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Accelerating tacit knowledge building of client-facing consultants

Can organizations better support these learning processes?

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Abstract

Purpose – This paper aims to examine factors which influence how tacit knowledge is built and applied by client-facing consultants.

Design/methodology/approach – Qualitative methods (interviews, thematic analysis) were used to gather and analyse data from 15 consultants in an agricultural extension context.

Findings – Twenty-six factors about how tacit knowledge is built and applied to action emerged, and are presented grouped into four areas: tacit knowledge needed to be successful; how tacit knowledge is presently built; challenges in turning knowledge into action; and ways that building tacit knowledge might be better supported by the organization.

Practical implications – How the building of tacit knowledge can be accelerated for new organizational members will be of interest to those not only in agricultural extension, but more generally to those managers in organizations who must design and implement training and mentoring programmes for those who support customers and users of their products and services.

Originality/value – The findings provide insight into the mechanisms of building tacit knowledge in client-facing consultants. The experience-based perceptions about effective knowledge-building processes and strategies may contribute to more effective intake and training programmes for consultants.

Keywords Workplace training, Tacit knowledge, Organizational learning, Consultants, Extension, Knowledge to action

Paper type Research paper

1. Introduction

This paper identifies potential insights into the ways organizations could support accelerated tacit knowledge-building mechanisms to enhance the effectiveness of their client-facing consultants. Organizational learning (Wang and Ahmed, 2003) may be viewed as the sum of individual learning across an organization, and the transformation and flow of individual tacit information (unspoken or unexpressed) may be used to aid organizational learning (Falconer, 2006). To improve organizational learning, there is a need to improve how tacit and explicit knowledge is acquired and shared (Smith, 2001). Lam (2000) investigated how different organizational forms varied in their ability to



mobilize individual tacit knowledge. Surfacing, embedding and sharing tacit knowledge have been suggested as methods for mobilizing tacit knowledge in support of individual and organizational objectives (Bennet and Bennet, 2008).

Understanding how learning and knowledge building occurs at the individual level may provide helpful insight into how organizational learning happens at the macro level. Developing new recruits into effective, capable and confident client-facing (through telephone) employees in high-stress, high-turnover organizations has previously been studied in the context of offshore IT help desks (Chen and McQueen, 2010). This has resulted in insights into knowledge-building processes that organizations have designed to accelerate the transformation of raw recruit into effective client-facing employee in the shortest possible time. The study presented here aims to further develop this understanding of accelerated knowledge-building processes for individual client-facing consultants in the context of extension consultants (ECs) in the agricultural industry.

The paper is organized as follows: Section 2 following briefly covers a selection of the previously published research on tacit knowledge, and how it has been suggested it can be converted, transferred and built. Section 3 discusses workplace learning and presents the research questions that guided this research. Section 4 is a brief discussion of the methodology used to gather and analyse the qualitative field data. Section 5 reports on nine types of tacit knowledge perceived by the ECs to be essential, the five ways that tacit knowledge is presently built by ECs, seven challenges experienced by ECs in knowledge to action interventions and five ways that the building of tacit knowledge could be better supported. Section 6 presents the Tacit Knowledge Building Model (TKBM) that is the key output of this research. Section 7 reflects on the findings relevant to the research questions, links the study findings back to previous research and states the limitations of the study and where the study findings might be constructively applied.

2. Building the skills and tacit knowledge of extension consultants

One area where individual tacit knowledge is crucial is in the role of client-facing consultants. ECs in the agriculture industry context are intermediaries and knowledge brokers that support and interact with farmers. It is estimated that there are over 800,000 extension personnel globally (Benson and Jafry, 2013). ECs work for organizations such as government agricultural departments, agricultural industry organizations and agribusiness companies, including milk processing companies, feed companies and animal health companies. ECs are change agents in the agriculture sector, aiming to create voluntary and informed behaviour change in their clients that will benefit the client's business and farming practices. Building the intermediation, communication and advice-giving skills they need is crucial for an EC to be effective (Hargadon, 2002).

ECs have a variety of roles and objectives, such as providing seminars, delivering training and advice to farmers considering new practices and products and facilitating farmer-to-farmer interaction through on-farm interest group meetings and demonstrations. ECs also act as important two-way communications channels, such as being a down-channel from scientists to farmers for research and best practices, and as an up-channel from farmers to the EC's organization for the experiences and opinions of farmers and what they want. ECs may come from a variety of backgrounds and

experience, ranging from those who were previously full-time farmers with many years of hands-on experience but perhaps limited formal education, to new graduates from university agriculture, science or business programmes, with perhaps limited hands-on farming experience. With the variety and mix of the formal education and real-world hands-on experience backgrounds of ECs and a frequent issue of turnover, there are the twin challenges of building their credibility in the eyes of the farmer and building the skills and knowledge of the EC to a level where the farmer perceives valued advice is being provided through their interaction.

Tacit knowledge is the term that we use here to describe the knowledge held in the mind of the ECs that allows them to be confident and effective in managing the interactions with their farmer clients and the other aspects of their role. Tacit knowledge has many definitions and perspectives (McAdam, Mason and McCrory, 2007; Venkitachalam and Busch, 2012). Polanyi (1967) said that “we can know more than we can tell”, indicating that there is knowledge in our brains about how we take action that cannot be easily made explicit by transforming it into tangible objects like reports, process descriptions or recipes.

Recent research (Grandinetti, 2014) explored the ambiguity of the terms tacit–explicit and conscious–unconscious in the context of knowledge, and reviewed the research that has contributed to some confusion in the knowledge management field. Grandinetti also considered whether the tacit knowledge held by individuals is only of use to the organization if it is made explicit (shared, converted) by the tacit knowledge holder to others in the organization. Nonaka (1994) has suggested a knowledge conversion cycle, where the tacit knowledge held by an individual can be shared or transferred by various mechanisms to others in the organization. While probably the most highly cited model of knowledge transfer, Nonaka’s conceptual cycle of knowledge conversion and transfer has been challenged by other researchers (Tsoukas, 2003, Gourlay, 2006).

We think it is also important to think about how tacit knowledge is used (by the tacit knowledge holder), in addition to the large amount of research and theorizing that has been undertaken into how it is converted or transferred. Tacit knowledge has an implied linkage with taking action (the tacit knowledge we hold can be used as a basis for action in appropriate circumstances) and confidence (the tacit knowledge we hold in our brains can be confidently applied-in-action because it has been tested and reinforced by successful outcomes of previous experiences). In this paper, our use of the term “tacit knowledge” incorporates the notions of hard/impossible to explain or make explicit, supports taking action and relies on the confidence gained through use in practice in previous successful experiences.

3. Accelerating knowledge building in the workplace

Learning organization scholars have changed the focus from individual learning to a broader workplace context, scrutinizing learning processes, learning styles, crafting learning environments, generic competencies and universalistic assessments (Senge, 2006). Schön’s (1995) great innovation was to analyse companies, social movements and governments with learning systems concepts. The notion of reflection-in-action (Schön, 1983) is sometimes described as “thinking on our feet” and involves using our experiences and feelings while the event is unfolding to build new understandings

which may inform our future actions. Reflection-after-action is done after the encounter, in debriefs, write-ups or supervision sessions, and can also influence future actions.

Sfard (1998) suggested continuing enhancement of theories about adult learning, action learning and learning organizations, and pointed to a number of conceptual shifts that have taken place. The conceptualization of learning has evolved from declarative and abstract to emphasize building practical knowledge and building tacit or implicit knowledge that is not easily “transferred” to others (Platts and Yeung, 2000; Polanyi, 1967).

The focus of workplace training has shifted from individual and personal development as a “worker”, to understanding learning at individual, group and organizational levels, which in turn is harnessed to a goal of improving the enterprise competitiveness. This involves developing an inclusive view of learning as embedded in all facets of business strategy, culture and structures and the integration of knowledge specific to sector and type of enterprise (Armstrong, 2008; Burnes *et al.*, 2003; Connell, 2004). This changes expectations of learning outcomes from skills or competencies, observable and testable, to learning processes whose outcomes might include tacit knowledge, held in the mind of an individual learner, and capable of being adapted and applied in action.

Workplace learning builds on, but is distinct from training. As a result, the emphasis in adult education should be on experiential techniques that tap into the practice of learners, such as group discussion, problem-solving, case methods, simulation exercises, games and role-play, instead of primarily using transmittal techniques such as lectures. Using a combination of teaching strategies will have the greatest impact (Letiche *et al.*, 2008; McLean, 2006; Smith, 2000). In one study, training started with listening to presentations, but then moved to trainees carrying out a range of activities individually, in pairs or as a cohort, such as role-play, case study discussion, lab experiments, culture coaching, written tests, job shadowing and simulations embedded in scripts which scaffolded tacit knowledge building (McQueen and Chen, 2010).

Scripts may be an important concept as a beginning structure on which to build, through experience, tacit knowledge that can be confidently and effectively applied to workplace environments (Abbott *et al.*, 1985). An initial very basic script, such as the questions to ask in the first few seconds of receiving an incoming customer call to a call centre, can be delivered to the trainee through classroom learning. These scripts can then be reinforced and made more flexible through simulated calls and hands-on experience with real calls, and continue to be refined and expanded by ongoing experiences as the trainees build their personal call-handling scripts into something very unique and tacit. Scripts have been found to have an important role in diagnostic situations (Charlin *et al.*, 2007), which could be viewed as a component of many workplace activities, including sales, engineering and manufacturing.

Once the initial scripts provide the basis for experiential learning, then *mastery* should become the focus (Wertsch, 1998). Mastery extends the initial stages of learning and practicing newly forming tacit knowledge, and moves on to the refining of that knowledge, through repeated application, into readily available processes which can be confidently and successfully applied in live situations.

Numerous potential strategies exist to bridge the “knowing–doing” gap and this area has grown into its own field of study (Tabak *et al.*, 2012), including the nature of the knowledge to be translated, the role of context, user values and beliefs and influencing

behaviours and decisions (Contandriopoulos *et al.*, 2010), as well as personal knowledge embedded in social interaction (Cook and Brown, 1999; Guzman, 2009).

From the previous two sections, it seems clear that new understanding is needed about how client-facing consultants learn and develop their personal tacit knowledge, and how they then confidently apply this developing tacit knowledge through knowledge to action processes. For the organization studied, their key interest was *how can we develop more effective ECs, more quickly, in the context of an often high-turnover job?* If newly recruited ECs can get up to speed more quickly, and can more quickly and effectively gain skills, tacit knowledge and confidence in executing the things they do, then this is likely to increase job satisfaction, and may reduce the high turnover which alienates the ultimate target farmer beneficiaries of their skills and advice.

This research aims to address the following research questions:

- RQ1. What skill sets, experience and tacit knowledge do ECs need to build and be able to apply through action to be effective in their roles?
- RQ2. How can the organization employing the EC effectively support tacit knowledge-building processes to optimize the effectiveness of these agents?

4. Methodology

The intent of the research design was to gain insights into issues that might be generally faced by ECs in a range of countries, industry sectors and organizations. A qualitative research methodology was chosen, inspired from Taylor's (2005) tacit knowledge interviewing methodology as the most suitable to surface and capture the perceptions of the participants and analyse the field data. This interviewing methodology focused on asking participants about their specific actions throughout their induction into the organization rather than asking them what they would do in hypothetical cases. This enabled us to surface their tacit knowledge and identify contextual and environmental events that offered significant insights in how ECs address situations in real time.

The organization studied (which we call IndustryOrg) operates in the context of a levy-funded agricultural industry organization, supporting about 30,000 people working on-farm in this sector. IndustryOrg has about 250 employees, of which approximately 20 operate as field ECs. It is challenging to retain experienced ECs, because other agribusiness organizations, supplying equipment, services and goods such as feed and fertilizer, can attract these ECs with significantly higher salaries. Newly recruited replacement ECs at IndustryOrg come mainly from two sources, either directly from university studies (as perhaps 22-year-old graduates), or from the ranks of experienced farmers (perhaps in their 30s to 40s).

The data for this research were gathered through interviews with ECs, scientists and developers in IndustryOrg. Participants were selected to provide a range of age, gender, experience and education backgrounds. Fifteen participants were interviewed once for about an hour each and were asked a number of open-ended questions that were intended to motivate frank and open comment, and reveal their perceptions about the factors that influence their work, and their induction and work experience stories. Interviews were carried out over a three-month period, as the participants were available at IndustryOrg's head office. Interviews were digitally recorded, then transcribed. Transcripts were analysed using a thematic analysis process developed by Owen (1984) to surface the following three characteristics:

- (1) *Recurrence*: At least two parts of the narrative reflect similar meaning, even when different words are used.
- (2) *Repetition*: Key terms, phrases or sentences are repeated in at least two parts of the discourse.
- (3) *Forcefulness*: In oral discourse, significant changes in volume (whisper or speaking loudly), inflection, positioning (especially, putting an idea first in a list or explanation) or the use of dramatic pauses or introductory/follow-up phrases that indicate the importance of a segment of discourse.

These three characteristics were then used to identify and group the findings which follow. This methodology uses quotations to illustrate the extracted themes.

5. Findings

This section presents the four major findings groups from the analysis of the interview transcripts. It is not feasible to present the chain of evidence from the original transcript extract (such as a quotation) to support each of the 26 insights presented in the four groups, so for some, a short summary is presented, and for others, more detail and supporting field evidence is included. In each group, the order in which the items are discussed is in the order of the strength of emphasis and frequency reported by the participants.

5.1 Finding 1: nine types of tacit knowledge used and perceived to be needed by extension consultants

The basic skills and knowledge that were required to be a successful EC as reported by the participants are grouped here in nine categories. The words “tacit knowledge” are used to describe the set of skills, information and knowledge that ECs felt they needed and that they were able to be confidently apply in field situations. Those interviewed had a mix of experience and career paths. Across that mix, there was some agreement and some differences on what were the key tacit knowledge requirements, which may have been influenced by the participants’ age, previous career experience and time with the organization.

5.1.1 Tacit knowledge about running a group discussion. Group discussions, often run at a farmer’s shed or at a local community hall, are one of the key channels of communication between IndustryOrg’s ECs and their farmers. The participants reported that learning how to organize a field group discussion and building the tacit knowledge required to confidently and successfully run these discussion sessions were very important to their self-perception of success. The tacit knowledge was often viewed as being in the form of a “script”, which guided the activities that the EC needed to complete, but which could also be dynamically adapted to different circumstances. The following scripts and skills relevant to running a group discussion were identified:

- script for setting up a discussion group meeting;
- script for publicizing events;
- script for running the group discussion on the day; and
- script for follow-up items.

5.1.2 Tacit knowledge about dairy farming. ECs reported that they needed to have tacit knowledge about dairy farming that could be quickly and confidently used during interactions with farmers. This included knowledge about common problems and issues for specific times of the season and being able to relate stories of “been there, done that” through their own experiences. Both of these could be issues for young ECs whose experience, strength of presence and confidence might be fairly limited.

5.1.3 Tacit knowledge about face-to-face communication with individual farmers. Interaction with farmers in face-to-face conversations was reported to be a key skill area by ECs. Some aspects of the tacit knowledge required to be successful were name remembering; remembering past details about farm and farmer; how to offset and neutralize age and experience gaps; socializing techniques; questioning techniques; info-giving techniques; advice-giving techniques; action-taking techniques; and self-reflection, analysis and assessing lessons learned after each farmer interaction.

5.1.4 Tacit knowledge about telephone contact with farmers. With the large territories and distances between farmers in the areas assigned to each EC, having effective tacit knowledge about efficient and effective use of mobile phone technology was reported to be important. These skills and techniques involving telephone contact with each individual farmer in their territory included the appropriate frequency for calling each individual, the appropriate duration of a call for each individual, when to call, schedule of calls for each individual to keep in touch and the appropriate mix of social and business content for each conversation.

5.1.5 Tacit knowledge about being organized. ECs reported that they were extremely busy and challenged with being able to get everything done that needed to be done in the time available. They said they needed to build their own tacit knowledge about being organized in prioritizing and executing tasks such as diary management and planning, managing a priority to-do list and developing follow-up techniques when expected responses were not received.

5.1.6 Technical tacit knowledge about tools and diagnostic techniques. There were a large number of analytical tools and diagnostic techniques available through IndustryOrg to assist ECs in interacting with their farmer clients. ECs reported they needed to build familiarity, confidence and experience with their use of these tools. Some tools were in regular use, and the ECs became highly experienced and confident in their use of them. Other tools were only infrequently used, and they had to work their way through instructions each time, resulting in less confidence and less skilful application. Tool use would often need to be customized to fit local characteristics, and sometimes customized based on previous engagements with particular farmers, so that the EC knew what was perceived as being valuable by individual farmers, and what was not.

5.1.7 Tacit knowledge about IndustryOrg technical resources. ECs reported they needed to know where to find answers to farmers’ questions and situations if they were not able to answer on the spot. They needed tacit knowledge about the “yellow pages” of who to call for expert and specialized advice, personal knowledge about which resource people farmers could call or in some cases arrange for the expert to call the farmer. ECs needed to know who had the appropriate skills and knowledge within IndustryOrg, such as scientists, developers and other ECs, so that they could be effective in passing on the farmer to a knowledgeable and helpful support person. In addition, ECs needed to have detailed information about what was on the IndustryOrg website, such as the reports and info sheets that were available.

5.1.8 *Tacit knowledge about other farmers and their experiences.* ECs indicated that to be seen as being knowledgeable by their client farmers, they also needed to have information about other farmers who could act as knowledge resources. They had to have in their head a database of what other farmers had tried, and whether they had had a positive or negative experience with that technique or innovation.

5.1.9 *Tacit knowledge about how to do effective cold calling.* Because many farmers in a EC's assigned territory did not attend every event, and some attended no events, making contact with non-engaged farmers was an important function. Cold calling, such as dropping in on a farmer with no advance appointment, was one mechanism to try and engage farmers. Executing a successful cold call was perceived as a great skill for ECs, especially when new to a territory. Some techniques used in successful cold calling included knowing how to find past history about the prospective visit farmer in advance, what initial intro remarks to use when the EC first knocks on the door, how to get invited in for a coffee and how to get invited to take a farm walk.

5.2 *Finding 2: five ways tacit knowledge is presently built by extension consultants*

The previous section presented a typology of tacit knowledge perceived by ECs as essential to the successful execution of their roles. In this section, we discuss four present methods used by IndustryOrg to develop this needed tacit knowledge, with comments from the ECs about the sufficiency and effectiveness of these methods.

5.2.1 *New trainee induction.* Interviewees agree that the induction and training processes provided by IndustryOrg are good, and contribute to EC tacit knowledge building. Induction extends for three months from the hiring of a new EC. This period involves the initial training consisting of a mix of classroom learning, job shadowing and mentoring and independent fieldwork under the supervision of experienced ECs.

Skill building and confidence building of the trainee, such as learning how to make presentations to a group and how to lead discussion sessions, result from a well-planned and well-executed cycle starting with initial classroom lectures, then critiqued classroom practice with classmates, followed by mentor job shadowing in the field involving observation and discussion.

Group presentation and facilitation skills acquired during initial training are unanimously highly rated amongst ECs and given priority with the recognition that farmer-to-farmer learning plays a crucial role in the development of the sector:

I could not stand in front of my peers, let alone a crowd, before the initial training. Now I am confident in many different contexts (Int. O).

The acquisition of non-verbal skills in the induction training, such as reading body language and handling interpersonal situations, is rated highly amongst recruits. The ability to identify, make a mental note of and engage "that farmer who sits in the back and does not speak during the group discussion – and who may never come again if unengaged" is essential to the success of the EC.

5.2.2 *Formal classroom training.* Classroom training is used both for new trainee induction as well as for post-induction training for all ECs. Trainees and experienced ECs report that IndustryOrg provides high-quality initial classroom-type experiences covering a wide curriculum of topical content ("foundational stuff"), in particular the traditional extension skills about how to interact with clients.

5.2.3 *Trainees develop seed knowledge and practice applying it.* This is the second stage of knowledge building for ECs – where the budding seeds of tacit knowledge, built from the explicit knowledge delivered during initial training, are put into practice, and experience and confidence are further built in the brains of the trainee ECs. The mechanisms used by IndustryOrg that support this knowledge building are job shadowing, where trainees accompany experienced colleagues and watch them work; mentoring, where trainees discuss their trials with proficient colleagues; and group discussions, where knowledge is socially constructed around the professional activities occurring in the regional offices.

5.2.4 *Learning how to be the channel for answers, rather than the source.* On their pathway from novice to working EC, trainees go “from the feeling of being required to have all the answers” to “having the knowledge on how to get the answers”. They practice getting answers from the IndustryOrg tacit knowledge pool, and from other farmers’ tacit knowledge pool.

5.2.5 *Transition of trainee to self-directed learner.* The third stage of tacit knowledge building is about the transition from organization-directed learning and mentoring activities to self-directed tacit knowledge-building activities. The initial programme of classroom training and mentoring and observation activities are organized by IndustryOrg for each new recruit, and the trainee EC relies on the organization to provide appropriate activities (“external *locus* of learning” as described by a trainer). Once the initial training period is over, the challenge for new recruits is to take a more active role in knowledge building (internal *locus* of learning) to keep up and sustain their own knowledge development. This is done as initial scripts provided in the classroom are tested against different situations in the field and, with experience and self-reflection, gain in complexity, flexibility and success in application. In this process, learners build richer tacit knowledge and gain confidence.

5.3 *Finding 3: seven challenges experienced by extension consultants in knowledge to action interventions*

The previous two findings sections have presented a typology of perceived tacit knowledge needed by ECs, and the present delivery systems used by IndustryOrg to develop this needed tacit knowledge. In this third findings section, we discuss seven issues that were reported by our participants about these present processes.

5.3.1 *Communication and interaction channels used as support for tacit knowledge development.* The weekly EC area meetings and monthly regional meetings provide great opportunities for exchange of opinion and experiences among ECs.

However, the downside to this latter channel may be too many items covered in insufficient depth, “tool overload” for ECs to learn many tools to a sufficient depth of understanding and skill and lack of prioritization or gatekeeping to filter and assist ECs in understanding which tools to spend their scarce time on.

5.3.2 *The two-year tipping point.* For the first two years, ECs report that their learning curve is the steepest and so is the pressure. Alongside the new challenges are the numerous job key performance indicators that impose time organization into ECs’ schedule. Around their first-year anniversary, ECs start internalizing the seasonal nature of the knowledge needed by farmers. After two years in the organization, some of them feel less challenged and lack clarity about their personal career path forward. This often coincides with offers from other agricultural business organizations which might

double an EC's salary. Such is the price of success for IndustryOrg training – these high-quality professionals (some of whom are very popular with farmers) are greatly sought-after in the broader agribusiness industry.

5.3.3 The knowledge cost of turnover. A high rate of turnover among ECs may cause multiple issues and organizational knowledge loss. Turnover rates have been directly linked with the lack of regular exposure to and interaction with role models of long-serving ECs:

[ECs] build confidence by learning from experts – which means they need role models. I am worried that with the turnover, there are fewer and fewer such great role models (Int. K).

5.3.4 Consistency of messages to farmers. Consistency of messages is an issue that recurs in interviews but in contradictory directions. New ECs generally do not report pressure concerning consistency of their messages, feeling that organizational mechanisms take care of this issue; however, developers worry more about the consistency of messages throughout the organization.

5.3.5 Self-directed searching, asking and seeking. IndustryOrg offers multiple specialist expertise areas for ECs to pursue – for instance, as team champions for specific knowledge. ECs are encouraged to pursue self-directed learning topics but the constraint is time – ECs are under tremendous time pressure to fulfil the commitments that are built in their job description and many of them are trying to fulfil these commitments at the expense of self-development.

5.3.6 Pressure – is more necessarily better? Time pressure is a barrier to EC learning. Some interviewees wondered if they are busy doing the “right” things and the danger of burnout is a real one.

5.3.7 Tool culture. Many interviewees feel that too much material is being developed by IndustryOrg, with insufficient winnowing, and doubt the added value of these tools if farmers don't know how to use them. Some ECs feel that most developers do not do farmer-facing sessions:

Some of the ideas I am supposed to implement just sound unreal to farmers – I sometimes wonder if some of these developers have ever set foot on a dairy farm, never mind worked with dairy farmers to develop the tool in question - all I need is to lose credibility once (Int. B).

5.4 Finding 4: five ways that the building of tacit knowledge by ECs could be better supported by the organization

This section of the findings reports on what the participants said about how the building of tacit knowledge by ECs could be improved. The following five ways that the building of tacit knowledge in ECs could be improved through actions by the organization were extracted from the interviews, using perceptions of the participants to zero-in on potential solutions to effective building of tacit knowledge by ECs.

5.4.1 Identifying and prioritizing farmers' knowledge needs through scripts. Some ECs perceive that being in close contact with a farmer by working through these script-based tools helps the EC to understand what is on the farmer's mind, thus helping with understanding farmer needs and prioritizing the actions that can be taken to address the farmer's key issues.

5.4.2 Understanding and addressing the motivations of farmers through narratives. ECs reported they need to address farmers' concerns in a personalized way. Through the narrative (for which ECs use their facilitation skills or the knowledge they picked up

from shadowing other experts), the knowledge coming from less overt sources, such as reading body language or noticing family dynamics during a farm visit, often adds to the bigger picture.

5.4.3 Self-directed learning – un-actualized potential. Interviewees did not report on any organizational barriers against self-directed knowledge acquisition – but admit that too little self-directed learning happens due to lack of time. Novice ECs mostly respond to demand – more self-directed learning kicks in later when they are over the steep start of the learning curve. EC learning is issue-based learning. The vast amount of technical and scientific knowledge generated within IndustryOrg is not shared well with farmers:

No hope to relay the ~700 articles written/year by our scientists! (Int. B)

5.4.4 Improving reflection processes. The biggest mistake identified by participants was their lack of preparedness for events. A required “after-action” review process was not mentioned in interviews. Some ECs said that their reflection time might be during the drive back after a discussion group, where they review in their mind the course of their interventions. Many report little time for reflecting, though.

5.4.5 Knowledge sharing. Knowledge sharing is a key value reported by interviewees. ECs report that the possibilities of sharing knowledge are open within the organization and that they can get ready access to key experts and knowledge. In the search to sift the information overload to farmer-friendly knowledge, many ECs wondered if there were better ways to channel information and best practice more directly to farmers:

We could call headquarters from the field, and all farmers would huddle around the speakerphone in the car to listen to the scientist’s opinion. This always had a brilliant impact on the way a discussion was going and I miss having instant and spontaneous access to scientists for this reason (Int. P).

6. Synthesis of findings

This section reports on the synthesis of the four major findings groups into an overall model of how tacit knowledge-building and learning processes could be better supported.

The ways that the participants perceived that these nine essential components of tacit knowledge were built by them and how their organization supported that tacit knowledge building were reported above in the order mentioned by interviewees. Some of these categories, however, can be further classified under larger conceptual fields and organized into a model.

The TKBM shown in [Figure 1](#) was developed through this analysis and rests on the foundations of the formal training processes that ECs go through and the informal ones they develop on their way to self-mastery. These can be further represented as general interpersonal/communication knowledge, as part of a body of knowledge specific to the New Zealand dairy industry and as part of developing self-mastery.

The model integrates the nine kinds of tacit knowledge needed by ECs in the organization studied that this study has uncovered and the challenges shared by participants over the aforementioned foundations.

The TKBM shows how connections between the different factors affecting tacit knowledge building interact over time, and how they sometimes cross over each other. For instance, interpersonal and communication knowledge is critical to ECs building and perfecting scripts to address farmer’ knowledge needs. Similarly, it is critical for ECs to reflect on how they run group discussions to be able to improve how farmers build

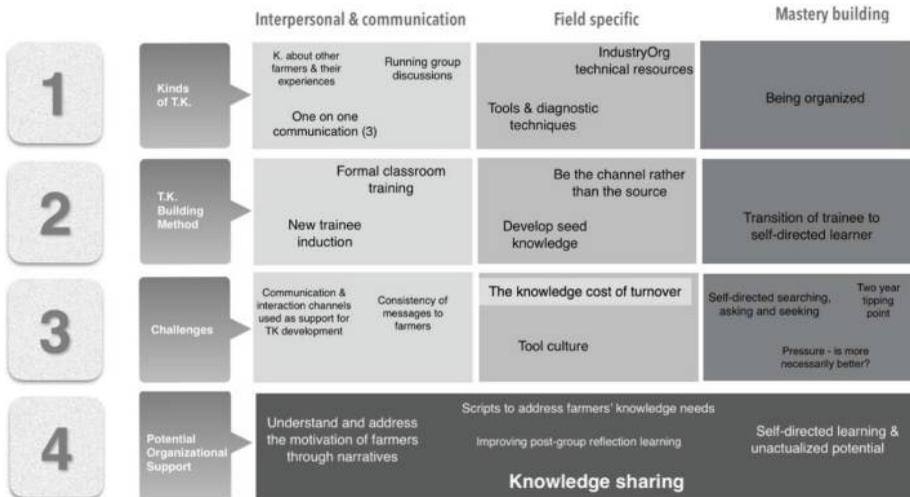


Figure 1.
The TKBM

knowledge from these group discussions. Figure 1 summarizes the findings in the previous sections into the TKBM, which places script building into the context of the organization studied.

The TKBM presented in Figure 1 offers a framework for learning professionals to use when making decisions and taking action about how and when to improve learning processes in similar organizations, using the four dimensions that emerged from this research, which are kinds of tacit knowledge, tacit knowledge building method, challenges and potential organizational support. As mentioned in the Methods section, participants' answers were thematized and included in the data set according to the three criteria outlined by Owen (1984), namely, recurrence, repetition and forcefulness, which provided the researchers with a selection method for what to include as part of the data to be reported. The next level of analysis was to organize these data against the three relevant dimensions identified through our understanding of the literature, and plot which would pertain to the interpersonal and communication dimension, which pertained to the IndustryOrg particular field (i.e. knowledge specific to the sector in which the consultants are working) and which pointed to knowledge pertaining to building mastery. Hence, the figure above synthesizes the findings, providing one further level of analysis to deepen our understanding of what such organizations could do to better support these tacit knowledge-building/learning processes for client-facing consultants.

7. Summary and outlook

RQ1 asked "What skill sets, experience, and tacit knowledge do ECs need to build and be able to apply through action to be effective in their roles?" In Finding 1, nine kinds of tacit knowledge that the ECs perceived to be needed in the performance of their roles are presented, answering *RQ1* in the context of IndustryOrg, where the field data were gathered. The perception of participants about how that tacit knowledge was built through their training and experiences in IndustryOrg is reported in Finding 2.

RQ2 asked "How can the organization employing the EC effectively support tacit knowledge building processes to optimize the effectiveness of these agents?" Finding 3

reports on what the ECs perceived to be the seven challenges faced in turning the tacit knowledge they were building into action with their farmer clients. We reported on the perceptions of consultants who, during their induction period, must learn vast amounts of technical and human communication materials critical to their success as staff members. Conversely, as they become proficient users of this knowledge, they progress towards the very tipping point that will make them attractive to other organizations in the sector who will headhunt them and convince them to leave their positions as ECs. This paradoxical relationship was a key insight for the organization that spent so much time and effort in recruiting and training new ECs.

The challenges identified could be further considered starting from either an organizational or an individual perspective and crossing into the other perspective. When an organization promotes a strong “tool culture”, this can result in “tool overload” and ultimately creates “pressure” experiences for individual staff. Conversely, looking at the process from the individual perspective, “self-directed searching” may create issues with organizational “consistency”, but ultimately may create the conditions for an EC to build the knowledge and self-confidence that bring about the “tipping point” – and poaching of ECs to other organizations. Both vicious circles result in the same seventh challenge: organizational turnover.

Finding 4 gives five ways that the ECs perceived that improvements could be made to the systems and processes used by IndustryOrg to assist ECs to build their tacit knowledge, and apply this knowledge into action. Understanding how staff build knowledge is vital to organizational sustainability: this topic is of relevance to both researchers and practitioners. This research contributes to better understanding how ECs acquire, build and apply the tacit knowledge they use in day-to-day situations, in the context of their work of being intermediaries between their organizations and their farmer clients.

The success of some of the methods used by IndustryOrg in its training programmes to support and accelerate the building of tacit knowledge by its new recruits addresses the calls by several researchers for trying new techniques for surfacing, acquiring, building and sharing tacit knowledge (Smith, 2001; Falconer, 2006; Bennet and Bennet, 2008).

This research does support previous research that understanding workplace learning needs multiple approaches and multiple viewpoints to be better understood (Sfard, 1998; Burnes *et al.*, 2003; Armstrong, 2008). By focusing on the learning processes of key intermediary individuals, such as the ECs in this specific IndustryOrg context, we may be able to better understand the overall learning context in the organization and improve the potential for acceleration, including not only initial training, but following on to job design and organizational support for ongoing learning and skill development.

In this research, we have seen support for the notion that the use of scripts may be very important in tacit knowledge-building processes for client-facing consultants. Use and personal development of scripts was reported as a key component of the most important tacit knowledge held by ECs in this study, namely, about running a group discussion. This supports previous research (McQueen and Chen, 2010) which found that the use of scripts in training was very helpful in bringing client-facing call centre staff up to speed quickly. Further research may illuminate the effectiveness of training and induction processes that incorporate script building as an important factor in accelerated workplace learning methods.

The idea of mastery (Wertsch, 1998) was supported as an important goal of the learning processes for the ECs who participated in this study. The processes described

by IndustryOrg trainees to test their new tacit knowledge in field situations with clients support the calls for new strategies to address the knowing–doing gap (such as Contandriopoulos *et al.*, 2010).

From a research perspective, the findings presented here can be used as a basis to develop further practical understanding of both the mechanisms ECs use to build and acquire their tacit knowledge, as well as which areas of their tacit knowledge provide the most benefits to their clients. From a practitioner perspective, the findings may contribute to better design of training and induction programmes for new client-facing consultant recruits, so that new intake people can become more productive and effective in a shorter period. For organizations such as the one studied, turnover issues endanger the organizations' sustainability and value to clients, and therefore, shortening new recruits' induction time may translate into significant organizational advantage.

The study results are necessarily limited and constrained by several factors, including that the qualitative data were collected from a sample of participants from only one organization, and that organization was located in New Zealand. However, it is hoped that the insights and factors that have been uncovered in this study will be of use to other researchers and practitioners in a broad range of organizations charged with providing effective, knowledge-based intermediary consulting services to end-user clients. Perhaps the study will also contribute more generally to understanding how knowledge workers, like the ECs of this study, acquire, refine, build and apply the tacit knowledge they require to be effective in their roles.

No substantive insights were uncovered into the conflicting view of Nonaka (1994) and his supporters, who suggest a knowledge conversion cycle that can transform tacit knowledge into explicit, and those who have different views on whether such a conversion process is possible (Tsoukas, 2003; Gourlay, 2006). However, this research may contribute to the discussion and understanding of knowledge transfer and conversion in an organizational context. Nonaka's (1994) cycle of knowledge transfer and conversion may be enhanced by considering a narrower conception of tacit knowledge, in that tacit knowledge may better be described as not able to be transferred between people, or converted to explicit knowledge through various transformation mechanisms. Might it be better to conceive the nature of tacit knowledge as something that resides only in the minds of people, and is not convertible or transferrable? And that tacit knowledge has a strong linkage with taking action, and is enhanced by confidence acquired through experience, as uncovered in the findings from this study?

These research findings suggest that tacit knowledge is built, in the minds of individuals, through classroom training and other mechanisms, and when combined with hands-on experiential learning in the field to reinforce and expand initial scripts, can lead to better workplace learning outcomes. In turn, this suggests that better designs may be possible for accelerated training and learning processes that focus on the individual, in the context of a larger organizational learning environment.

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Further reading

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