

## **ROLE OF THE WORK EXPERIENCE MODULE IN EARTH UNIVERSITY'S PROGRAM OF COMMUNITY DEVELOPMENT**

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### **Abstract**

*Present in the United States, University-Based Extension, has also emerged in the county of Guacimo, Costa Rica by the private, international college of agriculture, EARTH (Escuela de Agricultura de la Región Tropical Húmeda) University. As part of the third-year student curriculum, the Work Experience Module (WEM), under the direction of the Program of Community Development (PCD) at EARTH University, is an important component of this extension system. Extension is a collaborative effort. Recent focus has turned to international collaborations and forming international partners. While this is important, a unified vision at the grassroots level: among faculty, change agents (students in this case), and farmers, must also be maintained to make extension successful. This paper was generated from the seminal study, "Perceptions of Farmers, Students, and Faculty Regarding University-based Extension: A Case Study from EARTH University, Costa Rica," in order to more clearly present strengths and opportunities for the program. One salient issue was the need for a unified vision and a clear understanding of the role of the faculty, farmers, students and the module itself including how each of the participant groups is expected to benefit from as well as contribute to the module. Some of the more noteworthy roles due to the disparity in opinions whether or not they should or should not be the roles of the participants in carrying out the objectives of the module, and whether or not the stated roles were actually fulfilled by the module through participants are highlighted in the paper. The information included in this document is focused on principles that can be easily incorporated into the evaluation of the WEM that EARTH conducts annually and will be used to direct future strategies for improvement of the module.*

### **Introduction**

The distinguishing characteristic of the Educational Institutional System is the active involvement of an institution whose primary function is formal education in the nonformal out-of-classroom role of extension education (Brewer, 2001). This type of system, present in the U.S. and referred to as University-Based Extension, has also emerged in the county of Guacimo, Costa Rica by the private, international college of agriculture, EARTH (Escuela de Agricultura de la Región Tropical Húmeda) University. As part of the third-year student curriculum, the Work Experience Module (WEM), under the direction of the Program of Community

Development (PCD) at EARTH University, is an important component of this extension system. The goal of PCD is: “To implement an educational model that involves local residents in the teaching/learning process, improving the quality of life in their communities while helping EARTH students to develop their knowledge and skills” (PCD Factsheet, EARTH University). Extension is a collaborative effort and a unified vision at the grassroots level: among faculty, change agents (students in this case), and farmers, in conjunction with international partners is needed to make extension successful.

Through the EARTH module, the WEM, student agricultural engineers act as change agents to employ the principles of knowledge, participation, and interpersonal characteristics to accomplish the following objectives: 1) To understand the life of rural families via living with them, 2) To put technical knowledge to practice via the implementation of practices that promote the sustainability of the farm, and 3) To establish a positive and respectful dialogue with the host family and to systematically communicate observations and points of view.

### **Purpose**

The purpose of this paper to report on the WEM participants’ perceptions of the role and effectiveness of the module. While this paper was generated from the seminal study, “Perceptions of Farmers, Students, and Faculty Regarding University-based Extension: A Case Study from EARTH University, Costa Rica,” (Dragon, 2005) the information included in this document is focused on principles that can be easily incorporated into the evaluation of the WEM that EARTH conducts annually and will be used to direct future strategies for improvement of the module. The most salient findings that indicate the need to foster a unified vision and a clear understanding of the role of the faculty, farmers, students and the module itself and how each of the participant groups is expected to benefit from as well as contribute to the module are emphasized. The results revealed in this paper also identify opportunities where the program can be tailored so that it is more beneficial to both the students and the farmers involved.

### **Methods**

The research design was a mixed method, cross-sectional case study serving as a formative evaluation of the WEM. The researcher used the same instrument to serve as both a structured interview guide to collect data from farmers, and a census survey to collect data from students and faculty involved in the Work Experience Module (WEM), offered through EARTH University, in 2004. Focus groups were also conducted with the farmers and students during the final stages of data collection. All third-year students and faculty at EARTH University, and farmers, who participated in the 2004 WEM were targeted in order to obtain comprehensive data about the WEM.

Every Wednesday within a 28 week period (two trimesters), half of the third-year EARTH students worked on community projects while the other half worked directly with small scale, resource poor farmers through the WEM. After about 14 weeks, they would trade assignments. The researcher targeted all of the 2004 third year students, N=94 for the study.

A total of nine faculty members were involved in the WEM and asked to complete a survey. This group included: two program chairs, one heading the program during the first phase and the other in charge during the second phase of the 2004 WEM; five faculty members, each of whom supervised one of the three communities (La Lucha, El Hogar, and La Argentina)

either during the first or second phase of the module; and two support staff members who helped plan and organize the module and work directly with the program chairs.

A total of 31 farmers from the rural communities near EARTH voluntarily participated in the 2004 Work Experience Module and received student change agents on their farms either during the first or second phase of the module. The researcher interviewed a farmer from each of the households. Of the 31 farmers, 11 were from the community La Lucha, seven were from El Hogar, and 13 farmers were from La Argentina, the closest community to EARTH.

While the faculty and students were able to complete surveys, data were collected from the farmers through interviews for two reasons. The first is that many of the farmers were illiterate. The second is because the interview provided the opportunity for elaboration through collateral conversations between the researcher and farmer that helped to explain and clarify responses and capture responses that the researcher did not anticipate and incorporate in the prepared questions. The researcher was the only interviewer and used consistent wording, probing, and techniques. Therefore, error due to multiple interviewers was eliminated and the validity of the study, enhanced. Relevant sections of the questionnaires were duplicated for each target group to be able to compare responses between them.

The questionnaire was created in order to obtain information on the same concepts from three different audiences: the farmers, faculty, and students. The instrument was submitted to the University of Florida Institutional Review Board (IRB) and was approved. The questionnaire was used as a structured interview guide and was reviewed by a panel of experts at the University of Florida, which consisted of faculty members and doctoral students. Two professors at EARTH University also reviewed the instrument. Slight changes in format and choice of words were made according to recommendations. Once in Costa Rica, persons (a bilingual professor at EARTH University and 3 university students) that were similar to, but not part of the study groups, were chosen to pilot test the instrument to improve the reliability and validity of the instrument and to detect any ambiguities or other problems before employing it. This was particularly important because the researcher's native language was English, and she translated the instrument to Spanish.

Focus groups were conducted with farmers and students during the final stages of data collection to provide the opportunity for them to elaborate on the questions from the interview/survey and to speak candidly. Diverse, yet consistent qualitative methods including the use of pictorial representation of ideas, drawing Venn diagrams, and responding to scenarios were employed during the focus groups. If groups were large enough (at least 6 people), the facilitators divided the large group into sub-groups for the farmers to discuss their responses to some of the questions. This was done in order to make people who had a tendency not to speak in a larger group more comfortable and more apt to voice their opinions. When a similar representation of female and male farmers was present, the facilitators also divided the group by gender to capture any differences in responses and to provide a comfortable environment for people to express his or her opinions without being overshadowed by anyone. When the groups were smaller, questions were posed to the entire group and one facilitator would record the responses on flip-chart paper posted on the walls.

In order to become familiar with the field, the researcher spent two weeks accompanying faculty and students to the farm communities in order to observe and work with the students and farmers, to observe the supervisors' interactions with the students and farmers, and to update community maps. When possible, EARTH faculty introduced the researcher to farmers in the community to facilitate communication, but mentioned that she was a neutral party with no

affiliation to EARTH. The researcher then hired a driver in order to go to each household of the three communities that participated in the 2004 WEM to conduct interviews. Each interview took between an hour and a half and two and a half hours. The variation in duration and sometimes lengthy interviews were due to a few factors:

1. Due to the nature of the culture, it is important to develop rapport with the client, taking a 'people-oriented' rather than a 'task-oriented' approach, engaging in conversation, etc.
2. Some farmers were eager to show the researcher every aspect of the farm, provide a tour, and discuss various other subjects, while some farmers simply completed the interview.

At the end of each farmer interview, the researcher asked the farmers to participate in the focus group and described its purpose. The researcher had verbal confirmation from most of the farmers that they would attend. The researcher also sent e-mails with flyer attachments to each of the students who worked in the appropriate communities asking them to remind their farmers of the focus group, the purpose, date, and time. In addition, two days prior to the focus group, the researcher went house by house to personally invite the farmers to the session.

Upon returning from each day of interviewing, the researcher transferred handwritten notes and observations from each interview to field notes in a Word document and reviewed content with Spanish speaking student-helpers. A neutral, native-born Costa Rican faculty member with experience in participatory investigation with smallholders was identified to co-facilitate focus groups with the researcher. Through a series of meetings and planning sessions, the researcher and co-facilitator reached a mutual initial understanding of how the focus groups would be conducted and what the objectives were. After the focus groups, the researcher and co-facilitator would review notes, interpretations of the focus groups and findings for accuracy, quality, and consistency.

Other data analysis consisted of coding data and entering it into a preset SPSS quantitative analysis program. Basic descriptive statistical analysis tests were conducted for observation of means, modes, frequencies, and standard deviation as a method of data examination. The qualitative data were checked an additional time for completeness and accuracy and then entered into a Word document and categorized for subsequent content analysis. Findings included major and minor themes that were used to clarify and/or substantiate findings revealed via the scaled questions from the interview guide.

### **Results and Discussion**

In order for the Work Experience Module to be successful at achieving its goal, the participants, including the administrators, must have a unified vision and a clear understanding of the role of the faculty, farmers, students and the module itself and how each of the participant-groups is expected to benefit from as well as contribute to the module. While participants agreed almost unanimously on certain roles that they felt each group of participants (including themselves) and the module itself should and did fulfill, other roles were in question. Discrepancies existed regarding the role of the participants and the module, not only between groups of participants, but among members of the same group as well (faculty, farmers, and students). Some roles were more noteworthy due to the disparity in opinions whether or not they should or should not be the roles of the participants in carrying out the objectives of the module, and whether or not the stated roles were actually fulfilled by the module through participants. They were in regard to: reaching and working with members of the community in greatest need, improving farmers' quality of life, allowing the interests of the farmer to drive the type of project

to be carried out even if it does not involve technologies promoted by the university, and having a finished product by the end of the 14-week module.

### *Process vs. Product*

Students at EARTH University have ample opportunity to conduct experiments on the campus' expanse of experimental farmland. They are frequently challenged to put their scientific knowledge to the test through hands-on courses (for which they are especially recognized), group projects, and individual projects they are expected to develop and complete in their third and fourth years. What the WEM offers that separates this module from all the other courses and opportunities students have to work on is the unique experience it allows the students to have with the farmers in the real world. Perhaps of greater priority than the implementation of innovations deemed impressive by scientific standards, might be the best possible utilization of the time that the students have with the farmers to learn how to interact with them, understand their values and rationale, assess *their* needs, and engage in joint problem solving with them.

This participatory approach tends to focus on the process and there has been debate among the faculty about whether efforts should be made to strengthen students' interpersonal skills and proficiency in participatory research, emphasizing process over product. While these improvements should be made, an end product should also be required. The WEM is intended to be a real-world experience, unlike many academic exercises that emphasize process over product for learning purposes. Requiring that the farmer has an end product, resulting from a practice change, (for instance, using a new technology, or a new system of doing something) will address and strengthen other weaknesses of the model that will be revealed next.

During focus groups, the majority of students expressed their frustration that farmers were not motivated to spend time on their "joint projects" but preferred to work on regular farm activities and "chores." If the innovations, referred to by the students as their *projects* were in fact meeting a real need of the farmer, why would the students have such a difficult time vying for time for the farmer to devote to the projects? Instead, the farmers often preferred to use the students for manual labor and routine farm chores. Mayoux (2001) identifies the exchange of information and the collaboration between the farmer and change agent as imperative to adapting an innovation to the contexts and needs of the farmer. If this is not done, the innovation will not have value to the farmer and will either be rejected or cause undesirable consequences (Chambers, 1997).

Students also revealed that they were lacking a sense of direction and purpose once they arrived on the farm and in order to prevent that, suggested that the administration identify a specific problem and simply give them the task of solving it or making an improvement. This would help ensure an end product, but what about the process? Such suggestions made by the students might imply that they do not see the value in the process of uncovering needs and would just as soon skip over that part. At least one faculty member seemed to recognize this as he responded on his questionnaire, "It's necessary to do more participatory research in the communities with systematic methodology rather than improvising." If the student is aware that he/she must generate an end product through their experience in the WEM, he/she would realize that the cooperation and interest of the farmer is imperative. It should be emphasized by professors that the way to ensure farmer cooperation is through the farmers' involvement in every step of the process. The result should be that the farmer looks forward to the day the student comes to the farm. The farmer should perceive it as one day closer to finishing their

project and would consider it a lost opportunity to divert the students' time and attention from the project to farm chores. Otherwise, the project does not have value and the goal of a real world experience is not achieved. In conclusion, both the process and the product need to be given due attention.

If the quality of interaction between the student and farmer is not enhanced, the very aspect that gives value to the WEM and sets it apart as such a unique and worthwhile opportunity for both the students and farmers will be lost. Steps should be taken to provide better training in needs-assessment and participatory methods for the students. While some workshops for the students may exist on these approaches, they need to be examined with a critical eye and improved to a level of effectiveness-where the students' main priority is to work with the farmers to identify their problems and then address them. The process through which the students interact with the farmers in the experience is extremely important.

### *Behavior/Practice Change*

One-hundred percent of the faculty and the vast majority of students and farmers believed that the participating farmers should make a practice change as a result of having had direct involvement with the change agent(s) (students), specialists, and access to information, knowledge and possibly resources, through the WEM. In fact, only about 58% of the students who worked directly with the farmers responded that their host producers had made a behavior or practice change. One reason for this modest percentage might be because most of the innovations that the students were eager to try out were components of an 'Integrated Agriculture System' being developed and promoted by EARTH University. Certain aspects, such as having livestock, or land that did not flood, for example, were prerequisites for adoption of some components of the system, leaving some producers ineligible. The farmers repeatedly voiced their frustration with the River Jimenez flooding in the community of La Lucha naming it as a main obstacle to adoption of various innovations.

In order to address this issue, students should not just limit the types of projects they are willing to do to ones involving innovations currently being developed and promoted by EARTH. If they are really committed to addressing the needs of the farmers, students must be flexible and responsive to them. In fact, student feedback to the faculty regarding farmers' interests should actually be used to guide future university research and development. The projects should be viewed as a tool through which students and farmers can engage in a mutually beneficial experience.

Even though the module is not flawless, it has been from the interaction between some of the students and farmers in this program that much can be learned to improve it. For example: Traditionally, the gas generated from anaerobic fermentation in the biodigester was used as a source of fuel to pipe back to the house, supplying enough gas to sustain hours of flame for cooking. On one particular farmers' ranch who had a significant amount of dairy cows, and whose wife had no interest in cooking with the gas stove, the student change agent suggested pasteurizing the milk before making cheese out of it to be able to sell a healthier product. The change agent worked with the producer to adapt the technology to his situation according to his needs.

Even if, for example, after contemplation, a farmer replies that she has always wanted to make a book of pressed flowers or use pressed flowers to decorate photo albums, the student should not toss that idea aside for a more impressive or elaborate one. This type of project can foster the combination of creativity and science as the farmer decides which flowers to grow and

use, in the preparation of the flowers, and the artistic layout on each page. The economic return over time from the continued sale of these books and albums at local markets or beyond may be even higher than the farmer would receive from a more elaborate innovation. It may even meet her needs better because she can work on the albums and sell them year round even in times of low cash flow from other areas of the farm.

### *Quality of Life*

As stated previously, the WEM operates within the framework of EARTH University's Program of Community Development (PCD) which holds as one of its three main objectives: "to contribute to the improvement of the quality of life of the neighboring communities of Guacimo county through doing such things as: organizing training sessions, conducting participatory research, bringing technical assistance to the people, promoting small business ventures, strengthening community organization, and diversifying economic activities." Concurrently, 100% of the faculty responded that the role of the WEM should indeed be to improve the community quality of life. About 67% of the faculty felt they were actually successful at doing that. Interestingly, only 76% of the students felt that the WEM should improve the community quality of life and fewer than half of the students surveyed felt that the WEM *was* actually improving the community quality of life. The discrepancies here present an opportunity for communication and clarification between the faculty and students. They each might learn from the other's perspective. One other faculty response in favor of more participatory research out in the communities stated that, "...state institutions are very paternalistic and we shouldn't just give things to the famers [like free handouts]. When the institution takes away its support, they abandon the producer, leave him with nothing, and all work and effort is lost."

### *Socio-economic Gap*

A unified understanding of what role the module is supposed to serve is critical to achieve the module's goals and prevent unanticipated negative consequences. For example, data from this study revealed that reaching and working with the neediest members of the community was not considered a role of the WEM by a considerable number of respondents. Since dissemination of research-based, up-to-date information, innovations, and technology to farmers occurs through the WEM, if the poorer segment of the community is excluded, the socio-economic gap may become wider.

Faculty, students, and farmers were unsure whether or not the WEM should help the farmers most in need of the community. According to their experiences in the 2004 WEM, only 13.8% of the students felt that they actually helped the poorest segment of the farmers in the communities. This stands out as a "red flag" that cannot be overlooked.

As Goss observed (1979, cited in Stephenson, 2003) in Latin America, the unequal spreading of innovations actually lead to a wider socioeconomic gap among the people. If farmers were paid a stipend in exchange for providing a learning environment for students (rather than a 'free hand-out) perhaps the poorest farmers would not be excluded from participating in joint inquiry, exploration, capacity building, and learning with the student change agents. This would address the students' common complaints that they are working with the same farmers that they have been for years. If some of the farmers that are in dire need of information and opportunities for involvement are not being reached through the WEM, it should be noted so that this program can utilize other outreach means for inclusion.

### *The Savior*

Farmers mentioned that they felt that the students also contributed to knowledge in the areas of sustainable agriculture, waste management, and practices that reduce agricultural impacts on the environment. Farmers did recognize that students were not experts, but perceived them as their point of access to the experts, and other knowledgeable entities and sources of information through EARTH. The farmers expressed that they wanted an environment for mutual learning. It was emphasized repeatedly that the farmers preferred that students bring new ideas and information than manual labor. This concept was also evidenced in the farmers' hesitance at using the word "trabajador" to describe their student change agents. The researcher was attempting to convey the notion of a "hard-worker," but realized that the translation is not universally understood as such. Most of the farmers were skeptical about this word because they were afraid that if they answered affirmatively it would appear that they were "slave-drivers" or only interested in cheap labor. In fact, farmers listed their fear that the student may feel enslaved as one of their preoccupations. However, when asked to free-list the hopes and expectations the farmers had of their students, the *female* farmers listed such things as, "a hard worker," "physically able," a student that is physically big and can do double the work of one man," and "the savior."

While the student change agents may not have been able to fulfill the hopes of being "the savior," the data shows that farmers evaluated them very positively (Table 1). Many positive aspects of the module have been identified by its participants including the role of the students as: a means for cultural exchange, motivational factors for making practice changes, communication links to research and expertise at the university, a source of information and assistance, and other social benefits. In terms of interpersonal characteristics such as sincerity, trust, honesty, and respect, the students can be considered role models for others in Extension. Farmers viewed the students in a very positive light in this regard and did not hesitate to compliment the personal character of the students (Table 1). This set the foundation for the remarkable rapport that was evident between them. One of the greatest benefits mentioned by the farmers a number of times, and relevant in the arena in which this paper is presented, is that these farmers do not have the means to travel to different countries, but these students from all over the Americas and beyond bring their countries and cultures to them. Once the rapport is built, the scaffolding is set for effective cultural exchange and learning.

**Table 1. Farmer Perceptions of the Role of the Student Change Agent in the Work Experience Module.\***

Role	Perceptions of What the Student Change Agent Actually Was				
	Yes %	Maybe%	No %	Mean <sup>1</sup>	SD
Technical knowledge <sup>k</sup>	87.1	9.7	3.2	1.84	.45
Up-to-date information <sup>k</sup>	96.8	0.0	3.2	1.94	.40
Consult w/other resources, specialists <sup>k</sup>	100.0	0.0	0.0	2.00	.00
Help sustainable agriculture efforts <sup>k</sup>	93.5	3.2	3.2	1.90	.40
Committed to region's ecosystem <sup>k</sup>	93.5	6.5	0.0	1.94	.25
Informant role <sup>k</sup>	93.5	3.2	3.2	1.90	.40
Problem solving strategies <sup>k</sup>	87.1	9.7	3.2	1.84	.45
Practice changes <sup>k</sup>	83.9	6.5	9.7	1.74	.63

Good network, connections <sup>k</sup>	90.3	6.5	3.2	1.87	.43
Information based on research <sup>k</sup>	90.3	3.2	6.5	1.84	.52
Development of ideas <sup>k,p</sup>	96.8	3.2	0.0	1.94	.36
Conduct experiments w/farmer <sup>k,p</sup>	51.6	12.9	35.5	1.16	.93
Teach new skills to farmer <sup>k,p</sup>	87.1	3.2	9.7	1.77	.62
Interest in opinions, ideas <sup>p</sup>	93.5	6.5	0.0	1.94	.25
Joint problem solving <sup>p</sup>	93.5	3.2	3.2	1.90	.40
Joint learning/working <sup>p</sup>	100.0	0.0	0.0	2.00	.00
Identify community issues <sup>p</sup>	71.0	6.5	22.6	1.48	.85
Committed to improving quality of life <sup>p</sup>	74.2	9.7	16.1	1.58	.76
Increase farmer capacity to evaluate <sup>p</sup>	96.8	3.2	0.0	1.97	.18
Help people help themselves <sup>p</sup>	90.3	9.7	0.0	1.90	.30
Working w/ groups in most need <sup>p</sup>	54.8	29.0	16.1	1.39	.76
Learn from farmer <sup>p</sup>	93.5	6.5	0.0	1.94	.25
Farmer conduct own experiments <sup>p</sup>	83.9	3.2	12.9	1.71	.69
Value traditional knowledge <sup>p,ic</sup>	83.9	12.9	3.2	1.81	.48
Value other opinions <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Hard worker <sup>ic</sup>	83.9	12.9	3.2	1.81	.48
Responsible <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Creative <sup>ic</sup>	90.3	9.7	0.0	1.90	.30
Attentive <sup>ic</sup>	96.8	3.2	0.0	1.97	.18
Professionalism <sup>ic</sup>	90.3	6.5	3.2	1.87	.43
Sincere <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Honest <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Trust in farmer <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Motivated <sup>ic</sup>	93.5	6.5	0.0	1.94	.25
Respectful <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Trustworthy <sup>ic</sup>	100.0	0.0	0.0	2.00	.00
Perceive feelings <sup>ic</sup>	90.3	9.7	0.0	1.90	.30
Good communicator <sup>ic</sup>	87.1	12.9	0.0	1.87	.34
Model of inspiration <sup>ic</sup>	93.5	6.5	0.0	1.94	.25

\* Responses from all 31 farmers, N=31

<sup>1</sup> The mean was calculated from responses corresponding to a 3 pt. Likert-scale: 0 = no, 1 = maybe, and 2 = yes

<sup>k</sup> Questions positioned within the *knowledge* construct

<sup>p</sup> Questions positioned within the *participatory* construct

<sup>ic</sup> Questions positioned within the *interpersonal characteristics* construct

### Implications

Through this study, the importance of striving to maintain the age-old balance between process and product has been affirmed. The fact that if either the product or process suffers, so will the participants/beneficiaries of the module (the students, farmers, or both), should underscore this message. Another important finding from this study is the need for adequate training of the student change agents especially, and to a lesser degree, training of the farmers to help them understand what to expect from participating in the module. Perhaps more effective courses in participatory methods and needs assessment, supplemented with practice or guest speakers experienced in the field would be beneficial.

It is evident that the unique experience EARTH University offers students and the surrounding communities enables two major impacts:

1. The WEM brings students into a real-world setting where hands-on learning can take place. Students have the opportunity to use critical thinking skills and apply what they have used at EARTH to new, unanticipated situations. They are able to engage in problem-solving, decision-making, have the opportunity to use participatory research methods, work with diverse people and practice their interpersonal skills.
2. The WEM serves as a means of client-focused extension education. The frequent interaction the faculty and student change agents have with the farmers in the community allow them to be visible, accessible, and the farmers' first choice for agricultural information and education.

The WEM has many of the same goals that have historically been those of extension organizations in terms of the interaction that EARTH students and faculty have with the rural, limited-resource communities near the university. Results of this study will not only be incorporated to an annual evaluation of the WEM that EARTH conducts each year to strengthen the effectiveness of the module, but also offer ideas and recommendations to other extension organizations interested in improving their programs.

### **References**

- Brewer, F.L. (2001). *Agricultural extension systems: an international perspective*. North Chelmsford, MA: Erudition Books.
- Chambers, R.(1997). *Whose Reality Counts? Putting the first last*. London: Intermediate Technology Publications.
- Dragon, S.L.(2005) *Perceptions of Farmers, students, and faculty regarding university-based extension: a case study from EARTH University, Costa Rica*. Master's Thesis, University of Florida.
- EARTH (Escuela de Agricultura de la Región Tropical Húmeda) University(2004). PCD Factsheet.
- Mayou, L.(2001). *Participatory Methods*. Retrieved June 26, 2003 from <http://enterprise-impact.org.uk>.
- Stephenson, G. (2003). The somewhat flawed theoretical foundation of the extension service. *Journal of Extension*, 41(4).