TYPES OF RURAL EXTENSIONISTS' EXPECTATIONS OF PSYCHOLOGY AND THEIR IMPLICATIONS ON PSYCHOLOGISTS' PRACTICE[1]

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Abstract:
Psychology has great potential for contributing to rural development, particularly through supporting rural extension (RE). In this paper, the types of expectations extensionists have of psychology are identified, as well as possible ways of integrating psychosocial knowledge into the RE context. Rural extensionists from 12 Latin American countries were surveyed (n=654). Of them, 89.4% considered psychology could contribute to rural extension and commented on how this would be possible. Expectations were categorised and the nine mentioned by more than 20% of them were utilized to conduct a two-steps cluster analysis. Three types of extensionists' expectations were identified: one wherein working with extensionists was highlighted; another characterised by a focus on working with farmers; and a third featuring a traditional, diffusionist extension approach, which views farmers as objects of psychologists' interventions. With the first type, psychologists should not neglect working with farmers and with the second, with extensionists. With the third type, reflecting on the expectations themselves and their underlying assumptions seems essential.

Key words:
Rural extension; Rural advisory services; Latin America; Farmers; Rural psychology; Technologies

INTRODUCTION

Over the last decades, rural extension (RE), also known as rural advisory services, has become a growingly complex practice (Belder, Rohrbach, Twomlow, & Senzanje, 2007; Choocharoen, Neef, Preechapanya, & Hoffmann, 2014; Landini, Long, Leeuwis, & Murtagh, 2014; Sulaiman & Davis, 2012). Originally, RE referred to a process of transfer of agricultural technologies from so-called "experts" (researchers and agricultural engineers) to farmers (Leeuwis, 2004), which was described as being a diffusionist approach (e.g. Rogers, 1962).

This approach was 'exported' to Latin America by the United States during the 40s and 50s (Schaller, 2006) with the explicit objective of transferring new technologies to farmers and increasing agricultural productivity. From the 60s onward, this RE approach rapidly became the principal tool for diffusion of the green revolution technologies to farmers (that is, hybridised seeds, fertilisers, and agricultural machinery). Most importantly, this conception of RE not only

[1] This is a pre-print version of the accepted article. It is only meant to be shared among colleagues for academic use. For the final version please check: http://www.springer.com/psychology/psychology+general/journal/12124.

assumed that farmers that lived in developing countries needed new technologies, but also that their poverty was due to their traditional culture and productive practices (Álvarez, 2001). Thus, diffusionist RE became a strategy for, not only transferring technologies, but also diffusing modern, Western cultural patterns over to farmer communities, assuming that they were 'laggard' and had traditional cultures that needed to be 'overcome'. As a result, diffusionist RE encompassed not only the aim of transferring green revolution practices, but also certain foreign cultural patterns, thus implicitly becoming a way of exercising cultural domination over unprivileged farmer communities (Schaller, 2006)

This traditional conception of RE was heavily criticised from different perspectives. In Latin America, Freire (1973) highlighted the exercise of power and the dynamics of cultural oppression underlying this approach, and pointed out its negative effect on farmers' self-esteem and self-confidence, due to the internalization of the foreigners' perception of their own cultural diversity. Thus, Freire advocated for a RE structured in terms of communicating horizontally among equals instead of transferring from top to bottom, pointing out that what the transfer of technology approach did was conceive of farmers as objects of intervention and not as subjects of transformation and development processes, as different authors were arguing in the context of critical social science in general, and community psychology in particular. Likewise, Chambers, in 1983, argued the need for "putting the last first", this is, putting farmers (and not rural extensionists or agricultural technologies) first, thus paving the way for participatory approaches. Interestingly, these new approaches expanded the amount of phenomena and processes involved in RE work and thus the different kinds of knowledge and scientific disciplines relevant to it.

More recently, scholars supporting an innovation systems approach recommended shifting the focus of RE and advisory services away from the transfer of technologies and the relationship between rural extensionists and farmers and towards rural innovation processes taking place in networks and innovation platforms of different, synergistically articulated social actors and institutions (Leeuwis, 2004; Leeuwis & Aarts, 2011). Thus, from this point of view, innovation is not necessarily seen as a pre-defined productive or managing practice but instead the result of interactive social learning processes, wherein actors' agency as well as different experiences, knowledge and preferences are encouraged as sources of innovation. In this line, rural extensionists should not work solely with farmers but also support the links and interactions between actors in the context of innovation systems.

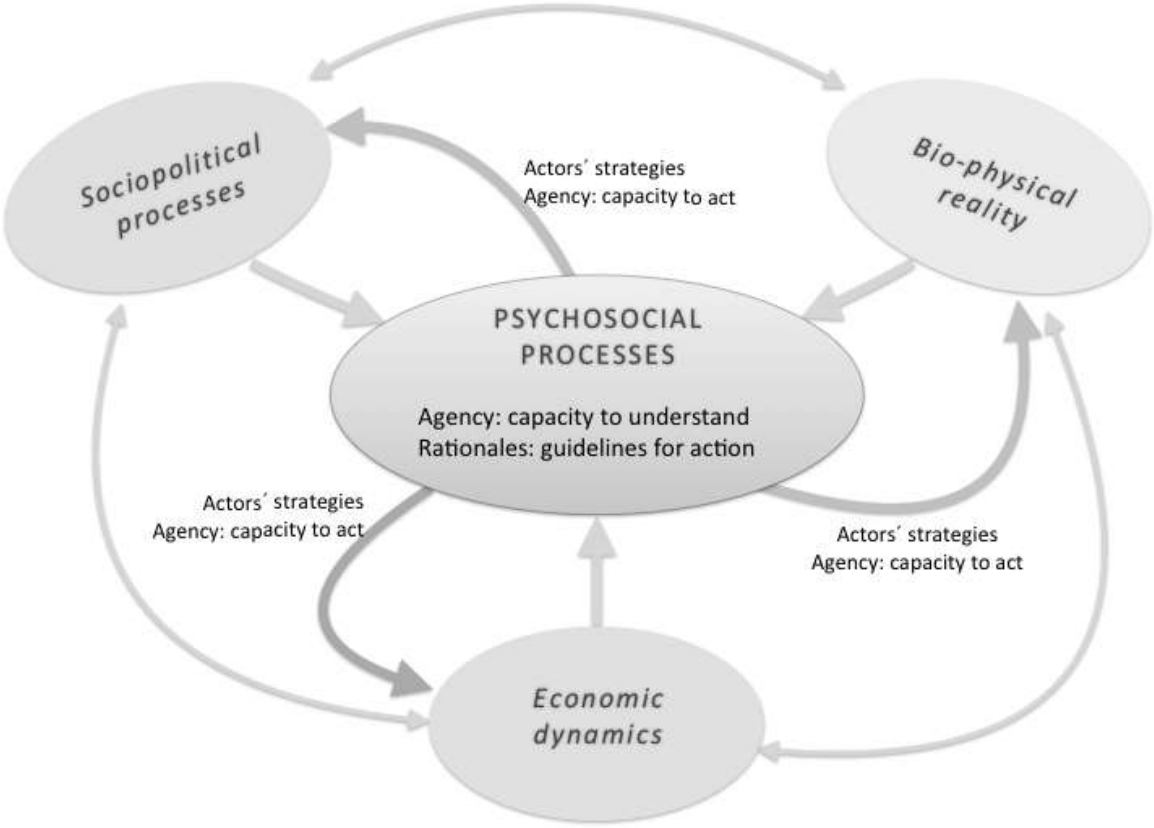
After this historical reconstruction, RE and innovation processes emerge as highly complex phenomena that not only encompasses a transfer of technology process, as had been maintained by diffusionist authors, but are also the result of facilitation, interaction and collective learning, as shown by Klerkx, Aarts, & Leeuwis (2010) through the analysis of a case study of technological and organizational innovation in the area of agriculture. Despite the existence of different definitions (Leeuwis, 2004), nowadays RE is considered as being a set of actions aimed at offering information and services to farmers and to other rural actors looking to support and strengthen productive and organizational practices (Global Forum for Rural Advisory Services, 2012). In this very line, RE may be described as a demand-driven process (Christoplos, 2010; Qamar, 2011; Rivera & Alex, 2004) aimed at empowering farmers and their organizations (Dirven, 2003; Pérez & Clavijo, 2012) and at networking among different institutions and social actors (Acunzo et al., 2014; Ortiz, Rivera, Cifuentes, & Morrás, 2011). What's more, this updated version of RE also encompasses the implementation of participatory approaches (Anyaegbunam, Mefalopulos, & Moetsabi, 2004; Trigo, Mateo, & Falconi, 2013), the acknowledgment of territorial and farmers' diversity (Marchesan & Senseman, 2010; Preissing, Ardila, Buitrón, & Fernández, 2014), a sensitivity towards gender issues (Ortiz, 2009), the appreciation of

environmental sustainability (Ortiz, Mejía et al., 2011) and the encouragement of interdisciplinary work (Preissing et al., 2014).

In this context, it is clear that RE processes require an on-the-field, effective articulation and synergy between agricultural, environmental, economic and social sciences, including a greater participation of the social psychology field (Landini, Leeuwis, Long, & Murtagh, 2014). Certainly, RE features multiple processes that have a strong psychosocial component (Landini, Murtagh, & Lacanna, 2009). For instance, it requires working with groups of farmers and strengthening farmers' organizations (Dirven, 2003); facilitating the interaction and networking of diverse institutions and social actors; catalyzing reflexive, critical processes (Ortiz, 2009; Pérez & Clavijo, 2012; Sæther, 2010), supporting communication and social learning processes (Bouwen & Taillieu, 2004; Zuin, Zuin, & Manrique, 2011) and interacting with other forms of knowledge and knowing, such as farmers' local knowledge (Choocharoen et al., 2014; Landini, Long et al., 2014). However, actionable contributions from social and community psychology to RE have been scarce (Landini, 2015a; Landini, Benítez, & Murtagh, 2010; Leite & Dimensteinm, 2013; Murtagh & Landini, 2011; Sánchez Quintanar, 2009) and the issue of defining modes as well as possible areas of contribution is one that remains unclear and vague for psychologists, RE institutions and professionals alike.

Recently, Landini, Long et al. (2014) proposed an interesting framework for integrating, on a theoretical level, economic, bio-physical, socio-institutional and psychosocial phenomena and processes in the context of rural development, drawing upon the concepts of human agency, and actors' rationales and strategies. The model is presented in Figure 1. Given this model's potential for contributing to the process of analysing the psychosocial determinants and the nexus between different scientific disciplines within the context of the complexity inherent to rural development processes, it will be utilised in this article in order to reflect upon and make sense of the potential role and utility of psychosocial knowledge within the context of RE practice.

Figure 1. Psychosocial processes and complexity in the context of rural development



Source: Landini, Long et al. (2014)

The model argues that socio-political processes, economic dynamics, and the bio-physical reality influence, but also are influenced by, psychosocial processes. For instance, farmers' knowledge guides productive practices (that is, actions upon the land and the environment), which can either keep the fertility of the land or lead to desertification processes. Thus, human subjectivity can transform (even permanently) the structure of the environment. Likewise, productive results will allow farmers to provide (or not) for their families, a factor which has a discernible impact on their experiences, wellbeing and subjectivity.

In this context, human agency is defined as a persons' capacity to construct ways of making sense of the social and material world and to act in ways that facilitate the achievement of desirable results (Long, 2001). Thus, within this active conception of human beings, human agency becomes a bridge between subjective meanings and behaviours. Additionally, in line with the acknowledgement that human practices are socially constructed, rationales are understood as general guidelines for actions, used by different social actors, that express their worldviews and their core values and meanings (Landini, 2011). Finally, strategies are defined as relatively stable practices supported in social actors' rationales that aim at reaching desired results in specific and concrete material, social and institutional environments (Landini, Long et al., 2014). Thus, human practices are grounded in people and social actors' agency, which is, in turn, based on their rationales and strategically shaped to overcome the challenges posed by the environment.

When focusing on the complexity of RE practices, it becomes apparent that psychology and psychologists' contributions, as well as the integration of psychosocial knowledge into the context of RE work, has to be explored further. Thus, drawing upon rural extensionists' point of

view, their expectations of possible psychological contributions will be described, a typology of expectations constructed, and potential ways for integrating psychosocial knowledge into the context of RE practice and theory explored and discussed.

METHODOLOGY

In order to reach these and other related objectives, a cross-sectional, qualitative and quantitative investigation was conducted in Latin America. Rural extensionists from 12 different countries were surveyed (n=654). In order to gather the samples, RE institutions from different countries were contacted via telephone calls and emails. The institutions were selected by taking into consideration their territorial and quantitative presence in each country, as well as their willingness to help us to make contact with extensionists. Thus, the sample was intentional, non-probabilistic.

The questionnaire was sent and received via email with the support of institutional authorities. The instrument gathered socio-demographic information and included open questions regarding problems faced when working in the area of RE, as well as possible contributions from psychology for addressing them, if they considered there were any. The queries regarding psychological contributions were:

1. Taking into account problems mentioned in previous questions, do you think psychology could help solve some of them? [Closed question with options YES/NO]
2. If you replied YES to the previous question:
   2.1. Which problems mentioned in previous questions could psychology help solve?
   2.2. What additional contributions could psychology make to extension work?
   2.3. If not mentioned in previous replies, in which ways do you think psychologists could make contributions to extension work? In which activities or concrete actions could they partake?

In this paper, only replies from rural extensionists who affirmatively responded to question 1 are analysed (89.4% of the sample, n=585). In Table 1 the characteristics of the samples are described:

Table 1.Different samples' characteristics

Country	n =	Psy? %	Sex		Mean age (in years)	Extensionists' experience (in years)
			Female	Male		
Argentina	220	87,7%	35%	65%	42,15	11,3
Bolivia	19	94,7%	31,6%	68,4%	41,37	9,1
Brazil	52	90,4%	40,4%	59,6%	45,85	18,1
Chile	41	92,7%	53,7%	46,3%	40,12	10,7
Costa Rica	32	68,8%	12,5%	87,5%	53,69	24,9
Cuba	31	100%	58,1%	42%	46,00	14,6
Ecuador	74	94,6%	25,7%	74,3%	36,99	9,4
El Salvador	34	91,2%	2,9%	97,1%	41,33	13,9
México	60	86,7%	26,7%	73,3%	41,12	9,6
Paraguay	26	84,6%	26,9%	73,1%	34,38	10,1
Peru	31	96,8%	9,7%	90,3%	39,77	9,6
Uruguay	32	96,9%	43,75%	56,25%	40,28	9,5
Total	652	90,4%	31,9%	68,1%	41,8	12,2

Note: Psy? = Extensionists that consider psychology could help them solve some of the problems they face.

In order to identify and analyse rural extensionists' expectations of psychology and to build different typologies of expected contributions, several actions were implemented. Firstly, following the general principles of grounded theory (Hutchison, Johnston, & Breckon, 2011; Leite, Silva, Oliveira, & Stipp, 2012), different areas for potential contributions were identified in the replies to questions 2.1, 2.2 and 2.3. For instance, comments such as "[psychologists could help] in participatory workshops working as facilitators" lead to the development of an area of contribution denominated "to train farmers and to manage groups and participatory processes". Likewise, after reading several statements arguing that "[psychologists could] help change farmers' attitudes" or "[could induce] transformations in cultural habits", the area named "to support adoption of technologies and the changing of farmers' mindset" emerged.

After having read all replies to the questions several times, a definition was constructed for each area of contribution, including procedures for deciding when text fragments should be included or excluded, this allowing for the categorization of the replies' content using Atlas.ti software. Additionally, all surveys were classified with regards to three variables that described with whom psychology could potentially work: farmers, extensionists and/or extension institutions.

Next, preliminary results were incorporated into SPSS software. Categories constructed during the qualitative phase were translated into dichotomic nominal variables. When a category had been mentioned at least one time during a survey, it was considered to be present and absent when it had not. Variables with unclear or vague definitions of which fragments had to be included within it and which not, were excluded from the analysis process. At the same time, those describing with whom psychologists could work were categorized as 'missing values' when not enough information was available to make a clear decision.

After that, in order to identify different types of expectations, a two-step cluster analysis was conducted with the support of SPSS, using as entry variables the areas or strategies of contribution most mentioned. In an effort to balance out different countries' sample size the mean of the countries' means was used to determine which categories were most relevant on a Latin American level, thus selecting the nine pointed out by a mean of at least 20%. This analysis generated a three-cluster result, allowing for the identification of different types of rural extensionists' expectations of psychology and, in the same sense, different ways of integrating psychosocial knowledge into the context of RE. Next, in order to analyse the profile of the three clusters, the membership to the different clusters was related to other variables using non-parametric tests, due to the fact that normal distribution could not be assumed for relevant ordinal and quantitative variables (Kolmogorov-Smirnov: $p < .001$ in all analysed cases).

Then, given the existence of a large difference in the amount of categories mentioned by extensionists pertaining to the different clusters, the following strategy was implemented. Participants in cluster 1 mentioned categories included in the cluster analysis an average of 1.81 times, while those of cluster 2 did 3.75 times and of cluster 3, 3.86 times, which implies an average of 3.14. These differences cannot be explained by chance (Kruskal-Wallis test: Chi-square = 211(2), $p < .001$). Thus, taking into account that this difference in tendency to mention any contribution could distort the analysis of the variables that proved statistically related to the clusters, a correction was proposed in order to generate an improved interpretation. This was because the contextual relevance of an expectation of those who mentioned less of them has greater interpretative relevance. As a result, the percentage of mentions of each variable in the context of the different clusters was transformed using a correction factor in order to equate this difference in tendency to mention any potential contribution, following the strategy used in a previous work (Landini, 2015b). Concretely, an additional table was built multiplying the original percentages of presence of the nine variables for the factor that would take the average

mention of variables in each cluster to the combined mean of all three, which was 3.14. The correction factor was obtained by dividing said mean by the mean of each cluster. Thus, the factor for cluster 1 was 1.74, for cluster 2, .84 and for cluster 3, .81.

Finally, the differential percentages of presence of each expectation in the three clusters, as well as those of the three different areas of intervention of psychology, were analysed. For this, variables with no proven statistical association were considered as having 'null' relevance when differentiating among extensionists pertaining to the different clusters; percentages in each cluster with a value of 75% higher or lower than the mean were considered as possessing 'very high' relevance to differentiate among clusters; those between 50% and 75% higher or lower were considered as having 'high' relevance; percentages more than 25% and less than 50% higher or lower than the mean were evaluated as having 'moderate' relevance; and those with 25% or less as having 'low' relevance.

RESULTS

In Table 2, the nine expectations or statements regarding contributions of psychology to RE mentioned at least by a mean of the countries' mean of 20% are presented. The arithmetical mean of the complete sample for each variable is also included. Additionally, in Table 3 the same information is given for whom psychology is expected to work with: farmers, extensionists or extensions institutions.

Table 2. Most common rural extensionists' expectations of psychology

Rural extensionists' expectations	Mean of countries' means	Sample's mean
1. To train farmers and to manage groups and participatory processes.	54.1%	52.6%
2. Psychologists have the knowledge and training needed to manage groups and interpersonal relationships.	44.3%	49.1%
3. To support adoption of technologies and the changing of farmers' mindset.	32.4%	25.6%
4. To train, to give advice or to provide tools to rural extensionists.	32.2%	36.2%
5. To generate farmers' sense of ownership, motivation and dynamism with regards to development projects.	29.7%	26%
6. Farmers seen as objects of psychologists' interventions	28.5%	21.5%
7. To increase and strengthen farmers' self-esteem.	27.1%	24.6%
8. To help extensionists understand farmers.	20.8%	22.4%
9. To take part in interdisciplinary or extension work teams.	20.1%	25.8%

Table 3. With whom psychologists should work

Areas of work	Mean of countries' means	Sample's mean
A. With farmers	92%	88.8%
B. With rural extensionists	47.8%	54.5%
C. At an institutional (or supra-institutional) level	7.3%	7.9%

As mentioned before, the cluster analysis provided a three clusters solution (Cluster 1: n = 256; Cluster 2: n = 167; Cluster 3: n = 162). Table 4 shows the differential presence of expectations of psychology and the proposed areas of work for psychologists in the three clusters. Additionally, the statistical relationship between these different variables and the clusters is explored. The numbers and letters of the variables refer to those of Table 2 and Table 3.

Table 4. Differential presence of expectations and areas of work in the three clusters

Variables	Cluster 1	Cluster 2	Cluster 3	χ^2
1	21.5%	100%	53.1%	249.9(2)**
2	25%	98.2%	63.6%	231.0(2)**
3	1.6%	6%	84%	400.6(2)**
4	40.6%	33.5%	32.1%	3.9(2)
5	18.4%	23.4%	40.7%	26.7(2)**
6	0%	0.6%	77.2%	410.2(2)**
7	25.8%	25.7%	21.6%	1.1(2)
8	28.1%	22.2%	13.6%	12.1(2)**
9	27.7%	41.9%	6.8%	53.5(2)**
A	77.1%	100%	95%	61.0(2)**
B	67.1%	46.4%	43.7%	27.4(2)**
C	10.5%	9%	2.5%	9.3(2)**

Note: **: $p < .01$; *: $p < .05$; χ^2: Chi-square

In Table 5, the differential presence of socio-demographic variables in each cluster is analysed.

Table 5. *Differential presence of socio-demographic variables in the three clusters*

Variables	Statistical associations	Cluster 1	Cluster 2	Cluster 3
Age	KW: χ^2=9.7(2)**	42.9 y.o.	41.2 y.o.	39.8 y.o.
Degree	χ^2=28.4(6)**	see information in the text		
Experience as rural extensionists	KW: χ^2=4.1(2)	12.34 years	12.08 years	11.03 years
Level of education	KW: χ^2=4.9(2)	4.7	4.6	4.5
Sex	χ^2=8.7(1)*	M:71.5% W: 28.5%	M:58.1% W: 41.9%	M: 69.1% W: 30.9%

Note: **: $p < .01$; *: $p < .05$; KW: Kruskal-Wallis test; χ^2: Chi-square; M=Men - W=Women; y.o.: years old

The information regarding the differential presence of university degrees in the three clusters is mentioned next, given that it could not be included in Table 5. Cluster 1 is composed of: agricultural engineers: 65%; veterinarians or similar: 17%; social scientists: 7%; other degrees: 11%. In the case of Cluster 2: agricultural engineers: 64%; veterinarians or similar: 10%; social scientists: 15%; other degrees: 11%. Finally, Cluster 3 has: agricultural engineers: 62%; veterinarians or similar: 23%; social scientists: 0%; other degrees: 15%

In Table 6, using the procedure described in the Methodology section, the adjusted presence of the different expectations as well as their degree of relevance with regards to the three clusters, are presented. In the case of the areas of work of psychology, percentages are not adjusted due to their being the result of a general categorisation of the researcher and not textual replies. The numbers and letters of the variables refer to those of Table 2 and Table 3.

Table 6. Adjusted differential presence of expectations and areas of work in the three clusters

Variables	Cluster 1		Cluster 2		Cluster 3		Mean
	Relevance	%	Relevance	%	Relevance	%	
1	-Moderate	35.4%	+High	88.5%	-Low	42%	54.7%
2	-Moderate	41.2%	+Moderate	86.9%	-Low	50.4%	59.1%
3	-Very high	2.6%	-Very high	5.3%	+Very high	66.5%	25.4%
4	Null	66.9%	Null	29.6%	Null	25.4%	41.6%
5	+Low	30.3%	-Moderate	20.7%	+Low	32.2%	28.2%
6	- Very high	0%	-Very high	0.5%	+Very high	61.1%	21.1%
7	Null	42.5%	Null	22.7%	Null	17.1%	28%
8	+Very high	46.3%	- Moderate	19.6%	-High	10.8%	26.2%
9	+High	45.6%	+Low	37.1%	-Very high	5.4%	29.6%
A	-Low	77.1%	+Low	100%	+Low	95%	90.7%
B	+Moderate	67.1%	-Low	46.4%	-Low	43.7%	52.4%
C	+Moderate	10.5%	+Low	9%	-High	2.5%	7.3%

Note: '-': percentage is lower than the mean; '+': percentage is higher than the mean

Finally, in Table 7, variables categorized as having Moderate, High and Very high relevance are used to characterise and differentiate extensionists pertaining to each cluster. Again, the numbers and letters of the variables refer to those of Table 2 and Table 3.

Table 7. Expectations characterising each cluster and its relevance

Relevance	Cluster 1	Cluster 2	Cluster 3
Very high	4. Scarce expectations of psychologists contributing to the transfer of technologies	4. Scarce expectations of psychologists contributing to the transfer of technologies	4. Very frequent expectation of psychologists contributing to the transfer of technologists and to changing farmers' mindsets
	6. No reference to psychologists treating farmers as objects	6. Almost no references to psychologists treating farmers as objects	6. Tendency to perceive farmers as objects of psychologists' interventions
	8. Higher mention of psychologists helping understand farmers		9. Highly rare references to the possibility of psychologists working as part of interdisciplinary RE teams

High	9. More frequent mention of the potentiality of psychologists partaking in interdisciplinary RE teams	1. More frequent references to the expectations that psychologists train farmers and manage groups and participatory processes	8. Less frequent reference to psychologists helping understand farmers
			C. Almost null mentions of psychologists being able to work at an institutional and/or social level
Moderate	1. Fewer mentions of psychologists training farmers and managing groups and participatory processes	2. More frequent mentions of psychologists' knowledge and training to manage groups and interpersonal relationships	
	2. Less acknowledgement of psychologists' knowledge and capacity to manage groups and work with interpersonal relationships	5. Lower presence of expectations with regards to psychologists supporting farmers' sense of ownership, motivation and dynamism	
	B. More frequent references to the possibility of psychologists working with rural extensionists	8. Fewer references to psychologists helping understand farmers	
	C. More frequent references to the possibility of psychologists working at an institutional and/or social level		

DISCUSSION

This paper aimed at identifying and analysing types of rural extensionists' expectations of psychology, as well as discussing the integration of psychosocial knowledge into the context of RE practice. In this section, these and other related issues are discussed.

Different areas of psychosocial contributions to RE practice

Some general reflections on the extensionists' most common expectations of psychology (see Table 2) will help better contextualise the results of this research and its implications. Firstly, it is clear that extensionists have many expectations of psychology. Only one was mentioned by more than 50% of the participants and, aside from that, one additional expectation by more than a third of the sample, which shows expectations are quite diverse, and even disperse. These first two focus on one area (group work and participatory processes) that is clearly out of the realm of extensionists' expertise, given that most of them have backgrounds in agricultural sciences (Landini & Bianqui, 2014), but that are, however, within the capacities of social and community psychologists. Interestingly, this seems to derive from the traditional framework of RE as a practice conducted by agricultural experts, and not by practitioners with different knowledge and expertise.

A second area refers to the expectation that psychologists or psychosocial knowledge will help to transfer technologies and change farmers' mindsets, which clearly expresses the continuity of the diffusionist approach imported by most Latin American countries from the United States during the 40s and 50s, as argued in the Introduction. In fact, despite being an outdated approach to RE, different authors have argued that diffusionism continues to be strong in different contexts, on a field level, in Latin America (Landini, 2016; Zuin et al., 2011) as well as on a global level (e.g. Chowdhury, Hambly Odame, & Leeuwis, 2014; Moschitz, Roep, Brunori, & Tisenkopfs, 2015).

This expectation of psychology also seems to be coupled with that of perceiving farmers as objects of psychologists' interventions, given that assuming farmers are passive receivers is part of the main idea behind diffusionism, in contrast to the active role expected within horizontal, participatory or systemic RE approaches. Needless to say, these two expectations confront psychologists with a clear, ethical dilemma, since they are called upon not only to transmit the use of technologies, but also Western (also known as 'modern') cultural patterns through processes of social influence over often-times exploited and excluded rural populations, including peasant and indigenous communities. Here, as will be argued later, psychologist will have to take sides by supporting these underprivileged social groups, but also by being realistic in terms of being explicit as to how they can be supported in the context of these requirements and expectations.

Another expectation that is of particular interest is that of helping extensionists to understand farmers, given it suggests that the practitioners have the perception that they not only need additional knowledge but, specifically, *a different kind of knowledge* that will allow them to make sense of farmers' practices and productive decisions (Landini, 2011). Regardless, only one in five extensionists expressed this interest. Finally, almost the same proportion of practitioners surveyed highlighted the importance of psychologists taking part in interdisciplinary extension teams, which in itself seems positive, yet represents a very low percentage of extensionists.

All in all, extensionists' expectations of psychology refer to different areas of psychologists' expertise. Nonetheless, in some cases, they also express an outdated conception of RE, in that they expect to receive support in the transfer (diffusion) of technologies, leading psychologists to make decisions that involve clear ethical implications.

Overview of the types of expectations

The research results show three different types of rural extensionists' expectations of psychology, which can be distinguished using two axes: the relevance given to a farmer or an extensionist-centred psychologists' intervention, and the presence or absence of a transfer of technology approach that views farmers as objects of intervention. In brief, cluster 1 features a set of non-diffusionist expectations focused on psychologists working with extensionists; cluster 2 encompasses non-diffusionist extensionists focused on psychologists working directly with farmers; and cluster 3 members also understand psychologists' contributions as farmer-centred, but shaped in terms a traditional (diffusionist), transfer of technology, hierarchical approach.

Expectations characterising cluster 1 and cluster 2 depict a non-diffusionist, non-hierarchical psychosocial practice in the context of RE, thus aligning with a contemporary extension approach (Acunzo et al., 2014; Leeuwis, 2004; Sulaiman & Davis, 2012), wherein farmers, rural extensionists, institutions and other social actors are acknowledged as different but without considering such differences in terms of different degrees of value or recognition (Landini et al., 2009). Some studies suggest not adopting a traditional, hierarchical approach to RE would imply enacting the opposite, that is, a dialogical or horizontal one (Landini, 2015b; Landini & Riet, 2015). Nonetheless, the results of a research conducted in Paraguay suggest that low levels of diffusionism do not necessarily imply high levels of horizontality (Landini, Bianqui, & Crespi, 2013), which raises the need to be extremely cautious when making these kinds of extrapolations.

A factor that specifically characterises cluster 1's expectations of psychology is its more frequent reference to the possibility of psychologists working directly with rural extensionists and less with farmers, particularly in the area of managing farmers' groups or participatory processes. In the same vein, extensionists pertaining to this cluster highlight the potentiality of psychologists to help understand farmers and to partake in interdisciplinary extension teams. The contents of the

expectations characterising cluster 1 are of utmost interest, given that they show extensionists belonging to this cluster perceive they (and not only farmers) have limitations or lack certain capacities. This suggests these extensionists could be more self-critical and self-reflective than those of clusters 2 and 3, which are more focused on psychologists working directly with farmers. This is particularly relevant when acknowledging this reflective tendency is key to rethinking, reshaping and improving RE practice (Landini & Bianqui, 2013; Landini, Bianqui, & Russo, 2013) through processes of double loop learning (Tagg, 2010) facilitated by psychologists, which are particularly important to satisfactorily manage change in complex contexts (Gazzoli, 2012; Kim, MacDonald, & Andersen, 2013). Interestingly, as with the other two clusters, most of cluster 1's practitioners have a technical background (82% in this case), which proves education in the area of social sciences is not necessary for adopting this type of perspective.

Additionally, results also show cluster 1's extensionists tend to be slightly older than the rest (cluster 1's mean age: 42.9 years old; cluster 2's: 41.2 years old; cluster 3's: 39.8 years old). Nonetheless, differences are so minute that it seems difficult to find any solid interpretation.

Meanwhile, cluster 2's extensionists, besides featuring a non-diffusionist and non-hierarchical approach, and unlike those of cluster 1, all refer to the fact that psychologists could work with farmers, specifically with the tasks of training them and managing farmers' groups and participatory processes. On the contrary, it is less frequent for them to mention the possibility of psychologists helping rural extensionists understand farmers. Thus, it becomes apparent that the predominant tendency is to focus on farmers instead of their own extension practices that, as will be explained later, suggests a very different integration of psychosocial knowledge into the context of extension practice. Interestingly, cluster 2's extensionists seem to propose a wider area of intervention for psychologists if compared with cluster 1, but at the same time show a less self-critical or at least less self-reflective attitude, which would limit the possibility of their supporting processes aimed at changing extension practices. In this case, although they are not a majority, a higher percentage of women are part of cluster 2 when compared to cluster 1 and 3. The reasons for this are unclear.

As stated previously, cluster 3 is characterised by being comprised of extensionists who support a traditional, diffusionist extension approach, wherein psychology is expected to support a traditional, hierarchical transfer of technology process, mainly treating farmers as objects of interventions and not as subjects of change. Interestingly, as will be explained later, this also suggests a very specific model of articulation between psychosocial knowledge and RE practice. Likewise, cluster 3's extensionists also put psychologists in the difficult position of either accepting their expectations of treating farmers as objects (in a sense aiming at 'manipulating' them) or rejecting said requirements, limiting the very possibility of contributing to more progressive RE processes, and supporting and empowering underprivileged rural communities.

Additionally, cluster 3 extensionists' core expectations are also a complement to the lack of acknowledgement of psychologists' potentiality to take part in interdisciplinary RE teams and scarce references to the possibility of them helping understand farmers. Additionally, cluster 3's rural extensionists seem to be the least self-critical and self-reflective in terms of their expectations of psychology, in the sense that they tend to see the solutions to their problems in terms of changing farmers, but not reshaping their own practice, something characteristic of cluster 1's practitioners. Moreover, this will have important implications for psychological practice in the context of RE.

Finally, as mentioned earlier, cluster 3's extensionists tend to be slightly younger than the rest. Nonetheless, the small differences found between the mean age of extensionists partaking in the

different clusters do not allow us to arrive at any convincing or strong interpretations.

Theoretical integration of psychosocial knowledge into RE within the three types of expectations

In this paper's Introduction, a framework was proposed so as to organize, on a theoretical level, the articulation between different kinds of phenomena within the context of rural development. Additionally, it was also argued that RE is a complex practice that involves (and requires) different kinds of knowledge and scientific disciplines in order to impulse the development of rural communities. Now, the question is: which ways of integrating psychosocial knowledge into the context of 'extension science' (see Leeuwis, 2004) are being implicitly supported by the extensionists pertaining to each of the clusters identified in this research?

Cluster 1 and 2's extensionists feature a genuine, substantive interest in psychosocial knowledge, in contrast with those of cluster 3 who, in the context of their diffusionist approach, consider it as a means to 'control' farmers, that is, to make them do what is expected of them: to 'adopt' technologies and to 'change' their mindset. Thus, cluster 3's extensionists do not seem to propose an integration of psychosocial knowledge into the context of extension science but instead an operative and pragmatic use of it. Interestingly, cluster 1 and cluster 2's extensionists do propose real ways of integrating psychosocial knowledge into their practice.

Cluster 1's extensionists are characterised by a greater expectation that psychologists help them to understand farmers and, in general, of psychologists working directly with rural extensionists, and by less frequent expectations of them working directly with farmers' groups. Thus, psychosocial knowledge and expertise appear as a way to (re)interpret, to make sense of a rationale (farmers' rationale) that cannot be unfolded using extensionists' current knowledge. In this sense, psychosocial knowledge comes to occupy a relevant, though empty, space in the context of extension science: that of understanding farmers' agency. However, the role of 'advisors' that extensionists propose for psychologists to occupy, also suggests that the integration of psychosocial knowledge into extension work, as proposed by cluster 1's extensionists, is mainly theoretical and discursive, not reaching an integration on a practical or operational level wherein psychologists work directly with farmers, as peers. In this sense, despite being higher than the general mean, only 27.7% of cluster 1's extensionists highlight the importance of psychologists taking part in interdisciplinary extension teams.

Meanwhile, cluster 2's extensionists, besides featuring a non-diffusionist extension approach, also mention more frequently than cluster 1's extensionists the importance of psychologists training farmers, managing farmers' groups, and conducting participatory processes. In contrast, they are less likely to expect psychologists to help them understand farmers. Thus, in this context, cluster 2's extensionists seem to propose a practical integration of psychosocial knowledge into extension practice. In fact, they are the ones that most frequently point out the importance of psychologists taking part in interdisciplinary extension teams. Nonetheless, within this cluster, the potential integration of theoretical psychosocial knowledge into extension science seems diffuse and even neglected.

In summary, cluster 1's extensionists propose a discursive, theoretical integration of psychosocial knowledge into extension science; cluster 2's an operative integration of psychologists into rural extensionist teams; and cluster 3's extensionists a pragmatic use of psychologists and of psychosocial knowledge, with neither a theoretical nor an operative or practical integration of psychologists and/or their psychosocial knowledge.

From the point of view of a psychological science (and not of extensionists), the relevance of an articulation between psychology and extension science seems intuitive and even self-evident (see Landini, Long et al., 2014). Nonetheless, when considered more in-depth, the means and

dynamics of this articulation remain unclear. In this line, we propose three levels of theoretical integration. Firstly, the use of current psychological theory to analyze and understand RE processes. Here, no new knowledge is developed. In fact, the integration is simply operational. Psychology gets enriched only by means of incorporating a new area of intervention, and extension practice receives the support of practitioners with a new area of expertise.

A second level of theoretical integration refers to the adjustment, or adaptation, of current psychological knowledge to a new area of practice. In this case, psychosocial theory is viewed more critically with regards to its usefulness and pertinence in this new context, which may cause it to undergo minor changes. Likewise, extension science incorporates specific and useful psychological developments, but without altering any of its core theoretical principles and/or guidelines.

Finally, a third level of integration would encompass the development of novel psychological knowledge as a result of the emergence of a new area of research that has not been addressed previously, which could even lead to the need for putting up for discussion assumptions sustained previously. Thus, psychology undoubtedly gets enriched in the process. Furthermore, extension science incorporates new psychosocial knowledge specifically developed for the area, which gives it greater potential in terms of generating relevant changes in its content and structure. Nonetheless, this last level of integration is only a projection, while, at this moment, efforts seem to be concentrated on passing from level one to level two.

Practical guidelines when facing different extensionists' expectations

Research results also have important implications for psychologists' work in RE. Some of these implications apply to all cases, while others are related to specific clusters. With regards to the former, it is clear that extensionists' expectations of psychologists are multiple, disperse and related to their felt problems (Landini, 2015c). Thus, psychologists' participation in rural extension processes may require not only accepting the roles demanded by extensionists, but also presenting alternatives and proposals that have to do with extensionists' practical problems but that are not necessarily acknowledged nor imagined by them. For instance, almost no extensionist from any of the clusters highlighted the possibility of psychologists contributing to facilitating the interaction amongst different institutions and social actors in the context of rural development platforms, such is presented in pertinent literature as a key role for rural extensionists (Leeuwis, 2004; Leeuwis & Pyburn, 2002). Thus, offering potential psychosocial contributions to extension practice may be an interesting general strategy for psychologists.

Secondly, the importance given by most extensionists to potential psychologists' contributions with regards to group management and conduction of participatory processes suggests that they are areas that will facilitate a first approach to rural extensionists and to their institutions, given that, in that instance, a connection between psychologists' expertise and extensionists' needs is more likely to be found. However, at the same time, psychologists should not neglect that, despite their potentiality in terms of working directly with farmers and even with interinstitutional articulation, they may also help understand farmers and other social actors' (including the extensionists' themselves) rationales, that is, their agency or, more concretely, the sense of their practice. And finally, psychologists also should acknowledge that they not only can contribute to extension work in specific situations (e.g. group work or institutional conflicts) but in general terms as part of interdisciplinary extension teams, something mentioned by 20.1% of extensionists surveyed. Thus, this implies that, not only can they be hired as consultants for specific activities, but they can also become extensionists or extension advisors on a permanent basis.

Additionally, there are also some practical guidelines for psychologists when working with extensionists with different types of expectations. In general terms, expectations characterising cluster 1's extensionists appear to be interesting, given they allow for processes of reflection on practice (Landini & Bianqui, 2013) and for reshaping ways of doing things, thus facilitating dynamics of social learning and new institutional arrangements (Cazorla, De los Ríos, & Salvo, 2013; Leeuwis & Pyburn, 2002). Nonetheless, their perception of psychologists as extensionists' advisors, and their proposal to integrate psychosocial knowledge into extension science primarily on a theoretic level, seems to have the tendency to neglect psychologists' potential with regards to supporting farmers directly, for instance, facilitating group processes. Thus, psychologists working with this type of extensionists should mention and emphasise these practical contributions.

Meanwhile, working with cluster 2's extensionists seems to present the opposite scenario: facilitated alternatives to working with farmers but fewer proposals to help rural extensionists directly, due to proposing the integration of psychologists into extension practise mainly on a practical, operative level. Thus, if the problem in the first case was extensionists forgetting about possible alternatives to the practice of facilitating interpersonal and group processes with farmers, in this second case it is rural extensionists not expecting nor accepting reflexive or discursive interventions aimed at helping them to improve their own practice. In consequence, in this case, psychologists should take into account this possible resistance, but also present this as a possible contribution that psychologists could make towards improving extension practice.

Finally, working with rural extensionists pertaining to cluster 3 seems to be the most complex situation. Firstly, the expectation to work directly with farmers is present, but the problem is that it tends to be framed in such a way that it poses ethical problems, due to their addressing farmers as objects of intervention and not as subjects of transformation and development, and implicitly understanding its own practise in terms of the diffusion of Western cultural patterns to 'backward' rural communities. In this sense, psychologists have to acknowledge their responsibility to be respectful of cultural differences, to avoid and denounce actions that could lead to exploitative relationships, and to protect the rights and welfare of vulnerable communities (APA, 2010). What's more, they should not be neutral and instead take on the position of advocating for the rights and wellbeing of unprivileged communities (Montero & Winker, 2014).

Secondly, helping rural extensionists of this cluster to reflect on their practice and improve their way of doing RE seems like a difficult task, given their tendency to focus on farmers' practices, culture and worldview, and not on their own, even to the point of projecting problems onto them. In this case, these extensionists' expectations of psychology would have to be addressed and put up for discussion along with the traditional RE model that they uphold with its corresponding assumptions and limitations (Landini et al., 2013), a double pronged approach without which it would be impossible to establish a positive and productive interaction between them.

Guidelines for the integration of psychosocial knowledge into RE practice

Now, having reached this point of the discussion, it is worth analysing how we could conceptualise the relationship between psychologists, psychosocial knowledge, rural extension and, more widely, rural development. To do so, three premises are presented.

As shown in Figure 1, rural extension and innovation processes involve a multiplicity of actors (farmers, extensionists, institutions, etc.) in their relationship with the environment, the economic system and different socio-political processes. Thus, in the first place, psychosocial knowledge seems fundamental to understanding the rationale and the practices (that is, the agency) of the different individual and social actors involved in rural extension and development processes

(Landini, 2011; Landini, Long et al., 2014).
However, the frames of meaning guiding individual and collective practices are not static. They are under continuous transformation. Thus, in second place, psychosocial knowledge also emerges as a key tool for understanding these transformations, particularly when driven by educational and/or reflective processes.
Finally, psychosocial knowledge does not only emerge as an instrument for understanding individual and/or social dynamics, but also as a tool for guiding extension practice in two senses: first, facilitating the links and relationships between the different individual and social actors that are part of agricultural innovation systems; and second, strengthening extension educational interventions (that is, actions aimed at improving the knowledge and capacities of farmers and of other actors). Evidently, here, psychosocial knowledge can be an asset for extensionists, but psychologists themselves can also take part in extension interventions, thus facilitating relationships and supporting educational and reflective processes.

CONCLUSIONS

This paper was aimed at describing rural extensionists' types of expectations of psychology and at exploring different ways of integrating psychologists and psychosocial knowledge into the context of RE practice and theory. In general terms, extensionists have many and diverse expectations of psychology, among which managing farmers' groups and conducting participatory processes are highlighted. Additionally, a relevant percentage of the extensionists surveyed expect psychologists to help them transfer technologies to farmers, thus revealing the use of a traditional, diffusionist RE approach, which puts psychologists at an ethical crossroads that faces them with the responsibility of protecting vulnerable communities when such interventions may lead to exploitative relationships.
Finally, most extensionists point out the usefulness of psychologists working directly with farmers, only some mention them helping extensionists, and, only a few mention the importance of them working as part of interdisciplinary RE teams and at an institutional or supra-institutional level of action.
Results also suggest the existence of three different types of rural extensionists' expectations of psychology. Cluster 1's extensionists support a non diffusionist RE approach, focus on psychologists helping them to understand farmers, and propose a more theoretical and discursive integration of psychosocial knowledge into the context of extension science. Cluster 2's extensionists also present a non diffusionist conception of RE, but mainly expect psychologists to work directly with groups of farmers or conduct participatory processes. They tend to propose a more practical, not theoretical, integration of psychologists into extension work. Finally, cluster 3's extensionists expect psychologists to help transfer technologies to farmers, thus supporting a traditional, diffusionist RE approach and proposing an instrumental use of psychosocial knowledge in the context of extension practice.
These results led to some practical guidelines for psychologists working in RE. Given extensionists have multiple and disperse expectations, psychologists should present proposals on how they could contribute to RE work, but with the focus placed on their potentiality in the area of group management and participatory processes. Additionally, they should acknowledge that they not only can contribute to specific situations as 'consultants', but can also be part of interdisciplinary extension teams on a permanent basis.
When interacting with extensionists pertaining to cluster 1, psychologists should help them understand farmers and reflect on their practice, without neglecting their own potentiality to work directly with farmers. In the case of cluster 2's extensionists, psychologists should work directly

with farmers, yet demonstrate that they can also contribute to reflecting on farmers' rationales and extension practices. Finally, when working with cluster 3's extensionists, the traditional diffusionist RE approach, as well as the expectation that psychologists help transfer technologies, should be addressed and put up for discussion.

With regards to the conceptualisation of the relationship between psychosocial knowledge and RE, three elements were highlighted. Firstly, psychologists can contribute to understanding farmers and other social actors' rationales and practices in the context of complexity. Secondly, they can help understand how rationales and practices change though educational and/or reflective processes. Finally, psychosocial knowledge on group management, conflict resolution and learning processes can also be used during interventions to facilitate relationships between farmers and other social actors, and strengthen extension educational interventions.

Undoubtedly, many issues are still to be discussed in the area of how psychology can contribute to extension science and practice. Nonetheless, these results have proposed new, interesting insights and reflections that contribute to the visibility of this area of psychosocial intervention.

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