The Hashemite Kingdom of Jordan

National Center for Human Resources Development
(NCHRD)

Evaluation of the

"World Links Teacher Professional Development Program"

Prepared by

Dr. Ahmad A. Hiasat

2005

Acknowledgements:

Many people contributed to this research project by responding to questionnaires, agreeing to be interviewed, and attending meetings to discuss their experiences of the "World Links Teacher Professional Development Program". Without this input the research could not have taken place and the project conductor acknowledges this contribution. Particular thanks are given to World links Program Coordinators in Jordan. Finally, I would like to thank all the officials in the Ministry of Education and the National Center for Human Resources Development for funding this project.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 4

2. INTRODUCTION 7

3. AIMS AND OBJECTIVES 8

4. THE POPULATION, SAMPLE AND INSTRUMENTS 9

4.1 The Population 9

4.2 The Sample 9

4.3 The Instruments 10

5. ANALYSIS AND FINDINGDS 11

5.1 "Achieving Program Objectives" Questionnaire 11

5.2 "Changing Teacher's Educational Practices" Questionnaire 13

5.3 "Training Material and Internet Activities" Questionnaire 15

5.4 "Difficulties and Impediments" Questionnaire 17

5.5 Open Question 18

6. TRAINING MATERIAL 19

6.1 Content of Material 19

6.2 Critique of Material 20

7. CONCLUSIONS AND RECOMMENDATIONS 21

7.1 Conclusions 21

7.2 Recommendations 22

APPENDICES

Appendix 1: Questionnaires 24

Appendix 2: "World Links" Training Material Content 29

1. EXCUTIVE SUMMARY

This report focuses on the use and impact of the "World Links" Training Program to support Information and Communications Technology (ICT) training for teacher education in Jordan.
The work was undertaken recognizing that issues relating to ICT professional development in schools and the preparation of students in initial teacher training for working in a technology rich learning environment are complex. The complexity is compounded by the dynamic technological context. There are also many interacting issues relating to time, resources and modes of teaching and learning, which need to be addressed.

The approaches used for this research were a survey included 75 teachers, 40 personal interviews, and a critical review of the printed materials and the telecollaborative projects developed by the trainee teachers and their students.

The overall impression is that the "World Links" Training Program has been well received and it meets a range of needs for teachers and students. The Program is viewed as one that addresses the development of basic ICT skills set in the teaching/school context to a limited extent. Its use has been seen to be of most benefit to those with quite limited ICT experience.

Key Findings:

- All trainees are ICDL certified
- The training program increased ICT use for teaching and learning.
- The program has encouraged group work, innovative thinking, and self-confidence.
- It also created the teachers' capability to design collaborative learning projects.
- More than half trainees recommend the program for other teachers.
- Significant change in trainees' practices toward integrating ICT into curriculum, and encouraging students to use ICT in their coursework.
- Teachers recognize that their new role is to be "learning facilitators" rather than "information dictators".
- Due to inappropriate translation, most of the trainees do not use the printed training material. Instead, they believe that internet-based activities are more useful.
- There are very serious difficulties that reduce the impact of the training program such as: insufficient number of computers, unsatisfactory Internet service, and unavailability of some software applications.

- While the majority of trainees believe in the effectiveness of telecollaborative learning, less than half of them believe that it is difficult to integrate ICT use into education.
- The training course extends over many months, which causes many trainees to lose interest in the program.
- The program depends heavily on the Internet availability. The implementation of the program with students is quite difficult because majority of students do not have access to the Internet at home. This access is even very limited at school because labs at schools are engaged in ICT literacy courses.
- As seen by the trainees, a considerable number of trainers are not well qualified.
- There is no innovation or critical thinking issues in the material developed by trainees.

Conclusions:

- The program was effective in enhancing trainee teachers' ICT skills.
- There is a significant overlap between "World Links" program and ICDL.
- The "World Links" program enhances teachers' skills to develop ICT-based curriculum.
- Portfolios developed by the teachers and their students shift partially the role of teacher.
- The program is highly dependent on Internet Access. This reduces the impact of the program due to the limited availability of Internet.
- Important concepts in the pedagogy of education reform are missing in the program.

Recommendations:

There is an evidence that "World Link" training program in its current state is supporting, partially, ICT-based teaching and learning. However, critical pedagogical practices for knowledge-based economy are not met in the program. Additionally, the program has a few difficulties that limit its objectives and outcomes. Nevertheless, it has merits that enable it to be adopted and disseminated provisionally. These provisions include:

- Limiting training to centers with high computer and internet availability.
- Improving the quality of trainers.
- Introducing missing pedagogical practices to the training program through proper training for the trainers.

- Reducing the training period through different approaches.
- Rewriting the training material to improve its presentation, eliminate redundant and incorporate missing pedagogical practices.

2. INTRODUCTION

World Links began in mid-1997 as an initiative of Mr. James D. Wolfensohn, President of the World Bank, to help bring the developing world into the information age through its future leaders — students — and to build cultural awareness among them in the face of an ever more global economy and society. Since then, the program has expanded to over 20 developing countries.

World Links is a global learning network linking thousands of students and teachers around the world via the Internet for collaborative projects and integration of technology into learning. The core "value-added" of World Links is its training program, designed to help teachers and students learn to use information and communication technologies (particularly the Internet) to improve teaching and learning.

The World Links training program was launched in Jordan in June 2003 after a memorandum of understanding that was signed among Ministry of Education, the Talal Abu Ghazaleh Organization and World Links.

The goal of this project is to better prepare students and teachers in Jordan to enter the information age by providing schools with sustainable solutions for mobilizing and harnessing the necessary technologies, skills and educational resources to improve learning and prepare youth to compete successfully in knowledge-based economy.

Thus far, the World Links in the Arab Region (WLAR) has implemented Wolrld Links' award-winning teacher professional development materials and trained 50 master trainers and 500 teachers.

The results are already apparent, as teachers and students are engaging in a wide range of educational activities that integrate technology, including technology-enhanced lesson plans and curriculum-based collaborative projects. Teachers are actively collaborating to share their experiences and enhance their technical and educational skills.

3. AIMS AND OBJECTIVES

The aim of this study is to research the effectiveness of the "World Links Program" in supporting teacher's readiness for the education reform. The study aims also to examine under what conditions the "World Links Program" may be most useful and successful before possible dissemination. To this end, it is necessary to:

- Highlight key features, strengths and weaknesses of the training material on which the "World Links Program" is based on.
- Identify the impact of the "World Links Program" on practicing teachers receiving this training.
- Identify all current problems, difficulties and impediments that have negative impact on the program outcomes.
- Make recommendations with regard to possible dissemination of the program, and the most effective training context and models.

4. THE POPULATION, SAMPLE AND INSTRUMENTS

4.1 The Population

The population of the study were the teachers who received the "World Links" program. This group consisted of 575 teachers from different subject areas who volunteered to take the training. The motive for these volunteers was their own interest in professional development. The teacher promotion and ranking system of the Ministry o Education was another motive. The only prerequisite for the training was that the teacher should be an ICDL certified.
Due to different circumstances, only 510 teachers completed their four-phase program over the period of training, which extended for one year and a half.

4.2 The Sample

It was required that the sample of study should include no less than 10% of trainees. Since the training was conducted over different regions of Jordan, the sample has also been selected from North, Middle, and South of Jordan. Four training centers were selected randomly to reflect the geographical distribution of trainees and their numbers. The training Center in Jerash was chosen to represent the northern area of Jordan. The training Center in Karak was chosen to represent the southern area of Jordan. However, the center in Salt and one of the centers in Amman represented the middle of Jordan. On average, there were 18 to 20 trainees in each center. The total number of trainees who responded to the study survey was 75. The sample size represented 15% of the total population, which gave a better chance for indicative results and conclusions. Moreover, the whole research study was conducted by the researcher himself, which gave the study the same point of reference and evaluation method in different research activities.

4.3 The Instruments

The research consisted of two instruments, namely:

- Structured Questionnaires
- Interviews

Structured Questionnaires

Questionnaires were developed to address a range of issues relating to the use of the "World Links Program". This included contextual information, information about the way the program was implemented, what individuals had expected from it and what they had been achieved. It also examined what its key strengths and weaknesses were, and what overall impact it had in terms of their own practice in the classroom and in their professional duties. The questionnaires also investigated possible difficulties. It also included an open question for the trainees to express other concern and write any comments that may have not been included in the questionnaire forms.

A group of people that has a relevant experience in such a program but it is not part of the sample, was asked to note any questions that posed any sort of problems like lack of clarity, relevancy, sensitivity of the answers, etc. Based on the received comments, the questionnaires were re-edited. The questionnaires in their final form are shown in Appendix 1.

The questionnaire's reliability and validity were examined using Chronbach's alpha. The Cronbach alpha for the entire questionnaire was 0.94, confirming the instrument's high internal consistency and reliability. Seventy-five (75) trainees filled the questionnaires, and most of them responded to the open question.

Interviews

Almost forty (40) trainees were interviewed. In the interviews, the researcher discussed the strengths and weaknesses of the training program, as they see it. Moreover, the trainees showed the electronic portfolios they developed over four phases of their training. These portfolios are good reflections of the type of skills they gained and objectives they achieved.

5. ANALYSIS AND FINDINGS

The data collected from trainees by responding to the Questionnaires in Appendix 1 has been analyzed. The following shows the analysis of the questions in the order they are listed.

5.1 "Achieving Program Objectives" Questionnaire

Table 1 lists the responses of trainees against the question:

Considering the Objectives of "World Links" training program, and based on the training you received, how do you agree with the following statements?

The responses in Table 1 are the valid percentages for the sample N, where N indicates the number of respondents for each item. Based on Table 1, the following findings can be drawn:

- After completing the program, there is a strong statistical evidence that the following objectives of World Links program has been achieved:
    - Encouraging teachers' group work (Item 2)
    - Enhancing teachers' innovative thinking (Item 5)
    - Enhancing teachers' self-confidence (Item 6)
    - Helping in increasing the use of ICT in teachers' personal lives (Item 7)
    - Increasing teachers' use of Computers in research (Item 10)
    - Creating the capability of designing telecollaborative learning projects (Item 11)
- More than half of respondents do recommend that their colleagues undergo this training program (Item 12).
- There is no significant evidence that supports achieving other objectives claimed in the program.

Table 1: Achieving Program Objectives

Item		N	Relative Frequency (%)[1]					Mean[2]
			Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	
1	Helped in changing my teaching methods	75	6.7	30.7	38.7	24.0	0	3.20
2	Encouraged group work	75	18.7	54.7	20.0	6.7	0	3.86
3	Helped in integrating ICT into curriculum	73	8.2	32.9	45.2	13.7	0	3.36
4	Enhanced methods of learning by doing	75	8.0	36.0	37.3	13.3	5.3	3.28
5	Enhanced my innovative thinking and knowledge	75	21.3	54.7	17.3	6.7	0	3.91
6	Enhanced my self-confidence as a teacher	74	18.9	48.6	21.6	0	0	3.76
7	Helped in increasing the use of ICT in my personal life	75	21.3	38.7	26.7	13.3	0	3.68
8	Enhanced my loyalty to my career	75	14.7	21.3	41.3	17.3	5.3	3.23
9	Enhanced my capabilities to prepare lesson plans	73	6.8	28.8	46.6	12.3	5.5	3.19
10	Increased my use of Computer in research	75	32.0	52.0	10.7	5.3	0	4.11
11	Became capable of designing tele-collaborative learning projects	75	22.7	41.3	25.3	8.0	2.7	3.74
12	I do recommend this training course for other teachers.	75	22.7	36.0	24.0	6.7	10.7	3.54
	Average of Means							3.57

[1] The percentage of the number of respondents to the total sample N.
[2] Mean is computed based on a 1 to 5 scale (strongly disagree=1, strongly agree =5).

5.2 "Changing Teacher's Educational Practices" Questionnaire

Table 2 summarizes trainees' responses to the question:

To what extent did you (or are you ready to) perform the activities listed in the following table with your students?

Table 2: Changing Teacher's Educational Practices

	Item	N	Mean [3] Before Training	Mean [3] After Training	t-test [4]
1	Integrating ICT in my course(s)	75	2.28	3.48	-10.7
2	Encouraging my Students to use ICT in their coursework	73	2.49	3.64	-11.2
3	Implementing methods to enhance students' dependence on themselves	75	2.51	3.42	-8.6
4	Implementing new strategies in teaching & learning	74	2.66	3.47	-8.0
5	Managing the class in an effective way	73	3.37	3.7	-2.8
6	Attracting students' attention	74	3.22	3.7	-4.6
7	Enriching the curriculum content	72	2.91	3.6	-6.7
8	Encouraging students to look for extra knowledge resources	72	2.6	3.69	-10.8
9	Creating cooperation between students	74	3.03	3.77	-7.4
10	Respecting copyright laws	73	3	3.75	-7.6
11	Cooperating between school and home	74	2.68	3.49	-9.5
12	Making education more enjoyable	74	2.99	3.77	-7.8
13	Addressing individual differences	74	3.03	3.62	-7.1
14	Encouraging students' research-oriented learning	74	2.73	3.49	-7.5
15	Encouraging students' critical-thinking	72	2.78	3.51	-7.6
16	Changing the role of teacher from a dictator to a facilitator	74	2.66	3.65	-10.2
	Average of Means		2.81	3.61	

[3] Mean is computed based on a 1 to 4 scale (not ready at all=1, slightly ready=2, reasonably ready=3, completely ready =4).

[4] Paired-Samples T test is computed using 99% confidence interval for which the error α is 1% and $t_\alpha = -2.39$.

The analyzed data shows clearly statistical evidence that the training program has changed, teacher practices. Specifically:

- There has been a very considerable change in the questionnaire items that are ICT-dependent practices. This is observable in items 1, 2, 8 and 16. Hence, there is a very significant change toward integrating ICT into curriculum, encouraging students to use ICT in their coursework and considering it a source for information.

- Most importantly is the Mean of item 16. This item shows that the teacher has substantially changed and realized his/her new role of being more of a facilitator in the teaching process.

- There has been a very slight change in questionnaire items 5 and 6. These items imply that teachers enjoy a high level of class management skills and attracting students' attention skills, without even going into this training program.

- The average of all the 16 means in the questionnaire indicates that there has been a considerable improvement in the overall practices of the teachers after training as compared with their practices before training.

5.3 "Training Material and Internet Activities" Questionnaire

Table 3 summarizes the extent to which the training material and internet-based activities were satisfactory to the trainees. Specifically, the trainees responded to the question:

Please express your personal satisfaction in each of the following items regarding: "World Links" training material and Internet activities.

Table 3: Trainees' Satisfaction with Training Material and Internet Activities

	Training Material for the Four Phases	Relative Frequency			Mean[5]
		To a great extent	To a moderate extent	To a weak extent	
1	Ideas are well-expressed	28.8	50.7	20.5	2.31
2	Units are well-structured	24.7	53.4	21.9	2.25
3	The training material is presented in an easy and simple way	24.7	42.5	32.9	2.13
4	The training material is comprehensive	28.8	45.2	26.0	2.25
5	The training material is interesting and motivates learning	13.7	56.2	30.1	2.04
6	I used the training books and manuals	4.1	68.5	27.4	1.96
7	The training books and manuals were useful	12.3	58.9	28.8	2.04
	Average of Means				2.14
	Internet-based Activities				
8	Inline with training objectives	43.8	47.9	8.2	2.67
9	Easy to implement	39.7	49.3	11.0	2.54
10	The number of activities is adequate	28.8	67.1	4.1	2.50
11	The time available for each activity is adequate	31.5	56.2	12.3	2.44
12	These activities were useful	37.0	50.7	12.3	2.50
	Average of Means				2.52

[5] Mean is computed based on a 1 to 3 scale (to a weak extent=1, to a moderate extent=2, to a great extent=3)

Based on the valid percentages in Table 3, the following can be concluded:

- More than half of the trainees believe that the training material is at the moderate level in all its aspects addressed in items 1 through 4 (structure, simplicity, comprehensiveness, …etc).
- Interestingly, very few among all respondents used the training books considerably, or believe that they were very useful, interesting or motivating (items 5 through 7).
- The majority of trainees believe that the internet-based activities are useful, inline with training objectives and easy to implement. The number of activities and their allocated time are also suitable.
- There is a statistical evidence that Internet-based activities are more useful than books and manuals (item 7 versus item 12).

5.4 "Difficulties and Impediments" Questionnaire

Table 4 summarizes trainees' responses to the question:

To what extent do you agree that the following items represent possible difficulties and impediments for the training program objectives?

Table 4: Difficulties and Impediments

Item		N	Relative Frequency (%) [6]					Mean [7]
			Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	
1	Unavailability of adequate number of computers in school	73	58.9	27.4	0	11.0	2.7	4.29
2	Unavailability of necessary software	73	42.5	49.3	0	8.2	0	4.26
3	Unavailability of satisfactory level of internet service	73	60.3	30.1	0	9.6	0	4.41
4	Difficulty of integrating ICT into education	73	4.1	37.0	6.8	39.7	12.3	2.81
5	I do not believe in the effectiveness of telecollaborative learning projects	73	1.4	8.2	1.4	65.8	23.3	1.99
	Average of Means							3.552

The analyzed data shows clearly statistical evidence that the following are difficulties and impediments:

- The number of computers available to the trainees is not sufficient (item 1)
- Necessary software is not available (item 2)
- Internet service is not satisfactory (item 3)
- Less than half respondents believe that it is difficult to integrate ICT use into education (item 4)

However, the majority believes that telecollaborative learning is effective (item 5)

[6] The percentage of the number of respondents to the total sample N
[7] Mean is computed based on a 1 to 5 scale (strongly disagree=1, strongly agree =5)

5.5 Open Question

In the questionnaire that was distributed to trainees, there was an open question.
Table 5 summarizes trainees' responses to the question:

Please express any difficulties and concerns that have not been addressed in the questionnaire? Or any ideas and suggestions that would improve the program?

Table 5: Set of Respondents' Suggestions to Improve the Program and their Percentages to the Total Sample

Response/Comment	**Percentage of Respondents**
The Academic Load for Teachers should be reduced to make better training outcomes	73%
The training extends over many months which causes losing interest	68%
Unavailability of Computers and Internet for teachers and students at school and home	61%
Weakness in English language among teachers reduces the usefulness of the Internet usage	54%
The trainers are not well-qualified	40%
The training books are translated from their English version in a poor way	36%

The open question clearly indicates that the following, if addressed, would result in much better training outcomes:

- Reducing academic load
- Shortening the training period
- Providing a better access to computer labs and internet services
- Improving teachers' English language
- Selecting qualified trainers more carefully
- Rewriting the training material to improve its readability and make it more engaging and interesting

6. TRAINING MATERIAL

6.1 Content of Material

The "World Links" training program is composed of four phases. The following paragraphs summarize the contents and the goals of each phase:

- **Phase 1 - Introduction to the Internet for Teaching and Learning**

  This phase introduces the "World Links" program to the trainees. It explains basic concepts in the program like Internet and Email. It also helps the trainee to navigate Internet web sites and build email accounts. This phase also addresses initial discussion of new teaching possibilities (40 hours Workshop).

- **Phase 2 - Introduction to Learning Telecollaborative Projects**

  This phase introduces educational telecollaboration through activities for creation, designing, implementation, and dissemination of original projects (40 hours Workshop).

- **Phase 3 - Curriculum & Technology Integration**

  This phase develops skills and understanding on how to create, incorporate and facilitate innovative classroom practices that join technology broadcasted by web and curriculum, create a collaborative publishing that shows the week activities and encourages future activities (40 hours Workshop).

- **Phase 4 - The Diffusion of ICT Innovations**

  This phase develop skills and understand how to create, evaluate and diffuse innovative lessons to integrate the technology and curriculum. Create a collaborative publishing that shows the practical side of instructive technology (40 hours Workshop).

The detailed contents of the "World Links Training Material" are listed in Appendix 2.

6.2 Critique of Material

Through careful examination of the material, the researcher prepared a list of observations to discuss with trainees in the interviews. All the following observations were strongly supported through interviews with randomly selected trainees.

Strengths:

- Enforcing the ICT use in curriculum-based activities like Word processing, PowerPoint presentation.
- Improving browsing and navigation capabilities using Internet
- Emphasizing group work and telecollaborative projects.
- Gradual building of different learning and teaching skills

Weaknesses:

- The translated material is not easy to understand
- There is a redundancy in many activities and exercises, particularly searching the web and dealing with emails.
- Pedagogy that builds creativity, critical thinking, and problem solving is missing.
- A high overlap between the "World Links" training material and ICDL, particularly, Phase 1.

The training material in its current form addresses, partially, the needs of the Ministry toward education reform. The activities referred to in the books and internet-based skills do emphasize the use of ICT in the classroom. However, they do not cover new trends and attitudes in teaching such as the critical thinking, which is very crucial in education reform.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Based on the key findings listed in the previous sections, the following conclusions can be made:

1. The program was effective in enhancing trainee teachers' ICT skills. These skills were:

    - Word Processing
    - Electronic Presentation
    - Internet Navigation
    - Email
    - Web Publishing using free sites
    - Chatting and using Internet tools

2. There is a considerable overlap between "World Links" program and the International Computer Driving License (ICDL) training program. In ICDL, the teacher develops basic computer skills like dealing with Windows operating System, Word Processing, Spread Sheets (Excel), Database (Access), Electronic Presentation (PowerPoint), Internet Navigation and Email.

3. The "World Links" program enhances teachers' skills to develop ICT-based curriculum-related lessons and telecollaborative projects through:
    - Using Internet search engines
    - Exchanging information via emails
    - Communicating best practices and findings
    - Group-working

4. The training books were not interesting although the Internet-based activities were. The literal translation form English to Arabic substantially reduced the trainees' interest in using the training material.

5. Most training activities in the program are Internet dependent. Due to the unavailability of a satisfactory Internet service and adequate number of computers, the teachers and their students feel sort of frustration and disappointment.

6. The lessons, projects and portfolios developed by the teachers and their students support search-oriented learning. It also shifts partially the role of teacher from an information dictator to a facilitator, where the student himself has to search the web for information.

7. Other important concepts in the pedagogy of education reform are missing in this program. These are creativity, critical thinking and problem solving. The training program does not show, explain or practice these concepts in its activities. Even when searching information over the web, the trainees/students are copying and pasting documented information into their projects. The margin of criticizing/reasoning this information was never an issue. The idea of using ICT skills in order to put a lesson in more creative, enjoyable and understandable form for students was never addressed.

7.2 Recommendations

There is considerable evidence that this training program is supporting, partially, teachers in ICT-based teaching and learning. Although the pedagogical practices are below expectations for knowledge-based economy, the program still has merits that should enable it to be adopted and disseminated provisionally.

In the next phase of training, the Ministry of Education can adopt "World Links" program. The constraints under which this program can be disseminated are:

- Restricting training sessions to the places/schools/centers that can afford high computer availability and reasonable Internet service.

- Availing highly qualified trainers. Attending Training-of-Trainers course is necessary, but not sufficient to qualify a trainer.

- Since the pedagogical practices that support education reform and knowledge economy are missing, it is important that trainers undergo an additional training course. This course is intended to raise their awareness and knowledge in pedagogy. It is also intended to give them an opportunity to practice and appreciate innovation, critical thinking and research-oriented problem solving. Qualified trainers undertaking this course are expected to convey their experience to other trainee teachers. Telecollaborative projects would then be more fruitful to the education reform.

- Shortening the training period by:
  - Eliminating issues that has an overlap with ICDL
  - Re-writing the material, if possible, in a more interesting and effective approach. While re-writing, existing redundant activities should be eliminated, and missing pedagogical practices should be incorporated.

  - Reducing Internet access by cashing Web sites referred to in the activities to a CD, a local server or a PC.

- Upon implementing the above-mentioned recommendations, the "World Links" program has to be disseminated at a large scale. Moreover, the program can be considered a World-Class training program for education reform.

- A partial implementation of the above mentioned concerns should lead to a limited dissemination of the program.

Appendix 1 – Questionnaires

- "Achieving Program Objectives" Questionnaire
- "Changing Teacher's Educational Practices" Questionnaire
- "Training Material and Internet Activities" Questionnaire
- "Difficulties and Impediments" Questionnaire

"Achieving Program Objectives" Questionnaire

Considering the Objectives of "World Links" training program, and based on the training you received, to what degree do you agree with the following statements?

	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
Helped in changing my teaching methods					
Encouraged group work					
Helped in integrating ICT into curriculum					
Enhanced methods of learning by doing					
Enhanced my innovative thinking and knowledge					
Enhanced my self-confidence as a teacher					
Helped in increasing the use of ICT in my personal life					
Enhanced my loyalty to my career					
Enhanced my capabilities to prepare lesson plans					
Increased my use of Computers in research					
Became capable of designing tele-collaborative learning projects					
I do recommend this training course for other teachers.					

"Changing Teacher's Educational Practices" Questionnaire

To what extent did you (or are you ready to) perform the following activities with your students:

	Before Training				After Training			
	Completely Ready	Reasonably Ready	Slightly Ready	Not Ready At All	Completely Ready	Reasonably Ready	Slightly Ready	Not Ready At All
Integrating ICT in my course(s)								
Encouraging my Students to use ICT in their coursework								
Implementing methods to enhance students' dependence on themselves								
Implementing new strategies in teaching & learning								
Managing the class in an effective way								
Attracting students' attention								
Enriching the curriculum content								
Encouraging students to search extra knowledge resources								
Creating cooperation between students								
Respecting copyright laws								
Cooperating between school and home								
Making education more enjoyable								
Addressing individual differences								
Encouraging students' research-oriented learning								
Encouraging students' critical-thinking								
Changing the role of teacher from a dictator to a facilitator								

"Training Material and Internet Activities" Questionnaire

The following is related to the "World Links" training material. Please express your personal opinion and satisfaction in each of the following items:

Training Material for the Four Phases	To a great extent	To a moderate extent	To a weak extent
Ideas are organized and well-expressed			
Units are well-structured			
The training material is presented in an easy and simple way			
The training material is comprehensive			
The training material is interesting and motivates learning			
I used the training books and manuals			
The training books and manuals were useful			

Internet-based Activities			
Inline with training objectives			
Easy to implement			
The number of activities is adequate			
The time available for each activity is adequate			
These activities were useful			

"Difficulties and Impediments" Questionnaire

The following paragraphs describe possible difficulties and impediments that may reduce the impact of the "World Links" training program

	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
Unavailability of adequate number of computers in school					
Unavailability of necessary software					
Unavailability of satisfactory level of internet service					
Difficult of integrating ICT into education					
I do not believe in the effectiveness of tele-collaborative learning projects					

Appendix 2 – "World Links" Training Material content

- Phase I: Table of Contents
- Phase II: Table of Contents
- Phase III: Table of Contents
- Phase IV: Table of Contents

Phase I
Introduction to the Internet for Teaching and Learning
Table of Contents

Objectives: introduce fundamental concepts, technologies, and skills necessary for introducing networked technology and the Internet to teaching and learning; initiate discussion of new possibilities, generate basic email projects.

1. Introduction to the World Links Program.
2. Expectations & Overview - Clarification of expectations and objectives for Phase I professional development.
3. Conceptual Orientation - Define key terms: collaboration, community, cooperative learning, project-based learning.
4. What is the Internet? Structure, email, www, ftp, technical aspects, shareware, etc..
5. Introduction to Email - Emphasis upon communication and collaboration. Receiving, sending, group email, public v. private, organization, newsgroups, and list-serves.
6. Introduction to the WWW - Navigating the WWW, skills, literacy, evaluation, search engines, html, web page development, content creation.
7. Information Literacy.
8. Telecollaborative E-mail Projects.
9. Action Plans - Follow-up professional development, professional development plan for schools, coordinators role, action plans for projects.
10. Closing Ceremonies.

Phase II
Curriculum & Technology Integration
Table of Contents

Objectives: Develop skills and understanding of how to create, incorporate and facilitate innovative classroom practices that integrate networked technology and curricula. Create at least one collaborative publication that reflects the week's activities and encourages future.

1. World Links Program Update - Progress report from World Links coordinators.
2. World Links Schools Update - How are things going with the World Links program in your schools (progress reports written and submitted to coordinator prior to professional development)?
3. Expectations & Overview - Clarification of expectations and objectives for Phase II professional development.
4. Instructional Technology - Examination of new and emerging tools that support integration of technology for instructional purposes, classroom management and administrative duties.
5. Best Practices of Technology Integration - What methodologies or instructional practices work best? Case study methodology and activities designed to address subject-specific concerns, tele-collaborative projects, and inter-disciplinary studies.
6. On-line Exchanges and Collaborations - Best practices and case studies for integration of Internet/technology into the curriculum (from participants & instructor): how to find, create and link resources to the curriculum, including tele-collaborative projects.
7. Content Creation - Activities designed to help participants use software applications to create content for classroom purposes.
8. Websites as Pedagogical and Curricular Tools - Activities designed to investigate the possibilities for educational websites to serve a dual-purpose.
9. Closing Ceremonies.

Phase III
Telecollaborative Projects
Table of Contents

Objectives: Introduction to educational telecollaboration: from activity structures to the creation, design, implementation and dissemination of original projects.

1. World Links Program Update.
2. World Links Schools Update - Review experience since Phase I and Phase II professional development. What have you done since your last professional development?
3. Expectations & Overview -Clarification of expectations and objectives for Phase III professional development.
4. Key Concepts - Project-based learning, problem-based learning, constructivism, collaboration, telecollaborative projects, activity structures, etc.
5. Telecollaborative Project Types - Activity structures and exemplary projects.
6. Designing Telecollaborative Projects - connections to curriculum, brainstorming ideas, steps towards a successful project.
7. Project Facilitation & Collaboration - Time management, netiquette, net safety, and classroom management.
8. Websites & Telecollaborative Projects - Process approach, collaborative process, digital archives and communication tools.
9. Publicizing Telecollaborative Projects -Venues for publicizing projects online; creation of a successful call for collaboration.
10. Action Plans - Next steps in the process to ensure implementation of the pilot project.
11. Closing Ceremonies.

Phase IV
Innovations: Content Creation, Diffusion and Evaluation
Table of Contents

Objectives - Develop skills and understanding of how to create, evaluate and diffuse innovative classroom practices that integrate networked technology and curricula while addressing social and ethical concerns. Create at least one collaborative publication or activity to promote the dissemination of instructional technology's "best practices."

1. World Links Program Update - Progress report from World Links coordinators.
2. World Links Schools Update - Progress reports written and submitted to coordinator prior to Phase IV.
3. Expectations & Overview - Clarification of expectations and objectives for Phase IV professional development.
4. Diffusion of Innovations - Collaborative activities designed to brainstorm and implement ways of sharing innovative practices that integrate networked technology and curricula.
5. Content Creation - Creation and development of learning units that integrate information and communication technology with existing curricula.
6. Evaluation - Exploration of ways to evaluate student performance, web documents, websites, telecollaborative projects, etc.
7. Assessment - Exploration of alternative methods for assessment of student learning via ICT.
8. Online Ethics and 'Netiquette' - Case studies and online activities for discussion of intellectual property, decorum, and acceptable use within the classroom and school community.
9. Experimenting with Innovations - Activities designed to explore synchronous communication tools and their potential for teaching and learning.
10. Closing Ceremonies