CHAPTER 5
RESEARCH METHODOLOGY

5.1 Introduction

Training TOEFL aspirants in reading and writing skills requires a suitable Learning Management System (LMS) and comprehensive learning materials. It is a common practice in many institutions to train students for TOEFL within the traditional classroom. However, with the growing trend of offering language skills training even beyond the four walls of the classroom, the researcher conducted an experimental study with TOEFL aspirants with the aim of training them in reading and writing skills using Wiki as a Learning Management System and the learning materials specially designed for the purpose to conduct the training program.

This chapter discusses the methodology adopted to carry out the experimental study which aimed at investigating the effectiveness of using wiki as a platform for teaching reading and writing skills for TOEFL aspirants. It includes a detailed description of the procedure followed to select the sample for the study, create a wiki workspace for conducting the TOEFL Reading and Writing Course, administer training modules and collect data for analysis.

5.2 Research Objectives and Hypothesis

5.2.1 Major Objective

The major objective was to analyse the feasibility of training TOEFL aspirants in developing their reading and writing skills with the help of the technological tool, Wiki.

5.2.2 Minor Objectives: The minor objectives of the present study were:

- To identify appropriate strategies for TOEFL aspirants to handle reading and writing tasks;
- To identify learning objects from various sources for integrating them in training modules;
• To create a Learning Management System with the help of Wiki for delivering online training to the students; and

• To integrate various learning objects like YouTube videos, Slideshare presentations, avatars and audio files to enhance online training.

5.2.3 Hypothesis

Based on the major and minor objectives the research hypothesis was framed as follows:

“Students who aspire to do TOEFL would perform better in reading and writing when they are offered training with the Web 2.0 technology Wiki”.

The following research questions were framed to prove the hypothesis:

1) Does the participants’ ability to read and write improve after the training?

2) Do features of Wiki, training plan and materials have an effect on learner participation?

3) Do they sequentially influence the learning outcomes?

5.3 Research Sample

The researcher chose the subjects through the purposive sampling method. The first year engineering students who aspired to pursue higher studies abroad and expressed their willingness to enroll themselves for an online course on TOEFL Reading and Writing were chosen for the study. Only those students who had access to Internet facility were enrolled for the course. Around 100 students registered for the course. These subjects expressed difficulty in finding time for attending coaching in TOEFL in the traditional classroom environment and preferred an online course. They were novices in using the Internet for education and their expertise in the use of the Internet was limited to communicating through emails and browsing for information. After an initial orientation about Wiki and TOEFL, the sample took the training and 92 students and out of 100 completed the course. The data collected from those 92 students were evaluated and analyzed during the research study.
5.4 Research Design

A single group experimental study was carried out to find out the feasibility of training TOEFL aspirants in developing their reading and writing skills with the help of the technological tool, Wiki.

5.4.1 Choosing Wiki as an Online Platform for the Training Course

Wiki is one of the collaborative web applications for posting information on the World Wide Web, and has varied uses in higher education. Of all the web applications, Wiki was chosen as a teaching-learning tool by the researcher for its open nature. In other words, Wiki allows participants to add new pages or change the content of existing pages. This can be done easily without any detailed technical knowledge of HTML (Hypertext Markup Language). Most Wikis now include a WYSIWYG editor enabling simple text entry.

Considering these aspects, the researcher conducted the training program in TOEFL Reading and writing for the following reasons:

(1) Training can be given to the students beyond the traditional classroom setting.

(2) Students can work on the skills at their own pace.

(3) Students can monitor and evaluate their own progress.

(4) The learning content, clarification of the doubts raised by the learners and feedback on learner performance can be given through different pages.

(5) Students can perform specific functions like seeking and clarifying doubts, doing the assigned individual or group tasks and providing feedback on the effectiveness of the course.

Thus with the use of Wiki, as Duffy and Axel (2006) put it, “knowledge becomes networked … but remains ephemeral: it changes, and can be changed and mediated by the community” (p.6).
5.4.2 Planning of the Training Course

As mentioned earlier, the objective of the training was to train the students in TOEFL reading and writing, thereby preparing them for scoring high marks in TOEFL. Hence the course was named “RW Enhancement Programme” where ‘R’ represented reading and ‘W’ writing skill. The course was planned for a span of 23 weeks and was designed based on Schneiderheinze’s (2005) adapted model of Dick and Carey (1978). It was divided into four modules: preparatory module, reading module, writing module and consummatory module. The preparatory module was delivered in the first two weeks of training. It aimed to prepare the learners for the course by making them familiar with the use of the online learning environment, Wiki, and various aspects of TOEFL. The following twenty weeks were set apart for training in TOEFL Reading and Writing (ten weeks each) and the final week was meant for the students to provide feedback on the course.

5.4.3 Creation of Wiki Workspace- rwenhancement 2010

As mentioned earlier, the 23-week training course in TOEFL Reading and Writing that was designed based on Schneiderheinze’s (2005) adapted model of Dick and Carey (1978) was conducted in the online learning environment Wiki. A workspace “rwenhancement2010” was created for free in PB works, the world’s largest provider of hosted collaboration solutions for business and education. The Wiki was set in protected mode so that only approved users were authorized to work in it and view the information posted. The Uniform Resource Locator (URL) for the workspace, www.rwenhancement2010.pbworks.com was given to those who were chosen for the course and they were asked to request access by visiting the workspace. Their requests were approved by the administrator of the Wiki (the researcher) and the students were empowered not only to view the information posted but also to edit the pages of the wiki. This empowerment enabled the students to interact with the content, the instructor and their peers.

The course specific layout framed in the front page of the Wiki workspace was structured in such a way that it enabled the learners to access the instructional materials and the information posted with comfort and ease. The front page of the
wiki began with a welcome note and it invited the students to enjoy learning collaboratively. A speaking Voki Avatar was used for this purpose to give a personalized effect. Voki is a combination of “vox”, which is Latin for voice, and “Loki”, which is a prankster character in Norse Mythology. Voki is a free web tool that was introduced by Oddcast, a New York-based company that has been creating speaking characters on the web for years. Voki allows the users to create a computer-generated animated character that allows the user to express themselves on the web with a voice but as a talking character. These avatars can be customized to look like the user or take on the identity of other types of characters—animals, monsters, etc. It can also be customized to speak in the voice of the user and this can be done by adding the voice of the user with a microphone. Teachers of online use voki to add human effect to their classroom and according to Cohen (2007), avatars are excellent for online education. They provide human interaction that is natural in classrooms and in the traditional learning environment. They provide the human element to online teaching.

The front page (Figure 5.1) served as a gateway, as it was linked with pages titled RW Enhancement Programme, Weekly Lessons, Assignments, Announcements, Reflections and Discussion Board. These pages were created to facilitate the learners to take the course in a systematic manner with comfort and ease.
Figure 5.1: Front Page of the Wiki “rwenhancement2010”
The functions of the various pages are described below:

**RW Enhancement Programme:** This page was created with an aim to inform the enrollers of the course objectives and the course plan. It was linked with two pages - Syllabus (Figure 5.2) and Course (Figure 5.3) - which provided an overview of the programme.

**Syllabus:** elaborated on the goals of the course, instructional materials used, course plan, course schedule, assessment, preparation, attendance, pacing and course grade.

**Course:** outlined the lessons to be learnt and the tasks to be completed from Week 1 to Week 23.

Figure 5.2: Syllabus Page of the Wiki “rwenhancement2010”
Weekly Lessons: This page intends to serve as a directory containing the links to all the lessons for the 23 weeks. The lessons for the first two weeks aimed at familiarizing the course takers with the online platform Wiki and the various aspects of TOEFL. The lessons for the next ten weeks focused on explicit instruction in reading strategies in order to answer TOEFL reading questions, viz., factual and negative factual, vocabulary, inference, rhetorical, reference, paraphrase, and summary and chart questions. The lessons for the next ten weeks offered practice in the three stages of writing pre-writing, writing and post-writing TOEFL integrated and independent writing tasks. The final week was intended to collect responses from the course takers to a 5-point Likert scale questionnaire that aimed to find out the effect of Wiki and instructional materials on learner participation and their sequential influence on learning outcomes.

Assignment: This page was created with a view to giving a comprehensive list of the tasks to be completed by the course takers every week as post-learning activities.
These tasks were in the form of exercises which were given in order to assess formatively the course takers’ understanding of the lessons learnt. The multiple choice questions prepared using the ‘Survey Monkey’ online questionnaire tool for weekly lessons in reading and the word document template prepared for weekly lessons in writing that were given as post-learning activities were linked to the comprehensive list. In addition, these links were also provided at the end of respective weekly lessons so that the course takers could easily navigate to the post-learning activities.

Figure 5.4: Assignment Page of the Wiki “rwenhancement2010”
**Announcement:** This page was meant to convey information about lessons and answers uploaded. It was also used as a space to remind learners to complete the assignments in time. The course takers normally opened this page whenever they visited the workspace and looked for new information. In addition, they also got to know about any new information posted through the default email message sent to registered users by PB Works whenever a page was edited.

**Reflections:** This page served as a platform for students to register their doubts and feedback and the teacher/fellow students to clarify doubts by editing the page. The aim behind the page was to encourage interactions not only between the students and the teacher but also among the learners, thus promoting peer learning.

**Discussion Board:** This page was created to facilitate the planning and execution of group activities. It provided information and guided the students about the tasks to be performed, division of students into groups to perform group tasks, roles to be taken by them to complete the given task, deadline for completing the task and place earmarked for submission of the end products. In short, it provided a quick, specific and clear focus on the given group activity and acted as a platform to plan the execution of group activities.

In addition to the creation of above mentioned pages, the Wiki page was made colourful and a wall clock was embedded in the side bar of the Wiki in order to meet the ambience of a real classroom setting. A table consisting of links of 23 week lessons was also presented in the sidebar for easy navigation of lessons.

5.4.4 Adoption of Instructional Design Model

The course on TOEFL reading and writing using Wiki was offered based on Schneiderheinz’e (2005) adapted version of the Dick and Carey Model of instructional design. The original version advocated by Dick and Cary is a ten-step process that incorporates all aspects of design and implementation and Schneiderheinze in his adapted version included one more step with a view to providing scope for interaction in e-learning. Hence the model employed for the present study contained eleven steps.
The following is the detailed account of the way the adapted version of the DC model was adopted for course design in this research study.

**Table 5.1: Adapted Version of the DC model Adopted for Course Design**

<table>
<thead>
<tr>
<th>Steps</th>
<th>Adapted Version of the Dick and Carey Model</th>
<th>Application in RW Enhancement Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td><strong>Identify Instructional Goal</strong>&lt;br&gt;Determine what you want your audience to be able to do after they have completed the instruction.</td>
<td>The instructional goal is to apply appropriate strategies to handle TOEFL reading and writing questions to arrive at accurate answers within the given time.</td>
</tr>
<tr>
<td>II</td>
<td><strong>Conduct Instructional Analysis</strong>&lt;br&gt;Determine what your audience is required to learn in order to meet your instructional goal. Identify subordinate skills that must be learned</td>
<td>Basic computing and Internet skills, net etiquette skills, self-regulatory skills and group dynamics were identified as the subordinate skills required to meet the instructional goal. Similarly, the students were expected to know about TOEFL as the training focuses on enhancing the reading and writing skills of TOEFL aspirants. Analyses of the subjects’ efficiency, frequency and purpose of using the Internet, working knowledge of Web 2.0 tool, Wiki and TOEFL were done based on their responses to a questionnaire. Based on the outcome of the analyses, it was decided to conduct the training online and an orientation on working in Wiki, especially creating workspace, creating pages, editing pages, accessing and adding web links and uploading word files, spreadsheets, images, audios and videos, was provided at the beginning of the course.</td>
</tr>
<tr>
<td>Steps</td>
<td>Adapted Version of the Dick and Carey Model</td>
<td>Application in RW Enhancement Programme</td>
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<td>-------</td>
<td>--------------------------------------------</td>
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<tr>
<td></td>
<td></td>
<td>In order to create awareness about TOEFL, web links related to the expansion and pronunciation of the acronym TOEFL, registering methods, types of TOEFL tests, language skills tested, question patterns, duration of the test, accepted scores and TOEFL FAQs were given as reading materials to give learners a comprehensive idea of TOEFL.</td>
</tr>
<tr>
<td>III</td>
<td><strong>Analyze learners and contexts</strong>&lt;br&gt;Find out the strength and skills of the learner on the topic. Also find out what is the learner’s approach to the topic and attitude towards the topic.</td>
<td>A pre-test was administered to determine the gap in students’ performance and identify the problems faced by them. It was found that reading strategies and writing process were not adopted by students to answer the pre-test on TOEFL Reading and Writing.</td>
</tr>
<tr>
<td>IV</td>
<td><strong>Writing Performance Objectives</strong>&lt;br&gt;Write specific statements of what the learners will be able to do when they complete the instruction.</td>
<td>Each week’s lesson began with an objective to be accomplished at the end of the week’s instruction.</td>
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<tr>
<td>V</td>
<td><strong>Develop Assessment Instruments</strong>&lt;br&gt;Create an assessment or test that goes with the goal of the objective to demonstrate whether the lesson plan objective has been achieved</td>
<td>A free online survey software and questionnaire tool, ‘Survey Monkey’ was used to assess the students’ understanding of how to answer TOEFL Reading questions. The points earmarked by ETS for each of the correct TOEFL Reading answers were adopted for evaluation. For assessing writing, e-feedback tool ‘Jing’ was used. Further, TOEFL writing rubrics was used for evaluating students’ responses to TOEFL writing tasks.</td>
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<tr>
<td>Steps</td>
<td>Adapted Version of the Dick and Carey Model</td>
<td>Application in RW Enhancement Programme</td>
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<tr>
<td>VI</td>
<td><strong>Develop instructional strategy</strong>&lt;br&gt;Create a strategy on how to teach the topic.</td>
<td>The lessons of each week began with an objective to be accomplished followed by the lessons. Each week’s lessons focused on one type of TOEFL reading questions and one of the writing processes for TOEFL independent and integrated writing tasks. It first introduced the question type, wording pattern, marks allocated and evaluation rubrics (for writing). Next, it explained in detail the strategies to be used for the respective reading question and also in sequential steps the method to apply the strategies to arrive at an accurate answer. They were illustrated with an example. This was followed by formative assessments.</td>
</tr>
<tr>
<td>VII</td>
<td><strong>Develop and Select Instructions</strong>&lt;br&gt;Identify the materials to achieve the objectives.</td>
<td>Textual instructions were supplemented with freely available materials over the Internet like YouTube videos, PowerPoint presentations, pictorial representations, audio files, speaking avatars, graphical tools, language games and quizzes. The reading and writing questions available in Bruce Rogers’ <em>The complete guide to TOEFL</em> and Barron’s <em>How to prepare for TOEFL</em> were used for practice and assessment so that the TOEFL standards could be maintained.</td>
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<tr>
<td>VIII</td>
<td><strong>Interface with technology, content, learner and instructor</strong>&lt;br&gt;Provide a technological platform to access instructional content and interact with the content, fellow learners and instructor.</td>
<td>During training the students were encouraged to register their doubts on the ‘reflections’ page which were clarified by the researcher and at times by fellow students. They were made to interact with the fellow learners to complete the group tasks assigned. They were also encouraged to register their feedback about the weekly lessons and the learning objects used.</td>
</tr>
<tr>
<td>IX</td>
<td>Design and Conduct Formative Evaluation</td>
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<td>----</td>
<td>------------------------------------------</td>
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<td></td>
<td>Create and conduct a test during instruction to find out whether it will be successful.</td>
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<td></td>
<td>Every week, after an intervention on particular strategy use, exercises were given to assess the students’ understanding formatively. This was referred to as the first formative assessment. Feedback on performance and explanations on the correct answers were provided. After providing feedback another set of assessment exercises was provided as the second formative assessment. The questions on reading were prepared using ‘Survey Monkey’ and linked to Course Wiki for the students to answer. For writing, a five-paragraph template was uploaded as a word file which was downloaded by the students for writing responses. The students after writing the essays uploaded them in the Course Wiki in the place earmarked for the purpose.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>Revision of Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Revise or change the instruction in order for the learner to reach their goal more effectively.</td>
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<td></td>
<td>Additional inputs as revision of instruction were provided based on two aspects: (1) the outcome of the students’ performance in the first formative assessment, and (2) the effect of improved performance in the application of specific strategy on their scores in reading and writing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XI</th>
<th>Design of Summative Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Create and conduct a test after instruction to check whether the objective of the instruction is accomplished or not.</td>
</tr>
<tr>
<td></td>
<td>A post-test on TOEFL reading and writing was administered to evaluate the usefulness and effect of instruction.</td>
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</tbody>
</table>
Training was given to the students in reading and writing skills to enable them:

(1) To use appropriate strategies to answer questions on TOEFL reading accurately and within the time frame.

(2) To focus on the writing process while handling TOEFL independent writing and integrating writing tasks so as to write essays free from organizational, grammatical and mechanical errors.

At this juncture, it is necessary to outline what the TOEFL Reading and writing tests focus on. The reading test aims at testing the candidates’ ability to comprehend the given passage and answer factual questions, negative factual questions, vocabulary questions, inference questions, reference questions, paraphrasing questions, questions about author’s purpose, methods and attitude, sentence addition questions and summary-chart questions. The questions are of multiple-choice type. TOEFL Reading section contains three passages, and each passage is followed by twelve to fourteen questions with a total of thirty-nine questions. The passages are generally 600-700 words long and the candidates are expected to complete the section in 60 minutes. According to TOEFL framework the major portion of TOEFL reading constitutes factual questions and vocabulary questions (maximum of 26% each) followed by inference questions and reference questions. TOEFL writing assesses the test takers’ ability to produce clear, well-organized academic writing. TOEFL writing section consists of two writing tasks: independent writing task and integrated writing task. The independent writing task tests the test takers’ ability to write well-structured, coherent, precise, error-free essays. In other words, the candidates have to write an effective essay in 300 words on a given topic. The integrated writing task tests the candidates’ ability to comprehend and integrate in their essay the ideas put forth in a lecture they listen to and the passage they read. They have to write the essay in about 200 words.
<table>
<thead>
<tr>
<th>Tasks</th>
<th>Type of Question</th>
<th>Probable Number Per Test</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>Factual Questions</td>
<td>7 to 10</td>
<td>18% to 26%</td>
</tr>
<tr>
<td></td>
<td>Negative Factual Questions</td>
<td>1 to 4</td>
<td>3% to 10%</td>
</tr>
<tr>
<td></td>
<td>Vocabulary questions</td>
<td>6 to 10</td>
<td>15% to 26%</td>
</tr>
<tr>
<td></td>
<td>Inference Questions</td>
<td>3 to 6</td>
<td>8% to 15%</td>
</tr>
<tr>
<td></td>
<td>Questions about the author’s purpose</td>
<td>2 to 3</td>
<td>5% to 8%</td>
</tr>
<tr>
<td></td>
<td>Questions about the author’s methods</td>
<td>2 to 3</td>
<td>5% to 8%</td>
</tr>
<tr>
<td></td>
<td>Questions about the author’s attitude</td>
<td>1 to 2</td>
<td>3% to 5%</td>
</tr>
<tr>
<td></td>
<td>Sentence restatement / simplification questions</td>
<td>2 to 3</td>
<td>3% to 8%</td>
</tr>
<tr>
<td></td>
<td>Reference questions</td>
<td>3 to 4</td>
<td>8% to 10%</td>
</tr>
<tr>
<td></td>
<td>Sentence Addition Questions</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Summary and Chart Questions</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Writing</td>
<td>Independent Writing Task</td>
<td>1</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Integrated Writing Task</td>
<td>1</td>
<td>50%</td>
</tr>
</tbody>
</table>
In order to meet the standards set by the ETS in maintaining the quality of materials, the researcher adopted for training and assessments the passages and lectures from Bruce Rogers’ *The complete guide to TOEFL* and Barron’s *TOEFLiBT* by Pamela Sharpe. In addition, various learning and assessment objects that were relevant and freely available over the Internet were integrated into the Course Wiki for instruction. Learning objects like YouTube videos, Slide share presentations, speaking avatars, web links, language games and quizzes, Adobe and office tools were used as supplementary resources. Objects like the ‘Survey Monkey’ questionnaire and ‘Jing’ were used for assessment and evaluation. The researcher intended to present a strong curriculum by using learning objects while giving instruction.

### 5.4.5 Leaning Objects Used in the Training and their Objectives

During training, various learning objects pertaining to the learning objectives were used mainly to incorporate different learning objects into a single platform Wiki. The learning objects used and the reasons behind using them for the training are as follows:

**YouTube videos**

YouTube is an internet application in which people can upload, share and watch videos; it is increasingly being used by educators as a pedagogic resource. It is believed that the impact of YouTube videos on students’ learning is outstanding, as “students can understand and remember the complex concepts much better when they are exposed to a visual explanation video….One of the main advantages of YouTube video is ….[it] contains short contents about specific concepts” (Chtouki, 2012, p.1). The researcher used YouTube videos to illustrate and support theoretical concepts and instructions, connect students to experts’ lectures on specific concepts, make learning effortless and enjoyable, and stimulate students’ interest.

**Slide share**

Slide share is a community web service launched in 2006 that allows sharing and embedding of presentations that contain images, graphics, text and embedded video, created using PowerPoint, PDF or Open Office. Slide Show presentations can be stored online and viewed when needed. It currently has 16 million users and more or
less close to 60 million followers monthly. The researcher used slide share as a tool to embed tailor made PowerPoint presentations on specific topics available in the Internet, in the Course Wiki. The slide share presentations were used to present textual concepts visually. These PowerPoint presentations had an organized structure and condensed long textual concepts into key points. “Giving the lessons with PowerPoint presentations provides to present the information to students more effectively, more dynamically and more aesthetically. Furthermore, they make the information readily available to students 24 hours per day. Thus, these new technologies increase the students’ exposure to the information” (Weatherly et al., 2003, p. 464).

**Spreeder**

Spreeder.com is a free online speed reading software designed and provided by 7-Speed-Reading to improve one’s reading speed and comprehension. The TOEFL reading section contains three to four reading passages each with a length of approximately 750 words. The test takers are expected to complete reading and answer comprehension questions in 60-90 minutes; which requires a reading speed of 250-350 words per minute. Moreover, they will have to read several shorter campus-related and academic passages during the speaking section, and read an academic passage during the writing section. The researcher used the ‘Spreeder’ software as a tool to help learners practise reading with very good speed. Spreeder.com aims to help the on-line user, increase their ability to read quickly, without losing track of the ideas and information in the text. Spreeder could be useful for improving speed reading in-line text and it can be setup to suit personal preferences. It could be useful to improve/train one’s speed reading skills for offline reading (Rhondda, 2008).

**Language Games and Quizzes**

A wide range of games and quizzes are available in World Wide Web and are being used as tools for language learning. “The materials used are readily accessible, complete with available help through answer keys or through counseling by the facilitator. Hence, the students are in an environment in which they take on the role of active participants rather than passive recipients of information” (Dickinson, 1987, p.10). The researcher used online language games and quizzes not only to add fun and
drive away monotony but also to provide additional, supplementary material in specific areas of language learning in order to bring the competitive element during self-assessment. The researcher added links of websites containing language games and quizzes, such as wordsearchmaker.net, testyourenglish.net, quia.com, englishclub.com, and englishlanguageguide.com to provide a source of edutainment.

**Audio Files and Avatar**

The use of audio files for educational purposes has increased lately (Campbell, 2005; Bongey et al., 2006; Lakhal et al., 2007) and the researcher imported, created, edited and uploaded lectures in audio format for the training. While attempting the writing section of TOEFL, the test takers are required to listen to a lecture, compare and contrast the ideas delivered with the ideas given in a reading passage and present them in an essay. In order to present the lectures in audio format, the researcher used SpokenText.net, an online text-to-speech converter, and converted TOEFL listening transcripts into audio files. The audio files thus created were prefixed and suffixed with the advertisement generated by spokentext.net. The researcher used another tool, ‘Audacity’, free audio editor and recorder, and deleted the advertisement. Finally the edited audio files were uploaded in the Course Wiki for training in TOEFL integrated writing task.

The researcher also used talking Voki Avatar to present small lectures in order to give students practice in listening and note-making. As mentioned earlier, Voki is a free web tool that allows users to create their own avatar that speaks and says whatever the user wants it to say. According to McFarlin (2008), the use of speaking characters in the course material improved students’ motivation, knowledge and comprehension.

**Adobe and Office Tools**

The Microsoft Word Document and Adobe Portable Document Format are the most commonly used tools in education for productivity, communication and collaboration. The researcher used word and pdf files mainly for delivering instructional content (textual and screenshot pictures). Word files were used for creating templates for writing tasks, too. The learners downloaded and saved these templates, completed writing essays in the templates provided, and finally uploaded and added them as link in the space specified.
Graphic Organisers

A graphic organizer is a visual aid used to organize information into logical patterns. Incorporating graphic organizers into the writing and the learning process is in general a great way to get students to think outside the box and engage more willingly in the process. ‘Creately’, an online diagrammatic tool, and ‘Essay Map’, an interactive graphic organizer, were used by the researcher to help learners to plan their writing. Using ‘Creately’ mind maps, flowcharts, diagrams and several other diagram types can be created. A blank document can be chosen and shapes can be built or chosen from the templates available. The diagrams thus created can be saved and shared. Similarly, with the help of ‘Essay Map’ graphic organizer, an outline with the introductory statement, main ideas to be discussed, supporting details and a conclusion with a summary of main ideas can be developed. The finished map can also be saved, e-mailed, or printed. The researcher used ‘Creately’ and ‘Essay Map’ to help learners generate ideas, and organize and prioritize the details during the pre-writing stage.

5.4.6 Assessment Objects Used and their Objectives

Assessment is an integral part of the teaching-learning process, as it determines whether the specified objectives of instruction are achieved or not. It is a process of collecting information about student learning and performance to improve education. It is “an approach to help teachers to know what students are learning in the classroom and how well they are learning it” (Angelo and Cross, 1993) and is also applicable to online teaching. The researcher administered three assessments initial, formative and summative for the research study. The initial assessment was conducted to understand the knowledge of the learners before the training. Two formative assessments (I and II) were conducted during every week of the training to evaluate the learners’ understanding of the lessons learnt for the particular week. Finally, the summative assessment was conducted after the training to find out the effectiveness of training. The responses of the learners were evaluated based on TOEFL scoring standards. Though the researcher conducted three types of assessments, the web-based tools ‘Survey Monkey’ and ‘Jing’ were used only for formative assessments.
**Survey Monkey**

‘Survey Monkey’ is a web survey development, cloud-based (SaaS) company, founded in 1999 by Ryan Finley. It developed an online survey software and questionnaire tool that allows users to create their own surveys using question format templates. The basic version of ‘Survey Monkey’ is free, whereas the enhanced version requires payment. The researcher used the basic version of ‘Survey Monkey’ as a testing tool. It was mainly used to create multiple choice questions for reading comprehension and feedback collection. The questions created were shared and linked to appropriate pages in the Course Wiki.

**Jing**

‘Jing’ is a screen casting computer program launched in 2007 as Jing Project by the TechSmith Corporation. The ‘Jing’ software takes a picture or video of the user’s computer screen and it can be uploaded to the web. When uploaded to the web, the program automatically creates a URL to the image that can be shared. The researcher used ‘Jing’ as tool for evaluating and for providing feedback to the learners’ responses to independent and integrated writing tasks. “Students found Jing feedback very motivating when comparing sometimes overwhelming error correction in the margins of their written work to the more contextualized feedback that Jing elicited. Students reported that the tutor’s chosen focus for the screen casts ensured clearer prioritizing for their revision and made it easier to identify the severity of each error” (Harper, et al., 2012, p.6).

**5.4.7 Procedure**

As stated earlier, the study was conducted in order to find out the feasibility of conducting a training programme on reading and writing for TOEFL aspirants using Wiki. The study was classified into three phases, namely, pre-training phase, the training phase and the post-training phase. The data for the study was collected during the three phases of the study through questionnaires and tests to find out the effectiveness of the training provided using Wiki.

The effectiveness of training was studied by applying the criteria mentioned in Kirkpatrick’s (1967) hierarchical model of training outcomes. It presents some
combination of criteria that could be assessed to determine training effectiveness. This hierarchy comprises four levels of training outcomes:

Level 1 Reaction criteria for evaluating trainees’ affective and attitudinal reactions to a training programme.

Level 2 Learning criteria for evaluating the extent to which trainees have learned the training material and acquired knowledge from a training programme.

Level-3 Behaviour criteria for evaluating the extent to which trainees have applied the training in their performance following a training programme.

Level-4 Results criteria for evaluating the extent to which the training programme has enhanced department or organization level (in this case, TOEFL ETS) outcomes.

These criteria were applied at different times during the training and post-training phases of the study.

5.4.7.1 Pre-Training Phase

After the students’ enrollment in the course, during the pre-training phase, a survey questionnaire and a pre-test on TOEFL Reading and Writing were administered in a classroom environment to 100 students chosen for the study. The responses of the students were evaluated and the conclusions drawn were considered for planning the proposed training.

To begin with, a structured questionnaire containing four close-ended questions (Appendix II) was administered that aimed to understand the respondents’ earlier use of the Internet (i.e. awareness, purposes, frequency and efficiency of using the Internet.

Secondly, another structured questionnaire consisting of three close-ended questions (Appendix II) was given to find out the subjects’ awareness of Web 2.0 tool, Wiki, and its use as a platform for language learning. It also aimed to find out whether the students had created a Wiki on their own.

Thirdly, a test on TOEFL containing 20 open-ended questions (Appendix III) was administered to the students to understand their familiarity with TOEFL its types,
registering methods, skills tested, questioning pattern, duration, total score, accepted scores and its validity.

The final pre-test material (Appendix IV) was designed on the model of TOEFL reading and writing tests, in the pattern suggested by the ETS. It focused on testing the subjects’ reading and writing ability to handle the relevant TOEFL test. The reading test was administered in order to understand the students’ level of reading competence before training and to adopt a suitable methodology to teach reading during training. The test consisted of three reading comprehension passages followed by different question types, viz. factual and negative factual, vocabulary, inference, reference, author’s methods and attitude, sentence addition, sentence restatement, summary and chart questions. The test contained 39 questions with a total score of 44 points. The subjects were asked to record the methods used by them to find out the answers. The time taken by each of the participants to answer the reading section was also monitored and recorded. The writing test material comprising of an independent writing task and an integrated writing task was given to the participants in order to assess their writing ability. For the independent writing task, the students were asked to write an essay on a topic given. For the integrated writing task, they first listened to a lecture and then read a passage. After finishing reading and listening, they were asked to integrate the points read and listened to, and write an essay. They were also asked to record the strategies they adopted while writing the essays. The average time taken by the students to do the writing tasks was also monitored and recorded.

5.4.7.2 Training Phase

Considering the outcomes of the survey questionnaire and the pre-test on reading and writing, an orientation on Wiki and TOEFL, and training in TOEFL reading and writing were planned for a span of 23 weeks and conducted in the Wiki ‘rwenhancement2010’.

As mentioned earlier, the course was designed using Schneiderheinze’s adapted version of the Dick and Carey Model of instructional design. Learning objects available for free in the Internet were used as instructional content and presented as four modules. Instructional materials for the training modules were posted in the page allocated for posting weekly lessons.
In the preparatory module, theoretical information about Wiki along with a YouTube demonstration on the working of Wiki was provided as introductory materials. The students were given a task of creating Wiki and explore it as directed by the instructor. The ability of the participants in creating Wiki at PB works and editing the wiki was observed. Next, a series of web links related to TOEFL were given as reading lessons to create awareness about TOEFL. A test was administered using a free online questionnaire tool ‘Survey Monkey’ (www.surveymonkey.com) to check the learner’s level of understanding of TOEFL after reading the lessons (Level 4 of Kirkpatrick’s (1967) hierarchical model of training outcomes).

In the reading and writing modules, explicit reading strategy instruction and writing process method were adopted respectively for teaching reading and writing. One of the unique features of this training was that it followed a sequential pattern. The learners were provided with preliminary material that included step-by-step instruction as to how to approach every task and the ways to handle each of them. It was then followed by a few sample tasks, i.e. modeling the application of a specific strategy. The reading strategies namely skimming, scanning, making inferences, guessing meaning using contextual clues, paraphrasing and summarizing were taught in the reading module. In the writing module, brainstorming, organizing, note-making, note-taking and the functions of introductory, body and concluding paragraphs were taught. After learning the strategy dealt with for a particular week, students did the tasks (Appendix V) based on the knowledge gained in order to get the hang of the task.

Their performances were formatively assessed (Appendix V) (Level 2 of Kirkpatrick’s (1967) hierarchical model of training outcomes) and feedback (Appendix VI) on their performance was provided. In addition, correct answers with explanations were sent to them through email and were also finally uploaded in the Wiki at “Announcement” page when all the students completed the exercise. This enabled the students to compare their answers with the answers and explanations provided by the facilitator. In situations where the average performance of the class in using a specific strategy was unsatisfactory and when the instructor believed that additional training in using a specific strategy would improve their overall TOEFL reading or writing score, additional sample tasks (Appendix VII) were provided for
revision. Then the students were asked to take an assessment task which was also formatively assessed (Level 3 of Kirkpatrick’s (1967) hierarchical model of training outcomes). All the weekly lessons provided for reading had an assessment task. The reason was that the particular question pertaining to reading was not repeated in other modules. In case of writing, as the writing process was taught in parts, only the first complete draft of TOEFL writing tasks were formatively assessed for which feedback was given. This was followed by another task on writing, which was also formatively assessed. The researcher provided formative assessment tasks to make sure that the students had learnt to handle each task. It also aimed to find out the effect of the instruction, feedback, explanations and additional inputs on their performance.

Another aspect of this training was that there was provision for students for raising and clarifying doubts on every task to which the researcher could respond regularly. The students were also encouraged to clarify doubts raised by fellow learners. This was done in the page “Reflections”, which was exclusively created for this purpose. Descriptive feedback on the effectiveness of instructional materials was also given by the students in this page. This created an ambience of a regular classroom. Every week, they also responded to a 5-point Likert scale questionnaire on the usefulness of training materials. The integration of a number of learning objects with the training course modules to facilitate learning among students was another feature of this training.

After the completion of the training, during the 23rd week, in the consummatory module the subjects responded to a 5-point Likert scale questionnaire that focused on finding students’ perceptions about Wiki, training plan, factors that influenced their participation and learning outcomes (Level 1 of Kirkpatrick’s (1967) hierarchical model of training outcomes). As Caulfield (2007) puts it, “Much attention has been given to students’ evaluations of teaching in higher education, and this type of evaluation is most often completed at the close of the course and is frequently linked to future tenure and promotion decisions” (p.1). Research studies have indicated that student feedback has been identified as one of the most important considerations when assessing teaching (Race, 2000) and adult learners are fairly good evaluators of their own learning (Giese, 2006; Kerka, 1997; Knowles, Holton and Swanson, 1998).
The training designed for the experimental study included two important tools. One was the web-based environment, Wiki, which offers features like flexibility, editing, collaboration, setting, inserting plugins, adding links, creating pages, uploading files and restoration through history. The other was the training plan and instructional materials. In order to study the effect of features of Wiki, training plan and instructional materials on learner participation and their sequential effects on learning outcomes, the researcher consolidated the responses of the students on the usefulness of the training materials (collected periodically every week), usefulness of features and functions of Wiki, usefulness of training plan, factors that influenced learner participation and learning outcomes realized (collected in consummatory module) (Appendix VIII).

5.4.7.3 Post-Training Phase

Finally, a post-test on TOEFL Reading and Writing was conducted in a classroom environment to find out the difference in performance scores before and after training (Level 4 of Kirkpatrick’s (1967) hierarchical model of training outcomes). The pre-test questionnaire was used for this purpose (Appendix V).

5.4.8 Nature of Evaluation

As mentioned earlier, data for the study was collected through questionnaires and tests during different stages of the training and responses of the students were scored with points.

Firstly, data collected on the students’ knowledge and use of the internet and a Web 2.0 tool was evaluated. The questions were of either ‘yes’ or ‘no’ type, or multiple choice type, so the responses were categorized based on the ‘option number’, which were totaled and then converted to percentage. This survey was conducted only in the pre-training phase.

Secondly, data collected on the students’ understanding of TOEFL was evaluated. The test contained 20 questions that focused on their familiarity with general TOEFL knowledge, procedural knowledge and framework knowledge. The questions were of short answer type and each correct response carried 1 point. The same questionnaire was administered soon after the orientation on TOEFL.
Thirdly, the pre-test performance of the students’ on TOEFL Reading was evaluated. The test contained 39 questions in all, covering factual questions, negative factual questions, vocabulary questions, inference questions, reference questions, paraphrasing questions, questions about author’s purpose, methods and attitude, sentence addition questions and summary-chart questions. The points for the correct responses were awarded as per TOEFL guidelines. The total score of the test was 44 with 1 point for each correct answer for all question types with the exception of the summary and chart type questions. The test contained three summary and chart type questions with 2, 2 and 4 points respectively. The same questionnaire was administered during the post-test also. The scores obtained by the subjects for each reading question type were converted into percentage. However, only the total points secured by the students were taken into consideration to categorize their reading competence level before and after training. For this purpose, the guidelines provided by ETS were followed. According to ETS guidelines, the reading section is scored with a score range from 0 to 30 and a score between 22 and 30 is rated as high, 15 - 21 as intermediate, and 0-15 as low.

Similarly, the performance of the students’ in the pre-test on TOEFL writing was also evaluated. The test contained two questions an independent task and integrated task-and each of them carried 5 points with a total of 10 points. The same questionnaire was administered during the post-test. The responses of the students to the two writing tasks were evaluated using the rubrics designed by ETS. The points scored by the students in both the writing tasks were added and were scaled using the conversion guidelines provided by ETS. According to ETS, scores ranging from 24 to 30 are rated as good, 17 - 23 as fair and 1- 16 as limited.

Further, the mean scores of formative assessment I (given soon after learning the lessons) and formative assessment II (given soon after the feedback on formative assessment I performance and revision) in reading and writing were also evaluated to find out the effect of the instruction, feedback, explanations and additional inputs on students’ performance. The points for the responses were awarded as per TOEFL guidelines.
Finally, attitudinal reactions of the participants towards effectiveness of the tool, training plan, the training materials that contributed towards their participation which resulted in achieving the learning outcomes were evaluated. For this purpose, their responses to the questionnaire on the usefulness of learning content collected periodically every week during training and the ones to the questionnaire on the usefulness of the tool, factors that contributed towards learner participation and learning outcomes were used. A total of 140 questions using the 5-point Likert scale were used.

5.4.9 Nature of Analysis of the Data

For analyzing the data, the researcher calculated the major statistical measures of central tendency, mean and standard deviation. Further, the test of significance (paired t-test) and the Structural Equation Model Analysis were done.

Mean was calculated using the formula,

\[
X = \frac{\sum x}{n}
\]

Where, \(X\) = score obtained by the participants, and \(N\) = number of scores (92).

The standard deviation was calculated using the formula,

\[
S = \sqrt{\frac{\sum(x - \bar{X})^2}{n - 1}}
\]

Where, \(X\) = individual score, \(X\) bar = Mean of all scores, and \(N\) = number of scores (92)

To find out whether the difference in performance was significant or not, the researcher conducted the paired t-test.

A paired sample t-test is a statistical test used to determine whether there is a significant difference between the average values of the same measurement made under two different conditions. Both measurements are made on each unit in a sample, and the test is based on the paired differences between these two values.

The formula of paired t-test is:
Where, \( d \) = Sum of differences, and \( n \) = the number of subjects.

The paired t-test was applied on the following data in the present study:

- Pre-test and post-test on TOEFL Awareness;
- Pre-test and post-test on TOEFL Reading;
- Pre-test and post-test on TOEFL Writing.

The level of significance was determined based on t-value and p-value. The researcher used SPSS 20.0 for finding the level of significance.

As mentioned earlier, in order to find out whether the features of Wiki, training plan and materials encouraged learner participation which in turn would have resulted in improved performance of learners in TOEFL reading and writing, the researcher did Structural Equation Modeling Analysis. The causal relationships among them were determined using SPSS AMOS.

Structural Equation Modelling (SEM) is a statistical method used for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. It is a comprehensive statistical approach to testing hypotheses about relations among observed and latent variables (Hoyle, 1995). SEM has two goals:

1) to understand the patterns of correlation/covariance among a set of variables, and

2) to explain as much of their variance as possible with the model specified (Kline, 1998).

Structural Equation Modeling, however, relies on several statistical tests to determine the adequacy of model fit to the data. The fit indices establish whether the overall model is acceptable. The fit indices can be categorized into several classes including:
• Discrepancy functions, such as the chi square test, relative chi square, and RMS;

• Tests that compare the target model with the null model, such as the CFI, NFI, TFI, and IFI;

• Information theory goodness of fit measures, such as the AIC, BCC, BIC and CAIC; and

• Non-centrality fit measures, such as the NCP.

A model is regarded as acceptable if:

• The Goodness of Fit Index exceeds .90 (Hu and Bentler, 1999).

• The Comparative Fit Index exceeds .90 (Hu and Bentler, 1999).

• RMS is less than .08 (Browne & Cudeck, 1993) and ideally less than .05 (Stieger, 1990). Alternatively, the upper confidence interval of the RMS should not exceed .08 (Hu & Bentler, 1998).

• RMSEA is less than .08 (Gerbing and Anderson, 1992).

5.5 Conclusion

In this chapter details of the field work were reported. Details about the sample, research design and data collection, evaluation and analysis tools and procedures were dealt with in detail. The following chapter will discuss the results of the analyses made on the data collected during the study.