

# Providing lexicographic support for SL vocabulary acquisition: What kind, under what conditions, for whom, and why?

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## Abstract

Although a number of the latest dictionaries for the SL market have been praised for their innovative design features, learners and users do, and lexicographers and metalexicographers should, concern themselves with the functional quality (FQ) of the dictionary products they provide for the market. The FQ of dictionaries and its scientific assessment forms the topic of this paper. FQ is defined in Section 1, and current approaches to assessing FQ in the field of lexicography are discussed in Section 2. Section 3 provides an outline and demonstration of a methodology which makes theoretically-driven empirical assessment of the FQ of dictionaries possible.

## 1 Introduction: the problem of dictionary quality

English lexicographers have responded to the mounting international demand for English by providing the market with a wide range of lexicographic works to assist in the use and acquisition of English as a second or foreign language (ESL/FL). This makes the ESL/FL lexicographic market one of the most competitive dictionary markets in the world, and one in which, as [Herbst 1999] notes, publishing houses are continually under pressure to come up with innovative products to keep an edge on their competitors and protect their share of the lexicographic market.

The existing English monolingual learner's dictionaries (MLD's) - to which I will limit myself in the rest of this discussion - are a case in point. No less than four of them compete in the market, viz. CIDE, COBUILD2, LDOCE3 and OALD5. All four of them are intended as multifunctional lexicographic tools to assist as wide as possible a target group in whatever SL learning activities they engage. They have been labelled the so-called "big four", and praised by a number of reviewers as the pinnacle of monolingual learner lexicography, especially then, on the grounds of their innovative (re)design features.

Although innovativeness might be a crucial commercial concern, dictionary users, including teachers of English, place a higher premium on the functional quality (FQ) of the dictionaries they eventually purchase, i.e., on the degree to which a dictionary (within the limits of its intended function(s) and target users) successfully provides them with the kind of lexical support they need, not only in the various kinds of SL receptive and productive activities in which they engage to acquire the necessary communicative skills in a target language, but also in acquiring the necessary vocabulary to master these communicative skills and strategies.

That the FQ of dictionaries should in fact be one of the main issues with which we concern ourselves, is underlined by the editors of the comprehensive *An International Encyclopaedia of Lexicography* when they state that "*Lexicography as practice and the theory of lexicography*

*have a common goal, namely to foster the effective use of dictionaries.*" [Hausmann et al 1989: XVII].

A crucial question for learners, teachers, lexicographers, and metalexicographers alike, then is:

- (i) How functionally effective are the available SL/FL English dictionaries in providing learners with the necessary lexicographic support in the various ESL receptive and productive activities in which they engage in the SL classroom and in acquiring the vocabulary needed for these activities?

For lexicographers and metalexicographers a second crucial question is:

- (ii) If not functionally effective, what kind of dictionaries, both with regard to dictionary type and qua design (i.e., with regard to content, structure, style, presentation and integration in instructional activities and materials, etc.), would *optimize* for various kind of users in different contexts of use (the acquisition of) the various receptive and productive (skills)/tasks and the acquisition of the necessary vocabulary for these skills in instructed SL acquisition?

Despite the popularity of dictionaries in the S/FL classroom, and despite the availability of enormous amounts of teaching materials built around specific dictionaries, there are at present no set of unequivocal answers to these questions.

The simple answer to question (i) is: We don't know. With regard to the FQ of dictionaries aimed at the SL market, most of what we know is mainly based on subjective and/or pedagogical experience and commonsense heuristics. Much of our knowledge of these matters is, therefore often subjective/experiential and anecdotal in nature, and as [Hartmann 1989a/b] already noted, and [Scholfield 1999] recently emphasized, has at most the status of "*informed opinion*". Although there has been an increase in research on SL acquisition, and the use of lexicographic support in instructed SL acquisition in particular, very little of this research passes the rigorous requirements set by theoretically driven empirical research. What research we have on this issue within the field of lexicography, is seldom worked out in a detailed theoretical framework of SL acquisition, often suffers from major design flaws or has a "*woolly focus on key issues*". Often these "experiments" are small-scale, non-representative, non-comparable, non-correlational, and even non-replicable - a situation that necessitates for lexicography, as Hartmann and a number of other authors have argued, "*a 'quantum leap' into the realm of scientific respectability*"([Hartmann 1989a/b]; [Scholfield 1999] (Cf., on these issues also [Bogaards1998], [Hartmann 1999a/b], [Laufer 1993], [Luppescu/Day 1993], [Meara 1997], and [McCreary/Dolezal 1999]).

Given the priority the FQ of dictionaries should have in the field of lexicography, I will focus in the next section of this paper on current approaches to the FQ of dictionaries. Section 3 outlines and demonstrates a methodology which has the potential of providing a launching pad for the quantum leap we need to take us into the future.

## 2 Current approaches to the functional quality of dictionaries

### 2.1 The status of informed opinion

Given that current thinking on the FQ of dictionaries is for a great deal based on personal experience, I will first tackle the status of subjective experience as a source of our knowledge on the complexities of the FQ of dictionaries.

Although lexicographical and pedagogical experience or "informed opinion" can guide hypothesis formation in theory construction and empirical testing, alone it is not enough to elucidate the real problems learners experience with the functionality of dictionaries. For one, these assumptions may simply be wrong, misguided or have little empirical support beyond the limits of the lexicographer's, teacher's or even dictionary reviewer's own subjective experience (cf. [Simms-Knight 1992] and [Schriver 1997]).

In fact, the little evidence we currently have from empirical research forces one to be rather cautious of "informed opinion" as the only basis for judgements of the FQ of any dictionary or any kind of lexicographic support provided for instructed SL acquisition. This point is adequately illustrated in [Laufer1993]. The author first mentions a number of these often generally held assumptions, and then cites examples of empirical research in which these assumptions are refuted, e.g., assumptions such as the following

1. that guessing the meaning of unknown words in contexts of use (inferencing from context) is preferable to using a dictionary as a strategy in acquiring new words (a central assumption in most communicative approaches to SL teaching; the so-called "dictionary as last resort" assumption)
2. that in dictionaries good examples of the use of target words provide more information on the use of a word than a definition (an assumption that lead Summers to contemplate designing a dictionary consisting of examples only).

(Cf., also [Laufer/Hadar 1997].)

In a small-scale experiment with 43 first-year university students [Laufer 1993] then illustrates that

1. new words are in fact better understood and used correctly by learners when both a definition and examples are provided, as is currently the practice in most MLD's (definitions alone being second best, and examples alone the worst), but
2. even when providing learners with definitions and examples, on average, a success rate of only 55% was achieved in comprehension tasks (on low frequency words) and a dismal 44% success rate in production tasks.

(Cf., also [Laufer/Hadar 1997].)

A second example to illustrate this point, is provided by an empirical experiment of reported on in [Cumming et al 1994] in which the authors question another of our commonly held beliefs, viz., the superiority of the full-sentence definition over the phrasal definition. The full sentence definition is an innovative feature introduced to modern learners' lexicography by COBUILD, and has now become a standard feature of a number of MLD's. What these authors demonstrate in their research is that production and performance measures do in fact not vary over the use of the phrasal definition format and the sentence definition format.

A third example is provided by the extensive research by Mayer and his associates on the use of visual material in texts to enhance the learning process. Although the use of illustrations in dictionaries is also founded on the (empirically supported) assumption that illustrations enhance the learning of lexical information, [Mayer 1999] shows that there are a number of crucial design variables that impinge directly on the effectiveness of illustrations.

Empirical research of this kind not only highlights the unreliability of experiential evidence as the sole basis for instructional and lexicographic design, but also, as a number of other researches have argued, that – and, then, despite all the innovative features that have been introduced into dictionary design – there is no mechanical transfer of the content of dictionaries to the mental lexicon of the learner. Any dictionary consultation constitutes a complex cognitive process in which a number of crucial mediating variables determine the success with which various kinds of learners infer, process and acquire information from dictionaries of various types and designs in different contexts of use (cf., [Bogaards 1998], [McCreary/ Dolezal1999: 112-113], [McKeown 1993], [Nesi/Meara 1994], [Scholfield 1982]).

## **2.2 Lexicographers' approach to the FQ of dictionaries**

Despite the expressed concern of lexicography practice and metalexicography with the FQ of dictionaries, neither of them currently engage in, or in fact provide for the kind of theoretically-driven empirical research needed to assess the FQ of dictionaries. This is clearly evident from the way in which lexicographers approach the issue of the FQ of dictionaries and from current approaches and methodologies in metalexicographic research.

User-research and reports by a number of reviewers (cf., [Bogaards 1998]) have indicated that learners grapple with three kinds of major problems when consulting MLD's: finding the relevant information; having found it, to comprehend it; and, finally, applying what they have learnt from the dictionary to the task or activity at hand.

Realizing that the FQ of a dictionary is determined both by the user's reference skills and by the design of the dictionary (i.e. its content, structure, style and presentation as determined by its intended function), lexicographers have approached the FQ issue in the case of MLD's from two sides:

1. improving users' lexicographic reference skills by providing them with dictionary work-books, i.e. improving the user, not the product, and
2. by the (re)design approach, i.e. improving on the design of existing dictionaries or by designing new dictionaries (e.g., CIDE, the latest of the big four MLD's)

As indicated in [Stark 1990], existing dictionary work books have not met with much success. Although a small number of researchers have addressed the problem, no comprehensive and systematic research has been undertaken to try and establish why and how these workbooks fail in their intended function and how their effective use can be optimized.

With regard to the (re)design approach, the other three of the big four MLD's have been praised, but then with a number of provisos, for the innovative way in which the problems of learners have been approached by redesigning various aspects of the content, structure, style, etc. of these dictionaries ( cf. [Herbst 1999], [Rundell 1999], and [Scholfield 1999]). The findability problem within dictionary entries, for example, is addressed by basing the ordering of senses on corpus frequency data and the use of so called "signposts" and/or advanced organizers.

The comprehension problem, on the other hand, is addressed by a number of innovative design features, some of course older than others, e.g.

1. the use of a controlled /limited defining vocabulary in definitions;
2. the elimination of all kinds of dictionarese (symbols, labels, some abbreviations, parentheses, etc.) and arcane expressions in definitions and incorporating some of the information traditionally conveyed by these means in the dictionary definitions themselves;
3. the use of a full sentence definition format that imitates the style and structure of "folk definitions" of native speakers (cf. especially COBUILD);
4. the use of corpus-driven contextual paraphrases as a defining technique to help learners to match generic abstract definitions with the specific senses of target words in their contexts of use;
5. the use of definitional schemata to ensure comprehensiveness and systematicity in defining the meaning of headwords that belong to the same grammatical and/or semantic class;
6. extended information on the paradigmatic sense relations of target words (hyponyms, synonyms, and antonyms);
7. the extended use of authentic example sentences to illustrate a target word's collocational features, selectional restrictions and stylistic characteristics in addition to their meaning-in-use;
8. the use of extensive (nonverbal) illustrations to support definitions and to clarify a wide range of the semantic features of target words;
9. the use of extended usage notes to elucidate the meaning and use of target words, and especially to disambiguate semantically related words.

The question that then arises is: On what do lexicographers base the perceived FQ of the innovative features that they have incorporated in the revised editions of MLD's? Again the answer is: We don't exactly know. Given the stiff competition in the market, lexicographers are rather tight-lipped about their commercial secrets. Although some publishing houses lay claim in sales materials to some form of research underlying their dictionaries, they hardly ever make public what theory/ theories of lexical acquisition they adhere to, how the materials were tested, what the results of these tests were, or how the design of their activities and materials (including the format of lexicographic support) were determined by their theoretical disposition and the results of their experiments. Nor is the involvement of "experienced teachers" of necessity any kind of solace. As [Urquhart/Weir 1998] indicate, teachers and testers are often "*trapped in a*

*particular set of practices"* ( p. 234), and that there is a tendency in the quarters of applied linguists to "*accept a theoretical construct without further analysis, definition, or even empirical investigation"* (p.238).

Although we have a number of theoretical handbooks on the market that explicate the principles of practical lexicography, again one has to question the theoretical and empirical support these principles enjoy. Hardly any empirical evidence is provided to support the fact that the proposed principles (e.g., on the effective use of definition types, examples and/or illustrations) indeed improves the FQ of dictionaries. Furthermore, we have no research that taps, *in situ* or "on-line" as it were, the real assumptions/principles that guide lexicographers' design decisions when they are compiling dictionaries of various types at the workbench. At most, one could consider the proposed principles as sources for hypotheses that have to be tested empirically at the lexicographers work bench or in an appropriate experimental setting.

### **2.3 The FQ of dictionaries in metalexicographic research**

With regard to the field of metalexicography, we are in a situation where the four main areas of research do not in fact focus on (or even provide for) the assessment of the FQ of dictionaries by way of theoretically driven empirical research. They do, however, provide for at least some of the basic kind of research (empirical description, hypothesis formation, model construction) that should underlie theoretically driven empirical testing of the FQ of dictionaries.

User-research, for example, focusses on a taxonomic description of what kinds of users use (or prefer to use) what kinds of dictionaries for what information needs in what kinds of contexts (cf. [Hartmann 1999]). But no attention is in fact paid to how effective dictionary consultations in these various contexts of use are. The same problem applies to research on the structure of dictionaries as texts. The results are mainly taxonomic descriptions of the elements that make up the content and structure of dictionaries, and this is only occasionally linked to their intended functions, but no systematic account is given of how effective these structural components (or design elements) indeed are in achieving their intended functions.

Dictionary criticism, on the other hand, has/should have dictionary evaluation as its central concern. Reviewers indeed provide the researcher with valuable information on a number of variables that affect the FQ of a dictionary, variables that would indeed have to be accounted for in any systematic scientific investigation of the FQ of dictionaries. These include, *inter alia*, the major functions of various dictionary types, the kinds of SL learning activities in which learners engage and in which they use specific kinds of dictionaries, what learners expect of dictionaries, what preferences they have, the dictionary reference problems they experience, the design principles that (in theory) do or should underlie specific dictionary types, how lexicographers deviate from these principles in practice, inconsistencies that occur between theory and practice, and the kind of mediating factors that influence the efficacy of specific design elements of specific dictionaries (e.g, the use of specific definition types/formats, use of restricted defining vocabulary, use of examples, illustrations and usage notes). (Cf. [Herbst 1999], [Pauwels 1996], [Rundell 1999], and [Scholfield 1999].)

The major problem, however, is the fact that most dictionary reviews are not in themselves systematic accounts of theoretically-driven empirical research on the FQ of the dictionaries

under discussion, i.e. of research that assesses under controlled conditions how effective these dictionaries are in practice as they are used (on-line) by their intended target group, viz. learners of English. Reviewers are most often teachers of English, occasionally other lexicographers or metalexicographers, (thus at most expert users) that simulate situations of dictionary use by learners (cf., [Ripfel 1989: 4]) and try and predict - on the basis of their experiential knowledge of learners - the kinds of problems users of dictionaries will/could encounter. In this sense, reviews have the same kind of drawbacks as questionnaires aimed at soliciting data on the FQ of dictionaries as experienced by their target users. Data that is elicited *post hoc* on dictionary consultation problems are not an accurate assessment of the problems users experience on-line, and eliciting data on users from teachers provide a second hand and, most often, a highly subjective account of the facts.

### 3 The way forward

#### 3.1 The interdisciplinary approach

Despite the adversity to empirical research in some corners of the lexicography fraternity, the way forward, as a number of scholars have argued, is to indeed take the quantum leap into scientific respectability, as [Hartmann 1989a] so eloquently phrased it.

The point I would like to make is that we can already build a launching pad for this quantum leap by itemizing, evaluating and, where possible, integrating the existing research methodologies, theoretical developments and research results in the variety of disciplines (e.g., educational and cognitive psychology, SLA research, computer-assisted language learning, instructional design, research on bilingualism and metalexicographic research ) that in fact also focus on what is our prime concern, viz., to optimize the FQ of different forms of lexicographic support in the various SL learning activities aimed at the acquisition of receptive and productive skills of learners in a target language and the acquisition of the necessary vocabulary to support these skills.

With regard to a general methodological framework within which current approaches in these fields and the results of their empirical research can be integrated, I would like to suggest the cognitive-functional framework espoused in [Chun & Plass 1997]. Their method would imply the following:

- (i) Give a model-theoretic account of
  - (a) the linguistic and other kind of knowledge stores, cognitive processes and resulting mental representations that underlie the various receptive and productive skills and the process of vocabulary acquisition
  - (b) the knowledge, skills and cognitive processes involved in finding, comprehending and integrating relevant information from dictionaries into receptive and productive tasks and vocabulary acquisition.

This would include, inter alia, a model-theoretic account of

- (a) the content, structure and development of a SL learner's mental lexicon

- (b) the way lexical knowledge is accessed and interact with the cognitive representations and processes involved in the different kinds of receptive and productive tasks.
- (ii) Isolate the mediating learner, input, task and contextual variables that have been determined by empirical research to influence the successful acquisition of a skill or vocabulary.
- (iii) Deduce a hypothesis/hypotheses from (i) and (ii) with regard to the format/design of the lexicographic input that would either support these receptive and productive tasks and the acquisition of vocabulary or not.
- (iv) Devise alternative lexicographic formats that conform to these design hypotheses and empirically test them for their FQ, taking into account these mediating variables as is done in AIT-designs.

Traditionally the results (positive or negative) of (iv) are explained in terms of (i), and implications for instructional design and practice deduced from (i) and the results of (iv).

Using this framework as guideline, how do we proceed?

User-research as envisaged within lexicography, should provide an extensive taxonomic account of the kinds of situations in which different types of learners use what kind of dictionaries and for what purposes. SL learners engage in a variety of learning activities (e.g., pre-task vocabulary exercises, communicative skill exercises and follow-up vocabulary elaboration exercises), all of which require specific levels of lexical knowledge and in which lexicographic support of some kind (dictionaries, glosses, word lists, etc.) could be provided (cf., [Sökmen 1997]).

With regard to the linguistic and encyclopaedic knowledge stores, cognitive processes and representations that underlie these contextualized dictionary look-ups, a number of partial, sometimes overlapping, but also sometimes conflicting theoretic models, have been proposed that can support lexicographic research in a number of crucial ways. Space limitations prevent a detailed discussion, but the following gives an overview of some of the relevant model-theoretic research and relevant literature.

[Purpura 1997] provides an adapted version of Gagné, Yekovich, & Yekovich's Model of Human Information Processing to outline and explain the interaction between the metacognitive and cognitive processes and strategies involved in SLA, specifically the way that task monitoring variables (problem-identification, selective attention, goal-setting, task-assessment, pre- and post-planning, self-monitoring (during performance), and post-performance assessment) influence these processes of SL acquisition and use. (Cf. also [Wenden 1998].)

This model is compatible with theories of the processing of verbal and visual information in short-term/working memory and the way in which variables such as cognitive load, redundancy and split-attention (cf., [Kirby 1993] and [Yeung et al 1997]) influence the processing of SL information during receptive and productive activities and the processing of lexical information (cf. also [Baddeley 1992]).

A number of researchers have proposed a model-theoretic account and provided empirical support for various aspects of lexical acquisition and use in a variety of receptive and productive



activities. The content, structure, development and access to the SL/bilingual lexicon is extensively discussed in [Aitchinson 1994], [Beheydt 1987], [Laufer/Paribakht 1998], [MacDonald 1997], [Paribakht/Wesche 1997], [Schmitt 1997, 1998] and [Schreuder/Weltens 1993].

Gass and Selinkers' [Gass/Selinker 1994] interactionist model of the ideal conditions for lexical acquisition to take place still enjoys immense popularity (cf., also [Chappelle1998]) and a number of authors report on research on the variety of variables that influence the acquisition process (cf., [Beheydt 1987], [Chun/ Plass 1997], [De Bot et al 1997], [Ellis/ Beaton 1993], [Hamilton 1997], [Klesius/Searles1990], [Oxford / Scarcella 1994], [Paribakht/Wesche 1997], [Robinson 1995, 1997], and [Waring1997]). The way that multimedia input fosters the acquisition of lexical information and the deleterious effects of learning with multimedia is treated in [Chun & Plass 1997], [Yaghoub et al 1995] and [Plass1998].

The passive/receptive vs. active/productive dimension of lexical knowledge is discussed in [Laufer 1998], [Melka 1997] and [Laufer/Paribakht 1998]. An instrument for measuring aspects of the depth of the acquisition of lexical knowledge is proposed in [Wesche/Paribakht 1996].

Obviously, there are also a number of learner variables that influence the processing and acquisition of SL verbal and visual input (verbal ability, spatial ability, learning preferences (verbalisers vs. visualizers), content and background knowledge), and these are discussed in some length in [Chun/Plass1997] and [Weinert/Helmke 1998]. A further set of mediating variables that effect the FQ of the lexicographic support that is provided, is the various receptive and productive strategies that users employ when experiencing problems of a lexical nature, including the use of lexicographic support of some kind (cf., [De Bot et al 1997], [Dörnyei/Kormos 1998], [Gu/Johnson 1996], [Klesius/Searles 1990], [McDaniel/Donnelly 1996], [Sanaoui 1995], and [Sternberg 1987]).

Of the kinds of lexicographic input that best assists different kinds of learners in different SL communicative activities, reading and reading-driven lexical acquisition ("incidental vocabulary acquisition") has been the topic of numerous studies. Research on these topics clearly suggests that when it comes to different kinds of learners and different kinds of activities, one type of lexicographic support definitely does not fit all. Although high-proficiency students seem to get it right most of the time, regardless of whether there is some kind of lexicographic input and what specific type, low-ability students are mostly left at lost without some, often very specific, kinds of lexicographic support.

The knowledge, cognitive processes and representations that underlie SL reading are the subject of numerous studies (cf. [De Bot et al 1997], [Paribakht/Wesche 1996], [Wesche/ Paribakht 1995], [Urquhart/Weir 1998]). Although MLD's and translation dictionaries have proven to support reading comprehension, using printed versions of these dictionaries have been shown to have two major disadvantages: they slow down the reading process, and the split-attention effect of consulting a dictionary interferes with the higher-level processes of building mental representations of the text content (cf., [Knight 1994]).

Glossing, on the other hand, has proven to be rather beneficial, both in the case of printed texts and electronic texts, and a growing body of research has been devoted to this topic (cf. [Beheydt 1987], [Chun/Plass 1997], [Danan 1992], [Davis 1989], [Fischer 1994], [Hulstijn 993], [Hulstijn

et al 1996], [Jacobs et al 1994], [Lawson/Hogben 1996], [Lomicka 1998], [McKeown 1993], [Prince 1996], [Watanabe 1997], and [Yeung et al 1997]).

Glosses can relieve students from the arduous task of finding the relevant senses of unknown words in printed dictionaries, and, if given as a contextual paraphrase of an unknown word, of having to integrate some generic meaning from a dictionary in the word's context of use. In electronic texts, the types of glosses can, furthermore, be expanded to include a variety of information types (e.g. translations, definitions in the L1 and the L2, encyclopaedic information, visual glosses (graphics, pictures, animation and video) and sound), thereby providing for the different learning styles of different dictionary users. The layout and design possibilities of computer screens also allow for the fact that glosses can be presented and integrated into textual (multimedia) input in such a way that they do not negatively impact on the comprehension process.

In such cases, however, the printed dictionary functions merely as a lexical resource for the teacher/materials designer who has to select the relevant senses, translations, appropriate visual materials, etc. from existing dictionaries, and come up with a contextually relevant presentation of the information in glosses that can support the learner. Research on how such glosses can be automatically generated in CALL-applications incorporating fully-fledged electronic dictionaries is still in its infancy. Furthermore, a number of deleterious effects have been shown to influence the FQ of multimedia glosses (cf., [Chun/Plass 1997]).

Although small scale and incremental in nature, reading-driven lexical acquisition has also been shown to improve with the provision of lexicographic support. However, the dual task of reading for comprehension and remembering information on new lexical items often leads to the split-attention effect – a situation that can be worsened by the need for consulting a printed dictionary. Glossing techniques can increase accidental vocabulary acquisition, but then only in very specific circumstances. For low-ability students integrating text and verbal glosses causes the text to interfere with the lexical acquisition process; but presenting glosses as separate list improves lexical learning – thus, in a design just the opposite of that in which glosses support low-ability students in reading comprehension. Furthermore, certain glosses are hardly consulted in the reading process, and others seem either to have a negative influence on the lexical acquisition process, such as translations, while still others, such as video glosses, prove to have little effect, or are simply not preferred above other types (such as pictures/graphics).

## 4 Conclusion

Obviously, the above is no more than a glimpse of the kind of research topics that should be incorporated in theoretically driven empirical research on the FQ of dictionaries, and then especially on the innovative design improvements to MLD's alluded to above. The lexicographic principles expounded in texts books on lexicography, and the input by expert reviewers on the FQ of these dictionaries (cf. the discussion above) could provide invaluable input to this research by way of hypotheses that have to be empirically tested within the framework of the theoretical assumptions and research findings elucidated above. If we really consider improving the FQ of dictionaries as one of our main goals, then there is no way out.

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