Kids Speak Spanish

By

Anitra Graise

Submitted
to the Faculty of the Information Technology Program
in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Science
in Information Technology

University of Cincinnati
College of Applied Science

June 2006
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___________________________________________________ __________________
Anitra Graise                                Date

___________________________________________________ __________________
Dr. Sam Geonetta                                                               Date

___________________________________________________ __________________
Patrick C. Kumpf, Ed.D, Interim Department Head               Date
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>i</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>ii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>iii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iv</td>
</tr>
<tr>
<td>1. Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>2. Description of the Solution</td>
<td>1</td>
</tr>
<tr>
<td>2.1 User Profile</td>
<td>2</td>
</tr>
<tr>
<td>2.2 Design Protocols</td>
<td>3</td>
</tr>
<tr>
<td>3. Deliverables</td>
<td>7</td>
</tr>
<tr>
<td>4. Design and Development</td>
<td>7</td>
</tr>
<tr>
<td>4.1 Timeline</td>
<td>7</td>
</tr>
<tr>
<td>4.1.1 Senior Design 1 Accomplishments</td>
<td>8</td>
</tr>
<tr>
<td>4.1.2 Senior Design 2 Accomplishments</td>
<td>8</td>
</tr>
<tr>
<td>4.1.3 Senior Design 3 Accomplishments</td>
<td>9</td>
</tr>
<tr>
<td>4.2 Budget</td>
<td>10</td>
</tr>
<tr>
<td>5. Proof of Design</td>
<td>11</td>
</tr>
<tr>
<td>5.1 Home Page</td>
<td>11</td>
</tr>
<tr>
<td>5.2 Activity Selection</td>
<td>12</td>
</tr>
<tr>
<td>5.3 Analysis of the Games</td>
<td>12</td>
</tr>
<tr>
<td>5.3.1 Alphabet Activity</td>
<td>13</td>
</tr>
<tr>
<td>5.3.2 Activities for Numbers</td>
<td>13</td>
</tr>
<tr>
<td>5.3.3 Activities for Colors</td>
<td>16</td>
</tr>
<tr>
<td>5.3.4 Activities for Words</td>
<td></td>
</tr>
<tr>
<td>5.4 Help</td>
<td>19</td>
</tr>
<tr>
<td>5.5 Glossary</td>
<td>20</td>
</tr>
<tr>
<td>Comments and Recommendations</td>
<td>21</td>
</tr>
<tr>
<td>Appendix A.</td>
<td>24</td>
</tr>
<tr>
<td>Appendix B.</td>
<td>25</td>
</tr>
<tr>
<td>Appendix C.</td>
<td>26</td>
</tr>
<tr>
<td>References</td>
<td>28</td>
</tr>
</tbody>
</table>
## List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure1. Kid’s Speak Spanish Outline</td>
<td>5</td>
</tr>
<tr>
<td>Figure2. Kid’s Speak Spanish Home Page</td>
<td>6</td>
</tr>
<tr>
<td>Figure3. Kid’s Speak Spanish Activity Main Page</td>
<td>6</td>
</tr>
<tr>
<td>Figure4. Project Budget</td>
<td>10</td>
</tr>
<tr>
<td>Figure5. Home Page</td>
<td>11</td>
</tr>
<tr>
<td>Figure6. Activity Home</td>
<td>12</td>
</tr>
<tr>
<td>Figure7. Alphabet Activity</td>
<td>13</td>
</tr>
<tr>
<td>Figure8. Number Counting Activity</td>
<td>14</td>
</tr>
<tr>
<td>Figure9. Number Matching Activity</td>
<td>15</td>
</tr>
<tr>
<td>Figure10. Color Selection Activity</td>
<td>15</td>
</tr>
<tr>
<td>Figure11. Color Matching Activity</td>
<td>16</td>
</tr>
<tr>
<td>Figure12. Days of the Week Activity</td>
<td>17</td>
</tr>
<tr>
<td>Figure13. Months Activity</td>
<td>18</td>
</tr>
<tr>
<td>Figure14. Glossary Menu</td>
<td>21</td>
</tr>
<tr>
<td>Figure15. Glossary Example</td>
<td>21</td>
</tr>
</tbody>
</table>
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Abstract

*Kid’s Speak Spanish* is an interactive learning multimedia application on CD-ROM designed to assist children with learning the fundamentals of Spanish. Due to the increasing Hispanic population the author felt that there is a great need to prepare children to learn a language to help them interact with this population. The application was developed with the most recent software applications Macromedia Flash, Macromedia Fireworks, Adobe Photoshop CS2, and Sonic Acid Pro 6.0. *Kids Speak Spanish* was designed to capture the user’s attention with use of bright colorful interfaces, simple navigation and activities. In this application children are introduced to alphabets, numbers, colors, shapes, and commonly used words. Printable worksheets and a useful sound glossary were implemented to reinforce the material introduced in the activities.
Kids Speak Spanish

1. Statement of the Problem

According to the United States Census Bureau the Hispanic population in the Midwest is growing rapidly and to communicate with them we must be prepared. Not only can this affect the income of businesses, but local employers can be affected as well as when the individuals begin to look for jobs. There has been a lot of discussion as Hispanics move into local neighborhoods and the locals are not able to communicate with them to provide assistance of any kind. As natives we are not prepared to communicate with them if it is to sell them something or to assist them in learning the English language.

2. Description of the solution

There is a growing need to increase the awareness of the Hispanic population by preparing children to converse with their neighbors. Interactive software is a good tool to educate children about certain subjects. The software Kids Speak Spanish will target children in the age group of 3-8. For this age group, the program will address significant areas which will get children off to a terrific start.

To help address the need for preparedness to communicate effectively with Hispanics I developed a multimedia CD-ROM to assist children to learn and develop skills to speak Spanish.

I accomplished this by providing a disk that can assist the parents and children. The disk can be used as a source of information and for learning. The disk includes:
• Answers to frequently asked questions that parents may have about introducing children to Spanish.

• Printable activities that will assist in reinforcing the basic areas of development that can be done in a classroom or with a parent.

• Interactive activities that will aid in letter sounds, colors, and common words and/or phrases.

The interactive and printable activities will be focused on:

• Pronouncing Letters, Numbers, and common words.

• Recognizing the spelling of numbers and common words.

• Associating sounds with letters and common words.

• Following directions.

2.1 User Profile

Children, parents/caregivers, instructors are targeted users for this multimedia application.

Children

The children using this application are between the ages of 4-7. These users should be able to recognize numbers, letters and vary in academic skills and comprehension. They should have skills in using the mouse to select, drag and drop objects from the screen, utilize basic keyboard functions.
Instructors, Parents/Caregivers

These users include all age ranges that fit into this category. This group should be knowledgeable about basic computer usage such as inserting a disk into a computer, operating a mouse and keyboard. They should also be eager to assist a child with learning Spanish.

2.2 Design Protocols

The images in this application were copied from coloring books. They were then colored using Macromedia Fireworks. Macromedia Flash MX was then used to create the games and animation. The resolution used for the main menu is 800 x 600 pixels. The sound was recorded in Acid Pro 6.0 and then imported into Macromedia Flash MX. A microphone with a headset was used to record the sound to minimize the amount of background noise while recording.

The Home screen has links to activities, printable worksheets, sound glossary, help files, and exit. This application contains activities for alphabets, numbers, shapes, colors, commonly used words and printable worksheets for each category.

Organizational Scheme

The overall organizational scheme is based on the design of one disk. This is designed so that the content intended for the parents will be divided from the rest of the content. This is beneficial because the person using this product can focus without uncertainty. The disk will be organized into the following areas: (See Figures 1., Figure 2., and Figure 3.)

- The Activities section includes alphabets, numbers, shapes, colors, and common words.
• The Help section provides information on how to play the games correctly.

• Printable worksheets are provided to assist the children in retaining the information covered in the application.

• The Glossary section is an interactive sound glossary that provides the pronunciation of the Spanish word and the English definition.
Figure 1. Kids Speak Spanish Outline
Figure 2. Home Page

Figure 3. Activity Page
3. Deliverables

To provide a well written easy to use application that will appeal to children several deliverables have been defined. The following deliverables were met in the design of the Kid’s Speak Spanish application:

1. Flash and ActionsScript were used to develop the application to create an appealing child friendly design.
2. Visual tools and pages were developed using Macromedia Fireworks.
3. Bright colors were used to grasp the user’s attention.
4. Activities to introduce alphabets, numbers, shapes, colors, and common words were developed.
5. The Help file was created to describe how to use the application.
6. Printable worksheets were developed to reinforce the activities introduced.
7. Sound Glossary was developed to assist the parents/caregivers and children.

4. Design and Development

The sections below describe the project timeline, and the budget for implementing this project.

4.1 Timeline

There was a considerable amount of time spent on learning, and grasping the concepts of teaching Spanish to children with the use of Flash.
4.1.1 Senior Design Accomplishments

During this course the following milestones were met:

- Shopped for Spanish programs for children
- Met with Spanish instructors
- Began completing Flash/ActionScript tutorials
- Prepared a budget
- Began collecting images and sound files
- Structured the applications design
- Began preparing the application
- Completed the proposal and presentation for the project

While researching and collecting data for the project the Spanish instructors had great input on the material that should be covered in the application. During this time websites, software, and books were analyzed for teaching trends. There were also many learning tutorials offered on websites about Macromedia Flash that were completed, so that I could familiarize myself with the programming environment. In Appendix A. there is a list of website tutorials, and a software application that provided insight during this first class.

4.1.2 Senior Design Project Management I Accomplishments

During this course the following accomplishments were achieved:

- Completed the collection of images
- Colored the images in using Macromedia Fireworks
- Began developing the games, compiling the sound glossary, and the printable worksheet activities.
• Prepared the Design Freeze and presented the progress of the application to the class and college faculty

Locating images and designing activities that were consistent was the focus during this quarter. My goal to remain consistent while designing and developing the activities for each lesson became a challenging mission. Selecting what I wanted to include in each lesson proved to be a demanding assignment due to the wide variety of things there were to choose from. Determining the right colors and activities were very important tasks that proved to be time consuming because my goal was to develop and implement things that would take hold of the user’s attention.

4.1.3 Senior Design Project Management II Accomplishments

During Senior Design Project Management II the following accomplishments were achieved:

• Completed the activity programming
• Tested the application
• Modified the project
• Completed the documentation for the project
• Presented the project

Testing was performed to ensure that the visibility of the images were clear, the navigation of the buttons routed the users to the appropriate activities and/or pages, and to guarantee the sound was not distorted. During this time minor modifications were made to the sound to remove background noises, and colors were changed on some images.
4.2 Budget

The budget for the project is listed below. The table displays the actual retail price for the software; however these are not the prices that I actually incurred because the software was academic licenses available. The hardware listed was actually purchased prior to the start of the project and listed in the table because it was a necessary part of the project.

<table>
<thead>
<tr>
<th>Software</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Adobe Photoshop CS2</td>
<td>$649.00</td>
</tr>
<tr>
<td>Macromedia Fireworks</td>
<td>$299.00</td>
</tr>
<tr>
<td>Macromedia Flash</td>
<td>$399.00</td>
</tr>
<tr>
<td>Acid Pro 6.0</td>
<td>$69.99</td>
</tr>
<tr>
<td>Microsoft Producer Power Point 2003</td>
<td>Free download with MS Office 2003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compaq Presario</td>
<td>$1399.00</td>
</tr>
<tr>
<td>Microphone/Headset</td>
<td>$25.00</td>
</tr>
</tbody>
</table>

| Total Cost                | $2840.99 |

Figure 4. Budget
5. Proof of Design

The next sections show how the deliverables were satisfied and implemented in the application.

5.1 Home Page

The first page of any application is significant. The first image is a friendly image that shows children having fun. Bright colors and easy accessible buttons were very important in designing the first screen as well. (See Figure 5.)

Figure 5. Home Page
5.2 Activity Selection

Upon selecting play on the activity main page the child will have several options to choose from. The first being alphabets, numbers, colors, and calendar. These activities are fun and were designed so that the child would need minimal knowledge and skill in using the computer. (See Figure 6.)

![Figure 6. Activity Homepage](image)

5.3 Analysis of the Games

One of my deliverables was to develop activities that would capture the child’s attention that will help them retain the information being presented. This was accomplished with the use of repetition and the printable worksheets that were included. There are activities for alphabets, numbers, colors, days of the week and months.

5.3.1 Alphabet

The alphabet is the first learning section that the child is introduced to. On this activity there are two ways to play. The first way is to select each letter individually and the
letter will be pronounced and then there will be a picture that coincides with that letter
will be displayed on the screen for 10 seconds. The second way to play this activity is by
selecting the ‘Play’ button in the lower right corner. Each letter of the alphabet will be
shown allowing the letter and picture to be displayed on the screen. (See Figure 7.)

![Alphabet Activity](image)

**Figure 7. Alphabet Activity**

**5.3.2 Numbers**

After completing the alphabets the ‘Next’ button is selected and the child will be
directed to the number activity. The number section includes three interactive learning
activities. The first learning activity prompts the child to press each number to hear it
and see the spelling of the word. (See Figure 8.) The number enlarges to signify which
number had been selected. The second method used in teaching the number 1-20 is to
have the child press the ‘Play’ button in the lower right of the screen. Each number will
be displayed accompanied by beautiful pictures.
Figure 8. Counting Activity

Selecting the ‘Next’ button directs the user to a number matching activity. (See Figure 9.) Once the correct number is placed on the correct word box the word ‘CORRECT’ is displayed in the middle area; if the word is matched incorrectly ‘TRY AGAIN’ will be displayed and the word goes back to its original location. The ‘Reset’ button allows the user to play the activity as many times as they like. After the number matching has been completed the ‘Next’ button is selected and the child is directed to the colors. (See Figure 10.)
Figure 9. Number Matching Activity

Figure 10. Color Selection Activity
5.3.4 Activities for Colors

On the first activity page of the colors the child will be able to select each color individually of press the ‘Play’ button in the lower right corner of the screen to listen to a catchy color tune (Figure 10.). All of the colors listed on this page are wrapped up into this tune that is sure to help the child learn their colors. The ‘Next’ button on the bottom of the color page directs the user to a color matching activity. (Figure 11.)

![Color Matching Activity](image)

**Figure 11. Color Matching Activity**

The words on the screen were purposely colored a different color to distract the user. If the word is placed on the proper color the word “Correct” will be heard; if it is not the word is placed back in its original location and “Try Again” is heard. The ‘Reset’ button at the bottom of the screen can be pressed to place the words in their original location to allow the activity to be played again. The ‘Next’ button on the bottom of the screen can be pressed to go directly to the Words section.
5.3.5 Activities for Words

In the words section the days of the week and months are introduced. The days of the week activity allow the user to select the word to hear and it in Spanish or the ‘Play’ button can be selected to hear the words in a tune. (Figure 12.)

Figure 12. Days of the Week Activity

The ‘Next’ button at the bottom of the screen takes the user to the months. (Figure 13.) The months are listed on the screen; when selected the word is seen and heard in Spanish. The ‘Play’ button displays all of the months in sequential order in a short video clip.
5.4 Help

A ‘Help’ button is located at the bottom of every activity. If the button is selected the user will be provided with a very detailed description on using the activity. There is also a brief description on the bottom left of every activity that instructs the user on how to play that particular activity. Also, there is a Help menu that can be selected from the main screen. This provides the user with a menu to select an activity from any section. (Figure 14.)
5.5 Glossary

The Glossary is a selection from the main screen. Selecting this button directs a user to a menu from which they can select the section that they would view. The Spanish and English word is displayed for each word introduced in the section they selected. If the Spanish word is pressed the user hears the pronunciation of the word. (Figures 15. and 16.)
Figure 15. Glossary Main Menu

Figure 16. Example Glossary Page
Testing Procedures

Testing the application and its functionality was completed throughout the development of the application. As each section was completed defect testing was performed to ensure there were not any faults or defects in the application. Test cases, and code reviews were performed to ensure the quality of the application. The functionality of the buttons and activities were closely monitored during defect testing. Minor code and functionality changes were made during testing.

Conclusion and Recommendations

Conclusion

*Kids Speak Spanish* was created in response to the increasing Hispanic population in the Midwest. I concluded that an introduction to Spanish was needed for children to prepare them for interacting with this population. This interactive CD-ROM meets all of the items outlined in the deliverables and includes activities that will catch the attention of any of its users. The project was completed over three quarters with the use of Macromedia Flash MX, Macromedia Fireworks, Acid Pro 6.0 and Adobe Photoshop CS2. The budget of $2840.99 is sound for such a project. *Kids Speak Spanish* fulfilled all of its deliverables and the testing was performed to make certain of the usability.
**Recommendations**

In completing this project the challenges were minimal. A knowledge of Flash was needed to complete the project as was all the knowledge of using a sound application. The things that needed close attention were the environment of Flash, syntax usage for ActionScript, and Acid Pro 6.0.

Learning the Flash environment was the first and most important task in creating this project. Flash tutorials were completed on making buttons, using the timeline and movie clips. Implementing buttons was an important task because without the usage of button the project would be very weak. Using the timeline was also pertinent because the movement of the flash cards had to be timed properly in allowing the user enough time to review and recite the word or sound. The movie clips function was used for the activities, and menus.

Reading material about ActionScript was also the next most important step. Although the code used was minimum required it was very important to have an understanding on how to use it to create the drag and drop activities. There was a great amount of time spent on understanding the syntax structure.

Overall, I found that learning how to use Flash MX was did not turn out to be a challenging experience. However, it is time consuming and one must allow time for trial and error. More time could have been dedicated to learning the capabilities of Acid Pro 6.0 to make the sound more clear and have the same level. In the future if I were to do this again I would complete the tutorials included in the Acid Pro 6.0 application and locate some helpful sites available on the Internet.
Appendix A

Research Information

In performing research for this project there was only one application located in local retail stores that catered to teaching Spanish to small children. Because of lack of representation in the stores I felt even better about creating this application. So, that particular application was purchased and studied. At that time I also searched the Internet for children programs and several sites were located and those are discussed below.

*Jump Start Spanish by Knowledge Adventure* - The software application was very interesting. Children were introduced to over two hundred words, phrases, and songs. The developer was attempting to create a fun environment. However, there were not any printable worksheets, and not much repetition was used to reinforce the material. Reinforcing the material is very important and there was too much focus placed on entertaining the child with the use of animation and bright colors.

[http://www.uni.edu/becker/children.html](http://www.uni.edu/becker/children.html) - This is a collection of various sites that offer Spanish games and tutorials for children. Unfortunately, some of sites are not useful. I found many that were underdeveloped and offered few activities. The site does not categorize the sites by age group or information offered. If one is looking for certain tutorials or categories using this is not helpful. However, there are sites that provide the pronunciation to certain words, but one can find these by chance.
## Appendix B.

### Project Timeline

<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Start</th>
<th>Finish</th>
<th>Duration</th>
<th>2006</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Jan</td>
</tr>
<tr>
<td>1</td>
<td>Collecting Images and sound files</td>
<td>2006-01-03</td>
<td>2006-02-24</td>
<td>39d</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Creating Main Menu</td>
<td>2006-01-10</td>
<td>2006-01-18</td>
<td>7d</td>
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<tr>
<td>3</td>
<td>Creating the Activity Menu</td>
<td>2006-01-19</td>
<td>2006-02-13</td>
<td>18d</td>
<td></td>
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<tr>
<td>4</td>
<td>Complete Numbers and record</td>
<td>2006-02-01</td>
<td>2006-02-17</td>
<td>13d</td>
<td></td>
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<tr>
<td>5</td>
<td>Test the working prototype and prepare for the presentation</td>
<td>2006-02-20</td>
<td>2006-02-28</td>
<td>7d</td>
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</tr>
<tr>
<td>6</td>
<td>Present a working prototype</td>
<td>2006-03-01</td>
<td>2006-03-01</td>
<td>1d</td>
<td></td>
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<tr>
<td>7</td>
<td>Begin Alphabets/record</td>
<td>2006-03-06</td>
<td>2006-03-06</td>
<td>1d</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Add words to Glossary</td>
<td>2006-03-20</td>
<td>2006-03-27</td>
<td>6d</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Complete Sections/Test</td>
<td>2006-04-03</td>
<td>2006-04-07</td>
<td>5d</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Colors/Words</td>
<td>2006-04-10</td>
<td>2006-04-20</td>
<td>9d</td>
<td></td>
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<td>11</td>
<td>Add words to Glossary</td>
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<td>2006-04-27</td>
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<td>Test</td>
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<td>2006-05-03</td>
<td>4d</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Complete Help Section</td>
<td>2006-05-04</td>
<td>2006-05-09</td>
<td>4d</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Attach Printable Worksheets</td>
<td>2006-05-10</td>
<td>2006-05-12</td>
<td>3d</td>
<td></td>
</tr>
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<td>15</td>
<td>Test/Miscellaneous</td>
<td>2006-05-15</td>
<td>2006-05-18</td>
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<tr>
<td>16</td>
<td>Tech Expo</td>
<td>2006-05-19</td>
<td>2006-05-19</td>
<td>1d</td>
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</table>
Appendix C

Code Snippets

Code Snippet for drag and drop activities

In order to implement this activity each shape was drawn and then turned into a movie clip. Turning each shape into a movie clip allowed the use of the drag and drop functionality. Sound was attached as well as a visual of the words ‘Correct’ and ‘Incorrect’ which lets the child know if they placed the number correctly that will display in answer1. If the item is placed in the incorrect location is will return to its original location.

```actionscript
on (press) {
    startDrag(this);
    _root.answer1="";
    _root.unoSound= new sound();
    _root.unoSound.attachSound ("three");
    _root.unoSound.start();
}
```

```actionscript
on (release) {
    stopDrag();
    if (this._droptarget == "/threebox") {
        _root.answer1="CORRECT";
        _root.answerSound= new sound();
        _root.answerSound.attachSound ("correct1");
    }
}
```
_root.answerSound.start();

}

else{

    this._x = 10.2;

    this._y = 283.5;

    _root.answer1 = "TRY AGAIN";

    _root.answerSound= new sound();

    _root.answerSound.attachSound ("tryagainrg");

    _root.answerSound.start();

}

}
References

1. Actionscript.org [http://www.actionscript.org], 2001


