

DOCUMENT RESUME

ED 386 149

IR 017 266

AUTHOR Bosch, Andrea; Crespo, Cecilia
 TITLE Jugando en el Pidi: Active Learning, Early Child Development and Interactive Radio Instruction. Supporting Caregivers, Parents, and Young Children. LearnTech Case Study Series, No. 4.
 INSTITUTION Education Development Center, Washington, DC.
 SPONS AGENCY Agency for International Development (IDCA), Washington, DC. Bureau for Research and Development.
 PUB DATE Jan 95
 CONTRACT DPE-5818-C-00-0044-00
 NOTE 35p.; Photographs may not reproduce well.
 AVAILABLE FROM Education Development Center, 1250 24th St., N.W., Suite 300, Washington, DC 20037 (\$5 plus postage).
 PUB TYPE Reports - Research/Technical (143)
 EDRS PRICE MF01/PC02 Plus Postage.
 DESCRIPTORS Audiotape Recordings; *Caregivers; *Child Development; *Educational Radio; Foreign Countries; Learning Activities; Parents; Pilot Projects
 IDENTIFIERS Bolivia; *Interactive Radio

ABSTRACT

In 1993, Bolivia was selected as a site to pilot an interactive radio instruction (IRI) project that would provide practical support to adult caregivers and children around early childhood development. Through linkages with health and education networks, PIDI (Programa Integral de Desarrollo Infantil) provided young children under the age of six food with health care and the attention of two community caregivers. The audio series, "Jugando en el Pidi," was created to reach a rapidly growing number of caregivers. This report documents the development and application of this IRI for early child development through conversations with caregivers, parents, and child development specialists. It presents the quantitative and qualitative evaluation results and unexpected information learned through the project. The series targeted young children and caregivers, and invited them to participate in activities which are age appropriate to the children. The key vehicle for learning, enhanced child-caregiver interaction in the PIDI, became the focus and goal of the series. For the children, the programs provided a time when they could participate in an entertaining and consistent sequence of cognitive, physical, social-emotional, and communication activities facilitated simultaneously by the caregiver and IRI characters. For the caregiver and the PIDI system, the programs provided an opportunity to learn child development through practice. It made principles of child development that are difficult to digest on a theoretical level practical, available, and easy to understand. The pilot package of "Jugando en el Pidi" includes 20- to 25-minute audiocassettes, three large color posters, and an illustrated guidebook which includes suggestions for post-radio activities. (MAS)

ED 386 149

JUGANDO EN EL PIDI:

ACTIVE LEARNING, EARLY CHILD DEVELOPMENT AND INTERACTIVE RADIO INSTRUCTION

SUPPORTING CAREGIVERS, PARENTS AND YOUNG CHILDREN

LearnTech Case Study Series No. 4

**by Andrea Bosch and
Cecilia Crespo
January 1995**

U. S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as
received from the person or organization
originating it.

Minor changes have been made to improve
reproduction quality.

Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Laura Coughlin

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)™



VI
1 R017266
VI

The design on the cover is taken from an oil painting by Bolivian artist Beatriz Valdivia.

Cover photo by Ximena Pereira

Inside photos by Andrea Bosch

For more information, contact:

*Education Development Center
1250 24th Street, NW
Suite 300
Washington, D.C. 20037 USA
tel: (202) 466-0540
fax: (202) 223-4059*

This document was drafted for the Learning Technologies for Basic Education project, which is implemented by the Education Development Center and funded by the Bureau for Global Programs, Field Support and Research, United States Agency for International Development, Bureau for Research and Development, Office of Education under contract DPE-5818-C-00-0044-90.

Acknowledgements

The success of the *Jugando en el Pidi* project is due to the teamwork of many people. Jill Avilés and Elsa Rada from ONAMFA participated in all stages of the development of the pilot project and continue to ensure that the project is useful to their work. Doña Pancha and the many other *madre educadoras* tested each program each week and provided invaluable feedback, as this case study describes. Betty Barrón and Alvaro Cisneros and other members of the PER team spent many hours beyond their scheduled workday meeting and revising the programs so that they would be entertaining and instructional for the *educadoras*, the ONAMFA training staff and the children.

Other people were also instrumental in the success of *Jugando en el Pidi*. Mike Laflin, the LearnTech Director, had faith that the design process would lead to a new type of interactive radio instruction suitable for early child development and allowed us to go through our bumps and bruises with almost no scorn. Eddy Jimenez, the ONAMFA PIDI Director was patient as the team tried out different formats and facilitated its inclusion within the PIDI system.

We would like to thank all these people and Judith Evans who guided us with helpful comments and Lisa Hartenberger who layed out this case study.

Table of Contents

<i>Overview</i>	7
<i>Bolivia: The First Pilot Site</i>	8
<i>The Role of Interactive Radio Instruction</i>	8
<i>Jugando en el Pidi</i>	9
<i>Why it Works</i>	11
<i>Growth: Pilots and Studies in South Africa</i>	12
<i>Tarija: Feedback from the Field</i>	13
<i>Doña Pancha: The Beginning of a Long Process of Learning and Feedback</i>	15
<i>Doña Pancha's Contribution: The First Stage of Formative Evaluation</i>	17
<i>The Second Cycle of Formative Evaluation: Looking for Active Learning and Measurable Objectives</i>	19
<i>Interactivity: Insights from an External Evaluator</i>	21
<i>Evidence of the Quantitative Kind</i>	22
<i>Being our own Watchdogs: Creating a Rigid Structure</i>	24
<i>Compatibility with ONAMFA's Training Plan</i>	25
<i>Bridging Planning and Knowledge: The Guidebook</i>	25
<i>The Master Plan: Simple and Concrete Objectives</i>	26
<i>The Script: Format, Characterization and Culture</i>	28
<i>In Conclusion: Important Issues for IRI for Early Childhood Development</i>	30
<i>Broadcasting: Radio versus Cassette Tape</i>	30
<i>Initial Training: Supporting the Process</i>	31
<i>Focusing on Learning</i>	32
<i>Teamwork</i>	32
<i>Applying the Model to Other Countries</i>	33
<i>References</i>	36

Overview

Learning begins at birth. Before the age of five, a child's brain has grown to 90% of its adult weight and much of the way the child envisions and interacts with the world has been shaped. During these crucial early years, it is important to provide the child with nutritious food, physical and mental stimulation and a safe place to explore his or her social and emotional environment. In these years, problem solving skills, attitudes towards the self and others, and the foundations for peace, conflict resolution, and school success are formed. As these years pass, the experiences of early childhood quickly become the capacity and the ability of the adults of the future.

While the importance of early childhood is not surprising or new, having the structures and the capacity to provide a supportive early environment can be very difficult for parents and community members given constraints of poverty, the need to work, poor literacy skills, time, large families and little knowledge of the kinds of experiences which can make the most difference to young children. In 1993, the LearnTech project sought a site to pilot an interactive radio instruction (IRI) project which would provide practical support to adult caregivers and children around early child development. The success of IRI in teaching and supporting other subject matter around the world—both in formal and nonformal settings—strongly suggested that with creativity, patience and a lot of formative evaluation, a model could be developed which would inspire active learning and teach skills in a supportive and useful manner.



The experiences of early childhood quickly become the capacity and the ability of the adults of the future.

With encouragement from Jim Hoxeng and Frank Method from the Office of Education at AID, LearnTech looked at programs being developed in Bolivia, a country where LearnTech had also experienced a great deal of success with Radio Math and was piloting Radio Health programs using a child-to-child methodology.

Bolivia: The First Pilot Site

In Bolivia, the importance of early child development was becoming increasingly recognized. The Government of Bolivia and ONAMFA (National Organization for Children, Women and the Family) had been actively setting up integrated child development sites in peri-urban areas called pidis with funds from a World Bank loan. Through linkages with other health and education networks, these home-based programs were providing young children under the age of six food with health care and the attention of two madre educadoras or community caregivers. Based on a model of integrated early child development programs also piloted in Colombia, the Programa Integral de Desarrollo Infantil (PIDI) project and each individual pidi program gave children the opportunity for a healthy and productive start. (PIDI in uppercase letters indicates the name of the overall project; pidi in lowercase letters is one of the individual home-based child development settings)

The Role of Interactive Radio Instruction

The PIDI project's strong integrated approach to early child development advocated care and support for the total development of the child. But while the health and nutrition components were straightforward, the education and parent involvement components proved to be more difficult. An extensive audience profile was conducted. While the situation was ripe for a positive early child development experience, the caregivers did not know what to do. Yet despite low literacy skills, little experience learning from the formal media or books, and little concrete knowledge of child development practice, the caregivers wanted to learn and be professional in their capacity as education and care providers. But they felt that the knowledge was beyond their reach.

The ONAMFA staff also recognized that they needed tools not based on reading skills and which could help them reach a large and often remote audience. The PIDI system was growing so rapidly that the ONAMFA staff was finding it impossible to provide regular face-to-face instruction for the growing number of caregivers.

Jugando en el Pidi

In March 1993, ONAMFA and the LearnTech project agreed to experiment with ways to engage young children in active play, and to train caregivers and stimulate early learning activities through IRI methodology. The following year, an IRI model was created in Bolivia which catered to the specific educational needs of the women caregivers with poor literacy skills and minimal training and young children in the poor peri-urban areas served by ONAMFA.



The programs provide the caregiver the opportunity to learn child development through practice.

The resulting audio series *Jugando en el Pidi* targets two audiences at once, young children and caregivers, and invites them to participate in activities which are age appropriate to the children. The key vehicle for learning, enhanced child-caregiver interaction in the pidi, quickly becomes the focus and goal of the series. As each program is aired and the caregivers and children actively participate, a character, Tia Clara, points out the significance of the activities and how they can be adapted after the program is over. For the children, the programs provide a time when they can participate in an entertaining and consistent sequence of cognitive, physical, social-emotional and communication activities facilitated simultaneously by the caregiver and the IRI characters. For the caregiver and the PIDI system, the programs provide the opportunity to learn child development through practice. It makes principles of child development that are difficult to digest on a theoretical level, practical, available and easy to understand.

For the program designers and the participants in the pilot pidi, using IRI for early child development was new and exciting. For twenty minutes at a time, children and caregivers entered the world of El Loro Ito and participated in creative games, stories, role plays, and activities. They were asked to form lines and circles, divide into groups, help each other and express their opinions. They were asked to use their senses and imaginations to test their environment, solve problems and explore their abilities. As the IRI program set up each activity, it not only modeled positive interactions and activities, but described to the caregiver in plain language how she could use the same or similar early child development group management techniques during the rest of her day. These techniques ranged from child-to-child methodology to using local environmental resources to asking open ended questions in order to solicit the children's opinions, perceptions and feelings.

The four main IRI series characters include Katy, a little girl about the age of the listeners; Tia Clara, a caregiver slightly more experienced than those listening; Don Pancho, a wise older man; and the wacky and mischievous parrot, El Loro Ito. Every program follows the same consistent format. After Circle Time, Tia Clara and Katy talk and model activities on the air. The children and caregivers join in. They do active activities, listen to a story told by Don Pancho, and do more activities. They answer questions and touch, lift, jump, sing and compare objects. Tia Clara tells the caregivers the tricks of the trade and Katy giggles and laughs as her parrot does funny things. The rhythm and content of the program generally reflects the attention span of the three and four year olds.

Like other IRI programs, the world of *Jugando en el Pidi* is culturally similar to the peri-urban areas where the pidi programs exist. Activities rely on available resources such as stones, trees and other children. Because they are all written and tested with children and caregivers in Bolivia, the radio characters, music and culture and the hands-on interactive style make the programs comfortable and nonintimidating.

Like most other IRI programs, *Jugando en el Pidi* has supporting materials for caregivers to use. The pilot package includes twenty 20 to 25 minute audio-cassettes, three large color posters and an illustrated guidebook which includes suggestions for post-radio activities and has blank pages in the back for the caregivers to add and exchange ideas. Although the audio segment was designed to be autonomous and learning does not depend on the use of the print materials, they enrich the total package and help the caregivers match activities to the ONAMFA training plan.

Why It Works

Summative and formative evaluations show that the programs are effective in several ways. First, through the interactive radio instruction methodology, the caregivers and children are learning how to interact and set up stimulating environments for learning and growth. Second, they are learning that good early child development is not just about reading and counting, but is about learning how to become a well-balanced person who can make sense of and feel confident in what will sometimes be a confusing world. And caregivers are learning that they do not need to be highly literate to understand good early child development.

The success of *Jugando en el Pidi* is also attributable to the working style of the design team. From the beginning all members of the team went out to the pidis to observe interactions between children and caregivers and ask for feedback. ONAMFA staff donated hours of its time each week to ensure that the programs were fitting in with their training plan and were teaching the kinds of information they found to be necessary. Once a week the evaluation specialist, the scriptwriter, and two early child development advisors — one an ONAMFA staffperson— met to review each script in detail and share suggestions. This process was lengthier, perhaps, than a less participatory process, but the resulting scripts were far superior.

The participating caregivers contributed significantly to the process because they saw it as beneficial to the children in their pidis and to their own professional growth. Specifically, they learned:

- ❖ To value the games and give them the importance they have during work with children.
- ❖ To promote active learning among the children through simple and developmentally diverse activities.
- ❖ To feel like professionals and not simply babysitters; that is, to re-evaluate their own work as women contributing to the development of the community.

Finally, the programs are effective tools because they were tested, retested and retested. Forty caregivers and 285 children listened to the tapes, used the posters and sometimes used the guidebooks over six months. Feedback was solicited from caregivers, parents, regional

ONAMFA teams, the national ONAMFA team, and external evaluators. Within the design team, we brainstormed, we assessed, we complained and we negotiated. When we had to, we threw away our adult ideas of what interests children and went back to the pidis to observe.

Growth: Pilots and Studies in South Africa

Today the pilot can be expanded to reach pidis all over Bolivia. Caregivers can be given the responsibility and professional rewards of being *Jugando en el Pidi* trainers for other caregivers and parents. Katy and El Loro Ito can find new adventures and children, and caregivers in Bolivia can continue to use the programs to learn.

Currently, other countries are also becoming interested in IRI to teach early child development and engage children. The Association for Training and Resources in Early Education (TREE), an NGO based in Durban, South Africa, will soon be piloting a version of *Jugando en el Pidi* complete with Zulu stories and characters in the Kwazulu/Natal region of South Africa in 1995. These programs will be homegrown, but will be based on some of the strengths of the Bolivian project: a consistent and proven format, well-developed characters and a simple and direct master plan.

For all intents and purposes, this case study begins here. This is the story of *Jugando en el Pidi*. It documents the development and application of IRI for early child development through conversations with caregivers, parents and early child development specialists. It presents the quantitative and qualitative evaluation results and unexpected information we learned when we were not trying.

The case study will also introduce some of the people who made *Jugando en el Pidi* possible: Doña Pancha and her daughters who tested the programs for the first time; the women of Tarija who decided they could use the programs to foster parent involvement in their communities; staff from ONAMFA who contributed their time and efforts to ensure that the programs were consistent with the rest of their system and would contribute to a better whole.

Tarija: Feedback from the Field

Tarija. 6 p.m. June 14, 1994. Women hurry to arrive at the informal focus group meeting on time. During the six months of piloting the IRI program *Jugando en el Pidi*, these twenty women and their eighteen counterparts in El Alto have been asked to give feedback to the program observers. During the process, they offered suggestions which changed the structure of the programs entirely and gave the program designers ideas about how to adapt the format and style to the environment and the caregivers and children who would use them.

But today these caregivers were called by the ONAMFA-Tarija regional office to report their experiences and opinions to a wider audience. In the colloquial and slow language typical of the region they live in, they speak freely and articulately about a topic they know well.

"It has given us a confidence we did not have before; it has given us self-esteem," one of the caregivers says, referring to the contribution of the program to her work in a local pidi.

"I was shy, I couldn't play with the children. With the program, the shyness has disappeared and I have established good communication with the children."



"With the program, the shyness has disappeared and I have established good communication with the children."

"Before I did not know how to teach the children, I did not know how to explain things to them... now, with the radio and the poster, I know because I have done it..."

"When there was no radio, I read stories but I did not know what to do with them..."

The majority of the women from Tarija who piloted *Jugando en el Pidi* are Quechua women who migrated from mining towns in the cold northern region of Potosí. When the mines were closed down and their husbands lost their jobs, they travelled to the warm valley region of Tarija along with their families with the hope of finding a job and a better life.

"One listens and has ideas for doing things ... or sometimes one invents other games," adds one caregiver.

"The children did not know how to talk among themselves; now they know," one caregiver suggests when asked what the children learned.

"I used to get bored with the children, and they used to get bored with me; now we know what to do..."



These twenty women who speak so highly of the *Jugando en el Pidi* program now also made the evaluation process challenging. Not only did they provide real feedback on the early programs and say that they needed to know more directly why each activity was included, but they also did not always follow the pilot rules. When the evaluators told them they were testing learning over the radio in Tarija and that they could only listen to the programs once before they returned them, they retaped the programs and the songs at home, passed them out to other pidis not in the experimental group, and copied them to use in

parent meetings. While the formal data about learning from radio was lost, the programs designers learned much more significant information about the caregivers' ingenuity and the value of the programs to the community.

"Parents have come to the meeting and have listened to the program at the pidi; they left congratulating us, they were very happy to listen and watch the programs," pointed out a proud caregiver.

While all pidis are community-based, it is still difficult to involve parents and to support their learning. According to the regional ONAMFA office, the ten pidis involved in the pilot in Tarija received more prestige in their communities and among parents than those which did not follow the program.

At the end of this final feedback session, it is clear that these women believe the program was useful and had a great impact upon them and the children. They take pride in the fact that the programs are changed due to their initial feedback. They are satisfied and they want to know when the next program is coming out.

"It helps us to teach the children by playing. For them it is easier to learn by playing," adds somebody laughing.

Another says:

"I used to get bored with the children, and they used to get bored with me; now we know what to do..."

Doña Pancha: The Beginning of a Long Process of Learning and Feedback

Six months previously and 700 kilometers away, in the Altiplano city of El Alto, at 4000 meters above sea level, a woman, Doña Pancha, tests each program for the first time. After this first cycle of formative evaluation, the programs are rewritten, retaped and retested again in the other 19 experimental pidis in Tarija and El Alto. The final IRI programs, posters and guidebook are produced only after these three cycles of formative evaluation.

Like many of the other residents of El Alto, Doña Pancha is a Aymara Indian woman who arrived from the countryside three decades ago.

She is thirty-six years old and has had three years of formal education. Today she lives in a city which has emerged without urban planning and which, with its 405,000 inhabitants, is the third most populous city in Bolivia; the per capita income is US\$400.

She is one of 155 women in El Alto who is paid a small stipend to run a local pidi. Hidden in their El Alto homes, she and other caregivers care for 15 children between birth and six years of age from Monday to Friday for eight hours or more. Chosen by ONAMFA criteria, each child who enters a pidi is either undernourished or at a high level of nutritional risk, from a home with working parents with nobody to care for them (abandonment risk), or from a home with only one parent or adult relative. Doña Pancha purchases supplies, cooks for the children, and tries to keep them healthy and happy. It is a demanding job and she has little time for anything else.

All children attending Doña Pancha's pidi live in the neighborhood. Their parents are carpenters, construction workers, informal workers or maids. Before the pidis were opened, if they wanted to work, some were forced to leave their children unattended. Others took their small children into the streets of La Paz to sell small candies or commodities. The children would sit close to their mothers all day and wait.

Doña Pancha's pidi, as do those in Tarija, addresses the need for economic viability and childcare in the following way:

- ❖ Urban-marginal women work as caregivers of children within their own community. They earn money and learn micro-enterprise management skills.
- ❖ Working parents of children attending the pidi are assured that their children are well taken care of while they are not at home.

But after an average of two days of training in child development and some technical assistance, Pancha and the other El Alto and Tarija caregivers still do not feel confident in their new jobs. They trust their own experiences as mothers to take care of the children, but they need organizational techniques, ways to use child-to-child methods, tricks to calm the children down and keep them happy, and ideas for activities which can turn rocks, sticks and garbage into educational resources and opportunities for learning. Because Doña Pancha believed *Jugando en el Pidi* could help, she volunteered to be the first experimental pidi.

Doña Pancha's Contribution: The First Stage of Formative Evaluation

The first responses of the children and of the caregivers in *Jugando en el Pidi* were observed at Pancha's house. In this pidi, errors, forgotten instructions and pauses for interaction which were too short were detected.

For Pancha, the program means a lot. "My teacher, it is," says this indigenous woman who speaks constructing her Spanish sentences placing the verb at the end, as so many Aymara women do.

"It has given me ideas of what to do. Now I know what I can teach. Before I could not imagine it," she says as she positions the cassette in the tape recorder. Her older daughters push aside the tables and chairs of the pidi so there is enough space for Circle Time. The children become excited when they hear the first notes of the music. They hold hands quickly and begin to sing.

The children wait impatiently for instructions. They know the four characters of the series. The likability and acceptance level of the four characters in *Jugando en el Pidi* was first tested in this room.

Many important design elements were discovered here. For example, it was here that the program designers discovered that the stories in the first programs were too long and complicated for the children. While the adults loved the morals and the storylines, the children became restless. It was hard for the adults to let them go.



The children become excited when they hear the first notes of the Circle Time music.

The twenty five minutes pass quickly. Doña Pancha and her older daughter participate in all the activities. The observers are pleased. The children participated during Circle Time. The older children guided younger partners and danced when they heard the music and stopped when the music stopped. They all formed a line and pretended they were a human train, and during the story, the children imagined themselves flying as birds and crawling like cats...all just before the story turned into another game and they were learning in a new way.

When the program finishes, Pancha is ready for the post-radio activities. She takes out a poster. As she sits down with the children, she asks each child about the poster. The poster reinforces the concepts learned during the program and the children are eager and want to touch it...

After a few minutes, Pancha puts the poster away. The children are tired. The almost thirty-five minutes has required a lot of attention, activity and concentration for three, four and five year olds. Now the children prepare for lunch. Tomorrow they will listen to another cassette.

An easy to use guidebook full of illustrations will be useful to Pancha in the afternoon or during the rest of the week for creating new activities and understanding how those she has done fit into her pidi plan. The activities in the cassette are explained in the guidebook in the categories of child development. Other related activities are also suggested.

From Pancha's perspective, Jugando en el Pidi helped her work with the children through simple but very significant games in terms of the child's development. She learned that materials in her own surroundings and in her own pidi could be used and that children learn in many ways. She learned the power of her own involvement and how much she could offer the children. And importantly, she learned organization techniques for the better management of her pidi.

The opinions of the women in Tarija and Doña Pancha are consistent.

"The program says, the children should be allowed to express their own opinions. It has helped them to learn, to listen and to understand, and it has taught me to know what to do with the stories..."

"It has helped me to organize, guide and prepare the group."

The Second Cycle of Formative Evaluation: Looking for Active Learning and Measurable Objectives

After a program was tested in Doña Pancha's pidi and was rewritten and retaped accordingly, it was retested in the nineteen experimental pidis in El Alto and La Paz. Observers from El Programa de Educación por Radio (PER) and ONAMFA filled out observation forms which documented the technical quality of the audio tape, the level of child-caregiver interactions, the level of communication among children and with the caregivers and the effectiveness of the activities. Each observer looked for completion of measurable objectives spelled out in the master plan to judge if the programs were fulfilling their purpose and the children and caregiver were able to actively participate and learn.



"It [the program] has helped me to organize, guide and prepare the group."

The second cycle of formative evaluation was important as pidis differed drastically across the country in many ways: space, the poverty level of the family, the knowledge and creativity of the caregiver, the ages and health of the children and the general resources available. Some pidis had very little space indoors and physical constraints made some activities more difficult, for example. Other pidis had a lot of space and the caregivers needed to make sure that younger children did not creep away when the show was broadcast. Techniques and options were offered in the programs to neutralize some of these differences.

The formative evaluation also taught the observers and program designers what the children and caregivers were capable of in twenty-five minutes and what activities were better set-up and postponed until after the program. For example, for activities where slow and

deliberate fine motor skills were practiced or children needed to take turns to explore a concept, it was difficult to predict how many children would be in a pidi and how long each child would need to go through an exercise. At the same time, while taking turns was demonstrated on a few occasions, activities which were very time consuming were generally not a good use of the program time.

For the child development specialists, the formative evaluation was very important. For Jill McFarren Avilés from ONAMFA,

"the programs improved in relation to duration, activities, materials, etc., in view of the results obtained during formative evaluation. Having results for all the programs, we believe that Jugando en el Pidi as a whole is appropriate for the children and the caregivers in the project."

According to Frida León, also an early child development specialist and an observer during the formative evaluation, *"[the caregivers] learned new techniques of intellectual development, of language, motor and body and musical expression. They acquired a more active attitude and permanently innovated the educational process with the children."*

Finally, the formative evaluation was important for testing the use of the posters and print instructions (which later became the guidebook). Originally, for example, *Jugando en el Pidi* used one poster per program with written instructions on the back. The caregiver would hold the poster in front of her after the audio portion and follow the follow-up instructions on the back. Observers found this to be a distracting use of the visual aids as the caregivers simply read the questions on the back and did not take over the activity on their own. Other caregivers seemed particularly intimidated by the introduction of written material. Because the posters and guide were never meant to be a significant part of the package, the team decided to print only three comprehensive posters and put all written materials in a visually oriented guidebook which would reinforce the messages given over the radio, and which would provide additional information for more advanced caregivers.

Jill McFarren Avilés also added, *"To have included posters and guidebooks as reinforcement in the programs allowed the completion of a variety of stimulus for an integral learning. We observed that the posters reinforced the visual sense... however the central tool in learning was the audio program."*

Interactivity: Insights from an External Evaluator

As the new IRI model evolved and the children and caregivers interacted more and found the format and directions more useful, the *Jugando en el Pidi* team went outside Bolivia to test the series and solicit more feedback. Early child development specialist, Judith Evans, read scripts, travelled to Bolivia and observed programs in both El Alto and Tarija. As part of "an evaluation of a program in development," she offered us these insights on interactivity, *Jugando en el Pidi* and early child development:

"One of the effective keys for early childhood programs is the way in which caregivers interact with the children. The role of the caregiver is to support the children's development through the creation of an atmosphere in which the children feel safe; to provide materials the child can explore; to facilitate the learning of new concepts and give them the opportunity to apply what they learned; to make them have experiences that stimulate their language and communication skills and help them nourish their development of their self-esteem. To achieve all this, the caregiver has to understand the development of the child and the needs of children at different ages. She has to develop strategies that support the child's thought and reasoning skill development, and she has to be able to give the needed support that will help children to perceive themselves as successful learners. This is not easy.

The importance of adult and child interaction and the strategies to make it happen successfully are part of the effective caregiver training programs. Nevertheless, during training there are few opportunities to apply the principles of adult and child interaction that are being presented. It is only

*The formative
evaluation
was important
for testing the
activities,
posters and
print
instructions.*



when the caregiver is in the classroom that she is able to act the way she has been taught to act. While she can be fortunate receiving feedback to her efficiency, this is not done often enough to guarantee that the principles and the practice are completely integrated.

In Jugando en el Pidi, the caregiver is introduced to the principles as well as to the practice of adult-child interaction within the same context. The adult-child interaction nourishes itself through the program. In this way, interactive radio, as it is done in Jugando en el Pidi, is an important tool since it provides the caregivers with the theory and with the practice of an effective adult-child interaction."

Evidence of the Quantitative Kind

In order to study the overall impact of *Jugando en el Pidi* on the caregivers and children, a summative evaluation was also planned. The following research components were included:

Experimental group during and after the pilot. Baseline and post pilot data were collected in the nineteen experimental pidis which assessed the level of verbal communication, physically apparent activity, positive affect and engagement, and skill level in performing the tasks required in the three and four year olds in the pidis before and after the pilot project.

Experimental group versus control. Comparison data were collected in six control pidis in El Alto. The same data were collected for caregivers in the control groups.

Experimental group later in the day: children and caregivers. LearnTech wanted to study whether the levels of interaction and active learning and communication occurring during the airing of *Jugando en el Pidi* would occur later in the day when the programs were not being aired. The same summative evaluation observations forms that were used during the programs were used later in the day. Levels of interactivity, communication, affect and skill were seen to reflect how well the caregiver was able to transfer the skills to the rest of her day.

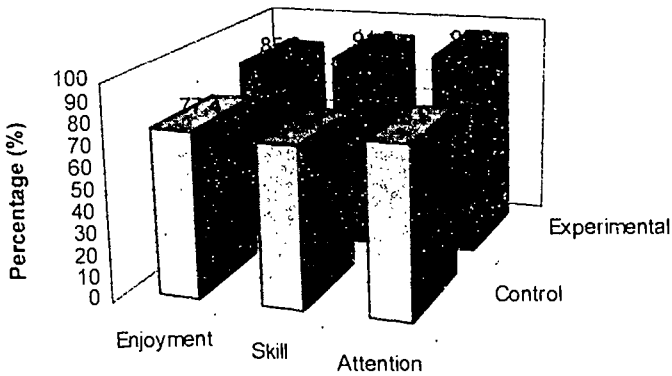
Radio vs. Cassette: Tarija versus El Alto. LearnTech also wanted to study what media would be more effective, radio or cassette. The differences in the media were simulated by only allowing the pidis in Tarija the opportunity to use each program once while the El Alto

pidis could use them as many times as they wished. As discussed, the data were thrown out, but it is still an important issue.

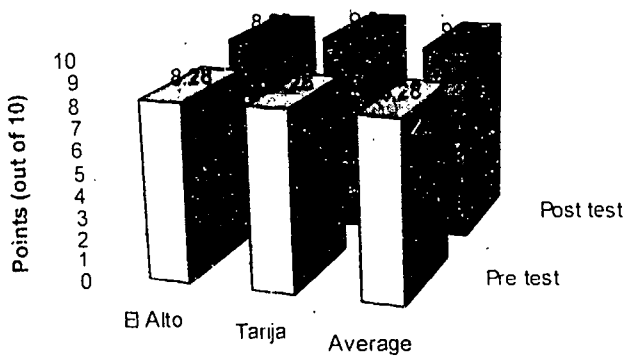
Survey to measure attitudes of caregivers. A questionnaire was also given to caregivers before and after the experiment which assessed attitudes about how children learn.

The following graphs show the data that were achieved.

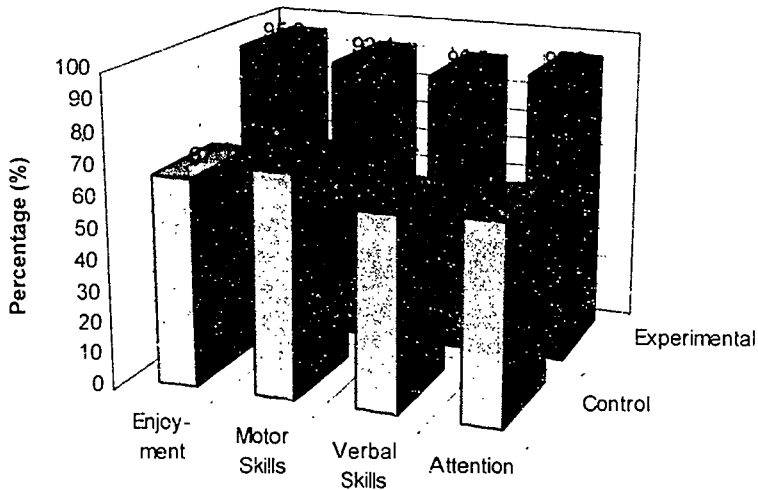
Comparison of Post test Results: Educators in Control and Experimental Groups



General Knowledge Test: Experimental Group Educators



Comparison of Results: Children in Control and Experimental Groups



The strength of the formative evaluation influenced the quality of the summative evaluation. Because the format and level of activity in the programs changed so dramatically during the process due to the observations and feedback in the pidis, the first few programs were not characteristic of the final *Jugando en el Pidi* format. However, even though all experimental pidis did not use the final revised version, the changes in the pidis were significant.

Being our own Watchdogs: Creating a Rigid Structure

The design team for *Jugando en el Pidi* was creative and changed the format and structure of interactivity within the programs in coordination with the formative evaluation, but this should not be misleading. The process was rigidly structured from within and guided by several principles: it had to be compatible with the needs of ONAMFA, it had to be sound in terms of early child development, and it had to be replicable, i.e., the programs had to be guided by a sensible and explicit system of measurable objectives otherwise known as the master plan.

Compatibility with ONAMFA's Training Plan

In order to make "Jugando en el Pidi" useful over the long run, the design team took great care to use the same terminology and objectives that were used in the ONAMFA/PIDI training system. The inclusion of ONAMFA staff in all development stages was essential. The guiding document, the master plan, was written with the PIDI staff in weekly meetings. Each member of the team read each script to make sure there were no inconsistencies and observed the programs being tested in the one of the 19 experimental pidis.

This consistency and collaboration was important for several reasons. If the information taught on the program used different terminology to mean the same concepts it would only serve to confuse the caregivers and everyone else. Similarly, if contradictory messages were used, confusion everywhere would prevail and the programs would immediately lose their value.

According to Judith Evans, a specialist in child development and an evaluator of the scripts and the guidebook, the fact that

"a member of ONAMFA of the national PIDI team was involved in the development of the programs from the beginning was extremely useful in terms of assuring the achievement of objectives, methods and curriculum of the PIDI program."

She goes on to say, "the PIDI project child development perspective is reflected and the curriculum and activities developed within the PIDI can be used as a base for the radio programs. Specifically, this means that there is an active learning focus, the use of the surroundings in the development of appropriate activities, the importance of parent and community involvement, and the fact of providing training to the caregiver who recognizes and supports the interaction of the caregiver with the children."

Bridging Planning and Knowledge: The Guidebook

The purpose and content of the guidebook changed several times during the pilot project. As the women in Tarija asked for more insights into *why* activities were demonstrated in the IRI programs and ONAMFA finetuned their own planning guidelines, it became clearer how the guidebook could bridge the gap between ONAMFA's training of caregivers and training plan and the activities and child

development information the caregivers were learning through IRI.

Today, the *Jugando en el Pidi* guidebook describes how the actual activities and principles of the audio program fit into categories of child development and professional development that are emphasized through ONAMFA. By connecting the activities to the planning guidelines, the caregivers and their supervisors learn how these developmental activities actually take place in the pidi and they can better fulfill their obligations to ONAMFA. The graphs in the guidebook use the same categories and terms that ONAMFA uses, they also learn how to write up realistic plans of their own and document their activities in a nationally acceptable way.

The guidebook separates these plans into two types of information: categories of child development and work areas for the caregiver. Follow-up activities are suggested in order to offer even more support in planning and bringing concepts down to earth.

Charts depict the relationship of the activities in each program to the functional and work areas proposed by ONAMFA.

	Metodología	Metodología	Comandos	Comunicación	Aplicación	Evaluación	Creatividad
Actividad de...	X	X	X	X	X	X	X
Actividad de...	X	X	X	X	X	X	X
Actividad de...	X	X	X	X	X	X	X
Actividad de...	X	X	X	X	X	X	X
Actividad de...	X	X	X	X	X	X	X
Actividad de...	X	X	X	X	X	X	X
Actividad de...	X	X	X	X	X	X	X

The guidebook relates program activities to child development and professional development.

The Master Plan: Simple and Concrete objectives

The master plan was the conceptual and theoretical base used for the creation of all scripts, outlines and guidebooks. It specified individual program goals and how to measure them, the general format of the programs and characteristics of each character, and the outline of the content of each script.

The creation of the master plan began with the affirmation of the following two points:

- 1) Children and caregivers learn actively: by experimenting, playing and practicing.
- 2) What is learned is affected by how it is learned.

With this as the foundation and taking into account the criteria established by ONAMFA, a single "Master Plan" was conceived. Each program contained four general goals:

- ❖ Two goals for the training of the caregivers in techniques and the practice of integrated child development and the organization of the pidi;
- ❖ Two learning goals for the children of the ages of three, four and five. One of these goals was based on the cognitive skills children develop during these years (such as spatial relations like up/down, forward/backward, in front of/in back of, or comparisons such as size or weight). The other goal emphasized other important messages, such as hygiene practices and social and emotional growth.

According to Frida León, specialist in child development and member of the PER team,

"to have a master plan and a conceptual framework gave consistency to the activities of the program."

Furthermore, "the fact of having elaborated the master plan in Bolivia made it possible to reflect this country's reality with greater accuracy and to start from the PIDI objectives and from the characteristics of the population."

It was one of the greater achievements at the design level of the *Jugando en el Pidi* program, according to Jill McFarren Avilés, National Coordinator of the ONAMFA's PIDI program.

While the individual program goals within the master plan are simple and uneventful, the program brings the goals to life through at least six different play activities relating to one or several of the goals. The children not only do the suggested activities, but for example in the story in Lesson 10 they learn about a rock and a piece of paper which work together to send a message. Then they pretend to fly like a piece of paper in the wind and walk like a man holding a heavy bag full of

rocks. They are given the option of pretending to be other objects which are light and heavy. It is pointed out to the caregiver how the children learn cognitive concepts through activity and how she can set up child-to-child activities.

Although the IRI programs are primarily auditory, the instructions and activities successfully promote learning through all the senses. Riddles and games based on sounds are developed, for example. Children and caregivers are always encouraged to look and compare visual characteristics of size, shape and color. They search for information in the posters and in the pidi. In other programs the children touch objects to compare soft and hard or light and heavy or compare their actions and bodies as they move slowly, more slowly and extremely slowly.

The master plan also ensured that the forty caregiver-focused goals were modeled. Examples include promoting self-esteem through encouraging statements, setting up role plays, doing fine motor tasks in groups, asking little girls to be helpers as often as little boys, and talking about fears and likes and dislikes with the children.

Eventually, the usefulness of the master plan went beyond the program designers. The pilot testing of the program also showed that caregivers benefitted greatly if these very simple teaching goals were explained in the guidebook as well as on the cassette itself.

"The original programs of the pilot stage did not contain information on the purpose of the goals contemplated in the Master Plan. During the formative evaluation, the need to incorporate these messages was observed, so that the caregivers would have a theory which would allow them to use the goals in other situations outside the radio program," Jill McFarren Avilés explained.

The Script: Format, Characterization and Culture

The detailed master plan also simplified the task of writing the scripts. The characters were well-established, had consistent mannerisms and used similar catchy expressions throughout the whole series. It was decided, for example, that the character of Tia Clara would be the only character who would address the audience. The team called her Tia because that is what the children call their caregivers at the pidis. Her personality was intended to represent a caregiver slightly more experienced than the average woman working in the pidis.

And the details went further. Tia Clara always carried a *bolsa de sorpresas* or bag of surprises which was a continual source of new ideas during the program. She repeated terms of enthusiasm and reinforcement for the children such as *así me gusta* (that's the way I like it) and the children could imitate her easily.

The character Katy was deliberately made a little girl to provide a positive role model to little girls in the pidis. She was smart, light hearted and full of ideas for games. She had no barriers to success. When it comes time to pretend she is driving a truck or hammering a nail, Katy participates.

Don Pancho was older, slower and wiser. He could remember stories of his youth and would recount them for the price of a cup of *mate* (herbal tea) and a little patience.



The character Katy provided a positive role model to little girls in the pidis.

But perhaps the most deliberate character is the parrot, El Loro Ito. While parrots are sometimes kept as pets in Bolivia and are used in other children's books and stories, Ito had special significance to the program. Not only could he get into spaces and situations that the children could not, but he could repeat directions and key concepts without disrupting the flow. This trait made him an extremely useful mascot.

Integrating culture and setting was also introduced during the planning stage of the Master Plan. Bolivian musical instruments such as the *zampoña*, the *charango* and the *bombo* were included in the music and in the sound effects of the programs. Local dances like the *auqui-auqui*, the *saya* and the *huayño* were used to create the games and activities with the children, and the Bolivian style of repeating a word when referring to a children's game became a

trademark throughout the whole program. *Jugando en el Pidi* invented new games like *amigo-amigo* (friend-friend) to introduce activities and relevant types of interactions.

In Conclusion: Important issues for IRI for Early Child Development

Jugando en el Pidi has been an effective tool both qualitatively and quantitatively for caregiver training and for stimulating an active learning environment for children in pidis in Bolivia. As the program grows and becomes a national program and as other countries study it's success, several issues remain.

Broadcasting: Radio versus Cassette Tape

Initially, it was thought that the programs would eventually only be broadcast on the radio. Bolivia is a country with a history of radio education and has had an organized network of educational radio stations, Educación Radiofónica de Bolivia (ERBOL), for twenty-seven years. Furthermore, IRI methodology had been successful in Bolivia in two prior projects: Radio health and Radio math.

One way the programs integrated culture and setting was by using Bolivian musical instruments.



However, due to the program's and target audiences' own characteristics, the team became aware of the possibility and assets of using cassettes for various reasons. First, ONAMFA provided each pidi with a cassette player and could assist in the deliver of cassettes and materials to pidis. Second, repetition is important for young children. Where adults may bore of an activity, young children like to

repeat age appropriate activities. Third, with the programs on cassette, a caregiver could use it according to her own needs and in accordance with her schedule. As few caregivers have watches or clocks, adhering to a radio schedule for listening or taping may not be the most advantageous for the pidi caregivers. Finally, as the experience in Tarija pointed out, cassettes can be reused in the pidi and for community involvement.

Broadcasting the programs over the radiowaves is still an option in Bolivia, particularly if the programs can be delivered through both radio and cassette. In South Africa, on the other hand, where regulated systems of distribution are not prevalent and reaching remote populations is a high priority, radio is the appropriate choice. Supplementary materials that can be distributed through other means, such as inserts in newspapers or magazines, will serve to support the radio programs.

Initial Training: Supporting the Process

As the programs advanced, each caregiver learned to use the cassette tape in her own way. Each caregiver discovered the usefulness of the program in response to children's reactions and when she felt herself learning. As the programs were developed, the caregiver herself became aware of her importance as a model for the children and knew that the success of each program depended on her. That is, the caregivers learned actively within the programs without the need for training outside of their homes.

Still, the utility of the programs and the usefulness of the guidebook multiplied with one training for caregivers on how to interpret and use the IRI package. According to the Jill McFarren Avilés from the National ONAMFA team the inclusion of initial caregiver training was one of the more significant additions.

"Before elaborating the scripts for the program, caregiver training was not foreseen. When at least one training session was conducted, the caregivers had a better idea of how to use the material, and the personnel elaborating the programs was able to make the necessary adjustments to include more specific instructions."

Incorporating more training into the system will be an important part of the next stage of *Jugando en el Pidi* in Bolivia.

Focusing on Learning

As IRI was changing to meet the needs of early child development, it adapted some methods of IRI, threw out some traditions that didn't apply and capitalized on others than seemed to work. For example, the learning segments, a staple used in many of the programs employing "old IRI" technology were not used as such in the *Jugando en el Pidi* model. The organization of the format took another form as segments turned into a series of activities connected through a guiding narrative thread. One scriptwriter would write an entire script with continual feedback from the broader team rather than write one segment.

Jugando en el Pidi also concentrated on learning which it could demonstrate rather than trying to focus the interaction on a particular theory of learning. In the programs, caregivers and children are asked to repeat songs and answer obvious questions and give their opinions and answer open ended questions. These interactions were chosen for their appropriateness for the ages involved.

Like other IRI programs, *Jugando en el Pidi* practiced multi-channel learning. Children and caregivers were encouraged to learn through face-to-face instruction and modeling, audio-cassette or radio, visual aids and print. Other less obvious channels were also encouraged, such as other children, the natural resources available in the environment, and almost anything the learners could touch, smell, feel, leap over, crawl under, dance to or talk about.

Teamwork

Teamwork and collaboration were key elements in the design and implementation of *Jugando en el Pidi*. Unlike most other development projects, the active participation of all the members of the team in all the stages of the process helped to create a group of professionals working on something they knew and believed in. The scriptwriter, artist, evaluation specialist and early child development specialists all observed the pidis, read the scripts and critiqued the process.

For Jill McFarren Avilés "to have worked in a multi-disciplinary and inter-institutional team is one of the factors determining the success of the program. More heads are better than one; this was confirmed again and again when people were willing to listen and be listened to."

Betty Barrón, an evaluation specialist from PER with experience in IRI methodology in math and health, maintains that:

"Personally, at the level of the evaluation, it has been a challenge for me. I wanted to adapt the two types of formative and summative evaluations used in primary school math and health, which proved impossible to do. Nevertheless, within the formative evaluation, we profited from the feedback system from the master plan because it has been continuous work by a cohesive team."



The basic model can be used in other countries and brought to life with new stories, new activities and new characters in a different language.

On behalf of ONAMFA, Jill Avilés adds, *"continuous participation and supervision by national and regional technicians and by the ONAMFA supervisors guarantees that the goals outlined for the caregivers and for the children in the Jugando en el Pidi are not lost. The goals have been elaborated based on what is proposed for the PIDI and it is necessary to reinforce them in and beyond the radio program."*

From the beginning the members of the group established that there was a need to learn reciprocally —each one from the others— with the purpose of creating something new.

Applying the Model to Other Countries

Jugando en el Pidi was created with Bolivia in mind. Already, it has been copied for rural areas in Ecuador and is being revamped for the

KwaZulu/Natal regions of South Africa. What has been learned can be adapted to other regions in different ways. The basic model and measurable objectives can be used and brought to life with new stories, new activities and new characters in a different language. Because the premise of the programs lies in methods of learning and enhancing child-caregiver interactions, varying levels of adaptation are possible. Other key elements to success, such as a viable distribution system, a useful answer to the question cassette vs. radio in terms of cost and sustainability in-country, and a way to test programs through formative evaluation also need to be taken into consideration.

In conclusion, the pilot project in Bolivia proved that IRI methodology can engage children and foster early child development skills in caregivers. These lessons may be useful in other poor regions around the world because:

- ❖ Women caregivers often have low literacy skills. Literacy skills of poor women caregivers all over the world are consistently low. But people do not need to read to learn. Using an audio medium such as radio or audio-cassette gives listeners the option of learning by making the information accessible. Knowledge is presented through a realistic learning channel which is useful and digestible.
- ❖ Active learning techniques can be modelled and practiced. It is not an uncommon sight to walk into a childcare facility anywhere in the world and see children doing almost nothing. IRI offers the possibility of demonstrating active learning techniques and showing the caregivers how to use simple organizational techniques, games, songs and the environment to create a vital early child development setting.
- ❖ Both adults and children can be reached. IRI programs can be created for two audiences at once: caregivers and young children. By engaging children in age appropriate activities, asking the caregivers to serve as the guides and then stating explicitly why these activities are educational and easy to adapt, both audiences are involved and learning actively. It is at once a children's educational program and a training tool for the caregivers.
- ❖ Early child development practice can be brought down to earth. Typical reactions to learning early child development theory and practice include: *the information is too conceptual, I*

don't know how to apply it and I didn't know I was doing so much of it already. In either case, it can be difficult for caregivers and parents to bridge the gap between conceptual information about early child development and what to actually do. IRI provides the opportunity to connect games and activities with early child development theory. Conceptual information is put into perspective: It is only useful when it can be learned and used. To be learned, it must be connected to activities and experiences in the pidis. IRI helps that process along.

- ❖ Cultural and oral traditions can be reinforced. By using culture, radio characters and stories, IRI programs further invite participation and learning. Because an audio program can create any environment, it builds on the power of the imagination and the creativity of the scriptwriters and listeners. The children can learn through seeing, hearing, touching and interacting with each other and with resources already present in the environment. Expensive resources are not necessary.
- ❖ Teaching and learning can be incorporated into the daily routine. The programs serve as a practical training tool for caregivers to use with the children during their day. It makes their day easier and, importantly, does not require additional time as learning is incorporated into the system.
- ❖ Quality can be controlled. Because each program can be tested and retested before it is finalized, quality can be controlled. This can be a great support to outside trainers, national or community programs, and caregivers and parents. The program can also be finetuned to be consistent with other guidelines, such as the training guidelines used by ONAMFA.
- ❖ Radio is accessible to nearly everyone. Around the world, almost everyone owns a radio. In some places where audio-cassette players are available, they may be preferable, but nothing matches the reach of radio.
- ❖ IRI can practice what it preaches. Rather than tell caregivers how to provide a developmentally appropriate environment for children or write about activities for children, IRI does it with them. It models real activities for caregivers and children and points out their characteristics. For proponents of active learning principles, IRI provides the opportunity to practice what it preaches.

References

Bosch, Andrea. Computer-assisted Instruction in Grenada: High-tech Success and Sustainability Against the Odds. LearnTech Case Study No 3. May, 1994. 41 p.

Crespo, Cecilia. "Jugando en el pidi: Programa de desarrollo en ejecución." Ponencia presentada en San José Costa Rica. 14 pp.

Evans, Judith. Jugando en el Pidi. Una evaluación de un programa en ejecución. Junio 1994. 24 pp.

LearnTech. Educación por radio interactiva: ¿Qué es? ¿Cómo funciona? ¿Qué se necesita para mantenerla en el aire? 93 pp.

Moulton, Jeanne. Interactive Radio Instruction: Broadening the Definition. LearnTech Case Study Series No 1. January, 1994. 45 p.

Olsson, Micael. Institutionalizing Radio Science in Papua New Guinea: A Response to Caregiver Demand for Interactive Radio Instruction. LearnTech Case Study Series No 2. April, 1994. 43 p.

Organismo Nacional del Menor, Mujer y Familia. Proyecto Integral de Desarrollo Infantil (PIDI). Abril 1993. 79 pp.

Programa de Educación por Radio (PER). Informe Final.