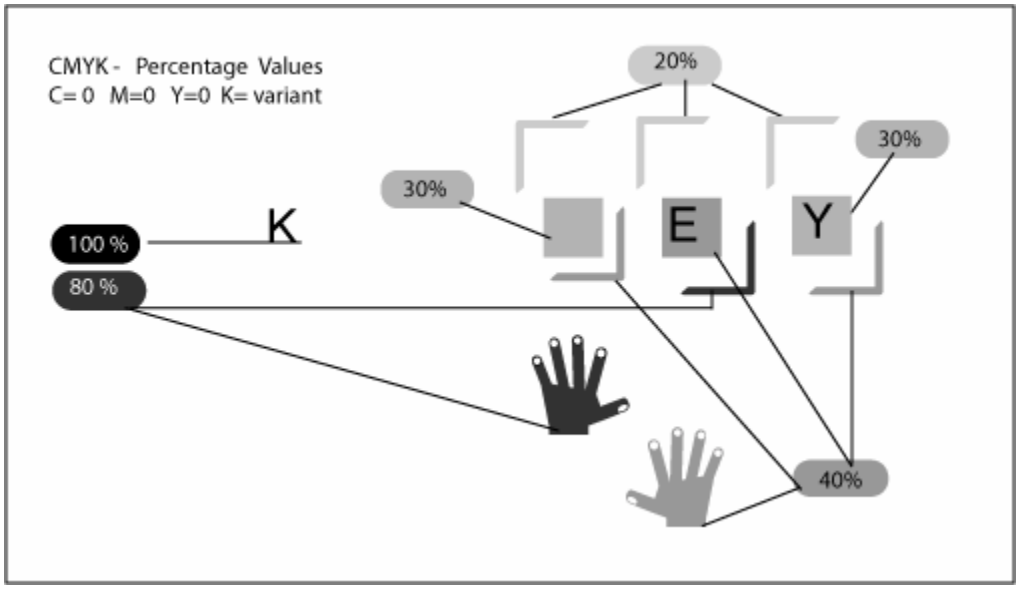
Do not use any other background colors other than those specified in this document.

Do not use any other font than is specified in this document.(Arial font to represent sans serif font used on keyboards.)

Use ONLY colors specified in this document.

Gray and white logo to be used with print materials only, and printed only on white stock.

When using black and white version of the logo it is imperative that these percentage values be used for proper contrast. This version should never be printed on color stock.



These are acceptable fonts that can be used with the logo. Those are sans serif fonts, which support the simple font used logo. Arial font is the font used for QWERTY keyboards.

Arial

Verdana

Myriad Roman

Examples of Logo Sizes

The logo may be resized proportionally, as needed, but may never be cropped.

Business Card or letterhead – 1.75” x 1” or on CD

Sized for header on Web Site or Screen Display or CD cover 2” x 4”

On Documentation Cover Pages 4” x 7”

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Ann White – Senior Project I
January 31, 2006

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The Cobb County School District is looking to integrate the introduction of computer keyboarding to kindergarten children while learning basic language art skills. This proposed interactive instructional keyboarding project will be used in cooperation with other language arts activities to strengthen the children's ability to create and communicate. The computer activity and correlating print materials will be created to meet the needs of the District, the children, parents and teachers.

Primary Goal for Kindergarten Keyboarding:
The student should be able to recognize the letters of the alphabet on the keyboard and use the correct hand to strike the key.
Secondary Goal for Kindergarten Keyboarding:
Incorporate elements of literacy expectations into the program to make the experience more meaningful for the learner.

Most typing or keyboarding applications are not integrated until first or even third grade. Currently, there is no existing computer application that meets the needs and skill level of kindergarten children.

Requirements

This document will examine the vast requirements necessary for the project to be created successfully. Studying the requirements necessary will alert the developer, designer and content providers of potential problem areas as well as address the many different areas of discipline involved in creating such a project.

Cobb County School District Requirements

The following sources were used for reference to identify technical, design and user requirements.

Cobb County Web Page Publishing and Compliance Guidelines
http://www.cobbk12.org/~pope/acceptable_use_policy.pdf

Kindergarten Cobb County School District Criteria/Curriculum—Language arts
http://www.cobbk12.org/~schoolimprovement/curriculum/langarts/kinder.htm

Kindergarten Cobb County School District - Technology
http://picasso.cobbk12.org/cobbcurriculum/curriculum/ParTIGrKCR005688.HTM

Technical Requirements

- Cobb County elementary schools are primarily PC, standardized on IE- versions in use vary widely, but no older than Win '98.
- There are several elementary schools on Mac OS 9 & X. Browser again is IE standard on OS 9, with Safari in broad use in X, but standardized on IE.
- It is unclear at this time if the Cobb County School District will host the Key Seekers application on its server or if the application will be stand alone.

- Pentium II 266mhz processor
- 4x CD-ROM drive
- 64 MB RAM
- ?? MB available on hard drive
- Monitor with a minimum 800 x 600 resolution and 16 bit color
- Sound Card

- MACINTOSH
  - G3 266 mhz processor
  - 4X CD-ROM drive
  - 80MB Free RAM
  - ??MB available on hard drive
  - System 9 or Higher

- Flash and XML enabled (version 8)
- Flash Player (version 8)
- Headset is recommended

Design Requirements

- The design will be clean, crisp and inviting.
- Age appropriate illustrations to denote the approved word list (needs to be created)
- Instructions will be audible on interactive pages.
- Animations as “reward”
- Resolution to design for is 800 x 600
- Primary colors will play an important role for instructions and attention.

- How to load the program
- How to end the program.
- Hit the right key for the desired response
- Know colors
- Know or learn left and right
- Motivation to continue using software

User Description and Goals

Primary Users

Key Goal: Use the correct hand to type the correct letter ("reward" is animation)

- Kindergarten Students

Secondary Users

Key Goal: To assist the kindergarten student to achieve language art skills and keyboarding skills

- Kindergarten Teacher
- Kindergarten Parent

Complementary Users

Key Goal: What can we provide to our students, teachers, parents to increase technical skills and language arts

- Integrated Instructional Technology Specialist
- Curriculum Researchers
- Cobb County School District

User Task Matrix

The purpose of this matrix is to help the client visualize who will use the application and the manner in which the application will be used most often.

Key Seekers Application	**Primary Users**	**Secondary Users**		**Complementary**		
TASK	Kindergarten Students	Kindergarten Teachers	Kindergarten Parents	Developers	Market Research	Cobb County School District Curriculum
start the program	x	x	x	x	x	x
end the program	x	x	x	x	x	x
match a letter on the keyboard to an illustration or a letter on the screen	x					
advance the program to the next word or level	x					
Option to turn sound on and off	x	x	x			
left hand right hand clues and encouragement	x					

Personas:

Personas are a way to personalize the users of a site. The personas created in this document were created using research referenced in the Additional Supporting Research section of this document.
If we keep our approach personal, we are more likely to meet the needs of the user.

Primary User: The Kindergarten Student

Susan Johnson
Personal Profile

Quote:

"My favorite things are ice cream and my dog."

Susan has recently entered kindergarten at Brown Elementary School in Cobb County, Georgia. She spends ½ day at school and enjoys being with her new friends. She especially likes puzzles and games. She is new to sharing as she is an only child.

She enjoys school and always talks about her dog named Bunny.

Background:

- 5 years old
- Attend Brown Elementary School Cobb County
- Concerned what other kids think

Attributes:

- Outgoing
- Physically active
- Concerned with the friends and having fun

Needs:

- Simple navigation and instruction
- Motivation
- Stimulation to activity
- Attention
- Learn Letters, recognize and by sight sound

Kindergarten Student Scenario	**Needs**	**Feature**	**Behavior**
Sue is given a choice of activities in kindergarten at one of the many learning centers. She chooses the computer and chooses to "play" with Key Seekers. There may be times when she needs to share the experience with another student as the computer stations are limited. She and a few friends take turns and sometimes work as a group to obtain proper hand use and correct letter recognition.	to start program to hear instructions to be reminded which hand to use match letter with picture and or sound Encouragement Feedback	Large buttons to start program Sound on or Off Option (headset) Audio/Visual cues of hands use. Color matching to find correct key and use correct hand Audio and Visual encouragement – correct answers will display "fun" meaningful animation correlated to the illustration displayed. Adult Supervision Audio and Visual feedback for correct and incorrect answers Adult Supervision	She places the disc in the drive or logs on to the site using a desktop shortcut. She is greeted with a colorful screen and listens to the instructions. She is prompted to start with audio and visual highlight of a large GO button. She proceeds through the "game" matching pictures with letters and matching her left hand letters with the left hand letters of the keyboard. She has trouble with left and right so colored tape is placed on the corresponding hands to help remind her where to find the letter on the key board and what hand to use to press the letters.

Secondary User: The Kindergarten Teacher

Barbara Lee
Personal Profile

Quote:

"Stay focused on the task, persevere, and you will succeed."

Barbara is committed to her life as an early childhood educator. She spends much of her free time researching new and effective ways to make a difference in the learning environment for her kindergarten class.

She is relatively familiar with computer usage and feels comfortable incorporating it into the classroom. She is very picky about the quality time kids spend on the computer as the class time is limited. She is looking for software that meets the needs of her students and kindergarten literacy expectations.

Barbara is researching schools for her Masters Degree in education.

Background:

- 28 years old
- Teaching Kindergarten for 3 years
- Single
- Enjoys reading, board games, gardening
- Dreams of learning to salsa dance
- Uses the internet and email to communicate with family and friends and research.

Attributes:

- Caring
- Positive attitude
- Task oriented and studious
- Extremely well organized
- Dedicated to children's success

Needs:

- Additional Support for language arts teaching
- New ways to incorporate computer into early learning environment

Kindergarten Teacher Scenario	**Needs**	**Feature**	**Behavior**
Barbara allows her students 20 – 30 minutes twice a week to choose computer time as an optional activity. She is limited in the amount of supervision she can provide to the students and encourages them to work together at the computers. She sees that three children have chosen to use the computers. There are two available for the students in the classroom.	Software that the children can operate with minimal supervision Incorporate group use when there are not enough computers offer additional activities to support the keyboard project	Audio/Visual instructions Turn taking or children who know left right to help remind and encourage children just learning the concept. Children can speak the word displayed, say the color and the left-right hand that should be used. Supporting Materials that have the same look and feel as the interactive project (These are still being discussed)	She will assist the children in getting situated. She will supervise the loading of the program to be certain the child does understand what to do and how to do it. She will describe to the other children ways they can cooperate in the use of the game. Or redirect some children to other supportive activities (possible low tech key boards where they can play along) She may use class time as a group to play a low tech version of the software using flashcards and a large keyboard layout. These materials will have the same look and feel as the interactive program. (still being designed and discussed)

Complimentary User: Integration Technology Specialist

Robert Wells
Personal Profile

Quote:

"Delegation is an art, a science, a gift and a necessary evil."

Robert has always been dedicated to education. He possesses an undergraduate degree in history. Years ago he taught history in a public high school. Later in life he became very interested in computer programming. He returned to school for his Masters Degree in Instructional Technology. After completing his degree he was able to secure a position with the Cobb County School District.

Background:

- 53 years old, married man with 2 children
- Coaches a little league team
- Very tech savvy
- Dedicated to the education of children

Attributes:

- Manages People Well
- Master at time management
- Delegates task he does not do well
- Efficient and friendly
- Patient

Needs:

- Information about appropriate software that can be incorporated into existing curriculum.
- Software and curriculum ideas that are easily implemented for both parents and students and teachers
- Will the software meet all necessary requirements for the Cobb County District
- Will the software meet the standards of the existing equipment.

Integration Technology Specialist Scenario	**Needs**	**Feature**	**Behavior**
Among his many tasks with the Cobb County School District, Robert has been asked to create or find appropriate software for incorporating keyboarding into the kindergarten.	Program that will meet the developmental level for the children. Possible additional activities to support language skills. An application that requires some supervision but can be easily implemented by parents and teachers.	Robert will briefly review all features	Robert will load the program and give it a once over review keeping in mind the needs of the school district, children parents and teachers. He will assess whether the program will meet the existing requirements for the equipment available. He will also send the program to the appropriate teachers for their review and acceptance before implementing the program into the schools.

Additional Supporting Research

Childhood Development

Five Year Olds

- **Can copy simple geometric patterns.**
- **Can count ten or more objects**
- **Beginning to learn how to print letters**
- **Understand the difference between fantasy and reality**
- **Have the ability to remember parts of stories**
- **Are concerned with pleasing their friends**

National Network for Childcare – Child Development
http://www.nncc.org/Child.Dev/child.dev.page.html

Children and Computers
http://www.ericeece.org/pubs/digests/2000/haugland00.html

Children this age are developmentally within Piaget's preoperational stage. This means they are concrete learners who are very interested in using newly learned symbolic representation - speaking, writing, drawing (including maps and geometric figures) and using numbers. Further, children this age are extremely active and mobile. They often have difficulty sitting still; they need frequent changes in learning modalities; and they want a variety of physical experiences involving dance, physical play, climbing and sports. Preoperational children are also are continuing their mastery of language, and exploring various facets of social behavior.

The Role of Technology in Early Childhood Programs
Francis Wardle, Ph.D.
http://www.earlychildhood.com/Articles/index.cfm?A=302&FuseAction=Article

Software Design

When children are passive, there is no way to gauge whether or not they understand the concept presented.
When software is designed to facilitate active use, children are able to accomplish goals. Comprehension, not memorization is stressed.

http://www.naeyc.org/resources/eyly/1996/09b.htm

Software designed for children ages 3 – 6 should…

- **Be easy to control (minimal mouse and keyboard usage)**
- **Use menus one level deep. The menus should be represented visually.**
- **Use sound and color to make the program interesting, but not overly stimulating.**
- **Be age appropriate and accommodate a range of skills.**

http://www2.edc.org/NCIP/library/ec/Char.htm

Instructions

- **Characters should speak the instructions should be verbal. Children will pay more attention to this than they will to audio alone.**
- **Children should be able to repeatedly play instructions.**
- **Animate or highlight characters while they are speaking to draw the children's attention.**

Characters and animations

- **Characters should not speak at the same time as one another.**
- **Characters should not be constantly in motion.**
- **Always allow children to terminate animations.**

http://www.research.microsoft.com/users/marycz/druin98.htm

Children, between the ages of 4 and 5 use a computer independently for up to half an hour. If the child is having fun, the child will use the computer for a longer period of time.

Software should be patterned according to the child's daily activities.

http://www.smartcomputing.com/editorial/article.asp?article=articles%2F1994%2Fsept94%2Fpcn0912%2Fpcn0912%2Easp

The Haugland Developmental Software Scale

This scale consists of ten categories. Each of the categories contains a set of sub-criteria.
The following is a summary of the scale. A detailed diagram containing all of the sub-categories is available at: http://www.childrenandcomputers.com/Evaluations/software/softwarescale.htm.

Age Appropriateness:	The concepts presented must be appropriate for the age group in question. The method of presentation should meet the children's developmental needs, the children should not have to adapt to the software. The software should support varying developmental levels.
Child in Control:	The children should have the ability to control the pace and the flow of the process. The software should provide children with an obvious method of returning to the main menu. Visual and verbal prompting should be used to aid the child in navigation. The software should support discovery through trial and error.
Clear Instructions:	Verbal instructions are helpful even to children who read. Directions should be clear and exact. Short phrases should be used. The software should always give children a clear indication of where to go next. Visual prompts are useful. A help option should be provided. Pictures and well-designed icons should be used to help children decide between choices.
Expanding Complexity:	The entry point of the software must be simple and easy to entice the child to explore further. Once the child is enticed the software should present important ideas and concepts.
Independence:	After initial guidance, children should be able to operate the software essentially on their own. This does not mean that adult interaction cannot be used to enrich the experience.
Non-violence:	The software should not contain violent scenes, objects, or activities. This is especially important on software, where unlike with television, children are more than passive observers. If violent acts must occur, their permanence should be stressed, do not allow children to undo explosions etc. The software should emphasize positive social values.
Process Orientation:	Intrinsic motivation, not a reward structure, should be used to create enthusiasm. The desire to explore, experiment, discover, and learn should be their own reward.
Real World Model:	The software should use concrete representations of real world objects. Scale and color should be realistic, not stereotypical. Information should be accurate since children believe, without questioning, that much of what they are presented with is true.
Technical features:	The website should be colorful and uncluttered. Clutter makes it difficult for children to focus. Whenever possible, let children control the animation. Realistic sound effects and music are helpful. Consistency is crucial. Actions should produce reasonable results. Printing should be possible. Printouts provide children with tangible results. The software should run quickly. Children should be actively involved. The software should allow children to save and restore .

Transformations: The software should stress the impact of the child's interaction overtime.

Summary of key points:

- Children should control process flow and pacing.
- Visual and verbal prompting should be used to aid the child in navigation.
- The software should always give children a clear indication of where to go next.
- Pictures and well-designed icons should be used to help children decide between choices.
- The entry point of the software must be simple and easy to entice the child to explore further. Once the child is enticed the software should present important ideas and concepts.
- After initial guidance, children should be able to operate the software essentially on their own.
- Intrinsic motivation, not a reward structure, should be used to create enthusiasm.
- The software should use concrete representations of real world objects. Scale and color should be realistic, not stereotypical.
- The website should be colorful and uncluttered.
- Whenever possible, let children control the animation
- Printing should be possible.
- The software should allow children to save and restore
- The software should stress the impact of the child's interaction overtime.

http://www.childrenandcomputers.com/Articles/selecting_developmentally_approp.htm

Parental Involvement

Share with parents that setting limits and managing media time is essential. Too much "screen time" (computer, TV, videogame and video) can lead to increased distractibility and difficulty attending to extended activities. A good recommendation is one hour per day of total screen time for preschoolers, and two hours for elementary school children.

http://www.netc.org/earlyconnections/kindergarten/curriculum.html

Parents want to control volume.
Parents want their children to develop computer literacy.
Children have a tendency to skip difficult tasks and remain at easy levels. Parental involvement can mediate this issue.

http://www.naeyc.org/resources/eyly/1996/09b.htm

Technology and Curriculum

In kindergarten children and teachers are working on readiness skills and early literacy experiences. Even in kindergarten children may benefit from technology if care is taken that computer (and other technology) use does not replace time spent on important foundation skills. When used properly, computers and other technology can help children learn, both in short, simple lessons and as an integral part of larger, more complex, projects. Including technology as a part of classroom activities can motivate students and allow them to learn and share their understanding in a variety of ways.

Children receive the greatest benefits from technology in the classroom when:

- The lesson or project is directly connected to the classroom curriculum
- The technology allows for active learning and discovery
- The lesson or project is open-ended, allowing learners to proceed at their own pace
- Technology is applied to real situations for a real purpose
- Computers are part of classroom activities, rather than set apart in a separate room or lab

http://www.netc.org/earlyconnections/kindergarten/curriculum.html

Dos and Don'ts of Using Computers in Early Childhood Programs

- Provide a computer center as one of many equally valued learning centers in the classroom. Allow use, access, and choices as you would any other center.
- Do not use time on the computers as a reward for other activities, behaviors, and task completion. Do not only allow the 'well behaving' children to access the computers.
- Allow children lots of time to explore how to use a computer: what can/cannot occur, and simple exploration of the medium.
- Do not sacrifice resources for important basics such as art materials, blocks, books, play dough, puzzles, water tables, outdoor playground equipment, to purchase and maintain computers.
- Do carefully evaluate all software, both for developmental appropriateness, and for nonsexist, nonracist, nonstereotypical, and nonviolent material. Of the software evaluated by Haugland (2000), only 25% of the titles reviewed were considered acceptable. Use the Haugland Developmental Software Scale to evaluate software. (Haugland, 1997
- Do not use computer labs. Public schools seem to love computer labs, but, by definition, it is simply impossible to integrate the ongoing classroom curricula if computers are isolated in a lab, where children must attend at a specific time during the day.

- Provide enough staff training that teachers feel comfortable both with the computers in the classroom, and the software selected (NAEYC, 1996).
- Do not use software that reinforces gender/racial stereotypes, or that promotes violence as an acceptable way to solve problems. This includes computer games.
- Do not allow computer use to distract children's time and attention from critical early childhood activities: art, music, play, social interaction, exploration of books, climbing on the playground, etc. Computers cannot replicate concrete experiences, hands on learning, mentoring by adults and older peers, and exploration of the real physical and natural world.
- Make sure needed training and support for computers in the program does not detract from other needed training and support, such as working with children with special need, literacy instruction, conflict resolution, etc.

The Role of Technology in Early Childhood Programs by Francis Wardle, Ph.D.
http://www.earlychildhood.com/Articles/index.cfm?A=302&FuseAction=Article

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Design Phase

The following deliverables have been developed during this phase of production:

- Feature Value Analysis
- Process Flows
- Site Map
- Design Concept Comp
- Visual Prototype

Feature Value Analysis

Ann White – IMD 465 Winter 2006
February 10, 2006

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Introduction

This feature analysis describes individual screens and suggested functionalities at a high level. Traditional web sites follow standard site maps, wire frames and process flows. When developing in a FLASH environment the traditional methods are not effective in conveying the needs and requirements of the project.

This feature analysis used with a storyboard and script will attempt to fill the information architecture necessary for the project. The analysis conveys what features are needed and how they should operate to ensure an enjoyable and effective learning session.

Below are the elements of the Feature Value Analysis:

Feature - Short descriptive name for the feature

Description - High-level description of the feature

Rationale - Why this feature is considered to be valuable

The list of valued features presented here provides a base from which to begin forming the details and parameters of the product design.

Feature Value Analysis

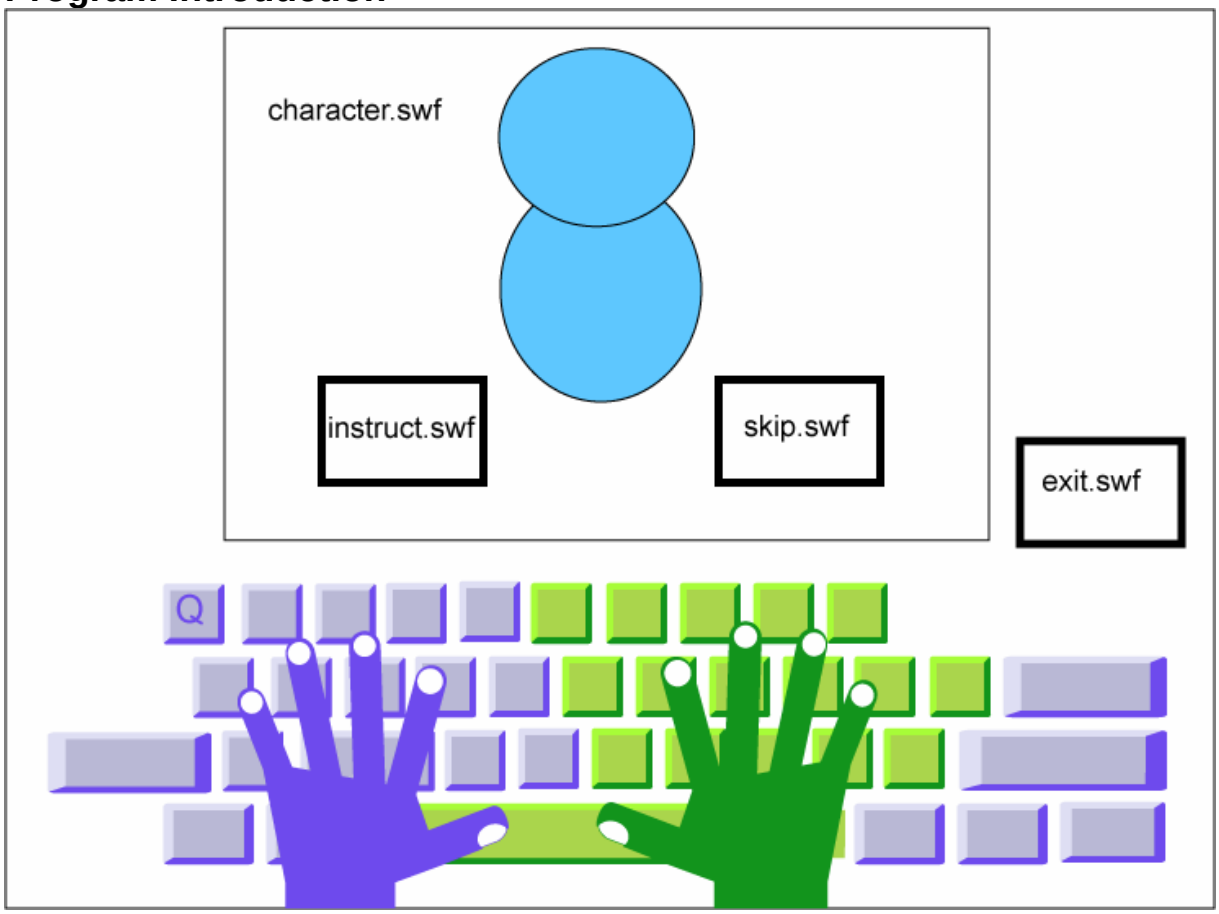
Set Up/Introductory Features

Feature
Teacher and Parental Information
Description
Additional supporting materials will be offered in print. These materials will include games/activities that will help to reinforce keyboard and letter recognition without the use of keyboard hardware. These activities are still in the development and approval process with the Cobb County School System. They will be incorporated as part of Sr. Project 2
Rationale
PULL NOTES FROM PREVIOUS WORK!

Auto Install

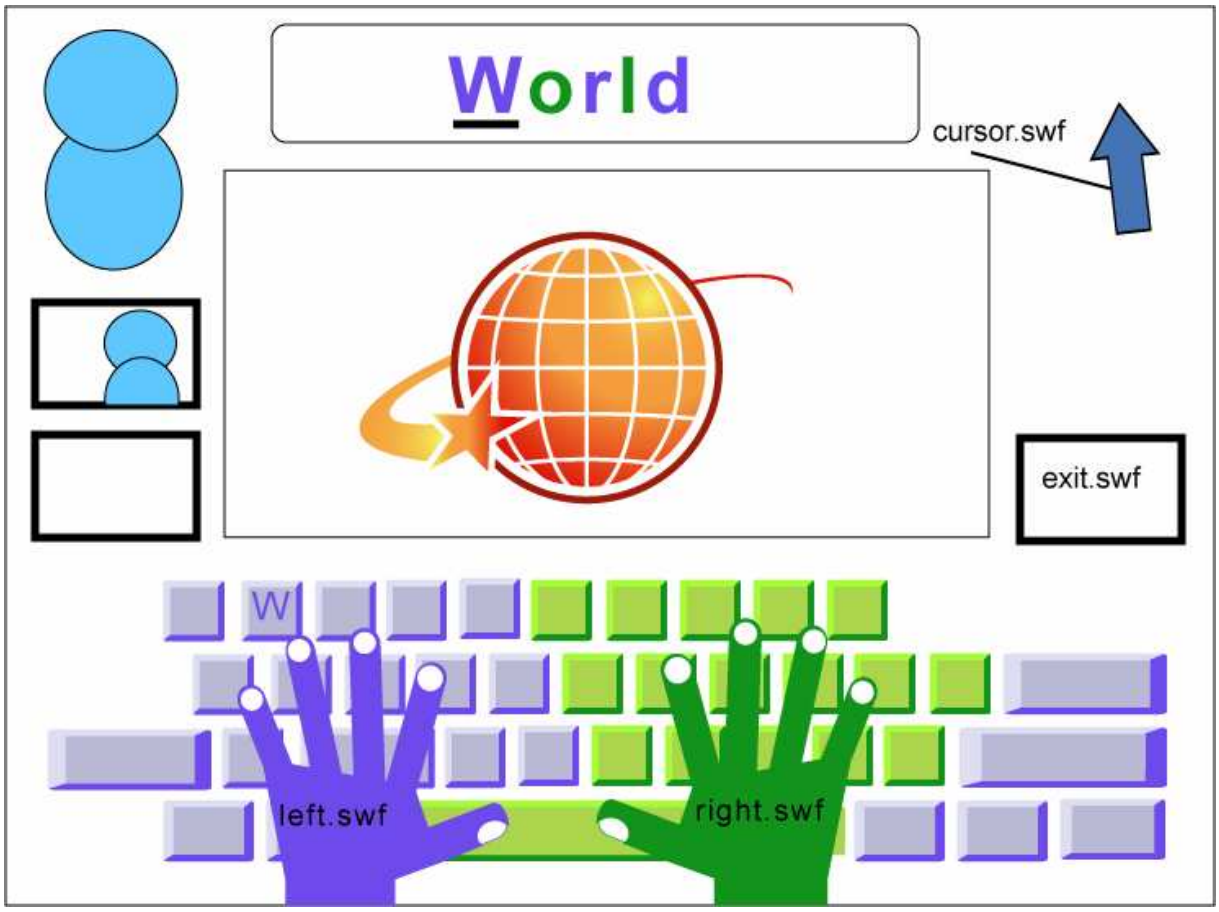
Feature
Auto-install
Description
The installment process should be very easy As an additional enhancement to this feature, it is recommend that a Key Seeker icon automatically download to the desktop of the user's computer as a shortcut to open the program. If the program is hosted on-line, the icon could link to the on-line version.
Rationale
Access should be easy enough for the child. Also the icon will reinforce the software brand. As of this writing this feature is being re-evaluated for feasibility. The program will probably be hosted on-line.

Program Introduction



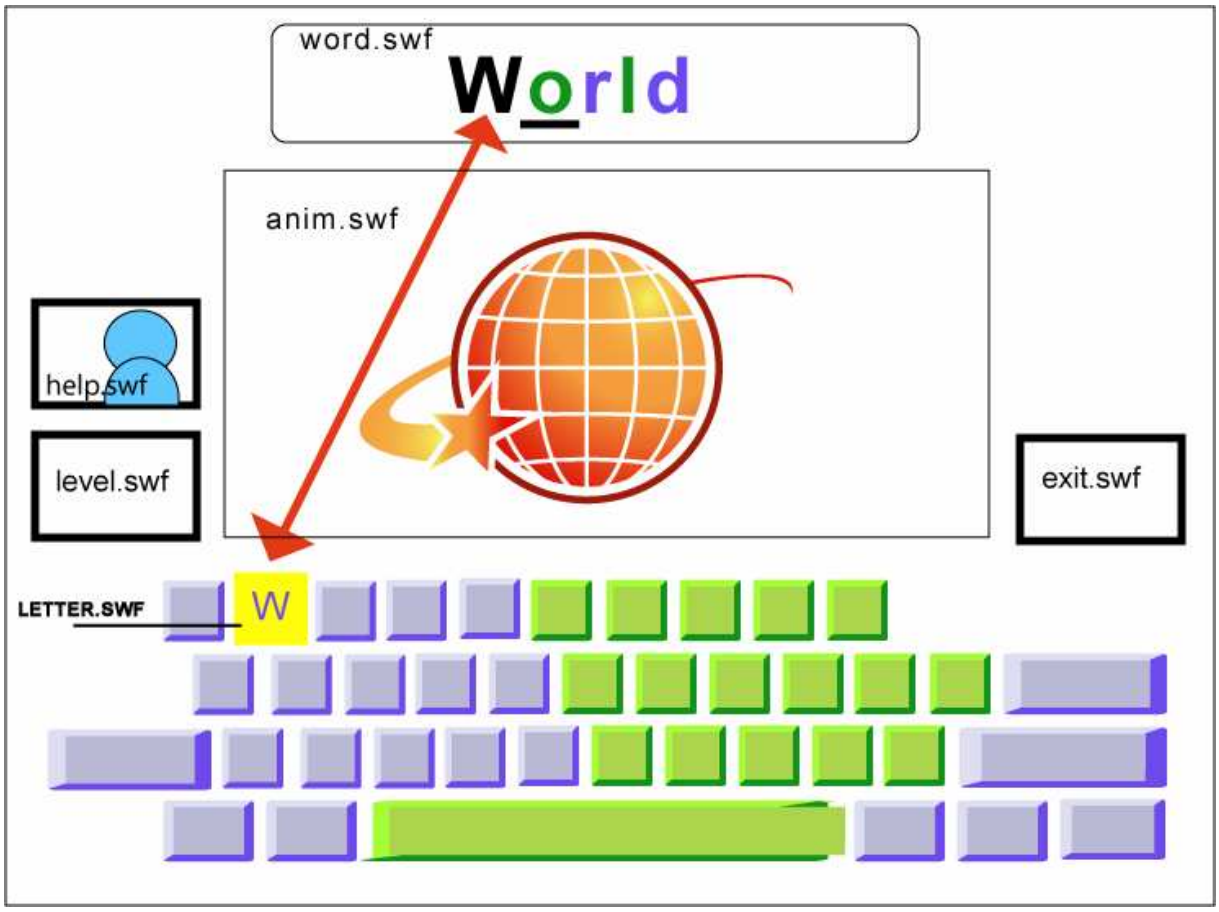
Feature
Introduction
Description
A character (still in development) will welcome the user (audio), and will give a brief introduction to the program. This introduction will be targeted to both the teacher/parent and kindergarten user. The character will also function as the Help icon inside game and activities. This will be explained in the instructions. The user will be given the opportunity to skip the instructions and go directly to the game. It serves as a gateway to the instructions and/or the game.
Rationale
The introduction introduces the character that will be used for help and instruction. It introduces the purpose of the game: help to create words on the screen using the correct hand for the corresponding side of the keyboard. It encourages the child to have fun.

Instructions



Feature
Instructions
Description
The instruction page will consist of visual animations lead by the character. How to advance the game How to quit the game How to get help How to make the game harder(level) Left hand right hand concept Highlight what is being explained The cursor will point out the buttons
Rationale
The instruction is necessary to explain and show how the game is played. Again the animation will have an audio script so the child can see and hear what to expect.

Game/Activity

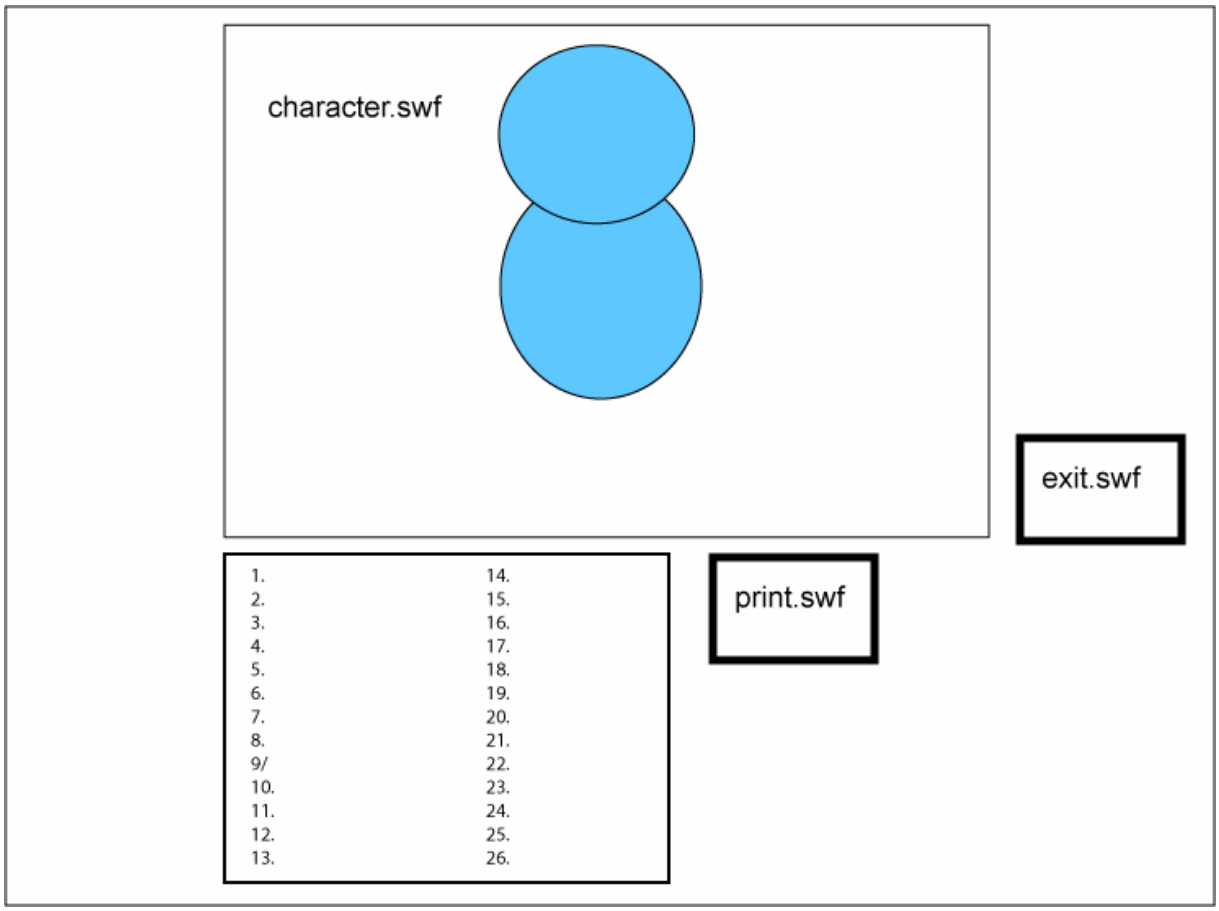


Feature
Game/Activity
Description
A word will appear in the word.swf. The child will be prompted to type the underlined letter using the left hand if the letter is purple and the right hand if the letter is green. A picture representing the word will appear on screen as well. Once the child types the correct letter, the letter.swf will highlight for feedback the underline will move to the next letter. Once the word is typed, the picture (anim.swf) will animate and a new word will appear. There will be audio scripts reminding the child to use the correct hand and to encourage the user along the way. If the child types an incorrect letter there will be an audio response (oops, try again)
Rationale
As discussed in previous materials, this game focuses on literacy skills for children in kindergarten. It will also encourage the beginning of good keyboarding skills for a specific age group.

Feature
Difficulty Level (level.swf)
Description
If time permits, two difficulty levels will be offered. The second level of difficultly has not yet been discussed. And in fact may be beyond the scope of this project at this time. As the goal of the software is language skills and keyboard recognition a second level may be just presenting the picture and the child will need to type the letter (using the correct hand) that the word starts with. A possible option may be categories of words that a child may want to learn, animals, food, colors etc. Another option would be more difficult words or attempting to use the correct fingers for the correct letters. (long term – increase the difficulty as the child enters first and second grade)
Rationale
It is important to keep a child's interest level. If the game is too easy for the child they will no longer wish to play. Keyboarding is a skill best learned by practice.

Feature
In-game help
Description
This in-game help will be prompted when the user clicks the character icon. (help.swf) The game will revert to the instructions screen.
Rationale
Children at this age and skill level can identify with a character that they have already been introduced to. The help icon will also have an audio file telling the child that this is where they can find help if they need it.

Exit Features



Feature
Print option Play again option Exit
Description
When a child opts to exit/quit the game they will arrive at a screen will show their progress in the game. A word list will be produced and they will have the option of printing the list. The can exit the game completely from this screen as well. Audio – goodbye, thanks for playing, come back again…
Rationale
The rewards in the program are simple animations (entertainment). Printing a list of words completed can give the child a sense of accomplishment and can be shared with parents to show progress.

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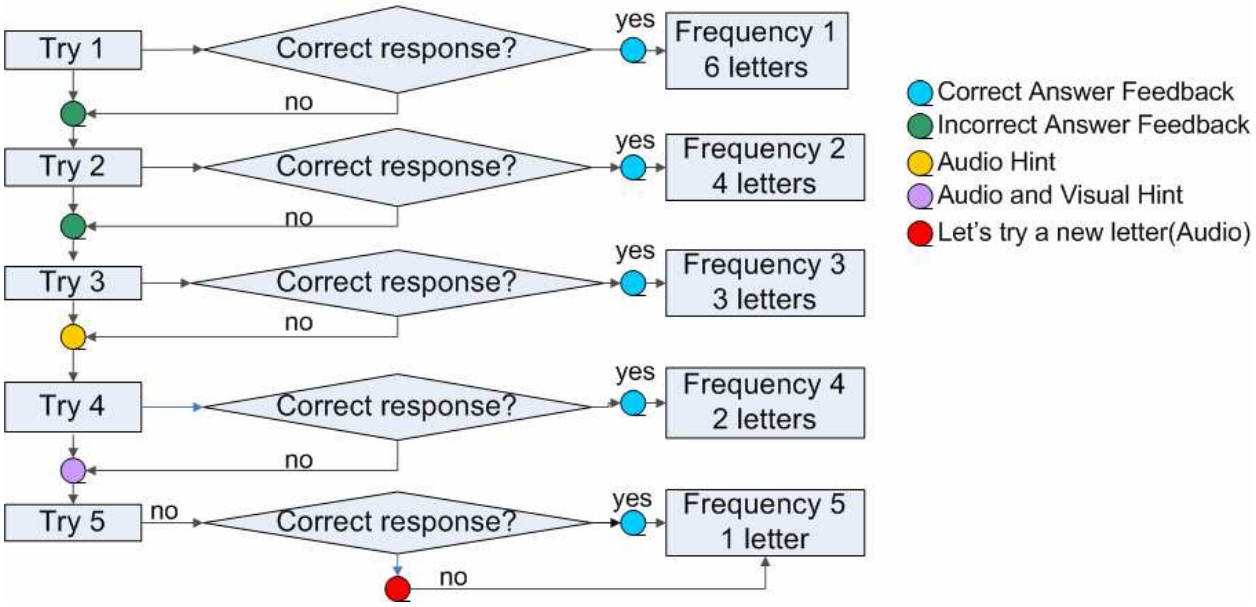
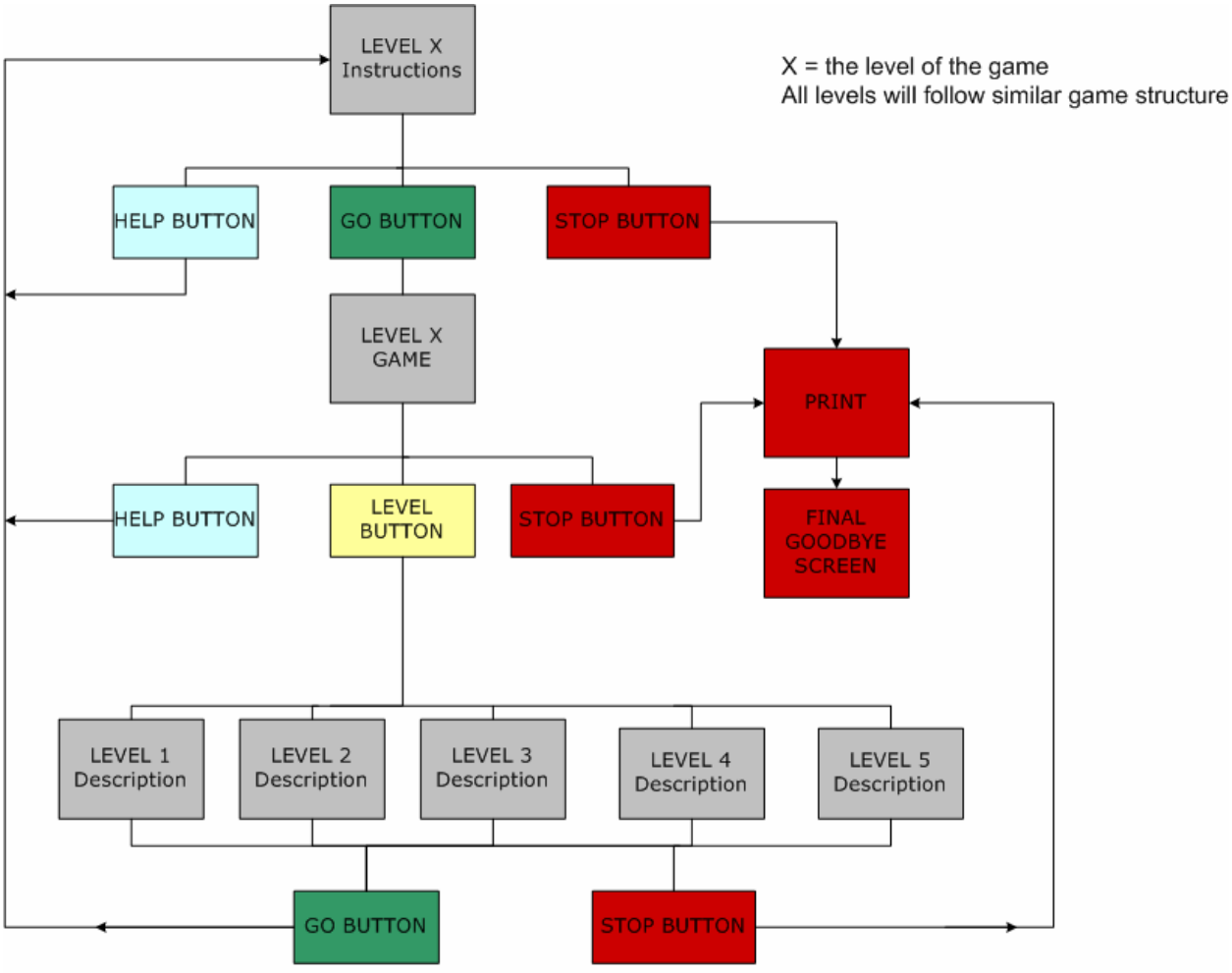
Process Flow for Practice Algorithm

The element of practice is critical to the learning process of Key Seeker. Using an algorithm and explanation supplied by Ameeta Jadav, Phd., - Interactive Media Design Program Director, Art Institute of Atlanta. The algorithm was modified to fit the needs of this project and the following process was determined for the coding of the game.



Game Structure Map

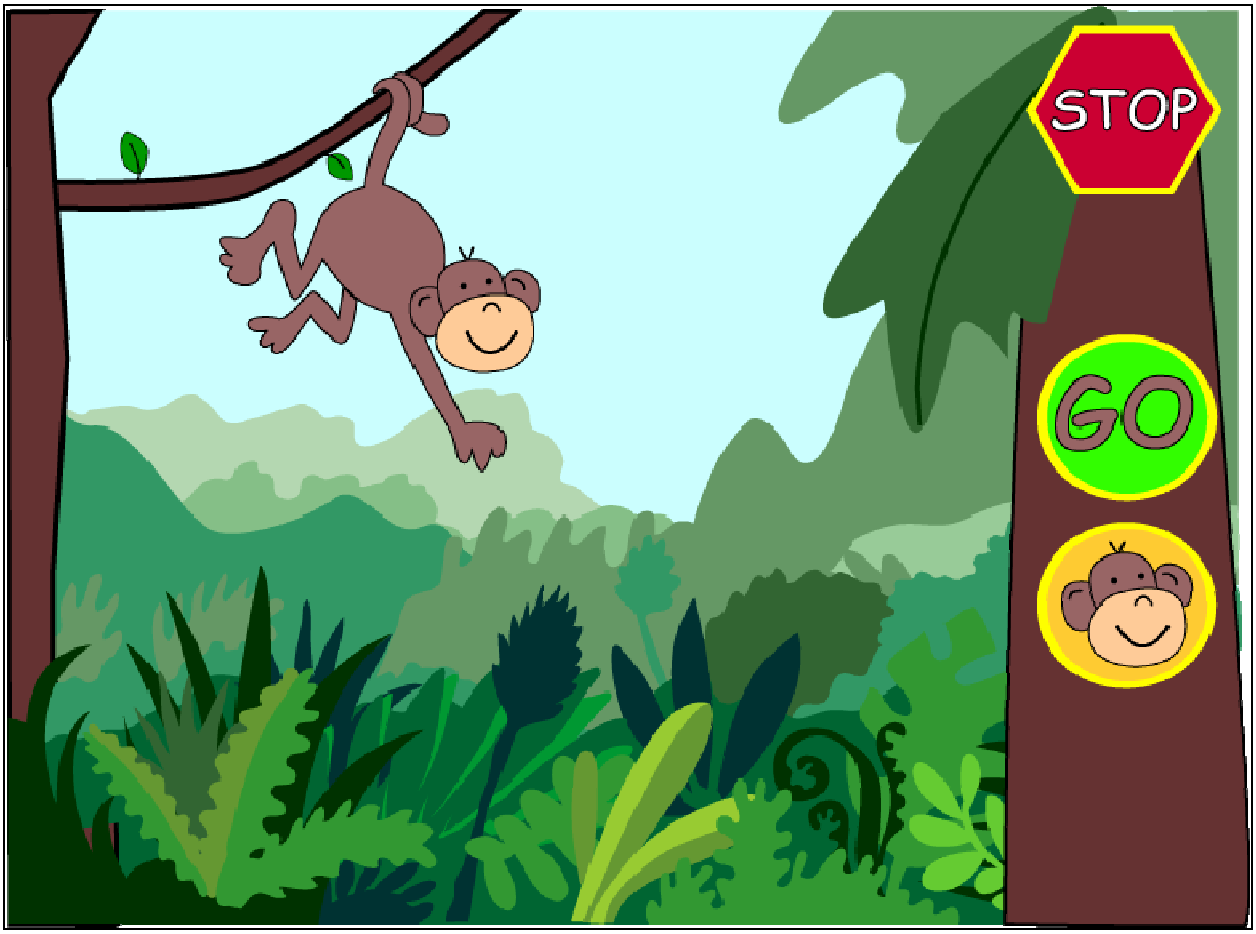
Using the Feature Analysis document, a structure was developed for the Key Seeker game. This map is similar to a site map, but differs in that the “navigation”



Key Seeker Game Structure Map

Concept Comp

Having completed most of the technical aspects of the concept, it was then time to create a visual design. The concept of a jungle adventure will be used for Key Seeker. The child will seek letters in the jungle with a friendly monkey character to help the child along.



Visual Prototype

The Feature Analysis and Game Structure Map were used to create the visual prototype. The prototype can be seen on- line at http://keyseeker.org.

A copy of the game is also on the disc provided with this document.

Development Phase

These are the development activities and deliverables that will be necessary to complete during the Spring Quarter 2006:

- Develop actual programming and scripting.
- Finalize Flash movie structure and movie naming convention.
- Write audio script for instructions and buttons.
- Create movie clip animations for each letter of the alphabet
- Create sound to use in movie
- Make sure the site is adhering to the specified designs and scripts.
- Design and execute usability test.
- Modify the site based on usability testing result.
- If time allows continue with creating more Key Seeker levels
- If time allows create additional supporting materials (flash cards, alphabet banner, etc)

Deployment Phase

These are the deployment activities and deliverables that will be necessary to complete during the Spring Quarter 2006:

- Make final decision if Key Seeker is to be hosted on-line or stand alone
- Conduct a test for browser compatibility.
- Move the site to the destination server.
- Make a backup of the site.

Conclusion

Key Seeker, keyboarding for kindergarten hopefully will meet its goals of integrating technology into the lives of elementary school children in a positive and rewarding fashion. Incorporating the learning of technology with the learning of language skills allows children to develop the ability to create and communicate. When we increase the ability of a child to communicate, we increase the ability of the world to become a place of exploration and understanding.

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