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DOWN-TO-EARTH ISSUES IN INFORMATION SYSTEM USE

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Abstract

This study proposes a new understanding of IS use that gives attention to the everyday 'Down-To-Earth' (DTE) issues that actually affect the success or quality of IS use. These differ from the kinds of issues discussed in the extant literature on IS use, in at least five main ways. The DTE approach takes the user's everyday perspective rather than that of management, IT suppliers or researchers. It widens the often narrow focus on single aspects of IS use. It recognises the importance of indirect and hidden issues, which are often overlooked. And it provides a way of coping with the plethora of issues that result from this. To achieve this, the DTE approach makes use of the suite of fifteen aspects that emerge from Dooyeweerd's philosophy of everyday life. Empirical research has been undertaken to operationalize the DTE approach as a qualitative analysis method enriched with Dooyeweerd's aspects. This showed that the kinds of issues found by the DTE approach are not only more numerous than with conventional approaches, but also of different kinds, giving a richer and wider picture of IS use. Contributions to theory, methodology and practice are briefly discussed

Keywords: Information Systems Use, Everyday Use, Down-To-Earth Issues, Dooyeweerd aspects, Qualitative analysis

1. INTRODUCTION

Despite decades of research and investment into the information system (IS) use, the failure rate of IS in use remains high and problems in use refuse to disappear. Attempts have been made to understand IS use but problems remain.

A major approach to understand IS use is to generate models with constructs like System and Information Quality, Individual and Organizational Impact (Delone & McLean 1992), Service Quality and Net Benefits (Delone & McLean 2003), Perceived Ease Of Use (PEOU) and Usefulness (PU), and Intention To Use (Davis 1989), Task-Technology Fit, Performance Impacts and Characteristics of Task, Technology and User (Goodhue & Thompson 1995). When such constructs are applied to study actual situations of IS use, however, they are too general and need interpretation. Consequently, IS researchers over the years have introduced what Davis calls external variables, for example Relative Advantage and Self-efficacy; Lee et al (2003) has collected twenty of these and Yousafzai et al. (2007), seventy.

This plethora of variables indicates a huge diversity of issues. Is it practical to try to recognise all of them in practical analysis of situations of IS use or in IS research? In any case, are we certain that all issues that do actually influence or constitute success or quality in IS use are included by Lee and Yousafzai? As illustrated below, many 'down-to-earth' issues might be overlooked, even though they are important in contributing to the quality of IS use, and the research reported in this paper confirms that. This paper proposes an approach to understanding and investigating IS use that focuses on 'down-to-earth' (DTE) issues.

DTE issues are those issues that determine the quality of use of the IS, as experienced by users and all stakeholders. The DTE approach to IS use is one that pays attention to all such issues when researching, evaluating, planning for or improving situations of IS use. DTE issues are of the everyday life of the user and so are often intuitive and tacit. Since everyday life, intuition and tacit knowledge are themselves not yet well understood in academic literature, it is unlikely that we can precisely define DTE at this stage, but it is expected that a clearer characterization of DTE will emerge as research based on the approach is undertaken. In order for such research to proceed, three things are needed:

- We need to identify ways in which extant approaches in the literature are problematic; this provides a motive for trying the DTE approach.
- We need a philosophical basis on which to understand what DTE means; this provides both an explanation of why the approach is likely to be valid, and guidance (ontological, epistemological) for carrying it out.
- We need indications of how DTE issues might actually be revealed and studied.

It is the aim of this paper to provide those. Section 2 provides some illustrations of DTE issues and identifies a number of problems with approaches to ISU found in the extant literature. Section 3 introduces a philosophy that, being geared to everyday life and its diversity, has been used to understand what DTE refers to. Section 4 outlines empirical work that has been carried out to study DTE. Section 5 discusses some findings from those that provide provisional justification for taking the DTE approach further. Section 6 concludes the paper.

2. DOWN-TO-EARTH ISSUES AND EXTANT

The notion of 'down-to-earth' (DTE) is founded on the belief that it is the everyday activities, attitudes, aspirations etc. of those who engage with an information system that determine whether the quality of its use is high or low. Quality of IS use is related to Delone & McLean's (1992; 2003) notion of IS success, but is conceived more broadly, to encompass not just visible impacts on organization and individual, but also indirect impacts and things like user satisfaction (Melone 1990), power relations (Allen et al. 2000), environmental responsibility (Melville 2010) and other aspects not yet widely discussed, especially those in the everyday life of users.

DTE issues are well illustrated in Wenger's (1999 p. 18-34) vignette of a day in the life of an IS user, Ariel, a data entry clerk in the claims processing unit of a large American insurance company. Wenger made long-term ethnographic observations of IS use, spending a year working in the company, having undergone the normal training and actually processing claims himself. The vignette was formed from his collected observations. For example (p. 22-23):

"(Ariel) enters first the type of service, then the name of the service provider, which leads her into the providers file: there she makes sure she checks that the provider's address is correct since the insured has 'assigned' the benefits to be disbursed directly to the doctor. ... Since the patient went to such a 'preferred' doctor, Ariel must remember to increase the rate of reimbursement from 80% to 85%."

This describes data entry and under extant approaches it might be studied as ease of use. By contrast, two DTE issues here are that money should be disbursed to the correct doctor and the right amount should be disbursed; hence Ariel's carefulness in checking and remembering. Other examples are given below.

Under the DTE approach, the way the IS user is, lives and works is seen as affecting many aspects of IS use, for good or ill. IS use is not seen as a separate task, but as part of the overall work and activity of the user, all of which is seen as potentially relevant to quality of IS use. So, in principle, each and every detail of the user's activity is should be considered during IS research, unless ignored by deliberate choice.

Unfortunately, extant approaches simply overlook many DTE issues without even being aware of them. Several reasons that can be identified for this, of which the authors have encountered the following five. It is likely that there are others, and it is not the intention of this article to argue for these five; instead they are used to show there is a problem in extant research that needs to be tackled. Each is illustrated with an excerpt from Wenger (1999).

The first two are wrong perspective and narrow focus. Therefore an analysis method is suggested that looks for issues that are meaningful to system users who directly use the system and search for wider issues. This includes indirect issues and hidden issues, which are the next two challenges. This leads to the fifth challenge, of a plethora of issues. Wider, indirect and hidden issues are unlimited in number. So any approach that generates such a plethora should have a way to handle it.

2.1 Wrong Perspective

Because the process of definition of the issues is done by the researchers themselves, they tend to define them based on what interests the literature rather than what users find meaningful. Likewise, IT analysts tend to select issues of interest to their clients: management and ICT suppliers. The models' main output variables in positivist research shows the interests of researchers, ICT suppliers and senior management rather than of those who use the system. TAM's (Davis 1989) output variable was 'Actual system use' in a study conducted by the ICT supplier, IBM, to investigate whether users would adopt and accept the newly introduced system. In DeLone and McLean's (1992) model, the output variable is Organizational Impact, which clearly shows the interest of Senior Management more than of actual system users. The same goes for TTF by Goodhue and Thompson (1995), the output variable being Performance Impact, again meant for Senior Management.

Attitude is an issue that these perspectives would usually overlook. Ariel has displays an attitude of wanting to do good work (Wenger 1999, pg. 31):

Annette replies, "I think it's 'end of the month'." But Joan corrects her, "No, they just changed it. It was in a memo last week." Ariel overhears the conversation and makes a mental note.

That Ariel makes a mental note means that she will make better decisions later in her work; she does so because of her general attitude. But such attitude is taken for granted by senior management, ignored by ICT suppliers and is absent from Yousafzai et al.'s (2007) list.

2.2 Narrow Focus

In TAM (Davis 1989), constructs like Perceived Usefulness, Perceived Ease of Use (PEOU, PU) are all related to the performance of the task, so the external variables are also related to tasks, like "accomplish task", "job performance", "productivity", "easier to do the job" and "useful in my job". Likewise DeLone and McLean (1992, 2003) focus on job-related impact or benefits in the organisation. Goodhue and Thompson (1995) incorporate task technology fit to ensure the system meets users' needs in relation to their job. Ward et al. (2005) focus on organisational influence in using the system. When researchers focus on job performance in the organisation they tend not to see wider issues that are important in the system users' daily activities.

Yet such wider issues are important. For example, in Wenger (1999), Ariel has a personal space on her desk, with a photograph of her boyfriend. This could help (or hinder) her work by making her feel valued but, because it is not a formal professional issue, it would usually be overlooked by IS research. Widening focus is important because an information system is composed of interrelated tasks, technology, structure, and people (Gill & Bhattacharjee 2007). Myers (1997) found that "the broader issues ... were more significant than the more narrowly focused factors suggested by the factor research approach. The broader issues include the social, cultural, political and economic context of the system as a whole."

2.3 Indirect Issues

Indirect issues are those which affect the quality of IS use but indirectly. For example, Wenger (1999) reports how Ariel, being held up in traffic and arriving late, was in a bad mood, which made her more careless when entering data. Similarly, one of Ariel's colleagues had family problems, which reduced her concentration and hence job performance.

Most such indirect issues cannot be found in constructs like Perceived Usefulness, System Quality or Task Characteristics. Nor would they be thought about as possible external variables; very few, if any, such issues were collected by Lee et al. (2003) or Yousafzai et al. (2007). So such issues would be missed by much IS research and most practice influenced by it. The diversity of indirect issues in the everyday working environment makes the detection of these issues a challenge.

Though Tong et al. (2008) mention indirect use, what they mean by indirect use is "the state in which a user employs an IS indirectly through one or more intermediaries (i.e., other colleagues) to accomplish an organizational task." There are many other kinds of indirect issue that can impact system use and need to be considered.

2.4 Hidden Issues

Hidden issues are those which users do not explain explicitly. They might not even be aware of them, and many are their tacit knowledge, or they might not mention issues they find embarrassing. Typical ways of conducting qualitative data analysis (e.g. Rubin & Rubin 2004; Strauss & Corbin 1990; Tesch 1990) include combining categories and identifying themes directly from what the interviewees have said. So many issues remain hidden.

For example, Wenger (1999, pg.31) explains:

"Now that claim looks like a duplicate, but Ariel can't tell from the claim history on line; she needs to check the original bill to see if the services covered are really the same."

There are two DTE issues here, that Ariel has experience of what feels like a duplicate, and that she takes the trouble to check. Both are hidden because, if interviewed, Ariel would probably talk about the fact that she checks for duplicates, and why it matters (double payments and then effort to recover the extra), but she would probably not mention her expertise nor her willingness to take extra trouble. Yet, without these two hidden issues, duplicate payments would occur more frequently.

In addition, what seems a single issue to the analyst might have multiple meanings, each affecting system use in different ways. For example the supposedly single issue of passwords can mean to the

user: trying to remember, selecting the correct one, careful typing. Klein and Myers (1999) recognise multiple meanings that different people place on something, but here one person finds things meaningful in multiple ways.

2.5 Plethora of Issues

Those who work with traditional models find they must always keep adding more issues (e.g. 'external variables' added to Davis' (1989) TAM) to fit specific conditions, to enhance the explanation of actual usage (Wu et al. 2011; Shih & Huang 2009). Such variables can help to interpret general model variables in ways that are meaningful in the context of system use and, if the problem of wrong perspective is avoided, meaningful in the everyday working life experience of system users.

Lee, et al. (2003) collected 20 external variables suggested for TAM in 101 articles in leading IS journals and Yousafzai et al. (2007) collected 70 from 145 papers. Even so, most of these miss indirect and hidden issues, which add yet others. This result in another challenge to researchers or analyst: the plethora of DTE issues.

The challenge therefore is to find a way not only to widen the narrow interest and find indirect and hidden issues that might affect quality of use, but also a way to manage the plethora that results.

2.6 Overview

This has suggested that, to both research and practically consider IS use, a DTE approach should be open to all the varied issues that IS users encounter 'on the ground' while working with IS. This requires addressing a number of problems, which are characteristic of many extant approaches:

- wrong perspective: adopt the perspective of users who engage with the IS in their work or life
- narrow focus: recognise issues beyond task or organizational performance
- indirect issues: consider the indirect impacts of IS use
- hidden issues: seek to disclose meaningful issues that even the IS users might not be aware of
- plethora of issues: find a way of managing the myriad of issues that might result.

It might seem as though the DTE approach ignores general constructs in favour of a myriad of individual idiographic facts, which not only would be inordinately time consuming, but would undermine the generation of general knowledge that is essential to interpretive field studies (Klein & Myers 1999). This is not so. However, to understand why this is not so, and find a practical analysis method, requires a brief reference to philosophy.

3. THE PHILOSOPHICAL BASIS OF A DOWN-TO-EARTH (DTE) APPROACH

The Dutch thinker, Herman Dooyeweerd (1894-1977), developed a philosophy (Dooyeweerd 1955) that is increasingly attracting interest in the IS field as a way of addressing the diversity of issues. His philosophy is good for understanding everyday life, since it starts from a pre-theoretical attitude rather than a theoretical one. He proposed that meaningfulness and normativity are more fundamental than things or events, and give rise to them. Meaningfulness, he suggested, is diverse, and he delineated fifteen 'aspects' that lie at the root of temporal reality:

- The Quantitative aspect makes amount meaningful.
- The Spatial aspect makes continuous extension meaningful.
- The Kinematic aspect makes flowing movement meaningful.
- The Physical aspect makes energy, matter meaningful.

- The Biotic/Organic aspect makes life functions biotic: Poor soil conditions means death for this plant meaningful.
- The Sensitive/Psychic aspect makes feeling and response meaningful.
- The Analytical aspect makes distinction, conceptualisation and logic meaningful.
- The Formative aspect makes creative power, achievement, technique, and technology meaningful.
- The Lingual aspect makes symbolic signification, expression and communication meaningful.
- The Social aspect makes social interaction, in relationships and institutions meaningful.
- The Economic aspect makes frugal management of scarce resources meaningful.
- The Aesthetic aspect makes harmony, surprise, fun and delight meaningful.
- The Juridical aspect makes due (rights, responsibility) and appropriateness meaningful.
- The Ethical aspect makes self-giving love and generosity meaningful.
- The Pistic aspect makes belief, faith, vision, commitment meaningful.

Aspects offer distinct perspectives on situations and hence different ways to study them and different rationalities for thinking about them. Each aspect also has a distinct set of laws that govern situations. Human activity is seen as integrated functioning in all aspects simultaneously. In human life, the later aspects are normative and the earlier ones, determinative.

So IS use may be seen as functioning in every aspect by the user and others. Functioning in an aspect generates repercussions in that and other aspects, which can affect the functioning of others. Quality of IS use is seen in terms of functioning well in each aspect, and is jeopardised when people go against the laws of any aspect. See Basden (2008) for a fuller discussion.

Aspects are of everyday life so are uniquely suited to considering DTE issues. For example, Ariel's attitude of goodwill is positive ethical functioning, entering false information is negative lingual functioning, checking is analytical functioning, making mental notes is psychic functioning, and having personal desk space is aesthetic functioning.

Dooyeweerd argued that all theoretical activity, including research and analysis, involves abstracting (focusing on) one aspect of the situation for analytical treatment. For example, PU and PEOU are defined relative to job performance, so they are concepts in which the formative aspect is abstracted. If IS use involves every aspect, then abstracting only one will, of course, narrow the analyst's view. A DTE approach must encourage the researcher and analyst to abstract any and every aspect of IS use. Dooyeweerd's suite of aspects is particularly good for facilitating this, because the kernel meaning of each aspect can be grasped with our intuition, and because all human beings, across all cultures, function in the same set of aspects (though they might do so in different ways). An aspectual profile is an analytical device that shows the relative importance of each aspect to a cohort of people or in situations; see later.

An approach based on Dooyeweerd's aspects may be able to overcome the five problems discussed above.

- Wrong perspective and the need to take the perspective of users. These aspects are found both in everyday experience and in scientific and professional work, and thus have the potential to expand the 'wrong perspective' of the literature to encompass everyday experience of IS users.
- Narrow focus and the need to widen it. That researchers take a narrow focus may be because they attend to only one aspect. If analysts are sensitive to all aspects they can take a wider focus.
- Indirect issues. Human beings function in all aspects all the time, and there are always repercussions of doing so, a different kind of repercussion for each aspect. For example, family problems can have analytical, formative and economic repercussions on work.
- Hidden issues. To Dooyeweerd, the aspects pertain whether we are aware of them or not, which means that all human activities exhibit multiple meanings. All human activity involves every aspect, but many are hidden. The answer an interviewee gives may be mainly on one aspect, but in their answer other issues and opinions might be mentioned in passing, and these are usually of other aspects. Trying to identify those aspects can uncover hidden issues.

- Plethora and the need to manage it. Aspects can help in two ways. First, they provide fifteen categories into which issues may be classified according to their meaningfulness. (This compares favourably with Yousafzai et al.'s (2007) attempts to classify the 70 variables into four categories). Second, the kernel meanings of the aspects are understood intuitively, and can easily become internalised. Then an intuitive awareness of aspects can be applied to any situation directly, reducing the volume of transcript and formal analysis.

Ahmad (2013) provides a detailed discussion of theoretical and empirical attempts to employ Dooyeweerd's aspects to address each of these problems.

4. RESEARCH METHOD

Ahmad's (2013) empirical work demonstrates one DTE method.

4.1 Interview Technique

Data were collected from open interviews with ten system users among the middle and lower level staff in two different organisations: local authority and semi-government. Kvale (1996) found between five and twenty-five interviews satisfactory. Managerial staff were excluded because they used the system only infrequently or indirectly via other people (Mahmood et al. 2001; Ang et al. 2001), and it was important to capture the users' "life-world where they lived, felt, undergone, made sense of and accomplished" (Schwandt, 2001). The information systems used were various administrative systems, and use was mandatory because operations depended on them.

As far as possible, the interviews were fully open. Interviews were held in the mother tongue, Malaysian, for up to one hour and were recorded and transcribed into English. They started with introductory discussion about social aspects and job tasks, but the interviewees were encouraged to talk widely about what was meaningful to them when they used the information systems with which they engaged. Questions asked were based on experience shared by the interviewees.

Dooyeweerd's aspects can be used to guide interviews, as in Winfield, et al. (1996), but in this case this was not done, except that, at the end when interviewees had no other issues to share, the interviewer might gently prompt to see whether there were any new kinds of issues they wished to share.

4.2 Analysis Approach

Analysis of what interviewees said was carried out in two stages, first by a standard qualitative coding technique, then employing Dooyeweerd's aspects to find the majority of meaningful DTE issues.

4.2.1. Qualitative Analysis with Coding

Each transcription was analysed by Tesch's (1990) method to find and code the matters discussed, and themes were formed from related issues. Aspects were not used during the first part of analysis. Since all issues in everyday life activities are important, no issues identified were ignored. The issues were divided into direct and indirect issues, both based on what was uttered by the interviewees.

From 210 utterances from the transcripts, 13 different direct and 16 indirect issues were discovered. Examples of direct issues discovered are support from others, system performance, working pressure and mother tongue language. An example of indirect issues is transport; an interviewee said "When there's a problem with the car, I arrive at the office in a rush ... This is important, too." As with Ariel above, this results her not fully focusing on the job, and other staff having to cover, who might not be able to use the system so well, and have to do double tasks. Other indirect issues found include staff briefing, social activities, healthy lifestyle, etc.

4.2.2. Analysis with Dooyeweerd Aspects

When asked a question, interviewees will often provide extra information beyond that which answers the question. Presumably such information is meaningful to them and could indicate a DTE issue. Aspects, as spheres of meaning, can differentiate different ways in which things are meaningful. So utterances made by the interviewees were analysed phrase by phrase and sometimes by word to find what seems meaningful to the interviewees, by asking "Which aspect makes this meaningful?" This also stimulates thinking more deeply about the utterance.

In addition, words, phrases or sentences uttered by interviewees have "multiple meanings" (Miles & Huberman 1994). One type of multiple meaning was investigated by Austin as an 'illocutionary act': "uttering a sentence with a certain force" (Searle 1968). Therefore, analysis must be based not only on the sentences but also on the need to uncover the meaning 'behind' the utterances. The researcher made deductions about such hidden meanings, by asking herself "In which other aspects might this issue be meaningful to the users?" To answer this in each aspect, the researcher made use of the background knowledge she shared with the interviewees (their common lifeworld), which put herself "in the shoes of" the interviewees. She had in fact worked in similar roles in the past; the possibility that this might have biased the results is discussed later.

For example as in Table 1, under the theme 'Support from others', the following three utterances were analysed, with phrases underlined indicating meaningful explicit DTE issues, with the appropriate aspect in brackets. These, and the deduced issues, were collected in a table, identifying the aspect, describing what the meaningful issue is, and indicating whether the issue was explicit in the utterance ('Ex') or deduced ('De')..

Organisation A:

Interviewee (1): Furthermore with the help from senior staff who had experience in using the system, I've no difficulty to learn how to use it (Aesthetic). All seniors are very helpful (Social). They are willingly to teach (Social) me whenever I ask them for help (Lingual).

Interviewee (2): Only one thing about the system is that I have to take precautions when keying in to system (Sensory) since once any mistake occurs, only the developer can fix the problem (Social). So I've to call the vendors to do it for me, to delete or amend the wrong information (Lingual).

Interviewee (3): They act immediately on our request. We have good cooperation with them (Social).

Aspect	DTE Issues
Sensory (Ex)	Precaution when key-in information into system to avoid wrong input into the system
Lingual (Ex)	Seek help from seniors when face difficulties
	Call vendor to fix the wrong data key in by the staff since none of them can fix the mistake
Social (Ex)	Seniors are very helpful whenever the staff need their help
	Cooperation from vendor is needed to resolve mistake done in the system
Aesthetic (Ex)	No difficulty to learn how to use the system because seniors will help them
Juridical (De)	Responsible to ensure data key-in are accurate as concentration is needed
Pistic (De)	Committed to complete the task with no or minimum errors

Table 1: Aspectual Analysis on Interview Transcript

This analysis disclosed many multiple meanings related to each main issue found in the first stage, most explicit but some deduced.

5. FINDINGS AND DISCUSSIONS

The fruitfulness of the DTE approach will now be discussed. The issues found by extant literature numbered 70 from Yousafzai et al. (2007) and 20 from Lee et al. (2003). Those found in the first stage of this study from qualitative analysis with a DTE attitude numbered 29 (13 direct, 16 indirect issues), and those found from further aspectual analysis numbered 405. This might suggest that qualitative DTE analysis without aspects is less fruitful than the extant literature but with aspects it is far more fruitful, but closer examination is needed.

Comparison of the 29 issues with those found by Yousafzai et al. (2007) reveals a difference in level of detail. For example, while the qualitative study found 'support for users' to be an issue, Yousafzai collected several kinds of support (end-user support, internal computing support, management support, organisational support and vendor responsiveness). Such distinctions were not meaningful to users, suggesting that, from a DTE perspective, the extant literature generates spurious categories. Moreover, Yousafzai's study missed many of the indirect issues found here, such as handling public matters, family matters, working overtime, transportation matter and staff benefits. This might arise from the first two problems identified: 'wrong perspective' and 'narrow view'.

However, such numeric comparisons are rather insensitive, and the question remains whether the aspectual DTE approach merely finds issues that are more detailed, finer-grain versions of those found by in the literature, reveals different kinds of issues.

5.1 Main Finding

Figure 1 summarises the result of aspectual analysis, showing the percentage of the 405 issues for which each aspect was meaningful. It shows first a broad spread of types of issue. This means that a wide diversity of issues was found to be important in the eyes of users as relevant to the quality of IS use and work. The actual shape of the profile might be affected by the kind of culture in which the users worked, though the profiles for the different organisations were remarkably similar.

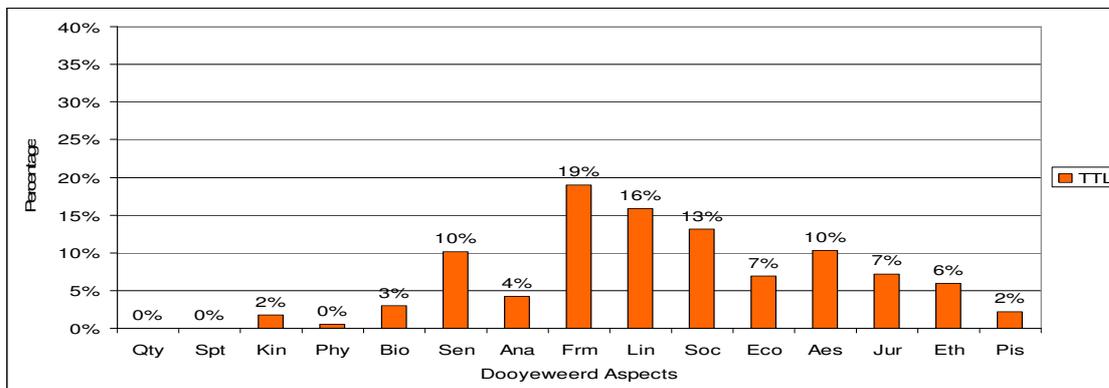


Figure 1. Aspectual Profile of DTE Issues

By contrast, a formal management perspective would most likely elevate the economic and formative aspects because finance and performance are important. In order to check this, aspects were identified for each of the issues in the literature and counted, to give Figure 2.

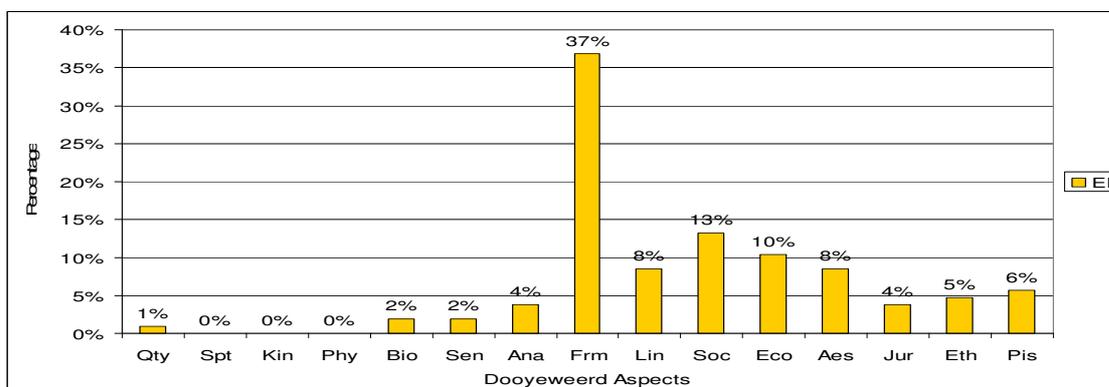


Figure 2. Aspectual Profile of Extant Issues

The different patterns of meaningfulness are striking. The most obvious difference is the heavy emphasis on the formative aspect in the traditional approaches, which are mainly from the perspective of management, IT suppliers or researchers; the formative aspect covers both technology and technique (i.e. the desire to achieve goals and carry out tasks). By contrast, from the down-to-earth

perspective of users, though the formative aspect is still meaningful, the later aspects have more meaning. In traditional literature, the lingual aspect is less meaningful than the social while to the users, it is more meaningful. In the literature, the economic aspect is more meaningful than the aesthetic, while to the users the aesthetic aspect is more meaningful. To the users, the juridical and ethical aspects, of appropriateness and of self-giving, are more important than is recognised in the extant literature. Finally, to the users the sensitive aspect of feeling is much more important than is recognised in the extant literature. The full analysis is available in Ahmad (2013).

This can have significance for both IS research, IS management in use, and IS development. It means that many kinds of issues that users find important for the quality of their IS use are ignored by researchers, managers and developers. It is no wonder that IS use is less successful than it need be. With this DTE approach, in which Dooyeweerd's suite of aspects plays a central role, it might be possible to rectify this.

5.2 Findings about Indirect, Multiple and Deduced Issues

The question addressed here is how important it is to seek indirect, multiple and deduced issues within a DTE approach? The latter two help to reveal issues hidden because the analyst or researcher overlooks them, and because the interviewee does not mention them. Again, this question can be answered by looking for different patterns of meaningfulness in aspectual profiles, because this reveals what researchers and analysts would be paying attention to in each case.

Is it worth seeking indirect issues? Separating the 405 DTE issues into direct and indirect yields Figures 3 and 4. The difference in profile implies that, if the analyst or researcher seeks only direct issues they will miss much that is important to the quality of IS use, such as in the social and aesthetic aspects, and they will tend to over-emphasise the formative and lingual aspects. This supports the importance of seeking indirect issues.

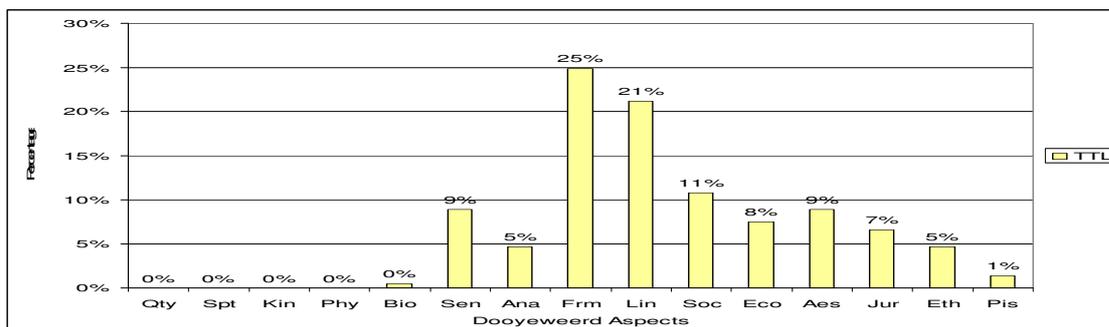


Figure 3. Aspectual Profile of Direct Issues

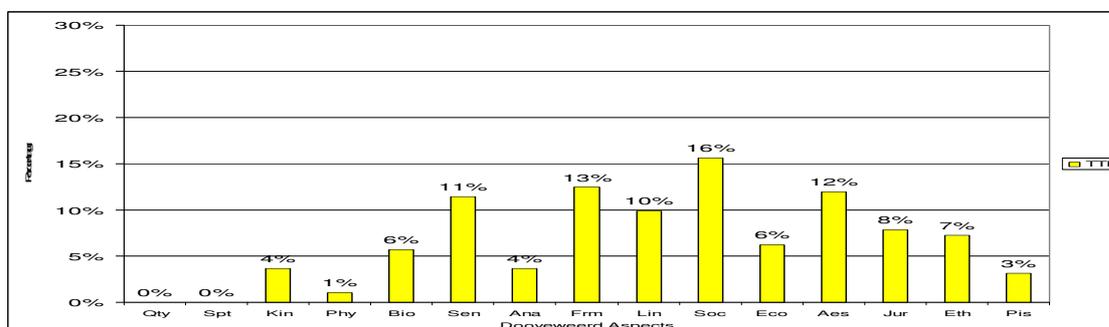


Figure 4. Aspectual Profile of Indirect Issues

Is it worth seeking multiple meanings? Or is a partial DTE approach, which uses qualitative coding enough, if it adopts a user's perspective and wider view and is sensitive to indirect issues? The aspectual profile for multiple meanings is that of the DTE issues in Figure 1. To answer this question requires forming an aspectual profile of the 29 main issues found by qualitative coding before aspects

were used for analysis. The count for each aspect is compiled from the number of utterances grouped under each main issue, and is shown in Figure 5.

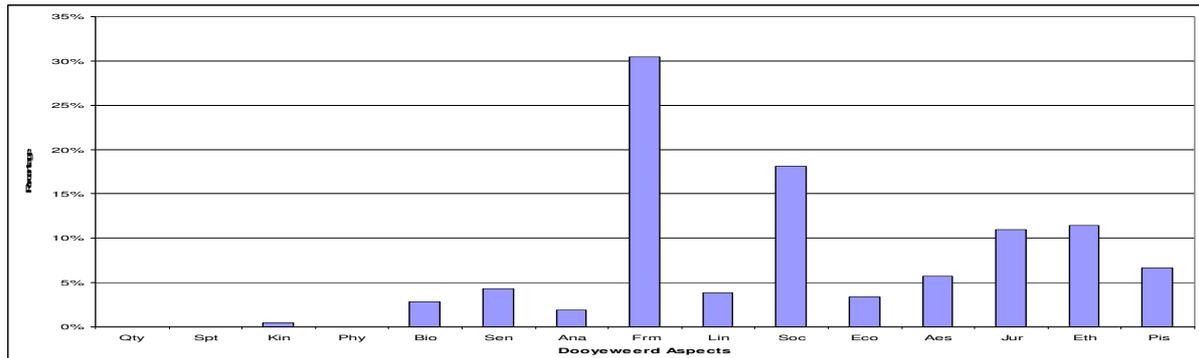


Figure 5. *Aspectual Profile of Main Pre-aspectual Issues*

The aspectual profile of the non-aspectual DTE approach shows some patterns from both the literature (Figure 2) and the full DTE approach (Figure 1). This suggests that, unlike extant literature, the partial DTE approach would find more juridical and ethical issues, but compared with full DTE approach it would over-emphasise the formative aspect and would miss some sensitive, lingual and aesthetic issues that are important for the quality of IS use.

Is it right to include deduced issues? The researcher made deductions about what was meaningful to the user and important to the quality of IS use but not explicitly stated during the interview. Deduced issues are those indicated by 'De' in the in the tables made during aspectual analysis of utterances. Figure 6 shows their aspectual profile. It suggests that seeking deduced issues is likely to find more issues of most kinds except the ethical, and especially more aesthetic and juridical issues.

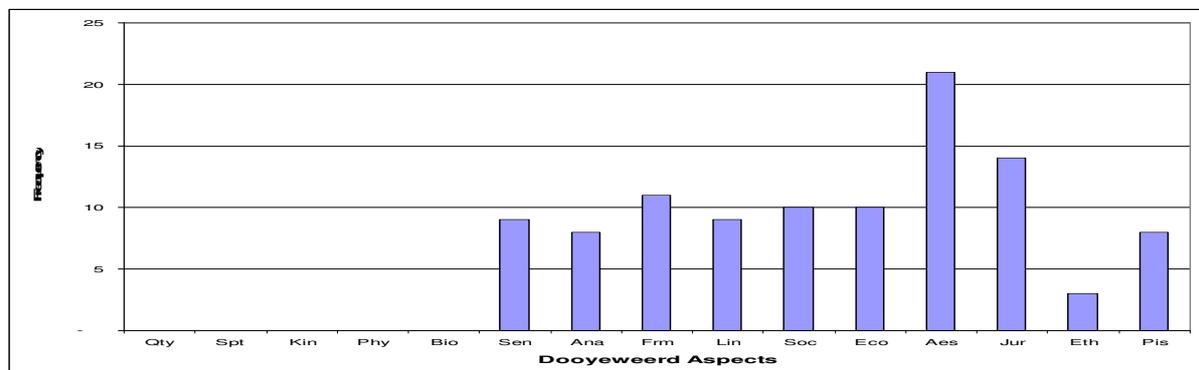


Figure 6. *Aspectual Profile of Deduced Issues*

However, questions may be raised about researcher bias, especially since in this case the researcher had previously had similar work. For example, does Figure 6 indicate that aesthetic issues were overlooked by interviewees, or that the researcher was especially aware of them?

Researcher and interviewee bias has been a perennial problem. Thomas & James (2006) argue that it cannot be avoided. So it might be better to recognise it and manage it rather than trying to avoid it. Dooyeweerd's aspects might offer a way of doing so more effectively, and turning the researcher's prior experience from a liability into an asset. First, aspectual profiles like Figure 6 provide a basis for identifying possible areas of bias and investigating them.

Second, when making deductions, reference to aspects can help to distance the analyst from her concrete prior experience. If the researcher had first asked questions informed by her prior experience, then she might have been focusing on what, to her, were important issues, and overlooking others. However, aspects are spheres of meaning that are shared by both interviewee and interviewer. The analyst was careful to ask herself first "In which other aspects might this be meaningful?" and then

use her experience only to answer that question in believable ways. Thus the danger of elevating or overlooking issues might be reduced. Further research is called for.

5.3 Handling Plethora of Issues

With 405 DTE issues revealed, the problem of plethora is worse than for the extant literature. However, Dooyeweerd's aspects provides two ways of handling this.

First is to group issues into categories. Yousafzai et al. (2007) classified their 70 issues into four categories (characteristics of organisation, system and user, plus 'Other'), but this is rather unclear and shows overlap between categories. Dooyeweerd's 15 aspects are not only more numerous and richer, but also more precise because, whereas Yousafzai's categories are types of thing (which exhibits many aspects), categories based on aspects are distinct ways of being meaningful. Moreover, Dooyeweerd's aspects have been subjected to considerable philosophical scrutiny (Dooyeweerd 1955. volume II, pages 79-413). With Dooyeweerd's aspects, the analyst can retain clarity of distinction between meanings, while allowing things to exhibit multiple meanings.

Second, Dooyeweerd lets us avoid lists of issues and categories altogether. To achieve this, researchers have aspects in mind while they are interviewing or analysing each actual situation. The aspects help to detect many issues since they offer perspectives from which to look at the situations, and our grasp of the meaning of aspects is intuitive (Dooyeweerd 1955). This intuition is common to researcher and interviewees. So, to see the meaningful issues, researchers need merely internalise fifteen aspects rather than learn a list of issues.

6. LIMITATIONS AND FUTURE RESEARCH

There are three main limitations of the research described here. One is that the research was conducted on mandatory IS use. However, there is little in the five challenges, nor in the DTE approach, that depends on the use being mandatory, so it is likely to be extendable to voluntary use. A second is that the interviewees were all Malay, so cultural tensions in Malaysia between Chinese, Indians and Malays did not surface; to test the down-to-earth approach across cultures is future work.

The main limitation is that this research did not take account of the extensive literature on power and resistance in IS use. Might such an approach make the DTE approach redundant, or modify it? This is unlikely because it is likely that power-oriented approaches still exhibit some of the five problems. Some power-oriented approaches might be sensitive to indirect issues where these operate via social structures, and some, especially in critical IS research, might be sensitive to hidden assumptions (Myers & Klein 2011). However, most power-oriented and critical research tends to be undertaken from the researcher's perspective and is too narrowly focused on issues of power, resistance or emancipation. Basden (2008) gives an example where the power-oriented researcher misinterpreted generosity as its opposite. Moreover, power-oriented approaches have no in-built means of managing the plethora of DTE issues. Future research is being planned.

7. CONCLUSION

This study proposes an approach to understand issues in IS use namely Down-To-Earth (DTE), through a conceptual tool based on Dooyeweerd's aspects, together with qualitative analysis. Its motivation is to find a way to study all the issues that actually affect the quality and benefits of IS use. Extant approaches tend to overlook many of these because of (at least) five problems (wrong perspectives, narrow theoretical focus, overlooking indirect and hidden issues, having no means of dealing with plethora). By addressing these problems, the DTE approach can give IS researchers and analysts a wider, richer, more manageable picture of IS use in the everyday life of organisations, and contribute to theory, research methods and practice.

The DTE approach with Dooyeweerd's aspects can contribute to theory of IS use by enriching extant models. If such models used all the fifteen aspects, it might give a better understanding than having constructs like PU and PEOU on their own, which elevate the formative aspect and ignore others.

Aspects can stimulate consideration of a wider set of variables in research than is found by Yousafzai et al (2007), and can be more responsive to what truly determines quality of IS use.

The DTE approach can contribute to research methods by augmenting qualitative analysis with Dooyeweerd's aspects. By being sensitive to the user's situation 'on the ground' and by revealing multiple meanings, this helps to reveal issues that might be missed during some research, and to cope with the plethora of DTE issues that results.

Finally the approach of DTE helps practitioners like managers, IT suppliers or users to direct their attention to the issues that could make a difference to the overall quality of IS in use. The use of aspects to analyse and evaluate IS usage situations can uncover overlooked DTE issues and can also empower users in relation to managers.

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