

Early Childhood Reports

By

Madhavi Teredesai

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

**University of Cincinnati
College of Applied Science**

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Dedication

I would like to thank my advisor, Dr. Hazem Said for his expert guidance and encouragement during my senior design project work at the University of Cincinnati. I would also like to thank Mr. John Nyland for helping me during this project.

I would like to give special thanks to my husband Anil Teredesai for his continued support and encouragement throughout my undergraduate studies. I would also like to thank my son Niranjana, daughter in law Sheetal and daughter Sailee for their moral and cheerful support.

Finally, I would like to thank all the faculty members from University of Cincinnati who have provided me continued support during my undergraduate degree.

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Abstract

Assessments of children play important role in Early Childhood Programs. The teachers use assessments to understand the child's development and to design developmentally appropriate curriculum and instruction to meet the child's need and maximize his or her potential. Teachers use observational assessment of children's progress and documentation of their development, to plan and adopt curriculum to meet individual children's learning needs. The records are used to monitor the course of physical, language, cognitive, and socio-emotional development. They are used to identify children who may have learning or developmental problems. These assessments are used to create reports, which are used to communicate with parents regarding child's progress, and to evaluate the program's effectiveness.

Currently teachers assess each child's learning progress primarily through written records of observation through checklists, anecdotal notes and evaluation of work samples. Teachers write reports to share information with parents using these records for each child. Parent- teacher conferences are held quarterly to share and evaluate useful, specific feedback about individual children.

Early Childhood teachers need efficient way to keep records of observations and share those with parents on regular basis. This paper discusses the interim result of a project, which enables teachers to record observations, and allows parents to monitor their Child's progress on the Internet.

Early Childhood Reports

1. Introduction

The National Association for the Education of Young Children (NAEYC) defines a developmentally appropriate program as one that is planned and carried out based on knowledge of how children grow and what they can do – socially, emotionally, cognitively, and physically – at each stage of development. (2) Assessments of children play important role in Early Childhood Programs. The teachers use assessments to understand the child's development and to design developmentally appropriate curriculum and instruction to meet the child's need and maximize his or her potential. Teachers use observational assessment of children's progress and documentation of their development, to plan and adopt curriculum to meet individual children's learning needs. (11, p.108) The records are used to monitor the course of physical, language, cognitive, and socio-emotional development. They are used to identify children who may have learning or developmental problems. (11, p.107) These assessments are used to create reports, which are used to communicate with parents regarding child's progress, and to evaluate the program's effectiveness.

2. Statement of the problem

Currently teachers assess each child's learning progress primarily through written records of observation through checklists, anecdotal notes and evaluation of work samples. (9) Teachers write reports to share information with parents using these records for each child. Parent- teacher conferences are held quarterly to share and evaluate useful, specific feedback about individual children. (4)

Early childhood teacher faces problems regarding children's records such as:

- Manual record keeping errors
- Time consumed in writing reports
- Time consumed for reviewing previous observations
- Difficulty in accessing previous records
- Unorganized record keeping
- Sharing progress of children with parents on regular basis (4)

3. Description of the solution

The solution to the aforementioned problem was to create a web-based application that keeps track of children's development and to allow teachers and parents to see reports of skills acquired by the child. The application allows teachers to enter their observations and monitor children's skill. Web forms are created for entering observations of specific area of development, For example, Physical Development and Social development. Each form has skills checklist. The data entered is used to create various reports, which reduces time spent in writing reports and also allows the teachers to view each child's development according to specific areas of development. This minimizes the errors of handwritten recordkeeping. It reduces the time for reviewing previous observations since previous records are easily available.

This application allows parents to check their child's progress at their convenience. Each parent has to go through an authentication process involving user identification for privacy.

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This application allows parents to check their child's progress at their convenience. Each parent has to go through an authentication process involving user identification for privacy.

3.1 User profile

The users of this application are early childhood professionals and parents. The survey conducted on Preschool teachers level of comfort using computers indicated that they had basic computer skills such as using Microsoft word and were able to use Internet with comfort. The parents will need basic skills such as typing and browsing. This application is designed to cater convenience, simplicity and ease of use for intended users.

3.2 Design protocols

3.2.1 Basic system architecture

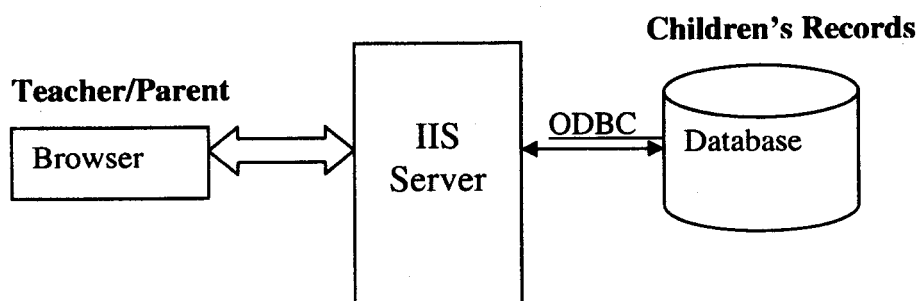


Figure 1. Basic System Architecture

The basic system architecture of the project consists of three components. The Client (Browser), Web Server, and the Database Server. The Microsoft access database is used as a database management system. The database is accessed using Active Server Pages.

3.2.2 Database- Relationship diagram

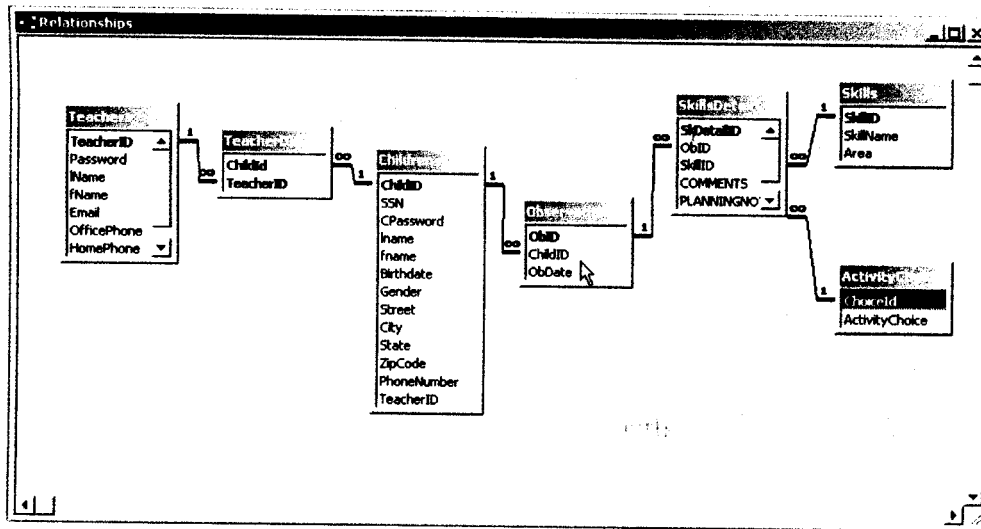


Figure 2. Relationship Diagram

The database has tables for children's information, teacher's information, children's skills, activity choice and observation. The Teacher Detail and SkillsDetail tables are created to establish many to many relationships between Teachers and Observation tables respectively.

3.2.3 Interface Design

I would like to divide interface design in three parts to give better understanding of the interface design.

The user opens home page and clicks hyperlink to Log in. The user as administrator has to use ID and password to log on. The permissions are checked to verify whether user is administrator and then is directed to administrative page. The administrator can enter and update children's information and teacher's information.

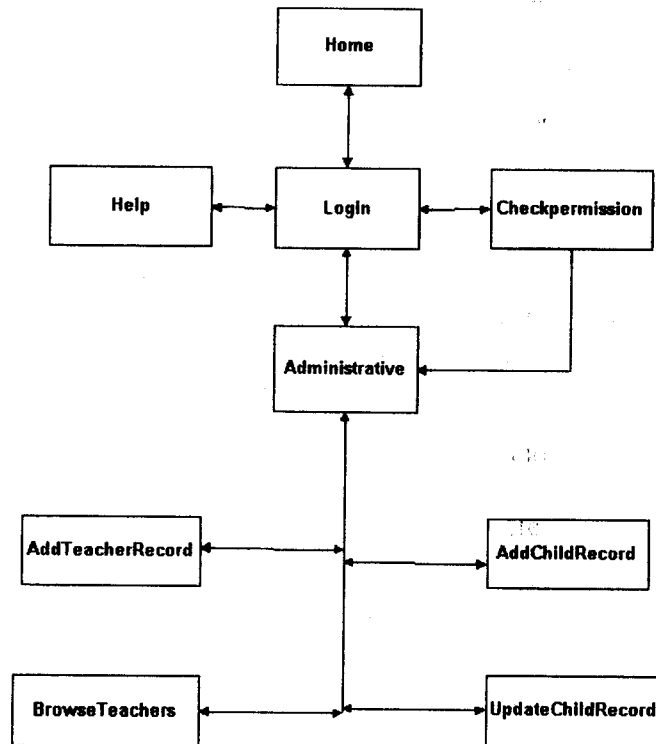


Figure 3. Interface design for administrators

The user as teacher has to use ID and password to log on. The permissions are checked to verify whether user is teacher and then is directed to Option page. The teachers are able to document observations for the Child and are able to view observations and child's information. The teacher is directed to appropriate pages according to the choice made.

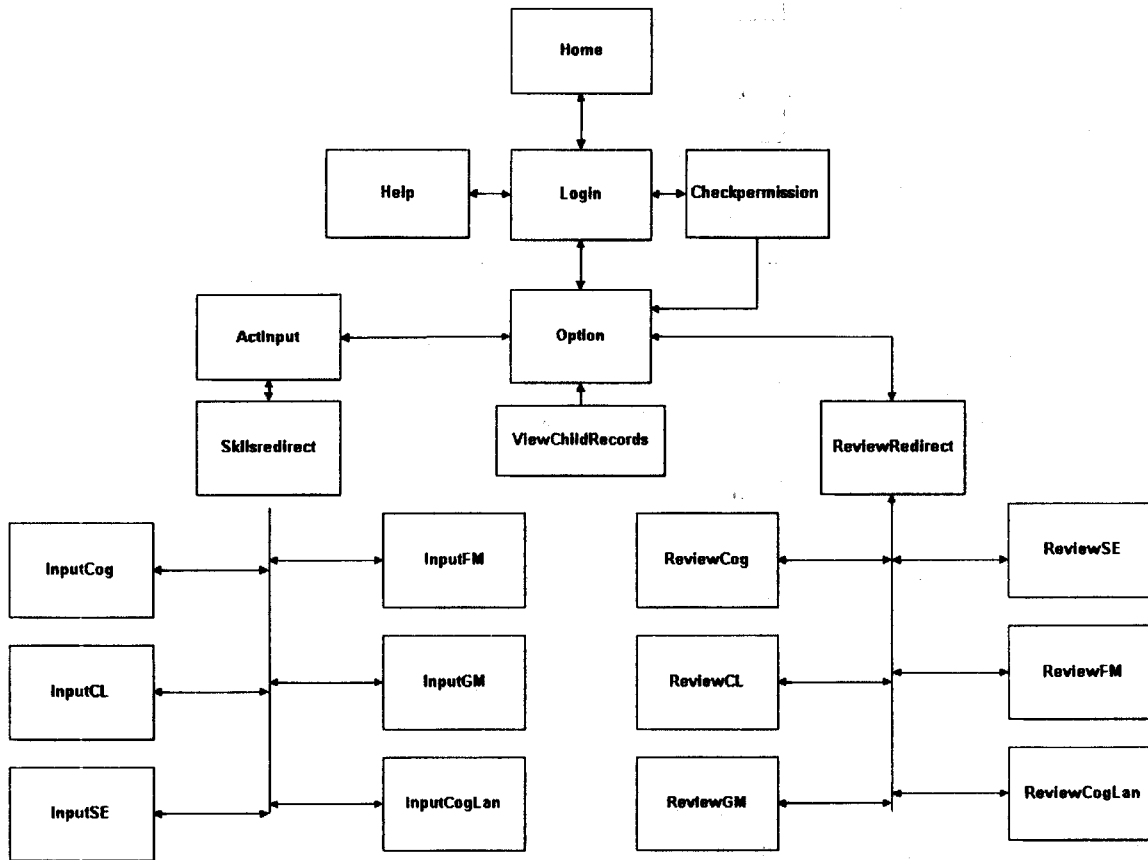


Figure 4. Interface design for teachers

The user as parents can log on using social security number of their child. They have choice of viewing their child's records and view help screen. The parents are able to view Child's reports according to different skill areas.

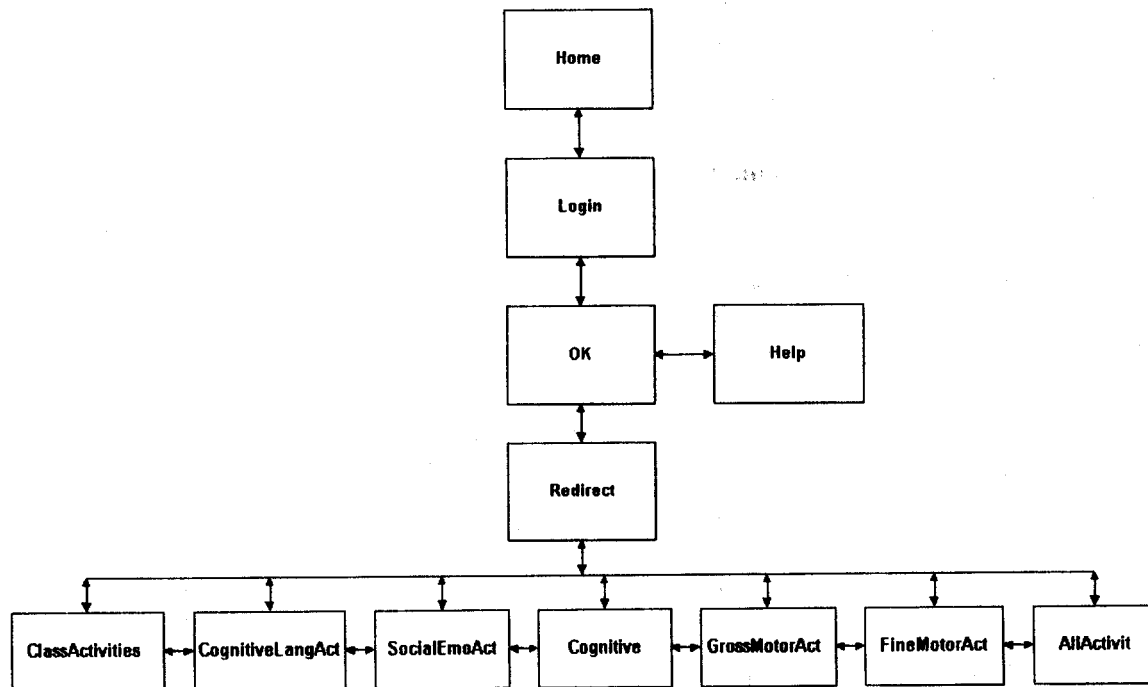


Figure 5. Interface design for parents

3.2.4 Icons/navigation

The icons and navigation images are designed to reflect early childhood environment.



Figure 6. Navigation icon

- Figure 6 is the sample of icons for navigation of pages such as Help, Reports and Home page.



Figure 7. Specific reports hyperlink icon

- Figure 7 is the sample of icon, which has hyperlinks to the specific report pages.



Figure 8. Email icon

- Figure 8 is used for sending email to the teacher.
- Other images are added to enhance the look of the website.

3.2.5 Color Scheme

- Background of all the pages has faded image with children holding hands in a circle on white background.
- The text has shades of Blue, Red and Green colors.
- Help page provides information about the functionality of the program, which enables user to navigate easily. The link for help page is available on all the key pages after user logs on.

The professional goals of the project were to design effective database, create interactive web pages and to develop enhanced user interface.

4. Design and Development

I used Microsoft Access 2000 to build the database for the project. To construct the Web pages and add functionality to them, I used Visual Interdev 6. The hardware and software platforms were chosen considering speed, cost, availability and reliability. The programming environment was chosen for familiarity and ease of use. The final project is hosted on the IET department server of College of Applied Science.

4.1 System Requirements

- Pentium III Processor at 933 MHz
- Windows 98/NT 4.0 or higher

- 128 MB of SDRAM
- PC and other necessary devices such as monitor, mouse, and CDROM.
- A printer and printer driver compatible with Windows/NT 4.0 or higher.

4.2 Software Requirements

- Microsoft Windows 98, Windows NT
- Internet Explorer 5
- Visual Studio 6.0

4.3 Budget *

▪ Microsoft Visual Studio professional	\$1079.00
▪ Computer Package	1517.00
(Includes monitor, keyboard, mouse, modem printer, CDROM etc.)	
▪ Web Hosting Services	240.00
▪ Web Hosting Setup	50.00
▪ Windows NT sever	809.00
▪ Books	200.00
Total	\$3895.00

The budget is provided through the facilities in the Information Engineering Technology program of the University of Cincinnati.

* Web resources

4.4 Timeline

Senior Design I

Weeks	Tasks
Jan. 8-12, 2001	Determining project topic, consultation with advisor, readings
Jan.15-19, 2001	Research, interviews
Jan.22-26, 2001	Research, consultation with advisor, writing Problem/Area of inquiry
Jan.29-Feb.2, 2001	Submit Problem/Area of inquiry, research, readings
Feb.5-9, 2001	Rough draft of proposal, submit progress report I
Feb.12-16, 2001	Draft of proposal, readings
Feb.19-23, 2001	Submit draft of Proposal, slide preparation, consultation with advisor
Feb.26-Mar.2, 2001	Submit progress report II, meeting with group, working on proposal
Mar.5-9, 2001	Submit final Proposal, slide presentation with the group
Mar.12, 2001	Final presentation

Co-op Quarter

Weeks	Tasks
Mar.26-Jun.16, 2001	Exploring Visual Interdev Starting database design

Senior Design II

Weeks	Tasks
Jun.18-22, 2001	Finalizing database design
Jun.25-29, 2001	Finalizing database design
Jul.2-6, 2001	Interface design
Jul.9-13, 2001	Interface design, Consultations with advisor
Jul.16-20, 2001	Web page designs, Consultations with advisor
Jul.23-27, 2001	Functionality of web pages, draft of report
Jul.30-Aug.3, 2001	Functionality of web pages, draft of report
Aug.6-10, 2001	Functionality of web pages, draft of report
Aug.13-17, 2001	Testing prototype
Aug.20-24, 2001	Testing prototype, preparation for presentation
Aug.27-31, 2001	Presentation, Final Report

Co-op Quarter

Weeks	Tasks
Sept.17-Dec.22, 2001	Researching on project functionality
Sept.17-Dec.22, 2001	Entering Data

Senior Design III

Weeks	Tasks
Jan.2-Jan.4, 2002	Functionality of Report Pages for Parents
Jan.7-Jan 11, 2002	Functionality of Report Pages for Parents
Jan.14-Jan.18, 2002	Functionality of observation viewing for teachers
Jan.21-Jan.25, 2002	Functionality of observation inputs

Jan.28- Feb1, 2002	Functionality of observation inputs, Design Modifications, Final Draft of Documentation
Feb.4- Feb.8, 2002	Functionality of observation inputs, Design Modifications, Code Testing
Feb.11-Feb.15, 2002	Code Testing, Design Modifications, Writing Documentation
Feb.18-Feb.22, 2002	Project Testing, Writing Documentation
Feb.25-Mar.1, 2002	Project Testing, Finalizing Documentation
Mar.4-Mar.15, 2002	Final Presentation

5. Deliverables

This project is created:

- To allow Preschool Teachers to enter observations according to the specific skills for each child
- To view, enter and update Child's and teacher's personal information
- To Generate reports according to the date requested
- To facilitate report checking for parents
- To view reports for specified dates

To meet requirements of Early Childhood Observation criteria following tables and web pages were created which will allow them to enter records for children. The web pages allow Parent users to view child's reports.

5.1 Tables

Children Table- This contains all the necessary information regarding Children such as Social Security Number, Last Name, First Name, Birth date, Address, Phone number.

Teacher Table- This table has information such as Teacher's name, Email address, Phone

Number.

Skill Table- This table has list of skills, Area of skills. The specific Area will have unique identifier.

Observation Table- This table has observation ID as auto number. This creates new number for each observation. It has Date field for the date of observation.

SkillsDetail Table- This table creates many to many relationships between observation and Skills. It will also have details such Comments, Planning Notes and activity choice.

Teacher Detail Table- This table creates many to many relationships between Teachers and Children.

Activity Choice Table- This table has ChoiceID, which is foreign key of the SkillsDetail table, which creates one to many relationship with the detail table.

The data is entered in these tables using web pages and then is used to generate reports.

5.2 Web Pages

Home- This page contains literature regarding the importance of Children's observations. It also stresses the importance of parent involvement in the Child's growth and development. This links the users to Login page.

Login Page- This page allows users to enter information to Logon to the system. The teacher and administrators can Login by using their ID and Password. Parents will have to use Child's Social Security Number. If the Login is unsuccessful users will come back to Login page.

OK- This welcomes the parents to reports. It has brief description about specific skills. This page has links to specific skill reports.

The following reports can be viewed by specific date.

Cognitive Report

Cognitive/Language Report

Gross Motor Report

Fine Motor Report

Social Emotional Report

Classroom Activity Report

All Activity Report

Option- This page displays the children's list for the teacher who has logged in. It has links to enter specific skill data. This page has option of selecting the child's name from dropdown list and to enter dates for viewing observations.

ReviewRedirect- This page allows users to select specific skill to view report.

The following pages has functionality to view records according to the skill area.

ReviewCog

ReviewCogLan

ReviewGM

ReviewFM

ReviewSE

ReviewCL

The following pages has functionality to input data according to the skill area.

InputCog

InptCogLan

InputGM

InputFM

InputSE

InputCL

The user is able to go to Help page and Home page from these pages. All the pages have ability to Logout.

6. Proof of design

This project has two kinds of users, the parents and the teachers. The appropriate screens are designed to build functionality of the project, which caters for both kinds of users.

6.1 Interface for Parents

The orientation screen welcomes users to Early Childhood Reports web site. This screen is the “Home” page. This screen is used as a launching pad for the project. This page provides brief information about the site and description of its use. There is a hyperlink, which will direct users to Login.htm page.

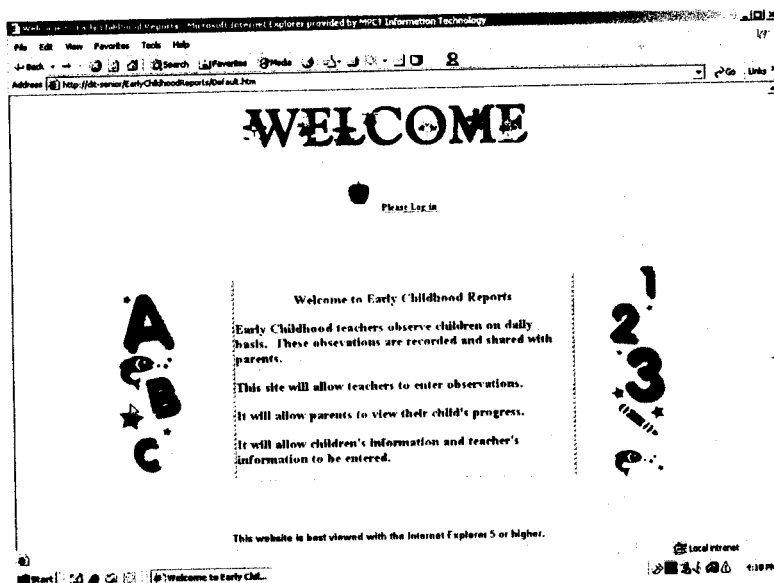


Figure 9. The application entry page

The Login.htm page allows the parents to Logon. On this screen text input field is provided to enter Child's social security number. There is a *Submit* button provided on this screen. When this button is clicked the social security number entered by the parent will be checked to see if it is in the database. If it not available it will take the parents back to Login.htm page. If social security number is correct it will take users to OK.htm screen.

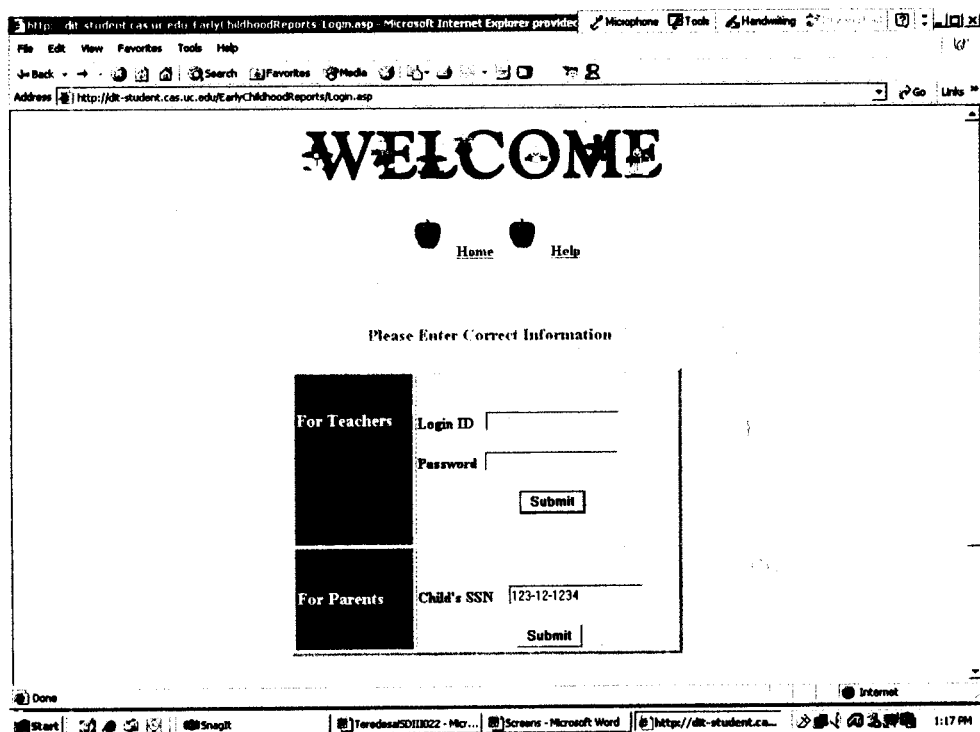


Figure 10. The Login page

OK.htm screen has two text input boxes where users are able to insert dates. There are option buttons, which allow users to select the skills. The *Submit* button submits the text input values and the option button values to the Redirect.asp page. It redirects the user to appropriate screen depending on the option button chosen by the user. For example- if user has selected the option button for Classroom Activities, the ClassAct.asp screen will be displayed.

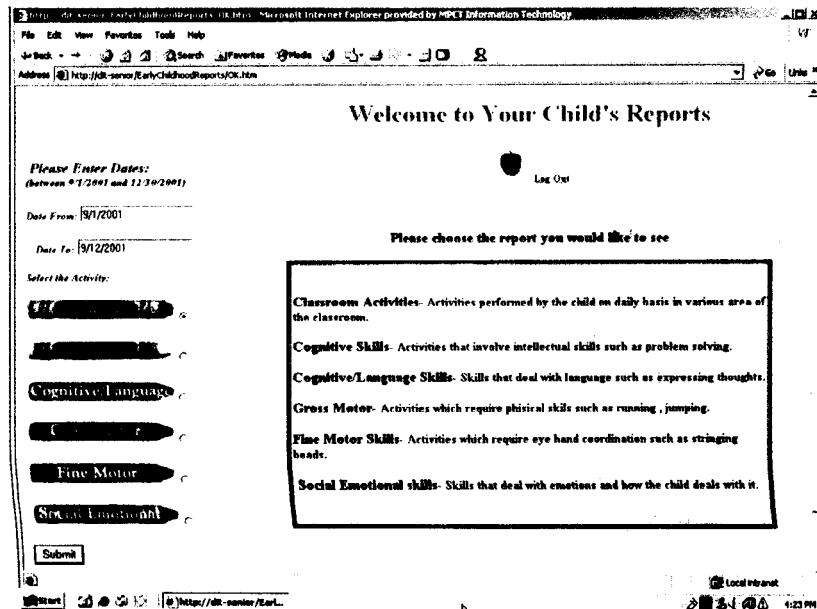


Figure 11. Parents main page

The user is able to view classroom activity report on the ClassActivites.asp screen. This page builds connection string to talk to the database. It creates ADODB recordset object and uses SQL statement for the source of data. The values entered by users are supplied to the recordset before opening the recordset. The asp code is written to retrieve data. The grid is generated using html encoding. This page also has links to view reports for All activities, Cognitive activities, Cognitive/Language activities, Fine motor activities, Gross motor activities and Fine motor activities. If user wants to change the dates, the hyperlink is provided to take him/her to the screen where dates can be changed. The links to help screen and logout screen are also provided.

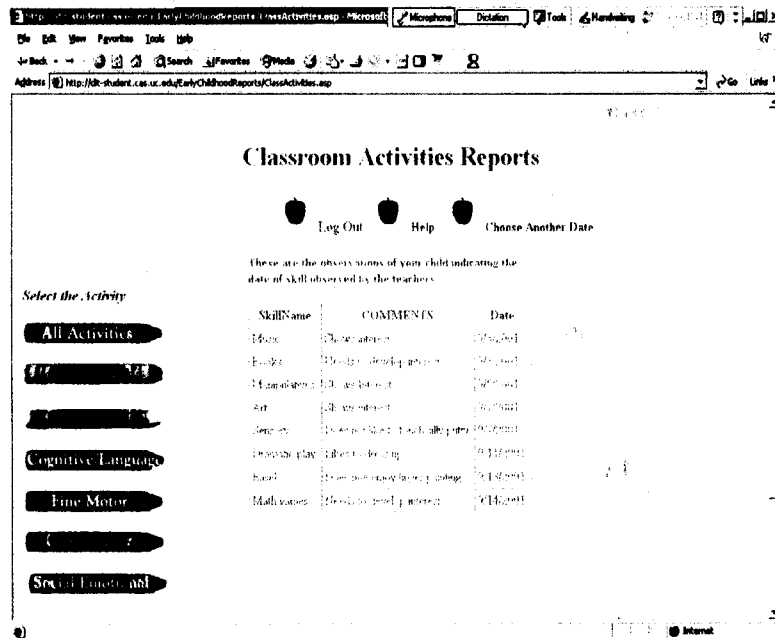


Figure 12. Classroom activities report

6.2 Interface for Teachers

The “Home” page allows teachers to use the link to `Login.asp` screen. This page has two text input boxes for the teachers to enter their Id and password. When the *Submit* button is clicked the information provided by the user will be checked against the database and if it is correct user will be directed to the `option.asp` screen. If the user is administrator she/he will be directed to `administrative.asp` page.

The `Option.asp` screen has a connection string, recordset object and SQL statement which generates the dropdown list of the children for the teacher who has logged on. The another connection string, recordset object and SQL statement is used to generate class list of the children who are enrolled in user's class. It generates details such as Child's name, birth date and gender. The user is able to select name of the child and enter the dates for reviewing records. When user clicks the *Submit* button, `ReviewRedirect.asp` screen opens. If *Record Observations* link is clicked, user is redirected to `ActInput.asp` screen.

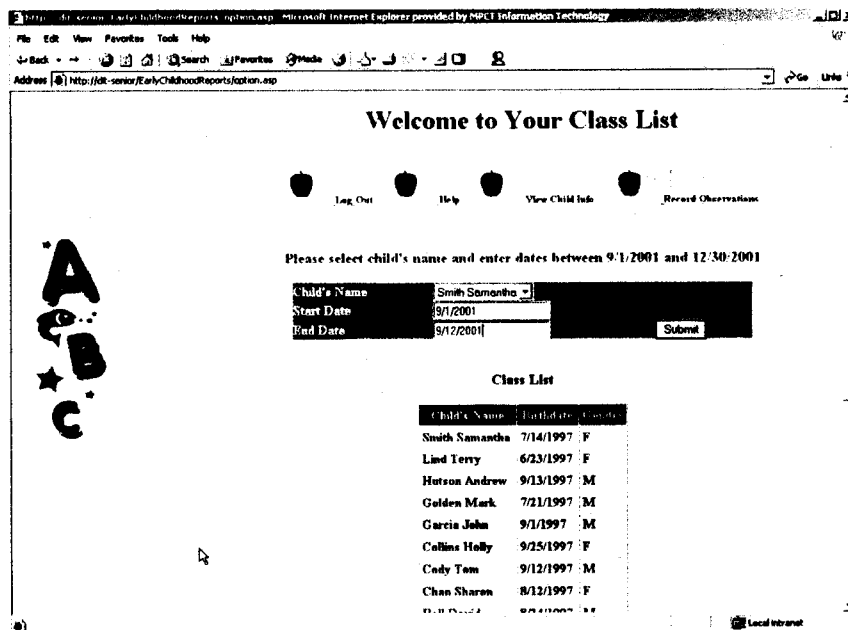


Figure 13. Teachers main page

ReviewRedirect.asp screen allows user to select the skills to be reviewed. Before opening the recordset object the values entered in the previous screen are stored in the session object. The user is redirected to the appropriate screen to review the report of the chosen skills.

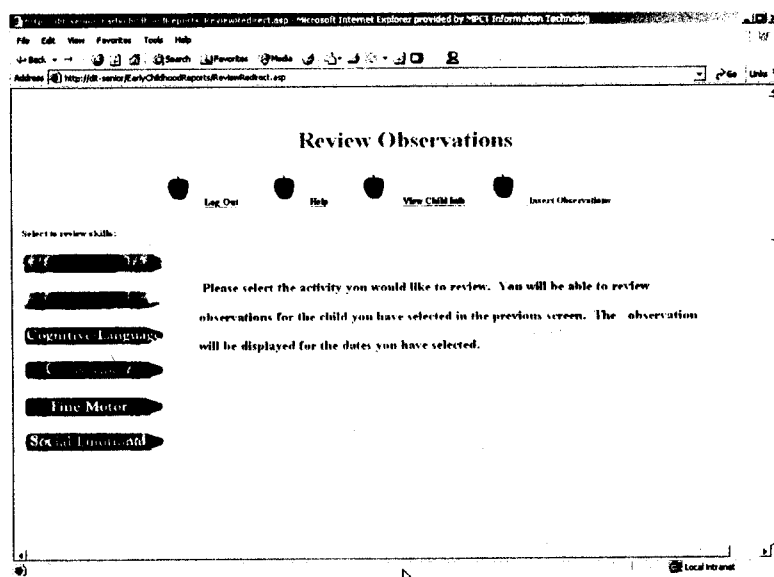


Figure 14. Observation selection page

If the user has selected Cognitive Activities, ReviewCog.asp screen is displayed with Cognitive Activities Report for the child selected. It displays records for the range of dates requested. This screen uses session object for the child's name and the dates. Using connection string, recordset object and SQL statement this page generates the report for cognitive skills. This page has links to other skill sets where user will be able to review reports for those skills. User is provided with the link where another child or date range can be selected. The links have been provided to log out or insert observations.

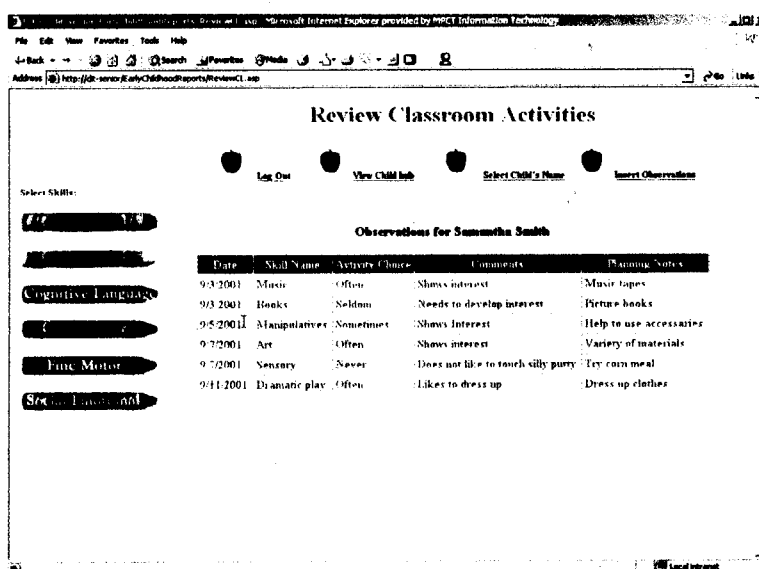


Figure 15. Review cognitive activity page

If user chooses the link to enter observations ActInput.asp screen comes up. This screen uses connection string, recordset object and SQL statement to retrieve children's list from the database. User is able to select name of the child and enter the date for observation. When user clicks *Submit* button, new observation ID is created in the database for the child selected by the user and skillsredirect.asp screen is displayed.

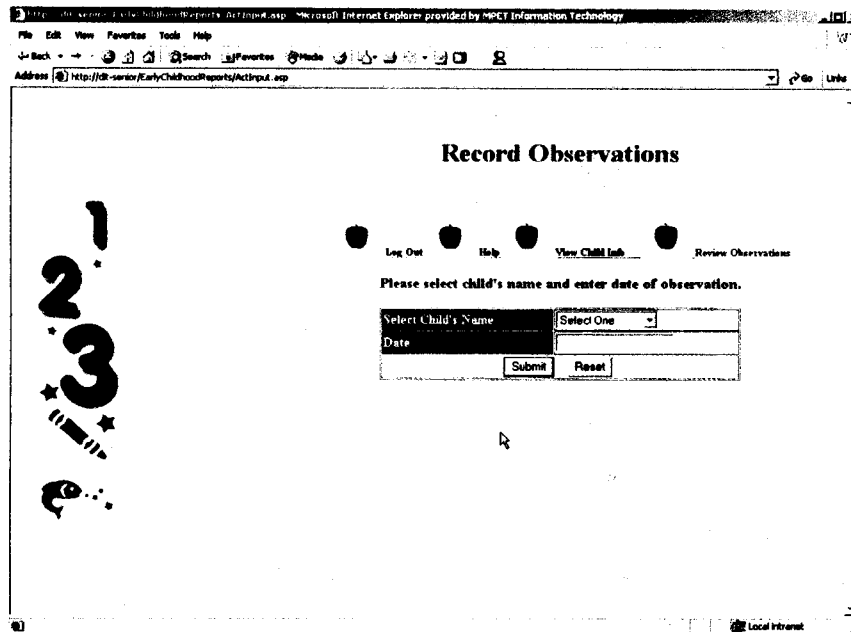


Figure 16. Input observation main page

skillsredirect.asp screen allows user to select the skills for which observations need to be recorded for the date entered and for the child selected in the previous screen.

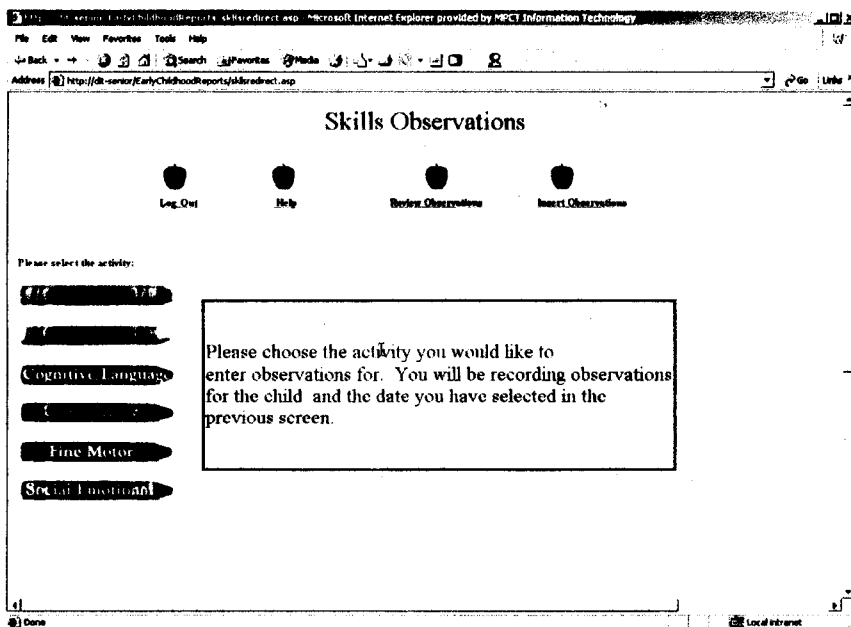


Figure 17. Selection for input observations

If user clicks on Classroom Activity, InptCL.asp screen comes up. This screen uses connection strings, recordset object and SQL statements to retrieve data to fill dropdown boxes for Skills Name and Activity Choice. The connection string, recordset object, command object SQL statement and command text is used to insert records. The appropriate parameter values are set and appended for each input. This screen has two drop down boxes. Users will be able to select appropriate skills name and activity choice using those. There are two text areas where user can write comments and planning notes. There is one hidden text box for observation Id. The value of last observation Id is retrieved from the database. When the user clicks *Submit* button observation will be inserted in the database for this Observation ID. The screen has links to other skills where user can insert observations for last observation ID. The link is provided if user wants to select another child and date. User can use links to log out, review observations, update information and help.

The screenshot shows a web browser window titled "Classroom Activities". The address bar shows "http://db-server/EarlyChildhoodReports/InptCL.asp". The page has a navigation bar with links: "Log Out", "View Child Info", "Review Observations", and "Insert Observations". Below this, there is a section titled "Please select the activity:" with a list of skills: "Cognitive Language", "Fine Motor", and "Social Emotional". To the right of this list is a form with the following fields: "Skill Name" (a dropdown menu showing "Music"), "Comment" (a text area), "Planning Notes" (a text area), and "Activity Choice" (a dropdown menu showing "Shows Interest"). Below these fields are "Submit" and "Reset" buttons. The browser's status bar at the bottom indicates "Local Intranet".

Figure18. Input classroom activities

If user tries to update child's information access is denied if she/he does not have permission to do so. She will be given option of viewing information.

Checkpermissions.asp screen uses session object to verify permissions in the database for the logged on user.

If user clicks on the link to view Children's information ViewChildRecord.asp screen comes up. Design Time Control(DTC) is used in this screen. The recordset object uses Children Table to display information regarding children. The navigation bar is used to navigate through the records. User has option of logging out or viewing class list.

The screenshot shows a web browser window titled "Child's Information". The browser is Microsoft Internet Explorer. The address bar shows "http://localhost:8080/EarlyChildhoodReports/ViewChildRecord.asp". The page has a navigation bar with four links: "Log Out", "Class List", "Review Records", and "Insert Information". The main content area contains a form with the following fields: "Child ID", "SNN", "Last Name", "First Name", "Birthdate", "Gender", "Street", "City", "State", "Zip Code", "Phone Number", and "Teacher ID". Each field has a corresponding input box. On the left side of the form, there is a large, stylized letter 'A' with a star and the letter 'C' below it. The status bar at the bottom indicates "Local intranet".

Figure 19. View child information

6.3 Interface for administrators

If user logs on and has administrative permissions she/he is directed to Administrative.asp screen. This screen displays brief description about what user can do using given links. User can choose links to add teacher's information, add child's information, and update teacher and child information. The screen used to perform

these action are AddTeacherRecords.asp, AddChildRecord.asp, BrowseTeacers.asp and UpdateChildRecord.asp. All the screens use Design Time Control, recordset object and tables to retrieve, insert or update data.

The screenshot shows a Microsoft Internet Explorer window with the address bar displaying 'http://dr.senior/EarlyChildhoodReports/BrowseTeachers.asp'. The page title is 'Update Teacher's Information'. The form contains two main sections: 'Log On' and 'Update Records'. The 'Log On' section has fields for TeacherID, Password, Last Name, First Name, Email, Office Phone, Home Phone, and Permissions. The 'Update Records' section has a 'Delete Record' button. The form is styled with a simple, functional layout typical of early 2000s web applications.

Update Teacher's Information	
Log On	Update Records
TeacherID	1
Password	jsmith
Last Name	Smith
First Name	Sharon
Email	Sherry@hotmail.com
Office Phone	(513) 792-7895
Home Phone	
Permissions	1
Delete Record	

Figure 20. Update teacher information

All the users have access to help screen after they log on. This screen gives brief information about various pages in the web site. This screen has links for logging in and home page.

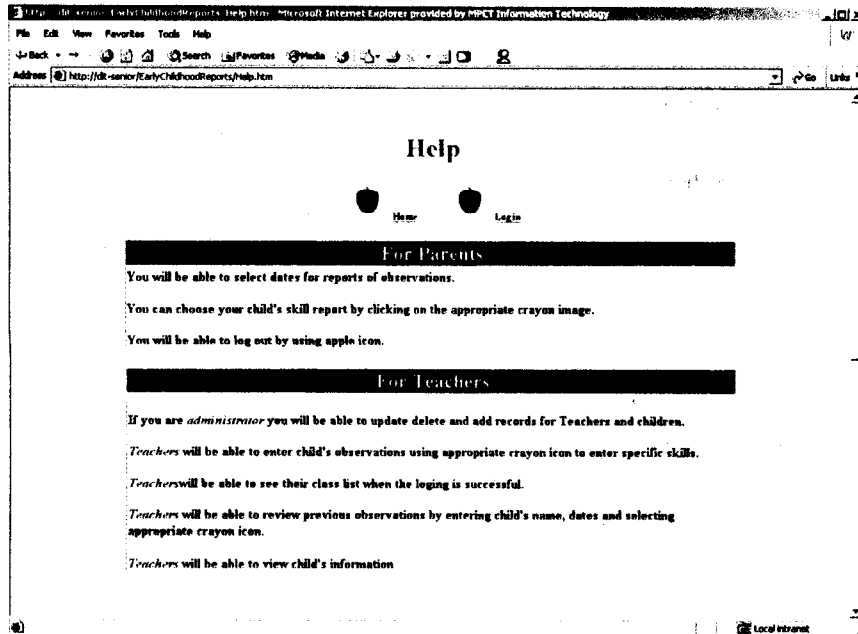


Figure 21. Help page

I used Design Time Controls (DTC) to insert information regarding Children and Teachers. This could be done efficiently as records were retrieved from respected tables. For generating list of observations I found that writing ADO code was more efficient. The greatest challenge I had to face was to insert observations for various skills. Using DTC control to do this was not efficient as DTC controls write underlying code for the developer. These controls are not flexible because developer is not allowed to change or alter the underlying ADO code. Complex requirements cannot be fulfilled using DTC controls, writing all the ADO code yourself gives you more control over the results. I had to learn ADO scripting for inserting observations. I learned to use command text and parameters to get desired results. I recommend using ADO code to deal with complex relationships.

7. Conclusions and recommendations

Early Childhood Reports project is developed as a useful tool for early childhood professionals. I wanted to use the skills I have acquired while pursuing this bachelor's degree in Information Engineering Technology and combined them with my previous education and experience in early childhood environment.

I selected Access database as a back end because this project was planned for small sized early childhood institution. I also had previous experience using Access database. I selected MS Visual InterDev 6.0 as a Web site development tool because it is a widely used Rapid Application Development (RAD) tool. Creating HTML and ASP pages using Visual InterDev is very easy. An efficient link to back-end to access data is easier to setup in this environment. It offers flexibility of using VB Script and/or Java Script as scripting language for the pages.

I used ADO code to dynamically access the data as it offers higher control over data access. I used VB Script to program my ASP pages.

I have used various skills I have acquired by taking various courses such as Database management, Internet, Object oriented programming, Networking and computer management while pursuing my Bachelor's degree in Information Engineering Technology to develop this senior design project.

I had to face a challenge to retrieve last observation Id that was created automatically when user enters the date of observation and to insert records for that Observation Id.

After researching I found out how to use ADO code to get last record.

If any early childhood organization would like to use this project I will have to modify it according to their needs. I will also try to limit number of pages user has to browse to

insert observations. I will enhance this project by allowing users to change their password. There is ample opportunity to expand this project. Since it was out of the scope of senior design project I have limited it to current state.

Overall, the design and development process of this Early Childhood Reports project was very challenging and satisfying experience. I acquired many new technical skills while working on this project. I also utilized my existing skills and knowledge for the completion of this project. The experience I acquired while developing this project will be useful in my future career as Information Technology Engineer.

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