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What they highlight is…: the discourse functions of basic *wh*-clefts in lectures

This paper reports findings from a study on the discourse functions of basic *wh*-clefts such as *what our brains do is complicated information processing* in 160 lectures drawn from the British Academic Spoken English (BASE) corpus. Like much linguistic research on this academic genre, the investigation is motivated by the need to gain a better understanding of language use in lectures to aid effective English for Academic Purposes (EAP) course design. To this end, the composition of the *wh*-clauses was analysed for its main constituents (subjects, verb phrases and modality) and the clefts were grouped according to their apparent main function and subfunction within the lecture discourse. The results show that basic *wh*-clefts mostly serve to highlight aspects of content information and there was also disciplinary variation in their use. Implications for EAP course design are discussed.

Keywords: lecture discourse; corpus linguistics; basic *wh*-clefts; discourse functions; highlighting

1. Introduction

This study describes the use of basic *wh*-clefts such as *what our brains do is complicated information processing* in a lecture sample from the British Academic Spoken English (BASE)[1] corpus. This construction is typically associated with speech (e.g. Biber *et al.* 1999; Collins 1991) and 'signal[s] explicitly what is taken as background and what is the main communicative point' (Biber *et al*. 1999: 962), thus potentially making it a useful grammatical device for highlighting points in lectures. Highlighting devices such as this can be considered a metadiscursive feature of lecture discourse, simultaneously organizing the discourse by establishing a hierarchy of importance of points while also evaluating these using a 'parameter of importance or relevance' (Hunston and Thompson 2000: 24). Other ways of making particular lecture discourse salient include metadiscursive phrases such as *the main point is* (e.g. Swales 2001; Crawford Camiciottoli 2004), repetition (e.g. Douglas and Myers 1989), prosody (e.g. Thompson 2003; Riesco-Bernier and Romero-Trillo 2008), non-verbal communication (e.g. Brown 1978; Crawford Camiciottoli 2007), visual aids (e.g. Adams 2006), and other syntactic constructions such as reverse *wh*-clefts (Rowley-Jolivet and Carter-Thomas 2005).[2] Marking relative importance is arguably an essential part of effective lecturing: not only can it help students judge what matters in their discipline and prepare for assessment, it can also facilitate on-line processing, comprehension, and note-taking (e.g. Hansen and Jensen 1994; Isaacs 1994; Lynch 1994), which may in turn improve attention to and recall of the lecture content.

[1] The recordings and transcriptions used in this study come from the British Academic Spoken English (BASE) corpus. The corpus was developed at the Universities of Warwick and Reading under the directorship of Hilary Nesi and Paul Thompson. Corpus development was assisted by funding from BALEAP, EURALEX, the British Academy and the Arts and Humanities Research Council.

[2] The focus on basic *wh*-clefts (and exclusion of related constructions such as reverse *wh*-clefts) is motivated by their apparently prominent use in lectures and by practical considerations.

Despite the reported usefulness of highlighting important points in lectures, very few linguistic studies have been dedicated to the subject (except Crawford Camiciottoli 2004) and none have focused on basic *wh*-clefts. To date research on this construction in lectures has been limited to the *wh*-clause, which appears in lists of lexical phrases functioning as 'relevance markers' (Crawford Camiciottoli 2004, 2007, adopting the term from Hunston 1994: 198), 'evaluators' (DeCarrico and Nattinger 1988), 'focusers' (Simpson 2004), and lexical bundles (i.e. 'recurrent sequences of words', Biber and Barbieri 2007: 263) which signal topic introduction/focus or express stance (Biber 2006).

The current study is part of a research project on ways in which lecturers mark important discourse. It is motivated primarily by the need to design English for Academic Purposes (EAP) courses for the increasing number of non-native speakers (NNS) who need to lecture in English, although the findings should also be useful for EAP listening courses aimed at NNS students. It can be argued that in order for such courses to be effective, we need evidence about language use in authentic lectures. This has been facilitated by the compilation of large corpora containing lectures, such as the British Academic Spoken English (BASE) corpus, the Michigan Corpus of Academic Spoken English (MICASE) and the TOEFL-2000 Spoken and Written Academic Language (T2K-SWAL) corpus; however, much remains to be done to gain a fuller picture of this genre and its disciplinary variation. The analysis of basic *wh*-clefts presented here adds to this picture and provides information on the structural and functional features of this highlighting device that informs its teaching in an EAP context.

2. The functions of basic *wh*-clefts

Basic *wh*-clefts, or basic pseudo-clefts, are constructions in which a clause has been divided into a subordinate relative clause (henceforth '*wh*-clause') and a superordinate clause or a phrase (henceforth 'highlighted element' (Huddleston 1984)) which are linked by the copula *be*. The *wh*-clause (e.g. *what our brains do*) typically functions as the subject and the highlighted element (e.g. *complicated information processing*) as complement. The inherent functions of this construction can be summarized using the three metafunctions (textual, experiential and interpersonal) distinguished in Systemic Functional Grammar (Halliday and Matthiessen 2004).

First, *wh*-clefts function textually to create a thematic structure with the *wh*-clause as Theme and the highlighted element as Rheme. The *wh*-clause tends to contain old (or 'given') information that is recoverable from the context or is general knowledge, while the highlighted element is presented as new or newsworthy information, being 'freshly introduced into the discourse' (Collins 2006: 1707) or not recoverable from the context (Prince 1978; Collins 2006). In relevance-theoretic terms, *wh*-clefts are said to instruct the addressee to process the *wh*-clause as 'background' and the highlighted element as 'foreground' (Jucker 1997). In short, the information in the *wh*-clause is signalled as being communicatively less salient than the information in the highlighted element (Collins 2006). It is this information packaging arrangement which makes these clefts particularly suitable to speech: they provide 'a springboard in starting an utterance' (Biber *et al.* 1999: 963), giving the speaker 'an extended opportunity to formulate the message' (Collins 1991: 214) whilst also attending to the processing needs of the interlocutor (Jucker 1997).

Second, the experiential function of *wh*-clefts is to establish a relationship of identity between the *wh*-clause (the 'variable'), and the highlighted element (the 'value') (Declerck 1994; Halliday and Matthiessen 2004). Thus in semantic terms, the value *complicated information processing* is selected to identify 'the definition in the variable' *what our brains do* (Herriman 2004: 448). Lastly, regarding their interpersonal function, Herriman (2003) suggests these clefts allow the speaker or writer to acknowledge the presence of other viewpoints in the text. In our example, other opinions on the function of our brains could thus be said to be acknowledged. Rowley-Jolivet and Carter-Thomas (2005: 57) furthermore argue that *wh*-clefts may add a dialogic dimension since many seem to contain an 'underlying presupposed question' (e.g. '*what do our brains do?*').

The above studies have clarified the highlighting effect and communicative value of basic *wh*-clefts in writing (e.g. Collins 1991, 2006; Herriman 2003, 2004), in dialogic or spontaneous conversational speech (Kim 1995; Miller and Weinert 1998), and in a spoken corpus containing very few lectures (the London-Lund Corpus of spoken British English in Collins 1991 and 2006). However, the typical nature of the lecture as a (semi-) planned, spoken public monologue with a chiefly pedagogical purpose means findings from such genres cannot reliably be extrapolated to this genre. Moreover, to aid effective teaching of these clefts in an EAP course on lectures, we need specific information on the contexts in which lecturers use this highlighting device. To this end, I have examined the lecture points which are thus made salient and classified their functions according to the meaning and use of the highlighted points in the larger lecture discourse context.

3. Methods

3.1 Corpus

The investigation is based on all 160 lectures (1,186,290 words) of the BASE corpus, most of which are given by native speakers of English. The BASE corpus was developed at the Universities of Warwick and Reading between 1998 and 2005 and contains 160 lectures and 39 seminars distributed across four broad disciplinary groups: Arts and Humanities (ah), Social Studies (ss), Physical Sciences (ps) and Life and Medical Sciences (ls).

3.2 Analytical procedure

The corpus tool Sketch Engine was used to generate a list of concordances containing *what,* the most common *wh*-word by far in *wh*-clefts (Collins 1991; Biber et al. 1999), followed by the lemma *be* with a maximum of five intervening words. The expanded concordance lines were analysed to eliminate cases where *what* was not part of a basic *wh*-cleft and the status of ambiguous instances was determined by examining the co-text. Ungrammatical and aborted clefts were discarded but discontinuous (1) and looser constructions, e.g. without a copula (2), were retained.

(1) *what you would get out of that* assuming that you used the conditions above you had a dry atmosphere dry solvents and all the rest of it you would get er lithium bromide (pslct003)

(2) *what the air does* it goes up over the mountain and then it does little oscillations at the back of the mountain yeah (pslct027)

This procedure identified 1221 basic *wh*-clefts (ah 262; ls 274; ps 389; ss 296). First, the three main features of the *wh*-clauses, namely verb phrases, subjects and modality were quantified. Next, to establish the extent to which the selection of particular verb types is

specific to the basic *wh*-clefts in this lecture sample, a comparison was made with the proportional distribution of verb types in other clause types (Biber *et al*. 1999; Biber 2006; Matthiessen 1999) and genres (Herriman 2004). Second, the basic *wh*-clefts were analysed for their main discourse function. Instances were allocated to one functional (sub)category using the three characteristics of the *wh*-clause; the highlighted element and the context were also taken into account. It should be stressed that the results indicate the most salient discourse function only and do not reflect the multifunctionality of some clefts or any (subsidiary) functions which were not apparent from textual examination alone. There is also an inevitable degree of overlap between some categories. An interrating of all instances was unfortunately not feasible but two colleagues were consulted in classifying difficult cases and the data were re-examined various times.

4. Results and discussion

4.1 Characteristics of the wh-clauses

The *wh*-clauses were analysed for their verb phrase, subject, and modality. The results are reported here and related to the discourse functions of the clefts in the subsequent section.

4.1.1 Verb phrases

The verbs have been classified using the Systemic Functional Grammar system of transitivity which 'construes the world of experience' into six main process types according to the main lexical verb in the verb phrase (Halliday and Matthiessen 2004), viz. material (processes of 'doing and happening' (p. 179)), behavioural (processes of 'physiological and psychological

behaviour' (p. 248)), mental (processes of 'sensing' (p. 197)), verbal (processes of 'saying' (p. 252))', relational (processes which 'characterize and identify' (p. 210)), and existential (processes which 'represent that something exists or happens' (p. 256)). In verb phrases with a catenative (e.g. *want to cover*) the catenative has determined the process type, following Herriman (2004);[3] in the case of the pro-verbs *do* and *happen*, the verb phrase in the complement has been classified. Naturally, the co-text has also been considered so that, for instance, *look at* would be considered a verbal process when the co-text suggests it means something like 'discuss'. Figure 1 depicts the distribution of attested process types in the *wh*-clauses.

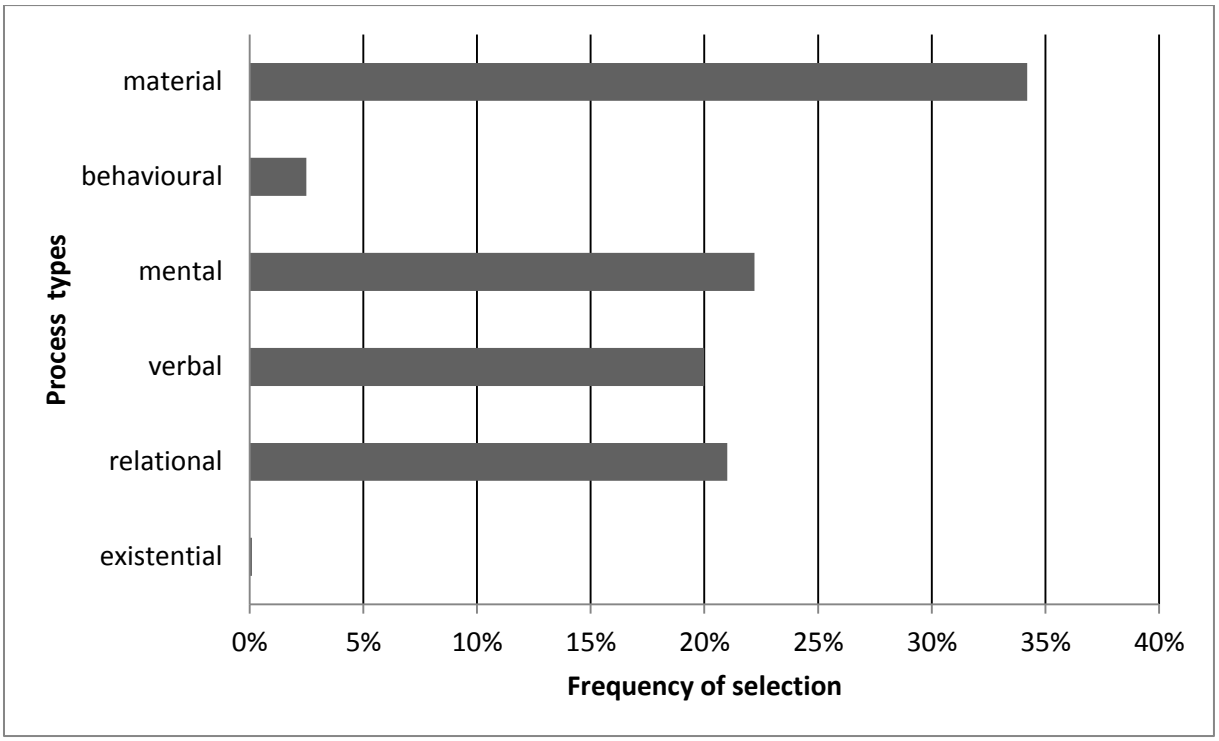

Fig. 1. The distribution of process types in the *wh*-clauses of the BASE basic *wh*-clefts (n=1221).

[3] I have opted for a more semantic approach to classifying catenatives as it seems more relevant for this study and facilitates comparison with Herriman (2004). This approach differs from the more differentiated treatment of complex verb phrases with catenatives in Halliday and Matthiessen (2004: 516).

As can be seen, material processes predominate (34.2%), followed by a roughly equal number of mental (22.2%), verbal (20%) and relational processes (21%); behavioural processes (3) are rare (2.5%) and only one *wh*-clause contains an existential processes (4).

(3) *what i'll do* is i'll stand here (sslct005)

(4) *what exists* is something like a plurality of worlds of production (sslct030)

A prominent feature of the *wh*-clauses with material processes are the pro-verbs *do* and *happen*, which together constitute 77.5% (58.6% and 18.9% respectively) of such processes and which appear in well over a third (39.5%) of all 1221 *wh*-clauses.

(5) *what that does* is to squeeze blood towards the heart (lslct005)

(6) *what happens* is you apply it harder (sslct032)

Mental processes are mostly of the desiderative subtype (ca. 40%) (see also Herriman 2004) (7), with *want* constituting just under a third (31%) of all mental processes. Verbal processes are mainly represented by *say* (ca. 45%) (8), and relational processes are usually *have (got)* (9) (ca. 35%) or *be* (ca. 30%).

(7) *what i want to do first* is to look at article *one* (sslct007)

(8) *what i'd said to you before* was that we didn't have very many numbers out here (lslct017)

(9) *what you have here* is much greater coordination of activities (sslct025)

It is noteworthy that *wh*-clauses in our corpus tend to consist only of an 'informationally light' verb (Callies 2009: 47) (e.g. *do, happen, be*, *have, want, say, mean*), a pronominal subject and the occasional adverbial (e.g. *first*, *now, here, actually*). This supports previous findings that these thematic clauses tend to be low in communicative significance (Prince 1978; Huddleston 1984; Collins 1991; Jucker 1997), serving primarily as a 'please-pay-

attention message' (Miller and Weinert 1998: 124). Here they direct students to the specific and important information which is elucidated in the highlighted element. This recurrent structural feature of the *wh*-clause warrants attention when presenting and exemplifying basic *wh*-clefts for our EAP purposes.

A comparison between the proportional distribution of the six main process types in the *wh*-clauses of the lecture sample and those from previous studies on basic *wh*-clefts (Herriman 2004) and different clause types (e.g. Matthiessen 1999) (Table 1) shows only partial correspondence.

Table 1

Processes in the BASE basic *wh*-clefts (n=1221) compared to processes in basic *wh*-clefts in the FLOB corpus (n=138) (Herriman 2004: 454) and in general clause types (n=2027) (Matthiessen 1999: 16).

	Material	Behavioural	Mental	Verbal	Relational	Existential
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
BASE	418 (34.2)	30 (2.5)	271 (22.2)	244 (20)	257 (21)	1 (0.1)
FLOB	9 (6.5)	0 (-)	57 (41.3)	16 (11.6)	52 (37.7)	4 (2.9)
Matthiessen	1060 (52.3)	100 (4.9)	190 (9.4)	214 (10.5)	427 (21.1)	36 (1.8)

The predominance of material processes and the rareness of behavioural and existential processes accords fairly well with findings for English clause types generally in Matthiessen's (1999: 16) sample of mainly written texts, the *Longman Spoken and Written English* (LSWE) corpus (Biber *et al*. 1999: 365) and the T2K-SWAL corpus (Biber 2006: 58), which contains spoken and written university genres.[4] The proportion of relational processes in BASE and Matthiessen (1999) is also similar. The distribution of these four processes in our *wh*-clauses thus seems specific neither to the cleft construction nor to the lecture genre. By contrast,

[4] A systematic proportional comparison of results with Biber *et al*. (1999) and Biber (2006) is not possible since these use another classification system and only report the distribution across semantic domains of the most commonly attested lexical verbs.

the frequency of mental processes differs greatly from that in written basic *wh*-clefts (Herriman 2004) and general clause types (Matthiessen 1999). Instead, its proportional distribution relative to material processes resembles that found in conversations (Biber *et al*. 1999: 366) and academic speech (Biber 2006: 58). Although it is difficult to draw conclusions from a comparison between our generically homogeneous lecture sample and these generically heterogeneous corpora, the findings at least illustrate the need for EAP language instruction to be based on a linguistic analysis of the target genre.

The distribution of process types in the *wh*-clauses across disciplinary groups is shown in Table 2.

Table 2

The distribution across disciplines of process types in the *wh*-clauses of the BASE basic *wh*-clefts (n=1221).

	Material	Behavioural	Mental	Verbal	Relational	Existential
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Ah (N=262)	78 (29.9)	4 (1.5)	71 (27.2)	56 (21.5)	52 (19.9)	0 (-)
Ls (N=274)	98 (35.8)	2 (0.7)	60 (21.9)	54 (19.7)	60 (21.9)	0 (-)
Ps (N=389)	132 (33.8)	13 (3.3)	90 (23.1)	68 (17.4)	87 (22.3)	0 (-)
Ss (N=296)	110 (37.2)	11 (3.7)	50 (16.9)	66 (22.3)	58 (19.6)	1 (0.3)
Total (N=1221)	418 (34.2)	30 (2.5)	271 (22.2)	244 (20)	257 (21)	1 (0.1)

The distribution of verbal, relational and existential processes across disciplines is fairly similar. Furthermore, the smaller number of material and behavioural processes in the arts and humanities and behavioural processes in the life sciences does not reach statistical significance. However, the proportion of mental processes in the arts and humanities and in the social sciences is respectively significantly high and low (χ^2 (N = 1221, df = 1) = 4.29, p = .038; χ^2 (N = 1221, df = 1) = 5.96, p = .014), although the frequency of this process type in the arts and humanities is not clearly associated with any particular discourse function.

An analysis of tense, aspect and voice shows a strong preference for the present tense (ca. 80%), simple aspect (ca. 70%) and active voice (ca. 99%). These frequencies are fairly similar to those for verb phrases generally in conversational and academic genres (Biber *et al*. 1999, Biber 2006). The present tense reflects a preoccupation both with the here and now of the lecture event (10) (which also accounts for its strong association with first and second person pronouns) and with presenting facts (11). Past tenses (mainly the simple past) are mostly restricted to historical recounts (12).

(10) *what i want to do* is actually to look at the literary record (ahlct005)

(11) in this case you don't get elimination *what you get rather* is a migration (pslct004)

(12) *what they did* was that they produced portable camera obscuras (ahlct034)

4.1.2 Subjects

As can be concluded from Table 3, *wh*-clauses mostly contain pronominal subjects. This is consistent with these clauses generally presenting given information that is recoverable from the context.

Table 3

Subjects in the *wh*-clauses of the BASE basic *wh*-clefts (n=1221).

	N	%
Human Subjects		
I	220	18
We	295	24.2
You	163	13.3
He/she	58	4.8
They	51	4.2
Other	63	5.2
Total	850	69.6
Non-human Subjects		

What	186	15.2
That/this/these	72	5.9
It	58	4.8
Other	55	4.5
Total	371	30.4

Human subjects (ca. 70%) far outnumber non-human ones; to a large extent, this is due to the use of pronouns designating the discourse participants, viz. *I, we,* and *you*. Remarkably, *we* (24.2%) is the prevalent subject. This is in contrast with a study of 30 BASE lectures (Nesi 2001) which found *you* to be approximately twice as frequent as *we* and *I*. However, in a study of university mathematics classes, Rounds (1987) found a trend favouring *we* over *I* and *you*. In this respect, it is worth noting that about half the instances are actually from the physical sciences and are found in the *wh*-clauses of clefts highlighting procedural descriptions (13-14) (cf. Simpson 2006). The use of *we*, generally as a substitute for *one* and *you*, here contributes to creating a sense of a shared context (Hansen and Jensen 1994), endeavour and disciplinary orientation (Rounds 1987). It is often found with material and mental processes (ca. 31 and 32 %, respectively).

(13) *what we've done then* is to compute the formula at the bottom of the screen (pslct032)

(14) *what we want to know* is the point X-star (pslct038)

By contrast, *I* (18%) often combines with verbal processes (ca. 32%) to express the lecturer's actions and intentions. Here we get a sense of the unequal power relationship between the speaker and listeners (cf. Rounds 1987), with the lecturer setting the agenda.

(15) *what i'll be talking about* are fabric membranes (pslct023)

You (13.3%) is chiefly used with its generic sense of *one*. As such, it gives the impression of interactivity in largely monologic lectures, while also designating students as members of the

disciplinary community and taking the information 'out of some larger, theoretically possible world and situat[ing] it in the here and now' (Rounds 1987: 22). As with *we*, this pronoun is often associated with material (ca. 36%) and mental processes (ca. 31%).

(16) in both experiments *what you do* is to take your radioactively labelled phages (lslct007)

(17) in Paisan and Rome Open City *what you're also seeing* is the war (ahlct015)

As regards third person pronouns, *he* is typically a feature of the *wh*-clauses in the arts and humanities lectures, where it is used in reports (18). The fact that there are only three instances of *she* in all 1221 clefts reflects that it is typically men that have 'made it into the canon' (Simpson 2006: 302). The social sciences, on the other hand, contain most instances of *they* (ca. 47%), which appears in talk about the behaviour of groups of people (cf. Simpson 2006) (19).

(18) *what he says* is the king touches you and God cures you (ahlct028)

(19) *what they actually did* was design a new product (sslct033)

Most other human subjects are noun phrases combined with material and verbal processes. About half of these noun phrases are found in the arts and humanities and social sciences lectures, usually in reports.

(20) *what Virginia Woolf is doing* is precisely trying to to throw you (ahlct013)

(21) *what that consultants will say* is well if you inform me as an individual general practitioner i will do that (sslct026)

Predictably, the main non-human subject is *what* (15.2%), which generally occurs with material processes (ca. 58%) (especially *happen*) in accounts of processes (22), procedures and past events (23).

(22) *what is happening* is that B-C is going round and round (pslct018)

(23) *what happened under Reagan* was America began to spend huge amounts of money on new defence equipment (sslct001)

That/this/these and *it* are mainly found with relational processes.

(24) *what that effectively means* is that you will never have large enough numbers (sslct002)

(25) *what it is* is actually voiced pause a self audit (lslct039)

The 'other' category for the most part consists of inanimate noun phrases, which show no preference for any one process.

(26) *what premise one tells us* is that an agent can know both of these things (ahlct033)

4.1.3 Modality

Approximately a fifth of all *wh*-clauses are modified by modal meanings. This is often done through (semi-) modals expressing intention or prediction (e.g. *will, be going to*) (ca. 40% of all *wh*-clauses containing modality, and ca. 8% of all clefts) (27) and to a lesser extent through (semi-) modals expressing possibility (e.g. *can*) (28) and adverbials which increase the rhetorical force of the utterance (e.g. *actually, really*) (29).

(27) *what i'll do* is i 'll just finish off (sslct012)

(28) *what you can see* is nothing much is happening (lslct008)

(29) *what we're actually interested in* is a change delta-T here (pslct030)

4.2 The discourse functions of basic wh-clefts

Before discussing their functions in stretches of discourse, it is interesting to note the distribution of basic *wh*-clefts in the lecture text. They tend to occur at strategic points in the lectures introducing a new point (see also Herriman 2003) and so are usually found in lecture introductions and at the beginning of (sub)sections (30) or explanations (31). Less usually, they signal the culmination (i.e. the conclusion or summary) of a point (32).

(30) okay so the P-value is er nineteen per cent so what does that tell us general discussion over now *what we're what we're trying to spot* is if the P-value is small and this is this probability very small and that's a measure of how much of a fluke it is to get this value of T (pslct036)

(31) you can -, detect the development of tolerance in transplanted humans because *what you can do* is measure the numbers of T-cells in the recipient who are able which are able to respond to the donor's antigens (lslct011)

(32) so *what i'm pointing out* is there's been a constant series of attempts to try to explain what goes on in the human brain by means of invoking the lastest bit of technology (ahlct035)

Their occurrence at 'turning points' (Herriman 2004: 448) ties in with the nature of the indefinite *wh*-deictic, which 'propels the discourse forward' by pointing to a following elucidation (Miller and Weinert 1998: 264). These macro-functions are moreover often reinforced by discourse markers such as *okay, now* and *so* (see (30) and (32) above).

Using a primarily inductive approach, five main discourse functions in the immediate clause complex could be distinguished, with subfunctions grouping more specific roles (see Table 4). The functional labels have been adopted from previous studies on discourse functions in academic discourse (Deroey & Taverniers, forthcoming; Hyland 2005, 2007; Biber 2006), although their content has sometimes been adapted.

Table 4

Functional framework of basic *wh*-clefts in the BASE lecture corpus.

Function	Subfunctions
Informing	Describing, recounting, reporting, interpreting, providing a code gloss
Elaborating	Reformulating, exemplifying
Organizing discourse	Orientating, structuring, relating
Evaluating	Expressing a personal attitude, expressing a degree of commitment
Classroom management	Managing the audience, managing the delivery, managing organizational matters

Figure 2 reveals that the percentage of basic *wh*-clefts highlighting content information (67.3%) far exceeds that of the second most common function of discourse organization (15.3%) and that evaluations, elaborations and classroom management are not generally highlighted with this construction.

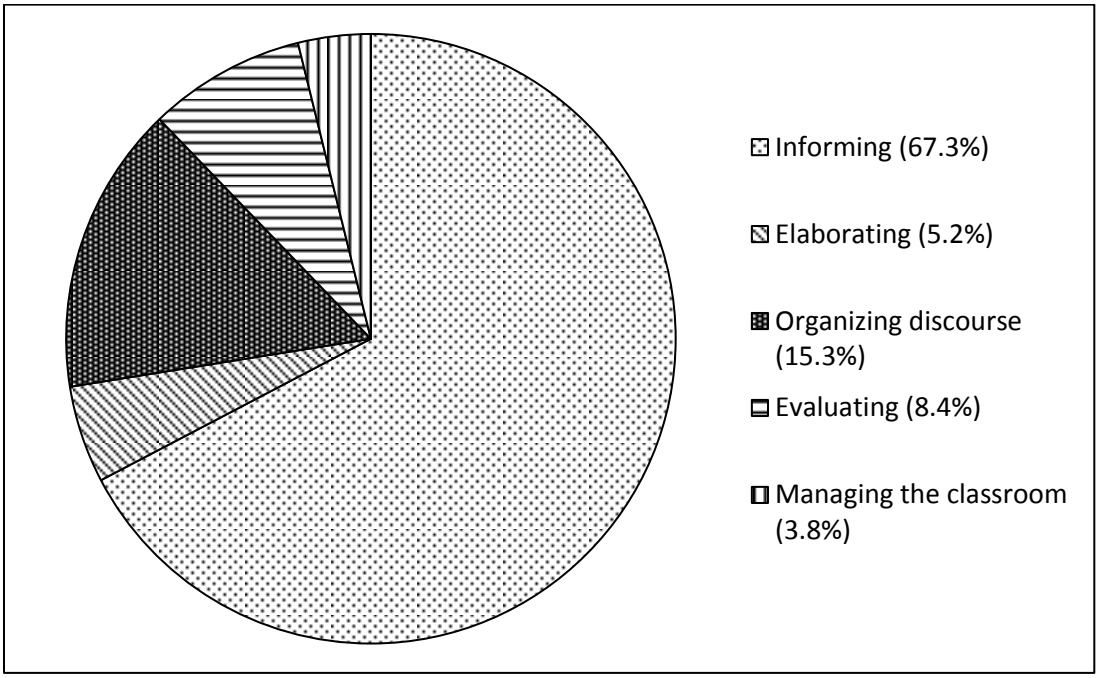

Fig. 2. The discourse functions of the BASE basic *wh*-clefts (n=1221).

Furthermore, as can be seen in Figure 3 and Table 5, the predominance of informing clefts is a feature of all disciplines, although the life sciences and social sciences respectively contain a significantly smaller and larger proportion of such clefts (χ^2 (N = 1221, df = 1) = 9.39, *p* =

.002; χ^2 (N = 1221, df = 1) = 6.73, *p* = .009). In addition, elaborating clefts are significantly more common in the life sciences (χ^2 (N = 1221, df = 1) = 5.21, *p* = .022), while the life sciences and the physical sciences also contained significantly more and fewer clefts highlighting classroom management (χ^2 (N = 1221, df = 1) = 6.14, *p* = .013); χ^2 (N = 1221, df = 1) = 5.69, *p* = .017). The proportions of clefts with a discourse organising and evaluating function are similar across the disciplines.

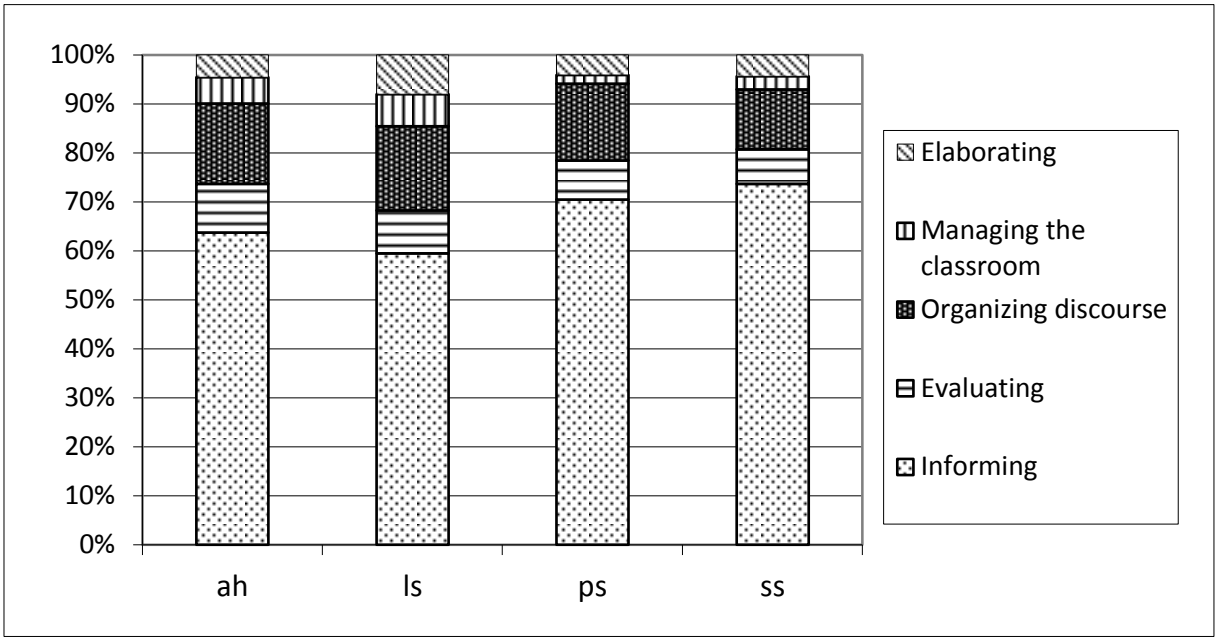

Fig. 3. The discourse functions of the BASE basic *wh*-clefts (n=1221) across the disciplinary groups.

Table 5

The distribution across the disciplines of the main functions of BASE basic *wh*-clefts (n=1221) (asterisks indicate statistical significance).

	Informing	Elaborating	Organizing discourse	Evaluating	Managing the classroom
	N (%)	N (%)	N (%)	N (%)	N (%)
Ah (N=262)	167 (63.7)	12 (4.6)	43 (16.4)	26 (9.9)	14 (5.3)
Ls (N=274)	163 (59.5)*	22 (8)*	47 (17.2)	24 (8.8)	18 (6.6)*
Ps (N=389)	274 (70.4)	16 (4.1)	61 (15.7)	31 (8)	7 (1.8)*
Ss (N=296)	218 (73.6)*	13 (4.4)	36 (12.2)	21 (7.1)	8 (2.7)
Total (N=1221)	822 (67.3)	63 (5.2)	187 (15.3)	102 (8.4)	47 (3.8)

4.2.1 Informing

The prevalence across all disciplines of clefts with an informing function accords well with the view of the lecture as a vehicle for conveying subject information (e.g. Brown 1978; Biber, Conrad, and Cortes 2004; Sutherland and Badger 2004; Crawford Camiciottoli 2007). However, there is considerable disciplinary variation in the kind of information that is highlighted, as Table 6 illustrates.

Table 6

The distribution across the disciplines of the informing subfunctions of BASE basic *wh*-clefts (n=822) (asterisks indicate statistical significance).

	Describing: Procedure	Describing: Process	Describing: miscellaneous	Recounting	Reporting	Interpreting
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Ah (N=167)	16 (9.6)*	8 (4.8)*	34 (20.4)	34 (20.4)	41 (24.6)*	34 (20.4)*
Ls (N=163)	59 (36.2)	44 (27)*	23 (14.1)	22 (13.5)	9 (5.5)*	6 (3.7)*
Ps (N=274)	160 (58.4)*	44 (16.1)	44 (16.1)	9 (3.3)*	10 (3.6)*	7 (2.6)*
Ss (N=218)	39 (17.9)*	14 (6.4)*	36 (16.6)	70 (32.1)*	51 (23.4)*	8 (3.7)
Total (N=822)	274 (33.3)	110 (13.4)	137 (16.7)	135 (16.4)	111 (13.5)	55 (6.7)

The biggest subcategory, descriptions, was further divided into procedural (33), process (34) and miscellaneous descriptions, the latter grouping less frequent descriptions such as statements of the characteristics of an object or theory (35-36).

(33) so now *what we're trying to do* is determine the optimum use of a resource (pslct001)

(34) *what happens* is the antigen has to cross-link individual I-G molecules (lslct006)

(35) *what we have* is a chain going sugar phosphate sugar phosphate (lslct007)

(36) *what premise one tells us* is that an agent can know both of these things (ahlct033)

The share of procedural descriptions in the physical sciences (58.4%) is significantly larger than in the other disciplines (χ^2 (N = 822, df = 1) = 114.47, $p < .0001$), and significantly

smaller in the arts and humanities and social sciences lectures (χ^2 (N = 822, df = 1) = 51.87, p < .0001); χ^2 (N = 822, df = 1) = 92.17, p < .0001). This reflects an overall focus in physical sciences lectures on providing the information needed to understand and master procedures and techniques for future application (Becher and Trowler 2001; Braxton 1995, as cited in Neumann 2001). It would seem that basic *wh*-clefts lend themselves particularly well to structuring such descriptions by allowing the highlighting of a new step, causal relationship or solution. The preferred pronouns in procedural descriptions, *we* and somewhat less frequently *you*, further guide students through 'problem-solving demonstrations in which detailed steps are being carried out' (Simpson 2006: 302) (see (33)).[5] In the *wh*-clauses of these and process descriptions, material processes are most usual (ca. 58% and 51%, respectively) (see Appendix 1); the predominance of the proverbs *do* (33) and *happen* (34) further allows the lecturer to focus on the specific features of the procedure or process in the highlighted element (Collins 1991).

Clefts highlighting process descriptions are again significantly less frequent in the arts and humanities and social sciences (χ^2 (N = 822, df = 1) = 12.43, p = .0004); χ^2 (N = 822, df = 1) = 11.59, p = .0007), whereas the life sciences contained significantly more such descriptions (χ^2 (N = 822, df = 1) = 31.05, p < .0001). These arise from descriptions of physiology and diseases (see (34)).

While procedural and process descriptions are comparatively prevalent in the hard sciences, the soft disciplines contain relatively many clefts highlighting a recount (i.e. 'a reconstructed account of events' (Biber 2006: 225)). More particularly, these recounting clefts are encountered significantly more often in the social sciences (χ^2 (N = 822, df = 1) =

[5] In Biber's multidimensional analysis of classroom teaching (2003: 61), *you* is a feature of 'procedural discourse'. Engineering is found to be 'procedural' in orientation as opposed to the 'content-focused' natural sciences.

51.64, $p < .0001$) (cf. Biber 2006), where they often highlight accounts of past political and economic events, law cases and experiments (37-38). The *wh*-clauses combine a wide variety of subjects with mainly material processes (ca. 62%) in the simple past (see Appendix 1).

(37) *what developed* was something called collective defence (sslct019)

(38) *what participants had to do* was recreate the position they could see (sslct028)

The soft disciplines also have a greater proportion of clefts highlighting a report of people's words, ideas and research (39-40) (χ^2 (N = 822, df = 1) = 65.30, $p < .0001$). Not surprisingly, many *wh*-clauses contain verbal processes (ca. 54%), and pronouns (particularly *he*) or human noun phrases referring to a third party (see Appendix 1). Interestingly, present tenses (ca. 70%) are preferred, creating a sense of immediate relevance of the report to the lecture message and making it more vivid.

(39) *what they are arguing* is that that is a ridiculous description of what actually is going on (ahlct021)

(40) *what Locke says* is that each individual when he comes to adulthood consents to remain under the government (sslct017)

Finally, the arts and humanities lectures stand out in their significantly greater use of clefts highlighting interpretations of words, actions and objects (χ^2 (N = 822, df = 1) = 59.99, $p < .0001$): ca. 61% of all instances stem from these lectures (41-42).[6] This supports the reported importance of interpretation in this discipline (Parry 1998; Becher and Trowler 2001; Hyland, 2009). Verbal processes, which take many different subjects, are again prevalent here (ca. 54%) (see Appendix 1).

[6] Although interpretations could be argued to be a form of evaluation because they present an assessment of how something is to be understood, these instances differ from those classified as 'evaluation' in the absence of lexico-grammatical markers of evaluation.

(41) *what that painting says* is can Louis the Sixteenth be a free man (ahlct020)

(42) *what he's alluding to* is her sweetness her softness (ahlct010)

4.2.2 Elaborating

In addition to conveying subject content, lecturers help students understand this information by reformulating it to clarify meaning (43) and by exemplifying (44). In our corpus, these 'elaborations' (borrowing a term from Halliday (1994)) are not usually highlighted by basic *wh*-clefts (5.2%), even in the discipline which contains most such instances (8%), viz. the life sciences. Verbal processes (54%) and *I* (ca. 36%) are the most frequent process type and subject (see Appendix 1); not surprisingly, *mean* is the predominant verb (ca. 60%).

(43) *what i mean by a schema* is a sort of a plan an outline a structure (sslct028)

(44) some of the ah more severe virus infections fortunately aren't easily transmitted and *what i'm thinking about* is H-I-V (lslct035)

4.2.3 Discourse organization

The second most common discourse function of the clefts is organizing discourse (15.3%). The prominence of metadiscursive devices which organize the lecture discourse as it unfolds is well-established (Mauranen 2001; Swales and Malczewski 2001; Biber 2006; Nesi and Basturkmen 2006; Crawford Camiciottoli 2007); their significance is aptly summarized by Chaudron and Richards (1986: 14), who note that '[t]he function of lectures is to instruct, by

presenting information in such a way that a coherent body of information is presented, readily understood, and remembered'.

Three subfunctions could be distinguished: clefts which orientate listeners to the topic or aims of the lecture or parts thereof (45), clefts which structure the discourse by delineating and ordering its parts (e.g. topic shifts) (46), and clefts which preview or review information from the same or other lectures (47) or which explicitly mark the relative importance of what is being said (48). The first two broadly correspond to 'frame markers' in Hyland's (2005) metadiscourse model.

(45) *what i want to do today* is to look at another case study (ahlct004)

(46) *what i'd like to do* is is move on to the other case (pslct022)

(47) we noted last week that *what we called these things* were externalities (pslct001)

(48) *what i want to stress* is that this is not a particularly Marxist theory (sslct031)

I have also included comments on the organization of visuals (e.g. slides and handouts), as in (49).

(49) so *what it says in red* is a quotation from Searle (ahlct035)

Verbal (ca. 37%) and mental processes (ca. 33%) are the main process types here, with *say* and *want* respectively being the chief verbs (see Appendix 1). The prevalence of these verbs and *I* (ca. 60%) suggest a lecturer who is firmly in control of the lecture discourse, leaving little room for student input. The use of *I* and *want* in discourse organizing expressions has also been reported in other lecture corpus studies. For instance, examining the cohesive role of lexical bundles in BASE and MICASE lectures, Nesi and Basturkmen (2006: 298) found that *I want to do, what I want to, want to do* occur with 'a certain amount of frequency' in discourse organization. In American university classroom teaching (Biber 2006), *want* also

appears in several common lexical bundles which can serve to organize classroom discourse (*want to do, what I want to, want to do,* and *want to talk about*). Finally, in her Business Studies Lecture Corpus, Crawford Camiciottoli (2007) also found numerous instances of *want* in 'macromarkers', i.e. 'metadiscursive expressions in lectures that contain various combinations of first person pronouns, modals/semi-modals and verbs representing verbal processes' (p. 84).

4.2.4 Evaluating

Comparatively few basic *wh*-clefts primarily highlight evaluation (8.4%). The evaluative function is roughly equivalent to 'stance' (e.g. Biber, Conrad and Cortes 2004), the 'evaluation phase' (Young 1994) and to some categories of 'interactional metadiscourse' (attitude markers, hedges and boosters) in Hyland's metadiscourse model (2005). Instances of such clefts were subcategorized into those which highlight the lecturer's 'affective' attitude towards a proposition (Hyland 2005: 53) (e.g. desirability, or indications that something is good or bad) (50-51) and those which express epistemic attitude (i.e. the degree of commitment to the certainty of a proposition) (52).

(50) *what we really need to know* is is this (pslct026)

(51) *what's disturbing* is his motivation (ahlct036)

(52) *what seems to be absolutely certain* is that we can't say we've done all this (sslct037)

Instances of clefts highlighting evaluation are spread fairly evenly across disciplines (Table 5) and the vast majority express affective attitude (ca. 86%). The main process in the *wh*-clauses is relational (ca. 45%), more specifically *be*, and *what* is the single most common subject (ca. 38%) (see Appendix 1).

At first glance, the small number of instances classified as evaluation may seem remarkable, since linguistic and pedagogic studies alike have noted the significance of evaluation in, for instance, 'ensuring that students know which approaches and which views to adopt and, by implication, which to reject' (Young 1994: 172-173), 'mak[ing] course content more immediate and relevant to students' (Biber 2006: 222) and promoting critical thought (Isaacs 1994). Although little is known about evaluation in British lectures, the extremely common use of stance bundles in American university classroom teaching (Biber 2006) would suggest that the relative absence of instances in this category is not chiefly a reflection of the limited importance afforded to evaluation in our corpus. Instead, it should be remembered that *wh*-clauses with lexico-grammatical marking of evaluation were assigned (perhaps somewhat controversially) to one functional class only so that, for instance, the many discourse organizing clefts with *want* were not also classified as evaluation; similarly, clefts indicating the relative importance of parts of the discourse have here been classified as discourse organization despite simultaneously expressing evaluation. Moreover, this study concerns only one construction and disregards important other means of highlighting evaluation such as non-verbal communication and prosody.

4.2.5 Classroom management

The rareness of basic *wh*-clefts in the classroom management category (3.8%) is perhaps less unexpected. A reading of some of the scripts suggests this is attributable to less discourse being devoted to classroom management and to it being afforded less importance. Although there is apparent significant disciplinary variation in this category, it is impossible to infer anything from this, since the number of instances is small and the amount of

classroom management seems to vary greatly from lecture to lecture. This functional category (see also Deroey & Taverniers, forthcoming) has been divided into clefts serving to manage the audience (e.g. focusing attention and setting tasks) (53), the delivery (e.g. commenting on pedagogical decisions) (54) and organizational matters (e.g. the provision of materials) (55). The role of the lecturer as classroom manager manifests itself in the prevalence of *I* and material processes (see Appendix 1).

(53) *what i want you to do* is have a look at this (lslct026)

(54) *what i've deliberately done* is actually cut down on the detail (lslct011)

(55) *what i'll try and do* is to try and give you handouts of all the overheads (lslct001)

5. Conclusion

With a view to informing EAP course design, the purpose of this study has been to add to our understanding of the lecture genre and its disciplinary variation by exploring the discourse functions of basic *wh*-clefts, which are one way in which lecturers can orientate their listeners to the relative importance of parts of the lecture discourse.

First, as regards the structural features of the *wh*-clauses, there is a preference for the subject *we*, for material processes and for the simple present tense and active voice. It is furthermore striking that most *wh*-clauses only contain a pronominal subject and an 'informationally light' verb (Callies 2009: 47) (*be*, *do, happen, have, want, say, mean*). These clauses are thus quite low in communicative content and principally serve to signal to the audience that an important elucidation follows. Second, a study of their discourse functions revealed that basic *wh*-clefts chiefly highlight subject information and – to a lesser extent – discourse organization; relatively few highlight elaboration, evaluation and classroom

management. As regards their macro-functions in the lecture discourse, these clefts are usually encountered at turning points, where they tend to introduce a new point. Third, differing disciplinary preoccupations are clearly reflected in the kind of information clefts highlight. Specifically, there is a significantly larger proportion of these clefts highlighting procedural descriptions in the physical sciences, processes in the life sciences, recounts in the social sciences, reports in the soft disciplines and interpretations in the arts and humanities.

Despite the fact that many findings support those from previous research, the limited interrating and the classification of instances according to their most salient discourse function only mean the results must be interpreted with caution. Moreover, generalizability is restricted by the focus on one highlighting device and as the lectures were not completely analysed for discourse functions, it is difficult to assess to what extent findings reflect the relative importance afforded to a particular discourse function or simply its prevalence in lecture discourse.

This research has some useful implications for the design of EAP courses aimed at NNS lecturers and students. From our sample, it appears that basic *wh*-clefts have an important instructive role in lectures and are sufficiently common to be taught as a means of signalling the relative importance of points.[7] Findings about their composition and discourse functions further inform efficient teaching of this construction by allowing us to focus on the most frequently attested subjects and verb phrases in the *wh*-clause and on the main discourse functions of the highlighted points in lectures generally and disciplines specifically.

This study also points to some interesting avenues for further research. One of these is analysing lectures for other ways in which important points are marked (this is the subject

[7] To get a better picture of the relative frequency of basic *wh*-clauses however, the number of clauses per lecture should be counted. Unfortunately, this was not feasible in the current study.

of the author's current research). Another would be to further investigate the co-occurrence of discourse markers with basic *wh*-clefts. Finally, and importantly for EAP practitioners, in an insightful study on information packaging arrangements in conference presentations, Rowley-Jolivet and Carter-Thomas (2005) found that while native speakers employed basic *wh*-clefts to highlight the newsworthiness of their research findings, their NNS counterparts rarely did so; instead they used constructions that were more appropriate for research writing. It would be interesting to establish if basic *wh*-clefts are similarly underused by NNS lecturers. Although I do not necessarily mean to argue that native speaker language use should be considered the linguistic norm in EAP instruction, it stands to reason that knowing about such differences and their significance would be useful input in courses geared at improving lecturers' communication skills in teaching in English.

Appendix 1

The single most common process, verb and subject in the *wh*-clause of the basic *wh*-clefts for each discourse function (BASE lecture corpus (n=1221)) (note that only the most common function, informing, has been broken down into subfunctions).

	Process	%	Verb	%	Subject	%
Informing total (N=822)	Material	42.5	do	30.4	we	24.5
Describing: procedure (N=274)	Material	58.4	do	54.4	we	37.6
Describing: process (N=110)	Material	50.9	happen	36.4	what	40.9
Describing: miscellaneous (N=137)	Relational	48.9	have	29.2	we	31.4
Recounting (N=135)	Material	62.2	do	36.3	what	26.7
Reporting (N=111)	Verbal	54.1	Say	30.6	he	25.2
Interpreting (N=55)	Verbal	45.5	do	23.6	what	57.1
Elaborating (N=63)	Verbal	54	mean	60.3	i	36.5
Organizing discourse (N=187)	Verbal	36.9	say	20.9	i	59.4
			want	20.9		
Evaluating (N=102)	Relational	45.1	be	39.2	what	38.2
Managing the classroom (N=47)	Material	51.1	do	42.6	i	46.8

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