

What Have We Forgotten? Returning Data from Ethnobiological Research to Local Communities

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ABSTRACT

The intention of this article is to analyze and discuss the past experiences and lessons pertaining the process of returning data from ethnobiological investigation, as well as to show the perception of the investigators regarding this process. In this way, the article makes a contribution to laying the foundations of an ethical code based on reciprocity that will guarantee the well-being of local communities and the sustainability of ethnobiology as a scientific discipline. A survey was carried out with participation from 48 researchers from 20 countries. The researchers emphasized the importance of the training and graphic material as a means of giving back to the local communities. In addition, a list of 14 forms of giving back was generated based on the investigator's experience. Most of them stated that they encountered difficulties during the process of giving back that were mainly attributed to limited economic funds and time for research. Considering the different means that were used, we can confirm that there is interest from the researchers to give back to the local communities. Thus, we reaffirm the idea that we cannot consider that there is a single best strategy to achieve this. In this sense, it is necessary that future investigations address the issue from the perspective of the local partners.

Keywords: ethics, giving back, local partners

INTRODUCTION

"Ethnobiologists acknowledge that the indigenous peoples, traditional societies and local communities are of vital importance for biological, cultural and linguistic conservation, and that a mutual benefit and equitable distribution must take place adequately and consistently with the wishes of the community involved" (ISE 2006).

Ethnobiology is, first and foremost, the study of how people of different cultural traditions interpret, conceptualize, represent, cope with, utilize, and generally manage their knowledge of those domains of environmental experience which encompass living organisms, and whose scientific study we demarcate as botany, zoology, and ecology (Ellen 2006). This definition involves different areas of knowledge and a flow of information expressed in the relationship between the researcher and the local population with benefits for both. In this sense, the process of giving back or reciprocating with data is a distinctive feature of the ethnobiological studies, where the researchers leave *something* in exchange for the information received (Bridges 2004). However, many of the people studied expressed their dissatisfaction, saying that they felt like simple objects of study, without even having access to the results of these investigations (Martin 1995).

There are several publications that address the topic of giving back at different levels. Some are related to the establishment of protocols for the development of ethnobiological investigations considering the local demands and interests (Martin 1995; Alexiades 1996), and from an ethical obligation perspective (Cunningham 1996; ISE 2006). Along the same lines, Furlan (2010) addresses the topic with the following question: for what and for whom are we conducting science while emphasizing the need to make the interests and demands of the academy compatible with the

interests of the communities studied? Other works such as those from Shanley and Laird (2002), address the topic from the point of view of how to make the results relevant to both local communities and conservation. Meanwhile, Bridges (2004) questions the commitment of the academy regarding this matter, proposing the inclusion of this process in scientific publications, to seek a collective benefit from the experiences built in different geographic and cultural spaces.

Shanley and Laird (2002) mention that it is very frequent for researchers to encounter difficulties when communicating the results of their investigation to the local communities. These difficulties have different origins. On occasions they go beyond the limited availability of economic resources or lack of willingness of the researcher to transmit said information, since many times the source of the problem is the lack of capacity to carry out this process. For decades education, development and rural extension fields have been developing methods to communicate information to the local groups effectively. Unfortunately, there has been limited communication between biodiversity researchers and these professional fields. However, there exists a specialized literature that discusses how to solve this problem (Shanley *et al.* 1998; Albuquerque *et al.* 2008).

The truth is that returning data from ethnobiological studies to the communities involved in the process is a crucial issue (Shanley and Laird 2002; Albuquerque *et al.* 2008). Ethnobiologists today are faced with these dilemmas in the field of ethnobiology: how is the process of giving back occurring, what is its scope, what are the perspectives of the researchers on this key process of consolidating conservation strategies with local populations?

MATERIALS AND METHODS

The information used for the present study is based on a survey carried out between June and July of 2010. A set of interview questions was sent via internet to organizations such as the International Society of Ethnobiology (ISE), Latin American Society of Ethnobiology (SOLAE), Peruvian Ethnobiology Group (Foro de Etnobiología del Peru), International Network of Emerging Ethnobiologists (INEE), and individually to ethnobiologists and researchers.

The survey consisted of 11 questions, with six of an open and closed nature and dedicated to the analysis and discussion of strategies for returning data from ethnobiological investigations. The rest served to characterize the person interviewed.

A first group of questions was directed towards learning the perception of the researcher regarding the known means for giving back. In order to do this the following question was asked: what types of reciprocating strategies are you familiar with? This question assumed as the main means for giving back those described in literature as a reference. These were: *Manual or publication with results in the local language/bilingual*; *Communication workshops*; *Training of local partners outside of their communities*; *Sheets or booklets (field guides)*; *Documentary*; *Photo exhibit*; *Musical material*. After that the options were classified according to 5 categories, which went from "very important" number 1, to "unimportant" number 5. Then, the researchers were asked to suggest other means of reciprocating in addition to those included in the options.

There was a second group of questions regarding how researchers go about giving back. The following multiple-choice question was asked: what products have you generated to give back to the local population? In addition, they were asked to mention if the process of returning was done personally or with institutional support.

Finally, a third group of questions was directed towards learning about the difficulties in the process of giving back. In order to do this, the following questions were asked: do you think that there are difficulties in the process of giving back to the local communities? What would be the most frequent difficulties encountered in this process? This last question considered the following alternatives: *limited economic funds*; *limited time for research*; *little academic interest*; *little interaction with the studied population*.

Data analysis

The answers were systematized in a database in Excel and analyzed through the use of pivot tables and histograms of frequency for the description of the main variables. In addition, we used the statistical program STATISTICA (StatSoft Inc. 1999) for descriptive statistics and validation of the sample. Two work variables were used to make the comparisons: the region of origin of the researcher and the length of experience. In the first case there were seven regions defined: South America (SA), Central America (CA), North America (NA), Africa (AF), Asia (AS), Europe (EU) and Oceania (OC). Four categories were established for the length of experience: 1 (1 to 5 years), 2 (6 to 10 years), 3 (11 to 15 years) and 4 (over 15 years).

RESULTS AND DISCUSSION

Sample characterization

A total of 48 researchers from 20 countries answered the survey. Most of them (39) come from the regions of South

Table 1 Place of origin of the researchers.

Region	Number	%
AF	1	2.08
AS	3	6.25
CA	13	27.08
EU	3	6.25
NA	12	25
OC	1	2.08
SA	14	29.17
(blank)	1	2.08
Total in general	48	100

America, Central America and North America, representing 81.25% of the analyzed group (Table 1).

The average time of experience of the researchers is 11 years and the maximum is 30 years. We can see that the most numerous group is in Category 1: 1-5 years of experience, which represents 32.6% of the sample (Table 2).

Perception on the process of returning data

The forms of returning data that were mentioned the most in the *very important* category were: *Communication workshops*; *Manual or publication with results in the local language/bilingual* and *Training of local partners outside of their communities*, with 50, 37 and 36% correspondingly (Fig. 1, 2, 3), followed by *Photo exhibit* with 23%, *Sheets or booklets (field guides)* with 21%, *Documentary* with 17%, and *Musical material* which was not mentioned in the *very important* category.

Also, the respondents suggested other forms of returning such as: media (press, TV, radio, web; 10%), support in management and community projects (6%), local herbarium (4%), school education (with educational material and programs; 4%), among others.

The societies under study around the world are formed in different contexts. Therefore, each of their needs will correspond to the sociocultural, environmental and geographic factors that define their realities. Thus, we cannot consider a determined form of returning as the *best* in terms of benefits for the communities. On the contrary, we must carry out this process by resorting to consultations in order to learn the true needs and requirements of the populations that are involved in the study. Therefore ethnobiologists must take advantage of the hybrid nature of our discipline by combining our training from the social and natural sciences, and thus, promote respect to the people we work with.

Regarding this matter, a small group of respondents stated the following: "... the best form of giving back is what is requested by the community itself"/"This is not about "returning" according to an investigation project with a purely academic objective, it is the combined and negotiated agenda for an objective from the community itself"/"Ethnobiology must contribute to the current processes developed by the indigenous peoples and not target the topics of investigation solely for science. We as scientists and science itself have grown richer by doing this".

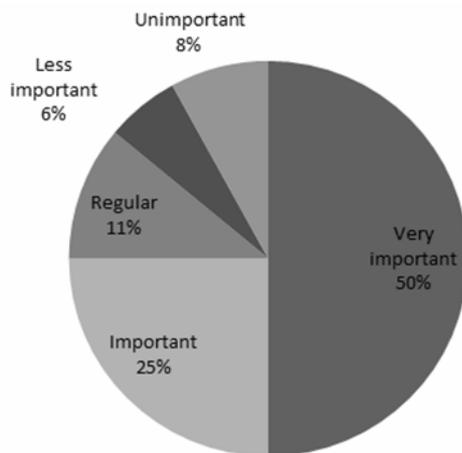
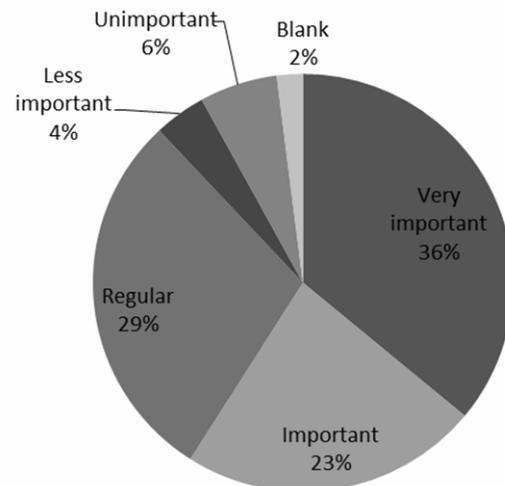
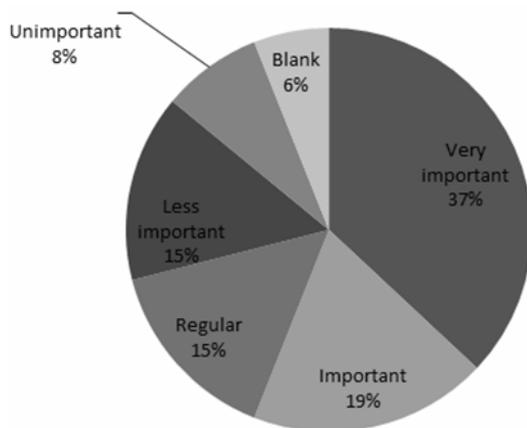
In this sense, Furlan (2010) mentions that it is very difficult to propose possible alternatives to return data from our studies if these do not answer the questions raised by the members of the populations. Similarly, Shanley and Laird (2002) consider that the participation of the local groups in the process of returning data is a key element

Table 2 Years of experience of the researcher.

Interval in years of experience	Number of respondents	Accumulated	% of valid cases	% accumulated valid cases
0.0 < x ≤ 5.0	15	15	32.61	32.61
5.0 < x ≤ 10.0	9	24	19.57	52.17
10.0 < x ≤ 15.0	10	34	21.74	73.91
15.0 < x ≤ 20.0	6	40	13.04	86.96
20.0 < x ≤ 25.0	3	43	6.52	93.48
25.0 < x ≤ 30.0	3	46	6.52	100

Table 3 Forms to give back results mentioned by researchers.

Forms to give back	Number of mentions
Written and graphic materials (manuals, field guides, booklets, maps, dictionaries, photo guides, photographs)	25
Workshops and training	23
Audio-visual material (videos and audios)	9
Photo exhibit	6
School education (didactic materials and educational programs)	5
Transfer of technology	3
Elaboration of products	3
Garden of native plants	3
Diffusion (press, television, radio, WEB)	2
Local herbarium	2
Management and support community projects	2
Credits in publication	1
Link with external organizations	1
Commercialization of products	1

**Fig. 1** Giving back process by Communication workshops. n= 48**Fig. 3** Giving back process by training of local partners outside of their communities. n=48**Fig. 2** Giving back process by Manual or publication with results in the local language/bilingual. n= 48

since they have questions whose answers could orient their way of life and the conservation of the local resources and habitats.

Experiences with returning

The forms of returning mentioned by the respondents as experiences within their investigations were grouped into 14 categories (Table 3). Those mentioned the most were: *Written and graphic material* (56%) and *Workshops and training* (52%). Other forms mentioned were: *Audio-visual material (videos, audios)*, *Photo exhibit* and *School education*, with 18, 14 and 10% respectively.

It is important to emphasize the diversity of written and graphic material produced by the researchers, such as bilingual manuals, field guides, booklets, dictionaries, photo guides, maps and photographs, which are proof that the

strategies for returning data are not limited to delivering a technical document. However, it is necessary to always keep in mind the context in which these forms of returning are developed. In this sense, Martin and Hoare (1998) discuss the effectiveness of returning data in written form in societies where knowledge has been transmitted orally during generations, while Shanley *et al.* (1998) mention that returning data in written form is an ineffective mechanism to transmit information in many Amazon communities due to the elevated proportion of illiterate population.

There is an interesting experience developed by Bletter (2006), and has been called "Talking Books" (water-resistant, solar-rechargeable picture books that explain the concepts of each picture with short audio clips in the users' native language and voices that are played when a button next to each picture is pressed) and have been pointed as effective tools for retaining and returning traditional knowledge to remote, non-literate communities lacking electricity, and stimulating renewed interest in their own traditional knowledge.

The predominance of the oral tradition is manifested for example, in some reflections gathered during the survey: *"There have been many processes to return data in the Maya Biosphere Reserve to the communities regarding the extraction of palms, rubber, fruits, and seeds after ethnobiological investigations, but people from the communities say that no one reads those books and they end up rotting, lost, stolen, or forgotten."* *"...Where I worked the habit of reading was not rooted among the population (some do not even know how to read) which is why according to my experience a publication that is only in written form sometimes ends up stored in an shelf or very few people consult it. Either way I believe that it is valuable to leave a written document with the results in their local language"*.

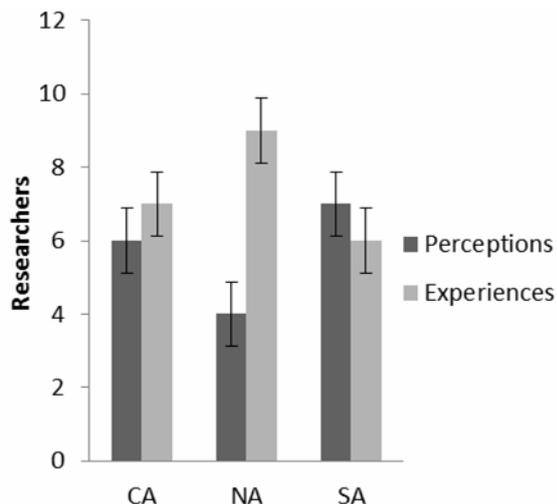


Fig 4 Perception of returning data with written and graphic material vs. experiences returning data with written and graphic material, by region. n=48

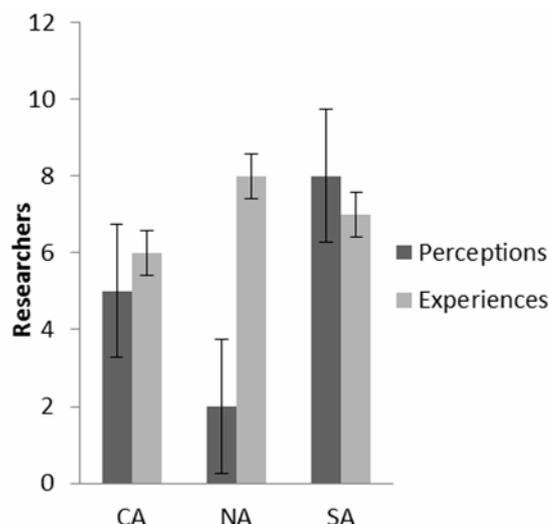


Fig. 6 Perception of returning data by training partners vs. training experience, by regions. n=48

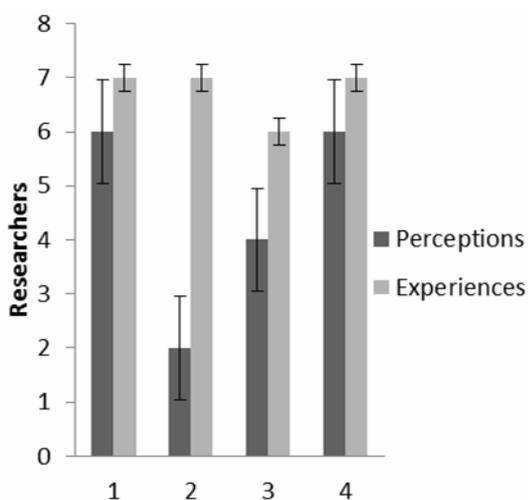


Fig. 5 Perception of returning data with written and graphic material vs. experiences returning data with written and graphic material, by experience. n=48

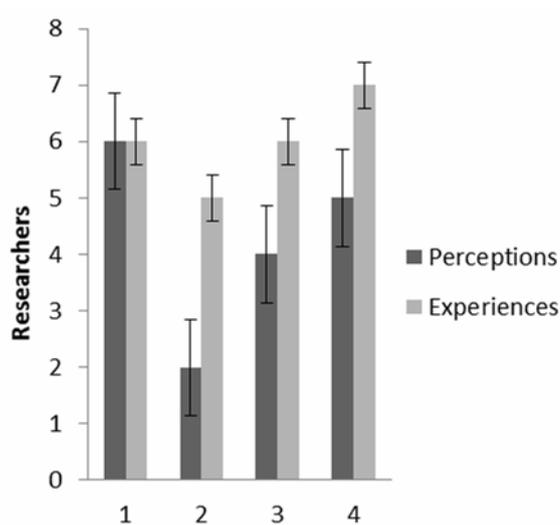


Fig. 7 Perception of returning data by training partners vs. training experience, by experience. n=48

On the other hand, 52% of researchers mention having applied *Workshops and training* processes, as a form of retribution to the local populations. Although the topics have not been specified uniformly and just as in the previous case, it is important emphasize the suggestion from some of the respondents to develop the training *in situ* and *ex situ*, to foster the exchange of knowledge.

Not many experiences have been mentioned for the topic of school education, which does not make it less important. Albuquerque *et al.* (2008) mention that professors from developing countries, generally places with high biodiversity, have limited access to materials needed to support teaching about the local environment. Therefore we agree with Shanley and Laird (2002), who state that including these materials in the curricula and working with them in school can represent a strategy for returning that yields good results.

On the other hand, we consider the reduced mention of co-authorship and credits in these publications to be quite concerning. It should be a vital requirement in strategies for returning data since it is a fair acknowledgment of the local partners involved in the investigation.

As far as support to carry out the strategies for giving back, 19% stated they received support from an institution, while 13% said they had carried out this process personally. Also, 15% of the researchers confirmed they received institutional support for only part of these strategies for return.

Additionally, the respondents mentioned their knowledge of experiences in returning data, among them: publication of manuals and books (Lacaze and Alexiades 1995; Turner 1995; Keefer and McCoy 1999; Mujica *et al.* 2004; Dámaso *et al.* 2009), talking books (Bletter 2006), support to delimit land boundaries (Alexiades and Ellen 2005), dictionary in indigenous language (Tarpent 1986), coauthorship and credits in publications (McMillan *et al.* 1982; Alexiades *et al.* 2003; Singh *et al.* 2009; Srivastava *et al.* 2009), among others.

Since the greater part of the sample is from America, the following analysis only considered researchers from CA, NA and SA, which were grouped into 4 categories by years of experience. Based on the researchers who considered that giving back through *Written and graphic material (Manual or publication with results in the local language/bilingual and Sheets or booklets)* was *Very important*, compared with those who had given back using *Written and graphic material*, we can see differences in the case of the researchers from the NA area compared with the other two areas. In this case the number of researchers who considered that giving back with *Written and graphic material* is much less, actually half, than of those who had actually used this form of returning data to the local communities (Fig. 4).

Similarly, when grouping the opinions and experiences of the researchers in using *Written and graphic material* as a form of returning, we see that the groups that considered

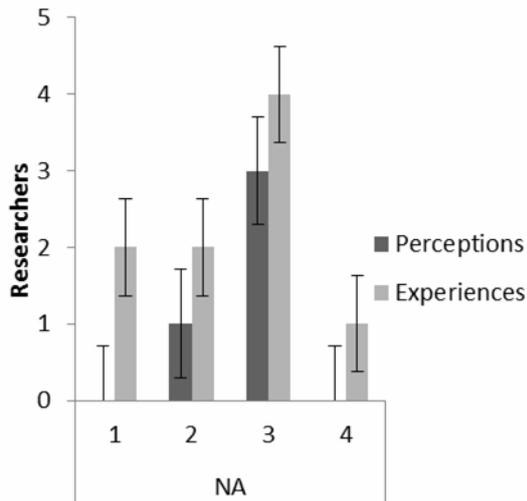


Fig. 8 NA researchers regarding written and graphic material. n=48

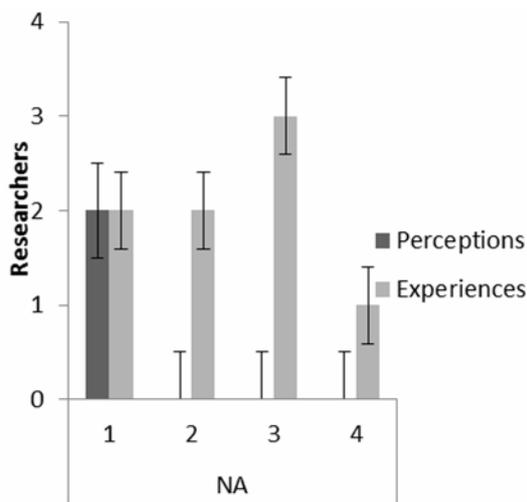


Fig. 9 NA researchers regarding training partners. n=48

this form of returning to be *Very important* are smaller within the sectors of researchers with 5 to 15 years of experience, groups 2 and 3 (Fig. 5).

In the case of returning using *Training partners*, compared with the researchers that implemented training programs in the local communities, we observe that the response from the groups of regions shows differences once again (Fig. 6). We observe that the number of researchers in NA that considered carrying out training programs to be *Very important* is fourfold compared with those who expressed to have conducted them. On the contrary, respondents from SA and CA share similar opinions in both cases.

For years of experience, it is the same as in the case of *Written and graphic material* (Fig. 5). Researchers with 5 to 15 years of experience have applied a greater number of training activities in contrast to the opinions stating that this form of returning is *Very important* (Fig. 7).

When analyzing the case of NA researchers, where more differences have been found concerning what was analyzed previously, we see that for giving back with *Written and graphic material*, the younger researchers and those with over 15 years of experience stated that they have used this form of returning, even when they did not mention that it was *Very important* (Fig. 8). For *Training partners*, researchers with over 5 years of experience were the ones who applied this form of returning, even when they did not mention that it was *Very important* (Fig. 9).

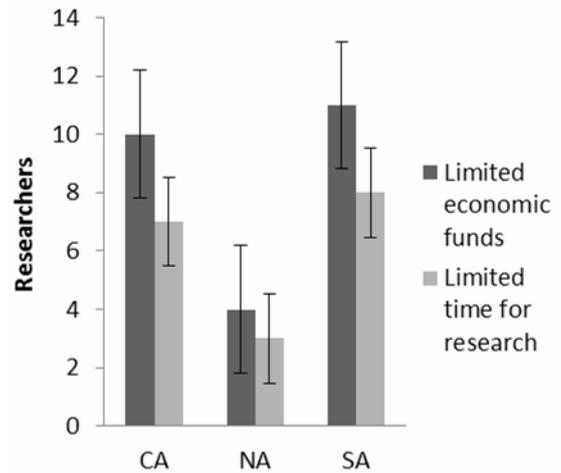


Fig. 10 Main difficulties in the process of returning data by most represented regions. n=48

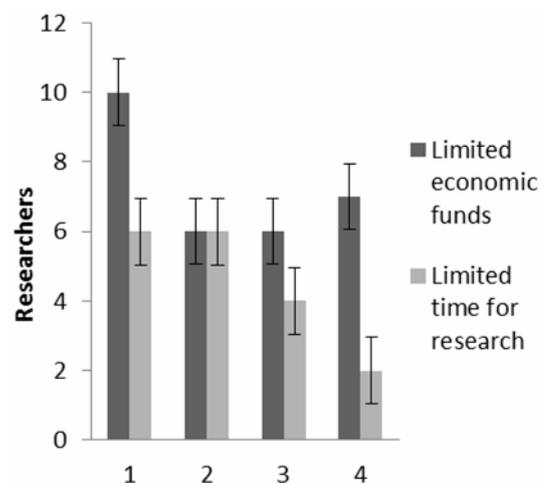


Fig. 11 Main difficulties in the process of returning data by intervals of experience in research. n=48

Difficulties during the process of returning data

94% of the total respondents stated that there are difficulties in the process of returning data. Two are the most frequent: *limited economic funds* and *limited time for research*, which represent 64 and 39% of the samples respectively.

When comparing both difficulties by regions (Fig. 10), we see that *limited economic funds* and *limited time for research* represent greater difficulties in SA and CA compared with NA. To some extent, this could be explained since many times it is very complicated to access financial support in these regions, aside from the scarce interest of some of these countries to support research. The lack of availability of funds is acknowledged in all three regions as a greater restriction than the time for investigation.

As far as the level of experience (Fig. 11), the *youngest* group of researchers was the group that stated that the availability of funds is the main problem. In some way this coincides with the scenario that takes place when a researcher is starting his academic and professional career, and therefore does not have possibilities or easy access to financial support. There are comments such as: “...during my first experiences I found it very difficult to find funding to achieve such results”.

FINAL CONSIDERATIONS

We consider that it is of vital importance to return the results of our investigations to the local populations, to include these results when developing their plans to manage

their needs. The present study is proof that there is interest from researchers to give back to the local communities. The diverse strategies and methods used by researchers to reach this objective confirm this hypothesis. However, we consider that in many cases these actions do not reach the communities. We propose to monitor actions to return data whenever possible in order to be aware of their results.

On the other hand, we reaffirm the idea that we cannot point to a single best strategy to return data due to the different contexts and realities that surround these societies. This is why we must always consider the opinion of the local communities regarding their needs.

Finally, this study focused on the perceptions and experiences of the researchers; we are aware of the need to repeat this research in the future to take into account the perspective of the local collaborators. We must always reflect on the following: for what and for whom are we conducting science? And we must never forget the many times silenced voice of those with whom we work in the field.

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