

Unfolding the knowledge and power dynamics of the ‘farmers–rural extensionists’ interface in North-Eastern Argentina

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Abstract

Purpose: In this paper, the knowledge dynamics of the farmer-rural extensionist’ interface were explored from extensionists’ perspective with the aim of understanding the matchmaking processes between supply and demand of extension services at the micro-level

Design/Methodology/approach: Forty semi-structured interviews were conducted with extensionists whom work in the North-Eastern, Argentine provinces.

Findings: Two different, general types of knowledge dynamics were identified: one moderately diffusionist, based on a hierarchical relationship and the prioritisation of experts’ knowledge, and the other constructivist, based on horizontal processes of co-construction. Interestingly, some extensionists support beliefs pertaining to both approaches. Extensionists also mentioned different origins of training contents: farmers’ requests and their own recommendations. Additionally, they highlighted the importance of unceremonious trainings, interpersonal trust, and making recommendations that take into account farmers’ rationale and context.

Practical Implications: Results show the persistence of diffusionist rural extension and that extensionists have different, even contradictory, extension approaches, which renders inappropriate any attempt to generalise their perspectives. This study also suggests that farmers’ demand is the result of a constructive, interactive process, and thus is not prior to the interaction between the demand side (farmers) and the supply side (extensionists). Consequently, the knowledge and power dynamics that take place within the farmer-extensionist interface should be considered the nucleus of demand construction and the matchmaking process.

Originality/Value: This paper addresses the dynamic matchmaking process between supply and demand of extension services at the micro-level, suggests that it is a constructive process and shows the core role played by power dynamics in it.

Keywords: Rural extension; Knowledge dynamics; Rural psychology; Participation; Diffusionist approach; Innovation systems approach; Latin America

Paper Type: research paper

Introduction

Over the last few decades, rural extension (RE), also named rural advisory services (Leeuwis 2004), has changed enormously. The innovation systems perspective (Klerkx, van Mierlo, and Leeuwis 2012; Leeuwis and Aarts 2011) has proposed understanding ‘innovation’ as the result of collaborative processes of interaction and learning among social actors, organizations and institutions with different types of knowledge, experiences and perspectives. Thus, the notion of RE was broadened and enriched, multiplying the social actors, organizations, and institutions important to these processes. However, the relationship between farmers and extensionists still remains essential to understanding RE, innovation, and development processes (Ingram 2008).

The traditional, linear approach to RE (Kilelu, Klerkx, and Leeuwis 2014; Knickel et al.

2009) conceptualised the farmer-extensionist relationship as one of hierarchical transference of technologies, neglecting its complexity and dynamism. In contrast, demand-driven approaches, which have recently been the focus of more attention, analysed the farmer-extensionist interface using the framework of matching between supply and demand (e.g. Chowa, Garforth, and Cardey 2013; Faure et al. 2013; Minh, Larsen, and Neef 2010). In this vein, authors highlighted the importance of pluralistic innovation support services that allow farmers to choose the one that best fits their needs (Birner et al. 2009)

Kilelu, Klerkx, and Leeuwis (2014) have pointed out some limitations of the scholarly literature on demand-driven approaches, particularly that it has provided ‘little insight at the micro-level on the dynamics of demand articulation’ (p. 213), this is, on farmer-extensionist interpersonal interactions. However, there are some key ideas that may guide our exploration on the topic. Firstly, farmers’ demand is not usually completely pre-defined before interaction with the practitioners (Kilelu, Klerkx, and Leeuwis 2014; Klerkx, De Grip, and Leeuwis 2006), which also implies that it is not static but dynamic. Secondly, interactive, horizontal interactions between farmers (demand side) and extensionists (supply side) are fundamental for achieving a good fit between the two. Thirdly, linear, diffusionist approaches can never provide a good match between demand and offer of RE services, given its structure and dynamic do not allow for such interactive, horizontal processes (Chowa, Garforth, and Cardey 2013). Fourthly, if this process of demand construction and facilitation of dynamic evolution is to take place, farmers’ knowledge, experiences and points of view have to be acknowledged and valued in the interaction (Moschitz et al. 2015). And, finally, when analysing the matching process between demand and offer of RE services, the power relationships between extensionists and farmers have to be seriously taken into account (Barnaud et al. 2010; Chowa, Garforth, and Cardey 2013; Chowdhury, Hambly, and Leeuwis 2014)

With the objective of expanding our understanding of the matching process between supply and demand of RE services at the micro-level, the knowledge dynamics of the farmer-rural extensionists’ interface will be explored from extensionists’ perspective, drawing upon a study conducted in Argentina. The research questions that organise the article are: How do extensionists structure and organise their interaction with farmers and to what extent do they take into account farmers’ expectations, demands and points of view? What type of RE approach do extensionists use and how does this relate to power issues and farmers’ demands? Finally, how do extensionists differ in their approach and positioning to farmers’ with regards to their expectations and demands?

On the knowledge and power dynamics of the farmer-extensionist interface

Focusing at the micro-level of the matchmaking between supply and demand of RE services requires addressing the interpersonal relationship between farmers and extensionists. As argued previously, this process of articulation and matchmaking is dynamic and involves exchange, co-construction, reframing, and development of shared points of view, which puts the knowledge dynamics that take place in the farmer-extensionist interface at its core. The concept of knowledge dynamics refers to the complex and open process of exchange, co-construction, transfer, clash and imposition of knowledge that takes place in the interaction between farmers and extensionists.

Common sense tells us that knowledge can be owned, quantified and even transferred, as if it could be thought of in the same terms as an object (Long 2001). This perspective has been heavily criticised by constructivism, which argues that learning and knowledge are the result of an active constructive process that takes place in the interaction between a person and the environment (Chadwick 2001). Moreover, social constructionism argues that reality is the result of a conflictive process of social construction (Burr 1999) and that knowledge refers to

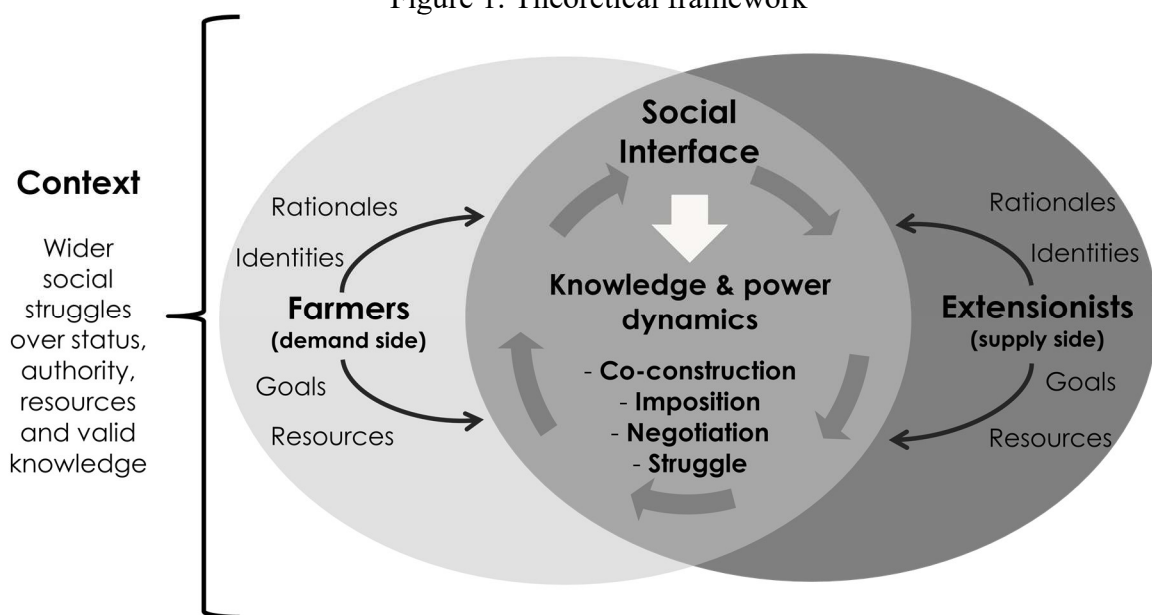
the collectively constructed frames of meaning that we use to cognitively and emotionally make sense of the world and to act upon it (Long 2001).

Several authors have pointed out that farmers and extensionists have different life experiences, practical concerns and education, which makes them own different types of knowledge, rationales and worldviews (Höckert and Ljung 2013; Landini 2011; Wauters and Mathijs 2013). These differences allow us to analyse the farmer-extensionist relationship in terms of a social interface. Long (2001) defines social interface as ‘a critical point of intersection between different lifeworlds, social fields or levels of social organization, where social discontinuities based upon discrepancies in values, interests, knowledges and power, are most likely to be located.’ (p. 243)

Within social interfaces, knowledge dynamics are central (Long 2015) and usually involve conflict, imposition, negotiation, strategic adjustment and compromise (Landini and Murtagh 2011). Depending on the RE approach implemented, two types of knowledge dynamics can be found in the farmer-extensionist interface. The diffusionist, linear approach (Rogers, 1962) proposes a hierarchical interface wherein experts’ knowledge is transferred (and thus imposed) to farmers. In contrast, the dialogical approach developed by Freire (1973) and the participatory proposals derived from Chambers (1983) lead to horizontal exchange processes and co-creation of knowledge (Knickel et al. 2009). As argued previously, this second type of dynamic clearly has a greater potential for facilitating a proper fit between supply and demand of RE services.

Completing this theoretical framework also requires addressing the concept of power. In the context of the farmer-extensionist interface, power can be understood as the individual or collective capacity for defining the goals, the activities and the dynamic of interaction within the interface. As Long (2015) points out, power is not simply possessed, accumulated and unproblematically exercised. It is the outcome of complex struggles and negotiations over authority, status, resources and valid knowledge. These struggles and negotiations do not only originate from outside of the interface, but also take place in the interaction between farmers and extensionists. Thus, within the farmer-extensionist interface, different dynamics can be observed, stemming from co-construction to imposition of perspectives and points of view, which leads to different matching possibilities between supply and demand of RE services. Figure 1 presents a synthesis of this theoretical framework.

Figure 1. Theoretical framework



Methodology

Forty rural extensionists of the National Institute of Agrarian Technology (INTA in Spanish) and of the Secretary of Family Agriculture (SAF) from the Argentine North-Eastern provinces of Chaco, Corrientes, Formosa and Misiones were interviewed. Extensionists from different provinces and institutions participated in the study in order to increase the trustworthiness of the results through what Shenton (2004) describes as ‘site triangulation’. Ten interviews were conducted in each province, five from each institution. The selected provinces were chosen due to their closeness to the research institute where the study was conducted. INTA and SAF are both part of the Ministry of Agroindustry of Argentina, are the two most important RE institutions of the country and account for the ample majority of the extensionists. They provide free of charge technical, economic and organisational advice and support. In this research, farmers were not interviewed due to the fact that the objective and the research questions were aimed at making sense of extensionists’ perspective.

The sample encompassed 29 men and 11 women, 35 had university degrees, and 36 had technical backgrounds (mostly agricultural engineers), while 4 had ones in the social sciences. The percentage of men and women is consistent with the available information on the distribution by sex in both institutions (Landini 2013).

The interviews included questions about extension practices, practical problems faced, and suggested guidelines for being a good extensionist. As it may be seen, research topics were addressed indirectly so as to avoid social desirability bias (Steenkamp, de Jong, and Baumgartner 2010). Interviews were recorded, transcribed and analysed with Atlas Ti software. During the analysis process, text fragments addressing extensionists’ practices, recommendations and approaches were categorised. Additionally, to deepen the analysis on how extensionists differ in their RE approach, the two types of approaches identified were statistically related to different statements, ideas and proposals presented by the interviewees. For this, Chi-squared test was used. Moreover, this strategy allowed for a more detailed view of the different extensionists’ approaches. Lastly, given the sample was not random, results are technically only valid for the sample and not generalisable to the whole population.

Results

Context analysis

Making sense of the ‘farmer-rural extensionist’ interface in the Argentine Northeast requires understanding its context. The region is one of the less developed of the country, and 79% of farming units are family run (Scheinkerman et al. 2007). Family agriculture consists of mostly crop vegetables such as corn, cassava, tobacco, tea and *yerba mate*, a local infusion.

The INTA and de SAF are quite dissimilar. The INTA was created in 1956 and is dedicated to doing research and RE. It has consolidated work guidelines. The SAF was created in 2009, and also has a widespread presence in the country. It also provides RE services but has no long-term institutional strategies. Additionally, the SAF is more politicised, which implies that it is more permeable to political interests and power dynamics than the INTA.

In both institutions’ contexts, practices are organised in terms of projects aimed at different types of beneficiaries, which implies that much of the farmer-extensionist interaction consists of diagnoses processes, project design, and implementation. At the same time, the availability of resources also contributes to framing practice. The budget for projects and for fuel for vehicles conditions which activities can and cannot be implemented. However, the situation does not seem to be critical in this respect.

Processes of advising and training within the interface

This section explores how extensionists structure and organise their interactions with farmers, how and whether or not they take into account their demands, and how the interactions and the advisory and training processes are framed, thus addressing the first research question.

Two central activities wherein supply and demand of RE services interact are training sessions and technical assistance. Regarding the former, most extensionists agree that ‘training [contents] are based on farmers’ demands’ (03-Ch-W-INTA)¹, which could be interpreted as demand-driven. However, in some cases, it does not seem to be an approach directed at dealing with a structured demand, but rather a simple response to farmers’ expectations or queries within the context of training programs that repeat contents every year. When asked further, some extensionists pointed out that, in fact, there are two ways of selecting training contents: one in response to demand, and the other based on their expert opinion: ‘the technician sees the problem and generates a training proposal’ (31-Mi-M-SAF). Technical assistance refers to the response to specific productive questions or claims for advice and address often-times urgent, technical problems. As a result of institutional guidelines, individual technical assistance is not encouraged, but accepted when appears. In this case, interventions are almost always demand-led: ‘what we do is more in-farm technical assistance [...] I work under demand [...] [a farmer says] “I have this problem”, and we go to the farm.’ (05-Ch-W-INTA) However, in some cases, these demands are used to give additional, unsolicited recommendations: ‘you go because the farmer says “I have this specific problem” [...] you attend the specific problem and you try to organise the entire farm’ (29-Fo-W-SAF). Thus, despite technical assistance being always demand-driven, some extensionists also use the situation to present their own point of view on how different aspects of the farm should be run.

With regards to the trainings, the interviewees highlight three, not necessarily contradictory, strategies: expositive presentation of contents, hands-on demonstration, and co-construction of knowledge between extensionists and farmers. The expositive, mostly theoretical, presentation of content is mentioned by five interviewees, generally in reference to the use of flip-charts or power point presentations, and within the context of linear approaches. Seven extensionists mentioned the use of hands-on demonstrations. They involve the practical implementation of certain productive practices that are generally (but not always) conceived as an interactive and even collective process. Finally, six extensionists mentioned practices that may be described in terms of horizontal exchange or co-construction of knowledge between extensionists and farmers: ‘workshops where exchange of knowledge between them and us happens’ (10-Ch-M-SAF).

Additionally, interviewees also highlighted two elements of the interpersonal interaction with farmers, which contributed to unfolding the knowledge dynamics involved in the farmer-extensionist interface. Firstly, several extensionists suggested the importance of informal and unceremonious training sessions: ‘it’s not a training session where everything is protocol, using necktie... it’s everyone sitting and drinking *mate*’ (10-Ch-M-SAF). In this context, extensionists attempt to overcome hierarchical relationships based on different degrees of knowledge or education: ‘there is like a barrier... “uh, there comes the engineer!” I try to make it so that this barrier doesn’t exist’ (21-Fo-M-SAF). Thus, these interviewees work towards making farmers feel comfortable, in the context of a relationship between equals, where interactions are not framed in terms of power, and wherein differences do not become hierarchies. Secondly, most interviewees pointed out the constitutive role of positive emotions and personal attitudes in the context of the farmer-extensionist interaction. They referred to the interpersonal trust between extensionists and farmers, to the extensionists’ empathic and

¹ Interviews are coded as follows: the first two characters refer to the transcription number, the following two to the initials of the province where the extensionists work, followed by an “M” in the case of a man or a “W” for a ‘woman’, and finally the last letters identify the institution wherein they work.

listening capacity, and to their humility, among others.

Finally, extensionists also highlighted different key recommendations for being a good practitioner (Landini 2016), two of which are particularly useful for understanding extensionists' interactions with farmers. Firstly, 21 interviewees argued that the best recommendations are those that aim at improving what farmers do and not at incorporating new crops or practices that are unrelated to or foreign to their experience. Secondly, 22 highlighted the importance of understanding the specific context and point of view of their farmers when giving advice, which involves, among other issues, understanding what they like and why they do what they do. Recently, Höckert and Ljung (2013) pointed out the need for a deeper level of understanding between farmers and extensionists as a precondition to a fruitful dialogue, and Wauters and Mathijs (2013) that proposed practices have to be adapted to farmers' values and beliefs. However, in this study, extensionists highlight the importance of understanding farmers' point of view, not necessarily as a means to developing a dynamic dialogue, but as a way of generating proposals appropriate to their context and that make sense in the context of their worldviews. As an interviewee explains: 'your message has to be credible, has to be coherent, and has to be... [...] an answer constructed from the farmer's perspective' (26-Fo-M-INTA).

Table 1 summarises this heading by presenting key aspects of the structure and dynamics of training sessions as well as of extensionists' recommendations regarding effective work with farmers, thus showing how they propose to frame the farmer-extensionist interaction.

Table 1. Key results on training processes and on how to interact with farmers

Topics	Key comments/results
1. Training sessions	<ul style="list-style-type: none"> - Origin of the contents: farmers' requests (but not consolidated demands) or defined by extensionists - Types of trainings: expositive, hands-on demonstrations, and co-construction of knowledge between farmers and extensionists
2. Keys for a fruitful interaction with farmers	<ul style="list-style-type: none"> - Unceremonious trainings - Acknowledgement of the role of positive emotions and extensionists' personal attitudes - To make recommendations stemming from farmers' productive system - To understand farmers' context and rationale

Types of extensionists' approaches

The second research question aims at describing the RE approaches used by the interviewees and how they relate to power issues and farmers' demands, while the third one at how they differ in their RE approach and in their positioning to farmers' expectations and demands. Given that both research questions are interrelated, both will be addressed together under this heading.

In consonance with academic literature on the subject (e.g. Ingram 2008; Höckert and Ljung 2013; Leeuwis and Aarts 2011) and with a previous research conducted in Argentina (Landini 2015a), two different RE approaches were identified. The first is a moderate, diffusionist approach. It is characterised by quotations like: 'what I have to try to achieve, as an extensionist, is that the farmer applies what [the institution] is proposing' (19-Co-M-INTA); 'that is for me being a good extensionist... to earn the farmer's trust [...] and to show him/her the differences between what is right and what is wrong' (21-Fo-M-SAF). In both cases, the extensionists assume the value and truth of their own technical knowledge over that of the farmers'. However, this is not presented in terms of an impersonal, formal, or technocratic

relationship, but as one characterised by trust and understanding.

The second is a horizontal, collaborative and constructivist approach sustained in the acknowledgment of the limitations of extensionists' expertise and of the potentiality of farmers' experiences and knowledge. It appears clearly in the following quotation: 'Information has to be worked, tested and adapted with the people [...]. One transfers information, but also rearranges and works it with the people, moulds it and makes it participatory' (28-Fo-M-INTA).

Concretely, 33 of the 40 interviews could be assigned at least to one of these categories: 16 exclusively to the diffusionist model, 10 to the constructivist approach, and 7 to both (which implies that 23 were categorised within the first and 17 within the second). In order to depict both approaches, the presence of ideas or points of view relating to the knowledge dynamics of the farmer-extensionist social interface within each one was analysed. These ideas were identified through an inductive process. To establish the relationship between them and the approaches, Square-Chi was used. In each case, extensionists categorised as pertaining to one approach are compared with those that only pertain to the opposite one.

Using $p > 0.05$ as the level of statistical significance, moderately diffusionist extensionists tend to prepare demonstration plots and talk in terms of 'demonstrate' or 'show' technical results to farmers to convince or persuade them more often than constructivist extensionists ($p = 0.007$). Furthermore, they are less likely to mention that farmers' knowledge is valid ($p = 0.018$) and that extension work is a co-construction of knowledge ($p = 0.003$). In consequence, moderate diffusionist extensionists tend to frame the farmer-extensionist interface in terms of convincing and persuading farmers of the benefits of adopting their expert technical knowledge due to assuming that it is the most appropriate for their practice. Unexpectedly, moderate diffusionist extensionists also tend to highlight, more frequently than constructivists, the importance of building trust and constructing a good relationship with farmers ($p = 0.023$).

As expected, constructivist extensionists are more likely than diffusionists to describe farmers as owners of valid knowledge and experiences ($p = 0.019$) and the knowledge dynamics that take place in their interface as a result of co-construction ($p = 0.001$). Interestingly, they also point out more frequently than diffusionists that there are no recipes for a good extension practice ($p = 0.009$). Thus, extensionists frame the farmer-extensionist relationship as a horizontal one wherein knowledge is exchanged, perfected and collectively developed, where there are no recipes because innovations are not perceived as the result of transference processes (where the innovation itself is pre-defined) but as something that occurs within the interaction.

Table 2 summarises the differential presence of ideas about RE in the discourses of extensionists that have either a diffusionist or a constructivist approach.

Table 2. Characteristics of the diffusionist and the constructivist extension approaches

Related ideas	Moderate diffusionist approach	Horizontal constructivist approach
1. Preparation of demonstration plots and talk of 'demonstrate' or 'show' technical results to farmers to persuade them	More frequent	Not statistically related
2. Acknowledgment of the validity of farmers' knowledge and experiences	Less frequent	More frequent
3. Description of RE as a co-construction of knowledge	Less frequent	More frequent
4. Recognition of the importance of building a good relationship with farmers	More frequent	Not statistically related
5. Affirmation that there are no recipes for a good RE practice	Not statistically related	More frequent

Discussion

In this heading, the main results of the research will be discussed with the aim of identifying and analysing their theoretical and practical implications. Firstly, the characteristics of the moderate diffusionist and the constructivist RE approach will be discussed using current academic literature on the topic. Secondly, the importance of power dynamics in the farmer-extensionist interface will be analysed, as well as their relationship with the previously identified RE approaches. Next, some insights will be proposed for thinking about the dynamic process of demand construction and matching with the supply side. And finally, some recommendations for practice and policy will be presented.

Analysis of the different RE approaches

In this paper, in line with previous investigations (e.g. Ingram 2008; Höckert and Ljung 2013; Landini 2015a; Landini, Murtagh, and Lacanna 2009; Leeuwis and Aarts 2011), two different RE approaches were identified: a moderate diffusionist approach and a constructivist one. It was concluded that diffusionist extensionists have a tendency to generalise the validity and usefulness of their own technical knowledge and to reject the value of farmers' local one, establishing a hierarchy between both. On the contrary, constructivist extensionists acknowledge the limitation of their own knowledge and capacities, and value the farmers', thus considering that best fit practices and innovations are the result of a co-constructive process. Interestingly, this shows that both extension approaches are not only different practices but are also supported in different worldviews and conceptions of what knowledge is and how it is constructed.

Additionally, this research also showed that it is not true that diffusionist rural extensionists tend to give decontextualised and formal (impersonal) recommendations, and that constructivists do the opposite. It is possible that, on a conceptual level, the transfer of technology paradigm tends to decontextualise technical proposals. However, in this case, moderately diffusionist extensionists also highlighted the importance of giving recommendations that fit farmers' practices, preferences and rationales. What's more, diffusionist extensionists highlighted the importance of trust and of building a good relationship between extensionists and farmers more often than constructionists. This result is important in that it challenges stereotypical perceptions of diffusionist extensionists.

Several authors have suggested the persistence of diffusionist extension practices in different contexts (Chowa, Garforth, and Cardey 2013; Chowdhury, Hambly, and Leeuwis 2014; Höckert and Ljung, 2013; Knickel et al. 2009; Mahon, Farrell, and McDonagh 2010; Minh, Larsen, and Neef 2010). In fact, more moderately diffusionist extensionists than constructivist

ones were found in this research. Nonetheless, findings did not account for a clear predominance of the former, in line with a previous research conducted in Argentina (Landini 2015b) but in contrast with what most of the cited authors argue. Interestingly, this brings to light the inclination, even bias, of different scholars who tend to describe extensionists' approach in specific cases in generalised terms, when perhaps acknowledging diversity (and not just general tendencies) would be more accurate.

In this very line, this research also showed the existence of extensionists that support both diffusionist and constructivist beliefs, contradicting our common sense belief that given that they both feature contradictory conceptual assumptions, that the same person cannot subjectively support them both. However, nowadays, it is an indisputable fact that humans do not always act rationally (Hewig et al. 2011) and that they can activate different beliefs and dimensions of their identities and worldviews in different material, social and interpersonal contexts, even if they are contradictory (Landini 2012). What's more, as a research conducted in Paraguay suggests (Landini, Bianqui, and Crespi 2013) extensionists do not tend to exclusively support a linear, transfer of technology strategy or a horizontal approach, but a mixed one, that goes beyond how their institutions frame their practice or tell them to work. Thus, contextual activation of different extension approaches and implementation of contradictory or mixed practices emerge as possibilities that should be considered in the context of investigations and project implementations.

Power relationships in the interface

In this research, many interviewees pointed out the importance of avoiding hierarchies between farmers and extensionists, and instead procuring to organise extension practices in terms of interactions among equals. However, results show that extensionists allowed farmers to propose content for training sessions, but at the same time left out of their influence different areas of extension practice such as how the interaction should be organised.

With regards to the differences between the diffusionist and the constructivist models, results also suggest that the former tends to exercise power through imposing certain conceptions and types of knowledge associated to technical expertise, clearly without being aware of doing so, while the latter support their practice with the assumption that both experts' and farmers' types of knowledge are equally valuable and legitimate. Nonetheless, this does not mean that constructivist extensionists do not impose some conditions on farmers, as was argued before. Thus, assuming that these impositions are not generally perceived as such, raising extensionists' awareness of them seems to be an interesting intervention strategy (Barnaud et al. 2010).

On the dynamic process of demand construction

Results also provided some interesting insights on the matchmaking process between supply and demand at the micro-level. When analysing the origin of the contents of training sessions, two alternative sources were identified: farmers' requests and extensionists' proposals. If analysed superficially, it would seem that the first option is demand-driven while the second is not. However, a deeper analysis suggests that it is more complex. In fact, the first alternative may be better described as request-driven instead of demand-driven. Had farmers considered all the alternatives that the extension service could offer? Had the selection of the topic, its implications and its usefulness been critically discussed and analysed? Ingram (2008) suggests that farmers' demands should be built in the context of a dialogue. On the contrary, in this case, farmers' requests for particular contents for training sessions seem just a one-sided perspective, constructed with little thought or reflection.

Regarding the latter alternative, in which extensionists define the training contents, it may seem not demand-driven at all. Nonetheless, it is possible that extensionists' practical

experience allows them to identify and formulate farmers' needs in a way that could really fit their expectations. In any case, in neither alternative is demand built jointly. In the first case it is simply accepted as a given, and in the second, enunciated by the experts.

Based on these arguments, two theoretical problems may be identified with regards to the matchmaking process between supply and demand. Firstly, there is the difference between request-driven and demand-driven extension services, and the assumption that the demand is prior to or independent from the interaction between farmers and extensionists. In this case study, for example, how would farmers know what to demand without knowing all the available alternatives and, what's more, without discussing, analysing and reframing their problems with the extensionists? In this line, Kilelu, Klerkx, and Leeuwis (2014) highlight the importance of the learning processes that take place in the interaction between farmers and extensionists as they strive towards the concretisation of unspecified needs into clear farmers' demands. Thus, it is clear that the dynamics of the interaction between both actors is the nucleus of the demand construction process, and that demand (in a structured and consolidated sense) cannot be unilaterally or completely defined before its interaction with supply. In consequence, simply replying to farmers' requests cannot be considered as being a demand-driven approach given its unilateral (and thus limited) nature.

The second theoretical problem refers to the role of affections and emotions in the interactive matchmaking process between demand construction and its offer side. In this research, extensionists highlighted the importance of positive emotions and personal attitudes in the context of the farmer-extensionist interaction. In this vein, Ingram (2008) has pointed out the importance of establishing good relationships between farmers and extensionists in the context of collaborative extension practices, and Höckert and Ljung (2013) have argued that a good farmer-extensionist relationship requires mutual understanding on a cognitive level, but especially on an emotional one. Thus, although it is a factor that is not commonly acknowledged, emotions and affections seem to play a key role in the dynamics of demand construction and matchmaking with the supply of RE services at the micro-level, which makes this a topic that requires further research.

Drawing upon the two types of knowledge dynamics that were identified within the farmer-extensionist interface, it is possible to broaden these reflections. In the context of the diffusionist approach, the construction and clarification of the demand seems highly problematic, given extensionists understand their practice as structured hierarchically with regards to farmers, and thus frame it in terms of their own knowledge and experiences. In this context, as shown, moderate diffusionist extensionists mention the importance of building a good relationship with farmers more frequently, perhaps due to the need to compensate their limitations with regards to generating a horizontal interaction. On the contrary, constructivist extensionists tend to be open to questioning their own knowledge, framings and approaches when in horizontal dialogue with farmers, which makes them ideal candidates for supporting demand construction. As a result, the way in which extensionists tend to frame the knowledge dynamics in the interface seems fundamental to the process of matchmaking.

Recommendations for practice and policy

Two main recommendations derive from these results and reflections. Firstly, if demand is not previous to the interaction with the supply side, then a demand-driven approach should always include a joint process of demand construction based on the interaction between the involved actors, in this case farmers and extensionists. Obviously, this does not deny the usefulness of surveys to foresee what requests may be presented by the demand side, but does imply rejecting its validity as the main strategy for matching supply and demand of RE services. Additionally, the process of demand construction should never be considered closed or completed (Kilelu, Klerkx, and Leeuwis, 2014). In consequence, a RE approach, in order to

really be demand-driven, has to always include a process of demand construction, wherein there is a first moment where demand is jointly built and later periodically re-discussed and adjusted. For this to happen in practice, extensionists should have the interpersonal capacity and knowledge of the practical techniques to perform this difficult task.

From the point of view of policy, RE and development projects should avoid being top-down and have the flexibility to take seriously into account the results of the process of demand construction as well as the periodical adjustment that has to take place at the micro-level. Likewise, processes of extensionists training in the required capacities and skills to facilitate demand articulation and joint construction have to be included as a fundamental part of extensionists' training agenda. And, finally, it is also important to develop strategies and initiatives to consolidate farmers' organisations as counterparts in the processes of demand construction, as recommended by different authors (Chowa, Garforth, and Cardey 2013; Klerkx, De Grip, and Leeuwis 2006).

Secondly, results also have shown that a proper process of demand construction requires that extensionists base their practice on a constructivist approach and not on a diffusionist one. Nonetheless, as argued before, several authors have suggested the persistence of diffusionist extension practices in different contexts. Thus, strategies and initiatives to replace diffusionist extension approaches for constructivist ones seem to be a key prerequisite for implementing a demand-driven extension practice. However, changing extensionists' approach is not solely a question of training; it also requires subjective and institutional changes. With regards to the former, innovative strategies for raising awareness and putting into question extensionists' assumptions, power dynamics and practices (Barnaud et al. 2010; Faure et al. 2013; Landini, Bianqui, and Russo, 2013) have to be implemented. With regards to the latter, it is also clear that changes in the organisational culture and rules are also required if new extension approaches are to be put into practice. Thus, the need for innovations in the very dynamics of extension institutions should be acknowledged.

Conclusions

In this paper, the knowledge and power dynamics of the farmer-extensionist interface were unfolded and the matchmaking process between supply and demand of RE services analysed from the extensionists' point of view. In line with a previous research, two different types of RE approaches were identified: a moderate diffusionist and a constructivist one. However, contrary to expectations, several extensionists were found supporting, at the same time, core beliefs of both of them. Interestingly, this implies that RE approaches at a local level are not necessarily homogeneous, and may differ between individual extensionists of the same institution. Thus, researchers should show this diversity and not homogenise or generalise their results. Additionally, the theoretical frameworks used by researchers should also be open to recognising that the very extensionists may have and use, even unconsciously, different extension approaches, depending on the situation and context.

Furthermore, this study also argued that farmers' demand is not pre-existent to the interaction with the supply side, but the result of a process of construction, negotiation and mutual adjustment and influence. Thus, simply saying 'yes' to farmers' requests cannot be considered a demand-driven approach. A more pertinent name for this could be a request-driven approach. In brief, these reflections put the interaction between farmers (or other beneficiaries of RE) and extensionists at the centre of the process of demand construction. Moreover, it seems to be more precise to speak of 'constructing the demand in the interaction' and not of 'matching supply and demand', given that the latter expression tends to assume that both exist in a time previous to their interaction.

Research results also highlighted the role of the power dynamics that take place in the farmer-

extensionist social interface in the process of demand construction. If the interaction between farmers and extensionists is in the nucleus of demand construction, then so are the power dynamics that frame said interaction. In this line, acknowledging the role of power dynamics and of establishing a horizontal relationship between both actors seems fundamental to generating a demand that really fits farmers' needs and expectations, and extensionists' capabilities and knowledge.

With regards to the limitations of this research, the characteristics of the sample and the methodology employed do not allow for generalising the findings. In this line, it is important to keep in mind that only the extensionists' perspective was tackled. It is possible that in other territorial, political or institutional contexts, or using a different sample, results could be different. However, what makes these research results interesting is not their potential generalisation, but instead their usefulness for putting up for discussion established theoretical assumptions and for generating new ones.

Finally, some recommendations for further research also derive from this paper. Firstly, results have shown the interest for continuing to address demand construction at the micro-level. In this line, the interpersonal, emotional and power dynamics involved in the collaborative construction of farmers' demands seem to be highly valuable research topics. Secondly, the differential characteristics of extensionists who have different extension approaches, as well as the implications for extension practice of the existence of extensionists with assumptions that pertain to contradictory extension models are also topics worth exploring. Lastly, supporting demand-driven extension practices also requires studying how to develop extensionists' capacity to facilitate processes of demand construction. Indeed, there is much to be done.

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