USING CHAMBERS' PARTICIPATORY RURAL APPRAISAL TO FOMENT SUSTAINABILITY IN TEACHER ENGAGEMENT WITH ONLINE LEARNING IN GUATEMALA

Douglas Tedford, Fundación Rigoberta Menchú Tum, Walden University
MaryFriend Shepard, Walden University

Abstract: Chambers' participatory rural appraisal (PRA) methodology was used to analyze the Internet usage and engagement of 34 teachers in western Guatemala, employing culturally sensitive teacher interviews and local educators to interpret findings and propose solutions to its use. The PRA methodology empowers rural sectors of developing nations for community-driven development, incorporating research methods of their choosing for resolution of locally identified practical challenges. Manageable steps for implementing the PRA are described. The use of PRA for successful instructional design and implementation in developing nations was discussed as a means to affect positive social change.

Keywords: community-driven development, curricular design, design-based research, developing world, developing nations, distance education, Guatemala, indigenous, instructional design, online learning, participatory rural appraisal, PRA, rural, social capital, teacher education

In the town of San Lucas Toliman in rural, western Guatemala, a series of free training workshops were provided for 34 public and private school English teachers in collaboration with the Fundacion Rigoberta Menchu Tum (FRMT). Teachers were invited to participate in 10 months of Internet-based English curricular training modules with free Internet services hosted at the FRMT's secondary vocational school. Of the 34 teachers, 19 initiated coursework, and only 5 completed it in spite of the training having no financial cost for the participants. To better understand this paradox from the perspective of potential learners and the constraints they were facing, a study was undertaken integrating principles of the ADDIE instructional design model with the participatory rural appraisal (PRA). A research based design and processes for derivation of findings on interactivity with the target audience at all stages of the research effort were used to discover why the instructional design model used in the training modules was not effective in engaging teachers.

Using Chambers' participatory rural appraisal (PRA) methodology (1998), the study's findings indicated steps for expanding and improving online curricula to match local needs. This methodology is surprisingly appropriate for encouraging community involvement in the research process, yet is also appropriate for the development of the teaching modules. The PRA methodology relies fully on local input to identify research and curricular needs to increase sustainability and sustained diffusion of technological innovations. The focus of this article is to provide an in-depth look at how the PRA methodology was employed to obtain

information from interviews of teacher participants that would not only inform improvements in curricular planning for the FRMT's online English program, but would successfully engage the participants' long-term commitment to promote the program's success and to inform its curricular design, development, and dissemination.

The PRA facilitated local analysis of how to define and approach the study´s central issue by selecting an audience with high stakes in its success, both at the instructional and at the decision-making levels. This relied on the input of a culturally sensitive native speaker/ interviewer, whose participation was integral to selecting specific processes and settings for interviewing the teacher participants. The PRA also required local decision-making for setting up a safe and productive environment to evaluate interview data and render findings. Joined by local educational leaders, teacher interview participants were able to anonymously render interpretations of their collected input in a gathering known as the permanent group interview (PGI). In this setting, the approach of the PRA to integrating the audience in the evaluation of the findings improves the sustainability of the decision-making process about instructional design and implementation.

A COMMUNITY'S SENSE OF URGENCY FOR PROBLEM RESOLUTION

While working with the teachers onsite and online, the researcher's wife and daughters concurrently volunteered their time teaching English in group classes for the community. With aid from the IT staff, they also assisted in teaching basic Internet skills to the English teachers at the FRMT's Community Technology Center, located on the school's campus. Learning English and computer technical skills are two major priorities for area teachers and students as prerequisites for employment in many settings. Demonstrated mastery levels in English are a requirement for admission to state and private institutions of higher education. Like many of Latin America's underclass people, rural Guatemalan English teachers face multiple barriers to engagement in online education resulting in continued and deepening inequities in educational opportunities for teachers and students. Earning just $200 a month on average, they lack personal resources to pay for Internet usage or teacher education. With scarce access to telephone land lines, electricity, and satellite dish technology, teachers need connections to a telecommunications infrastructure on par with metropolitan areas, or they will continue to fall behind with the education of children to a greater degree. Isolated from the ICT culture of large cities, they need orientation from experts in order to feel comfortable with the Internet. The provision of free Internet usage to the English teachers via the FRMT's community technology center seemed to be a plausible solution because of their remote location.

Of 34 teacher participants in the face-to-face training sessions, 19 elected to register for the 10-month, free, online course for English Teachers. Halfway through the course, 11 teachers had continued course involvement, but only 5 completed the course. Literature mirrored this reality. Foth attested that provision of "a community of place," (2003, p. 14) such as a *community technology center* does not guarantee usage [of the Internet]. Few research studies have addressed any aspect of Internet usage including online education in developing nations. Creed and Joynes (2005) attributed this to "poor dissemination, limited research skills and constrained resources." This study addressed an unmet need, cited by Kowch, to apply social capital theories for improving online teacher education in the developing world (Lorenzetti, 2004).

PARTICIPATORY RURAL APPRAISAL (PRA)

The use of social relations in networks of trust can generate willpower for local change in rural sectors of the developing world. This was found to be the central, governing concept of community-driven development (CDD), a process which emphasized empowerment of rural developing nation communities to synergize for the purpose of creating plans to resolve self-acknowledged challenges. Principles of CDD have been emphasized increasingly in rural development policies of the World Bank and other non-governmental organizations (NGOs) since the 1990's. Principles of CDD were designed to build leadership among those who were directly affected and to inculcate lasting social changes by increasing ownership of decision-making through deemphasizing traditional authoritarian change structures or invasive research practices (Dudwick, Kuehnast, Nyhan Jones, & Woolcock, 2006; Woolcock, 2002). Concurrently, new approaches to research interventions in developing nations have emphasized participation in communicating about and controlling for change in ways which increase the potential for permanency and diffusion through social relations (Bessette, 2004; Gonsalves, 2005; Grenier, 1998; Van Bavel, Punie, & Tuomi, 2007).

Uniquely linked to social capital research was the recommendation by Woolcock (2006) for incorporation of Chambers' participatory rural appraisal (PRA) methodology (1998) to study how individuals in bonding (close associate), bridging (expert help), and linking (extra-societal supports) relationships could support the resolution of problems identified by members of rural developing nation communities. Considerable research had been conducted using the PRA for resolution of environmental and agricultural issues in rural communities of African nations (Bessette, 2004; Gonsalves, 1998). Durston (2002) and Fazio (2007) both pointed out, in descriptions generally similar to many developing nation rural social systems, that rural Guatemalans rely heavily on social ties for group agreement upon methods for resolving problems in rural communities. Woolcock directly advocated the PRA, a methodology oriented to community-driven development, for this same reason in rural Guatemala (Dudwick, et. al, 2006).

In order for the results of such a study to foment lasting change in practices tied to teacher Internet usage in San Lucas Toliman, it was necessary to select a research approach which validated the norms and values of community-driven development, making the input of local leadership endemic to the research plan and its implementation (International Bank for Reconstruction & Development, 2007, para. 1). As suggested by multiple sources the study needed to deflect its focus from issues of improving Internet access to questions of how to improve Internet usage (Crump & McIlroy, 2003; Foth, 2003) and it needed to integrate learning about the effect of social capital for enhancing teacher involvement with ICT (International Bank for Reconstruction and Development, 2007a; Lorenzetti, 2004). Compatibility of such an approach was found in the PRA (Chambers, 1990, 1992, 1994, 1998) which had been previously employed to study interactions between rural indigenous groups developing nations, including Guatemala (Dudwick et. al., 2006; Ibanez, Linder, & Woolcock, 2002)

The PRA is known as "a growing family of participatory approaches and methods that emphasize local knowledge and enable local people to make their own appraisal, analysis, and plans... to enable (entities) to work together to plan context-appropriate programs" (International Bank for Reconstruction & Development, 2007c, para. 2) Use of the PRA was found to eliminate distortions of data collection and findings (Chambers, 1998) which could result from cultural differences between developed and developing nations (Laungani, 2005), and to support culturally-meaningful styles of collecting and evaluating data. The PRA foments community-driven identification of problems and involves the community in devising methods, conducting data collection, interpreting data and developing solutions to be implemented locally (Gonsalves, 2005). PRA is also a strategy that would be effective in instructional design for Guatemalans as they gain input and ownership into the proposed courses.

Chambers presented the key values of utilizing the PRA:

1. Enable realities and priorities of poor and marginalized people to be expressed and communicated to policy-makers
2. Enable trainers to facilitate attitude and behavior change
3. Make normal bureaucracies more participatory
4. Build self-improvement into the spread of participatory methodologies
5. Enable people with power to find fulfillment in disempowering themselves. (1998, pp. 1-2)

Chambers attributed Brazilian educator Freire's *Pedagogy of the Oppressed* (1971) as the inspiration for the PRA, contributing to "the idea that it is right and possible for poor and marginalised people to conduct their own analysis and take action" (Chambers, 1998, p. 2). When this occurs for instructional design, the final product is more likely to be adopted by the people for whom the instruction is intended.

The Rapid Rural Appraisal (RRA) is a culturally-invasive, quick, and Western-biased assessment process also developed by Chambers (1990). In contrast to the RRA, its predecessor, the PRA places the power for identification of the study question, development of inquiry strategies, and synthesis of findings directly under control of communities who have identified a problem to be resolved. As such, the PRA bears a powerful transformative potential for improving ICT practices of rural communities. The PRA was employed to examine the influences of bonding, bridging, and linking social capital upon decisions of rural Guatemalan English teachers to utilize the Internet for sustained online professional development. The research questions were tied to interview questions designed by the culturally-sensitive native interviewer and addressed teacher concerns about using the Internet,

teacher satisfaction with Internet resources, and social influences upon Internet usage.

Grenier laid out 31 distinct processes which could be employed under the umbrella of participatory rural appraisal. As the subject matter of much investigative work under PRA has been in the areas of agriculture and the environment, some of these processes were not considered for this study. Those remaining were the following (sub-headings inserted by this researcher):

Recording of Data by Participant, Delegate, or Researcher:

1. Participatory diagramming
2. Wealth and well-being matrices
3. Daily activity profile
4. Venn diagram

Interviews:

1. Types, sequencing, and chain interviews
2. Permanent-group interviews
3. Key probes
4. Futures possible

Analysis:

1. Shared presentation and analysis
2. Field report writing
3. Self-correcting notes
4. Review of secondary data (Grenier, 1998)

From these processes, three activities were selected in order to triangulate measurement of teacher attitudes and thereby minimize distortion of their input.

The PRA might be carried out over time or during a short time frame. In PRA the researcher is designated to oversee the investigative process but acts solely as a facilitator of data collection and data analysis, emphasizing the opinions and priorities of respondents. Semi-structured interview questions were found to be a key characteristic of the PRA, which in contrast to open-ended questions, allowed input from respondents to lead questioning in any direction of their choosing (Chambers, 1998). Some researchers questioned this practice (Hirschmann, 2003; Kapoor, 2002), but proponents of the PRA recognized it as essential for assuring that input of respondents is self-directed (Gonsalves, 2005; Grenier, 1998). With rural, indigenous people, it is essential that their input is sought and included in planning, implementation, and evaluation of the teacher education.

While World Bank researchers cited focus group discussions as an ideal setting for discussing social capital influences (Dudwick et al., 2006), Bessette (2002) pointed out that some individuals might want to maintain complete anonymity about their opinions, and might not speak up in a group setting. This might be due to gender, employment relationships, or other factors. Grenier preferred to recommend, in place of focus groups, which might include participants previously unknown to each other, the holding of permanent-group interviews (PGIs) (1998). PGIs could form the sole basis for implementation of the PRA or could be realized as complements to other PRA data gathering activities. It was also generally recommended that PGI discussions should not precede other PRA processes, to avoid group determinations of what other community respondents could contribute in individual settings. This also meant that PGIs should not be allowed to become a brainstorming or complaint session, but should be made as a culminating event for finding patterns in the data obtained and interpreting implications of the same, with the focus of generating recommendations for improvement of a program or a process. In the case of the proposed study, this would entail discussions of action steps for improving usage of the Internet by teachers.

COMMUNITY-DEVELOPED FINDINGS

For implementation of the PRA methodology the researcher took the role of facilitator. A locally culture-sensitive native speaker recast the interview questions into comprehensible segments and took charge of the interview style and process. Facilitated by the researcher, the culturally-sensitive native speaker molded open-ended interview questions to match Spanish proficiency levels of the indigenous teachers participating in the study. Two to three direct questions, succinctly-phrased, fulfilled the intentions of each of the original interview questions. Following is a list of the original interview questions, which were segmented by the culturally-sensitive native speaker into chains of shorter and simpler questions in Spanish:

Interview Question 1

Tell me about the influences which caused you to become a school teacher, and the concerns which you have experienced regarding use of the Internet for professional development.

Interview Question 2

Tell me about people who you turn to for help, skills, or guidance to persist and achieve your goals for teaching and for using the Internet.

Interview Question 3

What grade levels and subjects do you teach and how necessary or useful do you perceive using the Internet at the Pavarotti school for enhancing your school teaching? How often do you use the Internet for professional development and what are the fundamental reasons for this?

Interview Question 4

Tell me who you turn to for help, skills, or guidance to persist and achieve goals using the Internet for professional development, or if you are more of an independent learner.

Interview Question 5

How much of what you achieve in the classroom is due to using the Internet, and how prepared do you feel to apply what you achieve in the classroom? How useful do you think the Internet will be in the future to you and to teachers like you in other locations?

The interviewer used a digital recorder to elicit responses from 20 teachers in a purposive sample. Interviews were held in a variety of locations, including the FRMT conference hall, cafeteria and kitchen, local school classrooms, living rooms, and the interior of a van. In each case, the researcher sat close by, taking notes, being careful not to interact with the teachers. The purposive sample was assembled according to four levels of online participation, from zero to full completion of coursework, as shown in Table 1:

At the end of each series of interviews, usually each evening, the native-speaker interviewer collaborated with the researcher to transcribe the interviews into written Spanish and reproduce significant responses onto cards which were color coded as attitudes, professional goals, and social influences. These themes aligned with the original research questions. After completion of the 20 interviews and preparation of the response cards, the synthesis of responses into study findings began. Led by a respected, local community administrator, 42 local educators met in a PGI at the conference hall of the FRMT on the campus of the Centro Escolar Luciano Pavarotti "Utzilal Tijonikel," to derive findings by prioritizing the response cards and defending their perspectives in small group discussions and whole group presentations.

No one in the PGI meeting revealed his or her identify as interview participants. This allowed all present to discuss the issues objectively and free of the fear of sanction. Findings were synthesized uniquely and wholly by the processes which the members of the PGI developed and implemented. Each of five randomly assigned groups approached the objective of prioritizing and synthesizing key interview responses in very different ways. Some pasted all the responses on their poster. Others were selective, and some derived and recorded their conclusions independently. Although available for clarification upon request, the researcher never intervened in the organizational process which was led and managed by the local community of educators.

TABLE 1 CHARACTERISTICS OF 34 TEACHERS INVITED TO ENROLL IN A 26-WEEK ONLINE COURSE

Sub-Group Size	Course Completion	Participation Level	Sample
5	Yes	Consistent	5
6	No	Consistent, then dropped out	5
8	No	Logged on once or twice only	5
15	No	Never logged on	5

Findings indicated that interest in engaging the Internet and receiving specialized introductory support (bridging social capital) in groups (bonding social capital) was high. Salary level (linking social capital) and family time demands (bonding social capital) were barriers to attending a community technology center or Internet café. Access to ICT experts (bridging social capital) and to ICT infrastructure (supported by linking social capital) at the FRMT's community technology center significantly reinforced local educator support for the design of online coursework leading to salary points and college credits.

APPLYING THE PRA TO RESOLVE ISSUES OF ONLINE ENGAGEMENT IN A DEVELOPING WORLD

Following is a review of key steps in planning for implementation of the PRA to resolve issues tied to instructional design and/or ICT usage in a rural, developing nation setting:

1. Community members identify an instructional design and/or ICT issue to be resolved.
2. Researcher agrees to collaborate with community for design and implementation of a study, and then using the PRA methodology develops research and interview questions.
3. Researcher removes self from the traditional researcher role, becoming a facilitator, available for questions and guidance upon request.
4. Culturally-sensitive native speaker fashions segmented interview questions based on original, western-style interview questions.
5. This native speaker conducts interviews in a style and format which is comfortable and appropriate to the participants. Participants are drawn from a purposive sample.
6. The culturally-sensitive native speaker transcribes interviews. The facilitator identified key concepts and themes from the interviews for presentation to the community forum. The native speaker and facilitator record the key concepts on color-coded cards. Both reproduce color-coded cards for small group use.
7. Both assemble small group reporting materials. Both meet with community leader to set up process which will be followed during the PGI.
8. Community leader gathers local educators. Community leader directs meeting, and process of deriving and reporting findings and next steps.
9. Researcher provides resources for celebration to culminate the PGI.
10. Community leader plans and manages follow-up activities for conversion of PGI findings into innovative, sustainable, and uniquely effective social action to resolve an instructional design and/or ICT challenge.

This study was the first of its kind to explore the influences of social capital upon teacher online learning in a developing nation setting (Lorenzetti, 2004). Providing educational opportunities for teachers in rural Guatemala via the Internet and digital learning experiences or in a face-to-face setting requires that teachers have ownership of the process. These communities lack the resources of metropolitan areas, and attempts at utilizing the Internet for improving the educational system have not been effective. The PRA provided an approach that brought the perceptions and insights of teachers to the awareness of community leaders. As the members of the community forum analyzed the teacher input and developed a plan of action for the use of the Internet in teacher education, an unusual benefit was received by all parties. Instructional design that builds on the values and beliefs of these teachers may be the only way to effect social justice and positive social change in these rural communities. PRA provides a framework that may ultimately lead to education that can effect a lasting change because of the ownership it provides to its participants.

The PRA method was the ideal choice for involving a community in a developing-world setting in pinpointing the need to improve the ongoing involvement of its English teachers in an English teaching curriculum project. In interviewing teachers who apparently resisted the program, and in deriving findings in an interactive community meeting (PGI), an effective methodology for effecting positive social change regarding the diffusion of an instructional intervention was identified. In spite of the free online English learning resources that were made available to the group of 34 teachers, most rejected the offer due to cultural and temporal impediments. The use of PRA supported the improvement of the curricular program and methods for delivering it with community support. Without the support factors necessary to get teachers to consistently attend online classes, the best curricular plan would be inadequate and not implemented. The PRA findings integrated cultural factors for informing instructional expectations with social factors to en-

hance the implementation and adoption of a new instructional design including online learning modules customized to their needs.

The PRA not only improved the quality of the research process from problem identification to findings and conclusions, but for this instructional design problem in rural Guatemala a momentum was created for technological diffusion of teacher education modules. In a region previously unaccustomed to free online learning opportunities, the PRA created an acceptance commonly only found among those with adequate buying power for acquisition of required ICT hardware. Since the completion of the evaluation phase during the PRA, multiple recommended changes by the community have been implemented. Among these are (a) uniting of the English teacher learning modules with other free instructional opportunities under the FRMT's Campus Virtual (current enrollment 105), (b) the expressed support of the Guatemalan government for expansion of the FRMT's online services, and (c) the commitment of partial funding to develop the Universidad Maya en Linea (Mayan Online University) with free offerings for teachers in rural areas of Latin America.

The FRMT's English language training courses for rural Guatemalan teachers following the use of the PRA to create an implementation plan was successful. A sustained cycle of analysis and evaluation of an instructional program by key members of the audience, led to its adoption with expanded components. The PRA enabled community "buy-in" that resulted in additional communities being involved in the teacher modules. Bringing online English teacher education to a remote sector of the developing world has blossomed into a series of decisions and actions. Because local educators made decisions that were implemented, they now recognize the value and future potential of utilizing a new curricular model for free online teacher education. In a world where the concept of sustainability too often stops short at considerations for developing financial, temporal, and human resources, the PRA methodology was shown as a dynamic force for sustaining human commitment at local levels, and for developing and using a new curricular model.

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