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# We say: '. . .', they say: '. . .': How plant science experts draw on reported dialogue to shelve user concerns

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## Abstract

This study aims to increase insight into the uses of experts' references to physically absent technology users in government-funded plant science. A discursive psychological analysis of expert board meetings shows that experts invoke various forms of reported dialogue/thoughts and dispositional statements when problems with technology and with program funding are discussed. Forms of reported dialogue serve to demonstrate that experts engage in dialogue with users, understand and are reasonable about users' concerns, and that the content of user concerns does not agree with expert views. Dispositional statements allow users' feelings rather than users' knowledge to be acknowledged as relevant. By establishing that user concerns contrast with expert concerns in type and content and by *not* discussing *how* users' feelings may be incorporated into technology, experts shelve user concerns. This practice may hinder the development of user-friendly technologies.

## Keywords

Discursive psychology, experts' talk, hypothetical speech, plant science, reported speech, user-references

## Introduction

Increasingly governmental funding bodies expect scientists to develop new technologies that match prospective users' requirements and serve societal goals (e.g. see Leach et al.,

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2005). This also applies to the specialized field of plant science in which prospective users of technology are farmers and plant breeders.

However, technologies that primarily serve societal goals such as the reduction of agrochemical use may compromise farmers' boundary conditions: if farmers do not apply agrochemicals in sufficient amounts they may lose their harvests to pests and diseases. With our study we seek to provide insight into how plant experts deal with the dilemma of how to treat user concerns vis-a-vis other – often competing – concerns in technology development.

We investigate to what interactional ends plant experts refer to users in institutional meetings that aim to ensure that new plant technologies are user-friendly. This perspective is relatively new, for, despite it being widely acknowledged that prospective users are central to the enterprise of technology development, it is rarely investigated how experts interactively deal with concerns of users of technology (Mejlgaard and Stares, 2012; Oudshoorn and Pinch, 2005) or how the articulation of user concerns in talk-in-interaction affects technology development.

Studies that do investigate how users matter in technology development tend to offer insights into the content of arguments that key players use to explain existing relationships and dynamics in biotechnology (e.g. see COGEM (The Netherlands Commission on Genetic Modification), 2007; Yamaguchi, 2007) or they provide insights into how conceptions about 'lay' participants affect who gets the opportunity to voice 'lay' concerns during deliberations and who does not (Felt and Fochler, 2010; Michael, 2009; Powell et al., 2011). Studies such as these teach us that engagement activities may not be designed to give *all* relevant actors the opportunity to voice their concerns. Consequently, much depends on how actual participants voice their own and others' concerns.

In the discourse literature there are hardly any studies about technology development in dyadic or multi-party settings. An exception is a two-party study by Veen et al. (2012) that looks at dynamics in interactions between prospective users of medical technology and experts. Moreover, conversation analytic studies that look at how participants voice others' concerns in interaction overwhelmingly favour dyadic interactions over multi-party interactions (Holt and Clift, 2007). The latter is problematic because the interactional dynamics in multi-party settings are more complex than in dyadic settings, and most deliberations in technology development take place in multi-party settings – settings in which three or more parties participate.

The discursive psychological analysis of experts' user-references we present in this article is situated in a setting in which four types of experts participate and therefore may shed some new light on dynamics in multi-party settings. In the following sections we will first discuss relevant literature on user-references and the complex, non-everyday context of interest – plant disease management science – before we present our analysis. Some basic knowledge of the context of plant disease management we deem necessary to be able to appreciate the discursive practices themselves and their social scientific relevance (see also De Kok, 2008; Moerman, 1990; Stokoe, 2012). However, we do not purport to claim that the discursive practices we explore are unique to the study setting, nor that they are universal practices.

User-references may take different forms. We focus on how users are commonly invoked in the context at hand: by invoking the speech or thoughts of absent others

(Holdsworth and Morgan, 2007) and by voicing dispositional statements of users (Edwards, 1994, 1995).

## Invoking users: The role of forms of reported speech and dialogue

Reported speech is a real or constructed quote of another (Holt and Clift, 2007) such as '*they say*: "*but then I don't*"'. Not all reported speech is projected by a reporting verb such as *say* in the example. However, recipients easily recognize quoted speech because it tends to be accompanied by a shift in intonation or, as Wooffitt (1992) calls it, active voicing. Generally, the function of active voicing is to animate speech and to objectify accounts in which reported speech/thoughts is used to corroborate claims (Potter, 1996: 161; see for a similar use of reported inner speech, Lamerichs and Te Molder, 2009).

Several authors have criticized the concept of reported speech (Buttny and Cohen, 2007; Tannen, 1989). We agree with Tannen (1989) that much reported speech is dialogical in nature and that it is important to call reported speech dialogue if dialogue is reported or invoked; with reported speech speakers may achieve other ends than with reported dialogue. For instance, reported dialogue may be preferred in institutional contexts in which demonstrated actual engagement with users is greatly valued, as is the case in technology development (Leach et al., 2005; Oudshoorn and Pinch, 2005).

Participants tend to use different forms of reported speech, thoughts or dialogue: direct reported speech (he said '. . .'), indirect reported speech (he said that they say '. . .'), hypothetical reported speech (then he will say '. . .'), reported thoughts of others (he thinks: '. . .') and plural or prototypical speech (they say that: '. . .'). Direct reported speech tends to signal direct epistemic access to the quoted, whereas indirect reported speech generally signals indirect epistemic access (Holt and Clift, 2007). Studies that investigate thoughts tend to focus on speakers' self-quotes or reported thoughts are treated as reported speech (Holt and Clift, 2007: 150–151). However, one could say that quotes of others' thoughts imply access to the verbalized and non-verbalized thoughts of the other and that, as such, reported thoughts signal greater access to the quoted than reported speech.

According to Buttny (2003: 106) direct reported speech tends to refer to quotes of individual people but not of a social category: 'Direct reported speech purports to quote the words of the individual while prototypical speech purports to capture the words of the group, as articulated through the individual.' Prototypical speech is kindred to what Wooffitt calls plural speech (Wooffitt, 1992, on plural quotes in Potter, 1996: 161) in that the speech of the group rather than the individual gets reported. Plural speech tends to make the inference available that the plural quote relates to 'a general experience of a range of people' (Potter, 1996: 162). The latter may be useful if one wants to present utterances as representative of a group.

According to Myers (1999b) hypothetical reported speech does not refer to something that has been said, but to what may be said or could have been said. Hypothetical speech may be useful if one does not want to reveal the identity of the quoted or one's

relationship to the quoted in that it tends to invoke events that may happen or might have happened.

The functions reported dialogue serves partly depend on its specific features. Typically, reported speech and dialogue convey something about the relationship between the quoted and the quoter (e.g. see Buttny and Cohen, 2007; Duranti and Goodwin, 1997). Generally, direct quotes say something about the quoters' epistemic access, for example, that the speaker has independent access to a knowledge source. Epistemic access, in turn, may be used for ends such as providing evidence for a particular position or claim (e.g. see Clift, 2006).

Moreover, the purposes reported speech or dialogue serve also depend on the context of use. As Buttny (1998) and Buttny and Cohen (2007) point out, speakers take the quote out of its original context and incorporate it in a new one. This feature of quotes-in-use enables speakers to deploy one and the same quote for different purposes. Functions, to which contextualized reported speech may be put, include but are not limited to blaming others for specific events or lack of results, avoiding responsibility for a controversial statement and probing what participants' stance is on certain issues (see Myers, 1999a, for more on functions of reported speech).

Finally, reported dialogue may be combined with other kinds of user-references such as dispositional statements. Talk about others' disposition to act in a certain way is a device commonly produced to make assertions about others more believable by presenting behaviour of a person or group as prototypical of that person or group (Edwards, 1994, 1995), for example, 'He is a jealous type of person'. Dispositional statements may refer to cognitive or emotional states of people and are generally informed by category-bound inferences. For instance, conservativeness and common sense are inferences that tend to be attributed to farmers. Dispositional statements are not easily challenged; to challenge them is to challenge widely accepted sociocultural inferences (Edwards, 1994; Emmison et al., 2011).

In this study, we explore the functions of experts' active voicing of users' utterances– user-oriented reported dialogue/thoughts – and dispositional statements fulfil in plant technology development.

## The research setting: An expert board in plant science

Eight successive meetings constituting 20 hours of talk of a Dutch expert board connected to several research programmes in plant disease management in staple crops were recorded in 2010 and 2011. The formal aim of the expert board was to ensure as for as possible that the technology developed in plant disease management research programmes can and will be used by prospective users: crop farmers and/or plant breeders. The research discussed in the fragments of this article are – like almost all research discussed by the board – governmentally funded. All research discussed by the board is linked to the plant disease Phytophthora.

Technologies discussed in the board meetings aim to increase the environmental-friendliness of disease management in staple 'crops' by reducing farmers' dependence on agrochemicals or by decreasing staple 'crops' susceptibility to Phytophthora, either by increasing Phytophthora-resistance of crops or by reducing the virulence of

Phytophthora itself. These different disease management strategies are met with various forms of public and user resistance.

Experts who participate in the meetings are government representatives, plant scientists and representatives of the plant breeding industry. In half of the meetings crop advisors who formally represent farmers were invited to partake in the discussions as well. Farmers as a group are excluded from participation on the board.[1] Plant scientists monitor and conduct research and report on research findings, puzzles and problems in board meetings. Representatives of the plant breeding industry contribute by bringing in their own particular expertise with regard to disease management and they provide the technology for field tests. Representatives of government chair meetings explain governmental procedures, report back to the Ministry and utilize their contacts in support of board decisions.

The expert board has formally existed for almost a decade from 2002 to December 2011. According to old plans the research programme and its expert board would have been dissolved in 2012 and not in 2011. However, the government decided to cut the yearly budget for 2012 in 2011. Consequently, in the meetings from the end of 2010 till the end of 2011, problems with field tests were drawn upon to argue for continued public funding of the research. Because our research project started at the end of 2009 we only recorded the board meetings from the start of 2010 onwards.

The first author was present at the meetings and took notes about ongoing interactions and seating arrangements. To minimize researcher impact on interactions during meetings she did not partake in the discussions. However, she talked informally to participants during breaks and lunches in between and after meetings. Notes on informal talk with board members, PowerPoint presentations and documents used in the meetings were studied to learn more about the context of plant disease management: the stakes and interests, the meaning of key concepts and some basic knowledge of the technical terminology used during meetings (see Duranti, 2003, for more on this mode of data-gathering). These additional data facilitated subsequent transcription and analysis: they helped us to understand what experts were saying, what alternative actions experts do not effectuate when they speak as they do, and it helped us to decide which recurrent discursive practices in talk-in-interaction related to crop disease management in a meaningful way.

We listened several times to the recordings. During listening the variety and prominence of forms of reported dialogue in talk about users caught our attention. And given the importance attributed to user engagement in technology development, we decided to focus on experts' user-references. Sections that had user-references in them were transcribed by the first author following Jeffersonian transcription conventions (Jefferson, 2004) and subsequently translated (from Dutch) into English. Translations are as literal as possible and include non-verbal cues such as pauses, changes in loudness and speed of utterances.

Additionally, key players in the board were interviewed with help of a topic list. In this article we draw upon these interviews to place participants' user-references in the wider context of plant technology development (for a discursive analysis of a selection of the 25 conducted interviews, see Mogendorff et al., 2012).

## Analytical perspective: Discursive psychology

In our study we deploy discursive psychology (DP) to analyse experts' deployment of user-references. DP is a form of discourse analysis and kindred to conversation analysis (CA), the empirical study of the structure and sequence of conversation. In DP and CA talk is seen as action oriented: language is studied as a participants' resource to conduct a wide range of social actions such as 'doing being' an expert (Potter, 1996). Interactionally, expertise is accomplished if participants behave and are treated as experts: typically, experts claim to know more about specific subjects relative to others and are treated by others as an authority (see also Carr, 2010).

Conversation analysts generally look for discursive patterns across datasets to understand the social organization of interaction (Heritage, 2004; Potter, 1996), for example, to investigate how a telephone conversation is typically started or ended. Discursive psychologists investigate the purposes language-in-use serves by paying close attention to how psychological characteristics, events and descriptions are made available, ascribed, and resisted by participants. Discursive psychology shares the conversation analytic focus on the turn-by-turn development of a conversation as a resource to make sense of the social activities that are accomplished. Furthermore, it uses the rhetorical dimension of conversation by comparing actual accounts of speakers with potential alternative versions of these accounts (Potter, 1996).

In this article, we focus on problem talk – partly because experts in the recorded meetings refer to users most often when they discuss problems in technology development, partly because this focus may add to the Science and Technology Studies literature where taking the user perspective into account is primarily presented as a way to prevent causing problems in technology development (Oudshoorn and Pinch, 2005).

However, first we provide a description of how and when experts in multi-party meetings generally employ user-references before we zoom in on fragments that demonstrate how experts deploy variations of reported dialogue/thoughts and/or dispositional statements about users' emotions. This way we somewhat accommodate Jahoda's (2012) critique that discursive psychological analyses do not always pay enough attention to the wider context in which the analysed interactions take place.

## Reasons for user absence and user-references in stakeholder board meetings

During interviews by the first author about strategies in plant disease management and the role of the expert board in it, board members said that individual farmers are unable to represent collective interests of farmers: 'The risk is that they only further their own individual interests. After all, they only know their own situation.' And: 'Farmers are interested in the practical uses of technology not in technical details of the research.' And finally: 'Crop advisors are better equipped to represent farmers as a collective than individual farmers.' For these reasons, farmers are formally represented by crop advisors during meetings. They supposedly know farmers' concerns because they regularly visit farmers to advise them on agrochemical use, technology and corporate management.

Crop advisors' interest in participating in the board is that they can adapt their advice to farmers' needs based on the newest research insights discussed during board meetings.

Generally, scientists are the most talkative participants. This is in large part because they present their research to the board during meetings with the help of PowerPoint. Research reports may take 30–60 minutes (questions asked about the presented material included).

Together experts in the boards devote on average 30 minutes per recorded meeting to talk about users. To refer to users the words *the field*, *farmers* and/or *breeders*, *they* or *people* are deployed. Experts, except crop advisors, primarily use these user-references in the form of direct reported dialogue, for example, *farmers and breeders say that: '. . .', whereas we say that '. . .'*. Experts use forms of reported dialogue most often in discussions about current problems with technology. Additionally, experts invoke future-oriented reported or hypothetical dialogue in talk about the future of Phytophthora research. Overall, they devote more time to discussing problems with technology than discussing future funding of research.

Furthermore, in problem talk experts do not discuss all possible causes of suboptimal functioning of technology: problems with the technology itself are hardly discussed, whereas users' stance on technology, the growing virulence of Phytophthora and crop advisors' inability to entice farmers to use new technologies as intended, are talked about extensively.

Moreover, in talk about current problems and in future oriented talk, experts – except crop advisors – employ forms of reported dialogue/thoughts.[2] However, the form reported dialogue takes, appears in part to be linked to how users get depicted. In talk about current problems, users are constructed as part of the problem with help of direct reported dialogue in the present tense and with statements about users' emotional dispositions; in future-oriented talk or with help of hypothetical dialogue, users are depicted as potential allies.

All participants in the meetings use reported dialogue except crop advisors, who tend to employ factual statements such as *farmers still think that . . .* when they talk about prospective users of technology. The following fragment shows how crop advisors tend to talk about farmers in the recorded meetings (see the Appendix for details on transcript notation).

Just before the start of the fragment a policy worker from a plant breeding company B2 asks the crop advisors (CAx) what is essential for the continuation of the disease management research programme:

*Fragment 1 Crop advisors' non-use of reported dialogue*

| | | |
|---|---|---|
| 22 | CA1: | And I think that we at this moment |
| 23 | | still underestimate to what extent (.) this is (.) |
| 24 | | when I see how many spraying schemes are based |
| 25 | | on the discussion of 0.3 or 0.25 liter Shirlan |
| 26 | | ((Shirlan is an agrochemical)) |
| 27 → | | and people ((farmers)) as yet do not realize at all |
| 28 | | what is at stake now (.) |

| | | |
|---|---|---|
| 29 | B2: | that is naturally also a piece of (.) |
| 30 | | that is a part of that eh |
| 31 | | the pathway from research to application. |

Crop advisor CA1 just tells, not shows, B2 what the concerns of users are (lines 24–28). B2 in turn accepts CA1's authority in this matter by agreeing to what CA1 says: *that is naturally also a piece of (.) that is a part of that eh the pathway from research to application* (lines 29–31). Moreover, CA1 connects a personal observation of spraying regimes – *when I see how much spraying schemes are based on the discussion of 0.3 or 0.25 liter Shirlan* (lines 24–25) with an 'objective' assessment of users' state of knowledge: *people as yet do not realize at all what is at stake now* (lines 27–28).

This fragment is typical of how crop advisors in our data talk about users: they provide 'objective' assessments of users' technology uptake based on personal observations about user practices.[3] And these statements are accepted. With this, crop advisors' formal role in the board as representatives of farmers is supported by how crop advisors formulate their claims and how recipients treat crop advisors' claims about farmers.

Moreover, the crop advisor in the fragment talks about farmers in the plural. The use of the plural in reported dialogue between farmers and experts and dispositional statements is typical of expert talk in our data. In the one and only instance in our data that a board member initially bases his claim on an experience of an individual farmer, this is not accepted by the others as relevant to the business at hand: evaluating field tests outcomes in Phytophthora management (Fragment 2).

Just before the beginning of the fragment, representative of industry B3 uses the experience of his neighbour – a farmer – to argue that the widely applied agrochemical Shirlan is not effective any more and that therefore the advice module in the decision support technology system may need to be updated.

*Fragment 2 Uptake of individual experiences of farmers*

| | | |
|---|---|---|
| 1 | B1: | Of that you need to be 100 per cent sure |
| 2 | | [because] perhaps your neighbour too has timely changed chemicals= |
| 3 | S8: | [yes] |
| 4 | B3: | =>NO NO< he didn't (.) no no I am sure of it (.) |
| 5 | B1: | no WELL YES you say↑ I [am sure but] |
| 6 | C2: | [no no but] |
| 7 → | | but we are not going to communicate results based on |
| 8 | | experiences of individual farmers with all due RESPECT |
| 9 | B3: | the feelings of farmers should be noted here↓ (.) |
| 10 | C2: | that's right. |

Bx = representative of industry, Sx= scientist, C = civil servant or policy worker

In this fragment, users' collective emotional dispositions are treated as relevant. This civil servant C2 succeeds by forcefully rejecting individual experiences of farmers as relevant for decision-making (lines 7–8). In line 9 B3 corrects his 'mistake' by making farmers' collective emotional dispositions relevant: *the feelings of farmers should be noted here*. In response, C2 endorses B3's correction (line 10).

By acknowledging that farmers' feelings do matter, B3 and C2 display their understanding that farmers-as-a-group need to be taken seriously as an actor in technology development; farmers' emotional dispositions towards technology could affect the adoption of new plant technologies. Moreover, with the exception of this fragment, experts quote users exclusively in the plural or suggest plurality through the words of a prototypical member (see also Wooffitt, 1992, on plural quotes in Potter, 1996: 161 and Buttny, 2003, on prototypical speech).

## *Future-oriented talk: Hypothetical dialogue*

The form reported dialogue takes partly varies with how technology development gets positioned in time. When our experts discuss current problems with technology they always use forms of direct reported dialogue or thoughts in the present tense and dispositional statements about users' emotions. When experts discuss how to prevent possible problems in the near future then they deploy instances of hypothetical reported dialogue such as *they will say: 'but then I will not keep spraying'*.

We will show that experts' use of hypothetical dialogue in future-oriented talk and their deployment of direct reported dialogue in problem talk produces seemingly contradictory depictions of the prototypical user.

*Fragment 3 Use of hypothetical dialogue*

| | | |
|---|---|---|
| 1 | B4: | You end something you see? (.) |
| 2 | | The first question that the farmer asks is (q) ↑ WHAT now? (q) (.) |
| 3 | S8: | Yes= |
| 4 | B4: | =So you probably need to say (q) ↑all right then, this initiative is finished (0.8) (q) |
| 5 | | but in the programs eh we continue with Phytophthora (.) cause otherwise |
| 6 | | it becomes a story like eh (q) ↑ oh the problem has been solved (q) = |
| 7 | B5: | =yes EXACTLY= |
| 8 | B4: | =when everyone is flooded with Phytophthora. |

In this fragment, representative of industry B4 enacts the possible uptake by the prototypical farmer of the news that a research programme in plant disease management ends in the near future whereas Phytophthora is not yet under control (lines 2, 6). The hypothetical status of the reported dialogue is discursively signalled by the modal *need* in line 4. Furthermore, B4's use of the particle *oh* in line 6 signals surprise of farmers (e.g. see Hutchby, 2001, on 'oh'). The hypothetical surprise of farmers indicates that the research programme is terminated prematurely. Moreover, surprise is here constructed as a reasonable response from the farmers' perspective. Also the invocation of farmers' common sense goes unchallenged. Possibly, because it is in line with the category-bound inference that farmers are the epitome of common sense.

In the following fragments we will show that in discussions about current problems with technology other inferences about farmers are made available, both with the help of reported dialogue/thoughts in the present tense and with dispositional statements: namely, that farmers are reluctant or scared to use new technology. The latter depiction

of users contrasts with the depiction of users as common-sensically acting humans we just saw in fragment 3.

## *Problem talk: Dispositional statements about users and plural speech attributed to users*

In the following we analyse instances of talk about current problems in technology development. Typically, experts deploy reported thoughts/dialogue in the vicinity of dispositional statements about users. The latter suggests contiguity – dispositional statements and quotes lie side by side in space and time but are not necessarily connected by causality or some other principle.

We start with the first occurrence in our data of a negative emotional disposition attributed to users (the second meeting of 2010 and the first meeting after a major Phytophthora outbreak). Experts are discussing the possible causes of the failure of a multi-sited field test with a newly developed decision support system that advises users about *when* they should spray *what* agrochemicals in order to sufficiently protect their crops against Phytophthora. At the start of the fragment, the discussion focuses on the frequency of spraying intervals of agrochemicals in relation to crop protection.

*Fragment 4 users' dispositions and reported thoughts*

| | | | |
|---|---|---|---|
| 1 | S11: | But this then could be a system that would give a breeder (.) mo:re (0.4) | |
| 2 | CA5: | confidence?= | |
| 3 | S11: | =yes (.) would appeal ((to a breeder)) more↓ it is (.) | |
| 4 | | five sprayings is perhaps too little eh↑ | |
| 5 | → | they find that SCARY (.) | |
| 6 | CA5: | yes | |
| 7 | S11: | (.) yes I just say it like it is | |
| 8 | ?: | yess .hh= | |
| 9 | S11: | =and eight sprayings they may find a little bit less scary, isn't it? | |
| 10 | CA5: | (.) yes | |
| 11 | S11: | (.) I think that was also the idea behind these modules | |
| 12 | | to come somewhat closer to (0.9) the (.) well yes (0.4) | |
| 13 | | the risk perception of the breeder eh↑ | |
| 14 | | whereas anyhow Phytophthora is fought appropriately | |
| 15 | | and then (.) well yes if it is possible with | |
| 16 | CA5: | (0.7) yes= | |
| 17 | S11: | =less agrochemicals (.) or just as much agrochemicals | |
| 18 | | (0.4) | |
| 19 → | B2: | It is not so much | [that he finds it scary] |
| 20 | C4: | ((in the background)) | [that it goes wrong] ((in the background)) |
| 21 | B2: | but more like that he thinks ↑ I have to do something | |
| 22 | | because it is not totally zero ((the risk of Phytophthora)) | |

In line 5 scientist S11 attributes to users a negative emotional disposition towards technology: *they find that scary*. This dispositional statement is preceded in lines 1–4 by

S11's suggestion that a higher frequency in crop protection spraying intervals would appeal more to farmers and breeders. Moreover, S11 appears to be searching for the right expression. The latter may indicate that S11 is aware that his suggestion of changing the spraying intervals may be treated as self-interested (see also Potter, 1996: 131–132, on subtlety and managing stake).

After the dispositional statement is confirmed by a crop advisor (line 6), scientist S11 offers a reflexive assessment on his dispositional statement: *yes I just say it like it is*, pre-emptively denying any bias from his side (line 7). In line 9, S11 continues by providing a specification of what farmers and breeders find scary, ending with a tag question that invites support. In line 10, S11 gets a minimal confirmation from a crop advisor. This appears not to satisfy S11, for in lines 11–17 S11 elaborates on his dispositional statement by reporting his thoughts on the rationale behind the decision support systems. By specifying his dispositional claim, scientist S11 seems to seek to objectify his statement about users' stance towards technology (see Tracey and Durfy, 2007: 240, on objectification).

Finally, in lines 19–21, representative of industry B2 challenges S11's statement that *they find it scary* (line 5) by denying the dispositional statement: *it is not so much that he ((the prototypical farmer)) finds it scary* (line 19) and by subsequently reporting thoughts that users may have had: *but more like he thinks I have to do something . . .* (line 21).

It seems that experts – except crop advisors – cannot content themselves with simply stating that users' emotional dispositions affect technology development. B2 sets the example by challenging a claim about farmers' dispositions that is not demonstrably based on interaction with farmers but on factual statements about farmer behaviour and by backing up his counterclaim with reported thoughts of the prototypical farmer.

*Fragment 5 Emotional dispositions and reported dialogue*

| | | |
|---|---|---|
| 1 | S11: | Another issue that keeps coming back |
| 2 | | is eh the accumulation of agrochemicals eh |
| 3 | | because last year was of course a dry spring= |
| 4 | C2: | =yeah |
| 5 | S11: | eh or yes dry first part of the season |
| 6 | | that the syste:ms advised longer spraying intervals |
| 7 | | (0.3) |
| 8 | | eh two (.) three weeks |
| 9 | S11: | .hhh and that many people still also consider scary (.) eh |
| 10 | | eh they say (q) ↑ yes but then I do not keep spraying |
| 11 | | and then I keep- the protection eh level goes down ((against disease)) (q) |
| 12 | | (q) and I need to keep spraying those agrochemicals |
| 13 | | because the level of protection builds up (.) eh |
| 14 | | and when the weather changes then I have |
| 15 | | at least a reasonable protected crop eh (q) |
| 16 | | whereas we always say eh .hh (q) yes (.) |
| 17 | | you need to spray at the right moment |
| 18 | | and then your crop is protected just fine |
| 19 | | what you did before that↑ does not matter (.) (q) |

This fragment is part of a lengthy discussion about the possible role of users' dispositions and behaviour in the underperformance of decision support systems technology. *And that many people still also consider scary* (line 9) is an explicit claim about farmers' and breeders' emotional dispositions towards the decision support system. The utterance suggests that farmers and breeders are reluctant to adhere to spray intervals that are longer than they are used to (line 8); moreover, attributed to farmers is the belief that longer spraying intervals mean less direct and indirect crop protection against Phytophthora (lines 6–15).

In lines 10–19, scientist S11's dispositional statement is directly followed by reported dialogue. The *they* in line 10, and the *I* in lines 10–12 and line 14, refer to the prospective users of the technology, and the *we* in line 16 to the technology developers. The start of reported dialogue is signalled by the reporting verb *say* in line 10 followed by a change in intonation; the *they* in line 10 signals that scientist S11 first enacts the speech of farmers and breeders and the *I* after *they say* indicates that the *I* is a prototypical farmer.

One may ask why S11 uses an assessment of a past event – a major outbreak of Phytophthora in 2010 – to claim that users' judgement is clouded by emotions. He could also have used the event to question the efficacy of the decision support technology but he does not do that. Instead, by invoking users' dispositions and users' speech S11 focuses the attention on the user. The use of reported dialogue also backs up S11's claim that user logic does not agree with scientific logic.

Interestingly, S11 neither provides nor is asked to provide an account of what he has done to reconcile user logic with expert logic. The latter suggests that experts such as S11 are free to decide how to combine user logic with expert logic after they have demonstrated that they have considered users' views.

In the following fragment a policy worker from a breeding company B2 distinguishes between theoretical and pragmatic feasibility of crop protection spraying schemes.

*Fragment 6 Emotional dispositions and reported dialogue*

| | | |
|---|---|---|
| 1 | B2: | we always say at first communication wise↑ |
| 2 | | (q) spray only when there is a critical period. (q) |
| 3 | | Then it becomes apparent in practice that that is not feasible (.) |
| 4 | | and people do not dare to do it (.) |
| 5 | | then at some point you go back to say well (q) |
| 6 | | oka:y what do you want then↑ (q) |
| 7 | | (q) we want a kind of week scheme together with (q) |
| 8 | | then you take (.) |
| 9 | | it does make little sense to have a fantastic management strategy |
| 10 | | that is 100 per cent effective= |
| 11 | C2: | =yes= |
| 12 | B2: | =that in practice will not be used (.) |
| 13 | | then you come a day after the fair= |
| 14 | C2/S8: | =yes (.) |
| 15 | B2: | then you have to meet each other halfway |
| 16 | | I think we have done that quite well. |

In this fragment, industry representative B2 provides an emotional dispositional statement: *people do not dare to do it* (line 4) with regard to limiting spraying to critical periods: intervals in which a Phytophthora outbreak may occur. The statement presents the lack of daring of users as prototypical of farmers by making available the sociocultural inference that farmers are conservative and reluctant to change their behaviour with regard to agrochemical spraying. Furthermore, *do not dare* implies that farmers tend to be too scared to reduce their agrochemical use in line with expert advice.

In fragment 4 we saw that B2 did provide evidence to counter scientist S11's claim about users' stance toward technology. However, the primary function of dispositional statements and reported dialogue here is to demonstrate that the expert board has taken users' feelings and user engagement seriously by engaging in dialogue with users, and by respecting user concerns irrespective of whether users' dispositions are compatible with scientific logic. Furthermore, users' dispositions towards technology are presented as constructive: they are not invoked to provide a possible explanation of the underperformance of technology, but as a starting point for dialogue between users and experts.

This fragment also differs from fragment 5 in that B2 here adds something about how differences between user and expert logic should be handled: *then you have to meet each other halfway* (line 15). Notwithstanding this addition, B2 remains vague about how users' concerns should be handled exactly and he is not asked to be more specific. Put differently, the practicalities of combining user logic with scientific logic are not treated as relevant. With that, it is left to technology developers to decide how to combine these two.

## Conclusions and discussion

We have seen that experts treat user engagement as relevant in technology development by enacting dialogues with prototypical users. However, different from the formal goal of the expert board, user-references do not primarily serve to elucidate the implications of users' concerns for new technologies. Instead our data suggest that users are of strategic importance in technology development. Experts produce assertions about users' negative emotional dispositions towards technology and reported dialogue/thoughts when the underperformance of new technologies is discussed. In these instances users tend to be depicted as possible threats to the success of plant technologies (fragments 4, 5 and 6). In contrast, users are portrayed as allies when the continuation of research programmes is discussed with the help of hypothetical reported dialogue (fragment 3). However, these two seemingly contradictory user depictions both show that for better or for worse users matter in technology development. This is all the more apparent, given the amount of time experts devote to talking about users' stances relative to other potential causes of suboptimal functioning of technologies.

Furthermore, our analysis indicates that users' concerns do matter in a different way from experts' concerns. Users' collective feelings are treated as relevant to technology development (fragments 2, 4, 5, 6) whereas experts' feelings are never treated as relevant. Different from Cook et al. (2004), we found that experts acknowledge that users' concerns – that is, feelings – make sense from their own life world and are therefore legitimate from that perspective. This finding is in agreement with a study of plant

scientists' discursive practices we conducted earlier (Mogendorff et al., 2012). In the latter study we found that scientists acknowledged that non-scientists' concerns have legitimacy in everyday life but not in science.

The analysis presented in this article also demonstrates that experts' displays of understanding of the user perspective do not necessarily mean that users' concerns are incorporated in technology. With plural reported dialogue in the form of *they say '. . .', whereas we say '. . .'*, experts demonstrate that the content of expert and user logic tends to be incompatible. And by treating expert *knowledge* and users' *feelings* as relevant, with the help of dispositional statements participants accomplish two things. First, they establish that user concerns and scientific concerns are not of equal value; emotions tend to be treated as less valuable than knowledge in technology development and science. Simultaneously, experts make it hard, if not impossible, to compare experts' and users' concerns; feelings and knowledge relate to one another as apples to grapes.

To conclude, by establishing that user and expert logic are of two worlds that are both to be respected but as such incompatible, experts in our study effectively retain the freedom to choose if, how and when to follow up user logic in technology development. Or to paraphrase Gieryn (1982: 792), experts maintain their autonomy over professional activities by enacting dialogue between experts and absent users, by producing dispositional statements about users, and by saying nothing about how they incorporate users' concerns in technology.

This conclusion is quite remarkable. Because the central aim of the board we studied is to ensure that new plant technologies are user-friendly, one would expect that scientific experts are asked to account for how they plan to incorporate users' concerns in technology. As we have seen, our experts were only required to demonstrate that their claims are rooted in direct interaction with users and that they seriously consider user concerns. A possible explanation for this may be that if board members were to demand that experts account for how they have inscribed users' concerns in technology, then experts could easily treat this as a contestation of their expertise.

Moreover, reported dialogue is ideally suited to acknowledge others' concerns or emotions without necessarily endorsing their content. The production of reported dialogue/thoughts enables experts in our data to suggest that their claims about users' emotional dispositions are the outcome of their reflection on interactions with a range of users. With the latter, speakers may project an image of themselves as reasonable and consistent beings who understand and are sympathetic to users' concerns but do not necessarily agree with them. In addition, by acting reflectively experts also project the suggestion that users are less reasonable than they are (see Locke and Edwards, 2003, for more on speakers' reflexivity). In doing so, experts create the possibility to not take into account, that is, to shelve, user concerns.

Now we can also try to interpret crop advisors non-use of reported dialogue: advisors' tell, not show, what user concerns are and they get away with it. By not inviting crop advisors to elaborate on their epistemic access to users, their epistemic access to farmers is treated as self-evident. This interactional treatment of crop advisors is commensurate with their formal role as representatives of farmers.

Finally, this study raises the question what functions we would prefer experts' knowledge of and experience with users to perform in publicly funded research. Is it is always

wise to leave unquestioned how experts apply their expertise? Or is it justifiable to sometimes investigate this at the risk of triggering a hostile response because one ventures into the professional domain of another? The first step lies in making expert participants aware of how they currently deal with user concerns, as many of these practices are persistent but often have little, if nothing, to do with conscious motives or intentions (see Lamerichs et al., 2009, for a discourse-based reflection method for practitioners).

If one wants to ensure that technologies are user-friendly, our explorative study indicates that it is not enough that experts account for their engagement with users. They also need to account for how users' concerns in practice affect new technologies under development. It may also be a good thing to invite users to partake in expert board meetings; they have a vested interest in demanding that experts account for how they inscribe users' concerns into technology.

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## Notes

1. None of the participants interactively present themselves as farmers during board meetings. However, during informal talks and interviews we learned that some of the participants were raised on a farm or are living on a farm. Nonetheless, farming is not the main form of employment or source of income of participants.
2. Reported thought is only used by one participant (not a crop advisor).
3. Objective in the sense of using terms that index qualities of an object rather than suggesting personal stance (Wiggins and Potter, 2003).

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## Appendix: Transcription notations

Based on Jeffersonian transcription (Jefferson, 2004):

| | |
|---|---|
| [ text ] | Overlapping speech |
| hhh | a hearable in breath, the number of 'h's signals the length |
| (x.x) | Pause of x.x seconds |
| (.) | Micropause, less than 0.2 seconds |
| ↑word,↓word | Onset of noticeable pitch rises or fall |
| wo:rd | Colons show that the speaker has stretched the preceding sound |
| word | Emphasized |
| WORD | Speaker is talking louder |
| ° text ° | Speaker is talking softer |
| ((text)) | Transcriber's remarks |
| = | No pause between words or turns |
| >text< | Fast speaking |
| (q) text (q) | constructed speech or reported dialogue |