

COMMUNICATIVE CHARACTERISTICS OF REVIEWS OF SCIENTIFIC PAPERS WRITTEN BY NON-NATIVE USERS OF ENGLISH

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Research is a social activity with highly critical standards, one that calls for continual self-correction. This is partly accomplished by peer reviews (PRs), i.e. quality judgement exerted by experts in the field to assess manuscripts submitted to journals as to their originality, scientific reliability and relevance to the profile of the given journal before they are rejected or accepted for publication by the editor. Editors, and reviewers as their specialist advisors, are gatekeepers of science, judges whose role it is to protect and enhance its norms. While the editor is known, most reviewers' reports are sent anonymously to the authors so that reviewers would not be identified with their opinions and get into personal arguments.

Though peer reviewing has had its ups and downs and many of its features are still controversial, it has survived for over 300 years. PRs existed as early as the 17th century when the *Philosophical Transactions* of the Royal Society began to distinguish between evaluated and non-evaluated work. By the end of World War II, PRs were in large-scale use and at present the overwhelming majority of major scientific journals use them as an integral part in controlling social and scientific systems.

The available literature on PRs focuses on such features as the choice, role and quality of referees, the history of PRs, dual publications, rejection rates, fate of rejected articles, etc. (HORROBIN 1982; PICKARD 1982; MOOSSY and MOOSSY 1985; LOCK 1991). Although there are several papers presenting comments also on the use of language in PRs, these are embedded in texts on different topics (MYERS 1988; ANDERSON 1989; GOSDEN 1992).

As English has developed into the lingua franca of medicine, PRs have become an important genre also in science communication between native and non-native speakers of English. There are, however, cross-culturally different perceptions of what is appropriate language behavior (SILVA 1993; HINKEL 1994). Though many discourse features operate by universal pragmatic principles, the evaluative process of making decisions about content and style is guided by the writer's internal standards, which may vary from one discourse community to the other. Decisions can affect organization, paragraphing strategies, logical development of ideas, degrees of commitment to the truth value, negotiability of propositions, as well as several other communicative principles, strategies and conventions (KOURILOVÁ 1995). When the writer's and referee's internal standards are not congruent, the paper may be found defective.

The present paper is concerned with the tension between non-native writers of scientific discourse and their reviewers, caused to some extent by cross-cultural differences and the non-native speaker's lack of insight into the interactive functions of the English language. The presented analysis of a series of PRs of manuscripts written by Slovak medical doctors and submitted to British and American biomedical journals has two main aims:

(1) To identify principles and conventions characteristic of the interaction in PRs and to assess whether the culture of science reporting, so highly respected particularly in British scientific discourse (MYERS 1989), applies also to PRs, which are characterized

by differences in the status of the communication participants and by their anonymous nature.

(2) To help Slovak doctors of medicine (exposed not only to a foreign language but also to a foreign culture) to recognize the communicative purposes and genre conventions of PRs so that as producers of English scientific discourse they would share native speakers' expectations and assumptions and apply rhetorical strategies and conventions more appropriately.

Materials and Methods

Upon written request explaining the purpose of the study, Slovak researchers (from nine departments of the Medical School, Comenius University, Bratislava, and from two biomedical institutes of the Slovak Academy of Sciences, Bratislava, Slovakia) provided a series of 80 PRs to manuscripts submitted to British and American scientific journals. The basic characteristics of the series are given in Tab. 1.

Along with my request, I sent the researchers questionnaires asking them to indicate the status of the journal their manuscript had been submitted to; to give their overall impression of the review; to give their subjective assessment of the reviewer's competence in the given problem area; and to characterize the nature of the reviewer's comment.

In addition to the authors' assessment, I analyzed the nature and occurrence rate of the following discourse features:

1. critical items: a. blunt (including irony, echoing language, direct questions, negatives); b. mitigated criticism;
2. commands: a. personal; b. authoritative; c. mitigated to suggestions;
3. hedges: a. weakening compliments; b. mitigating criticism and commands;
4. compliments: a. full; b. with downtoners;
5. impersonality devices (passives with and without modals, concealed subjectivity);
6. involved textual dimension: (personal verbs, 1st, 2nd person pronouns, contractions);
7. doubt and suspicion;
8. assumptions with: a. high, b. low degree of commitment.

Results and Discussion

Rejection rates. There are considerable interdisciplinary differences as to the rejection rate of manuscripts submitted to scientific journals. Philosophy and history journals have a very high rejection rate (75-90 %), while in physical and chemical journals the rejection rate is only 15-35 %. Biomedical journals reject about 45-65 % of manuscripts but high-ranking medical journals have a rejection rate of about 80 %, while elite-core journals, i.e. journals with the highest impact factor, reject about 85-90 % of the manuscripts submitted. Approximately 70 % of the rejected manuscripts become eventually published in lower-ranking journals where the decision rule is "when in doubt, accept", whereas in high-ranking journals the rule "when in doubt, reject" is usually observed. Totally rejected papers amount only to about 15 %. Of 100 consecutive manuscripts submitted only one is found acceptable as it stands, i.e. no changes are required by referees or editors (LOCK 1991).

Considering these estimates, the present series has a high profile, as of the 80 PRs analyzed 63 concerned manuscripts accepted in elite-core and high-ranking journals, and only two concerned manuscripts which were rejected. Two manuscripts were accepted without modification (Tab. 1).

Profile of reviewers' comments. The pattern of compliments and criticism in the series analyzed is shown in Tab. 2. With 39 instances, the prevalent pattern is approval deemphasized by criticism, the "yes, but" attitude, where the reviewer commits himself and then withdraws the commitment to a greater or lesser extent. Only in 4 reviews were the critical comments both preceded and followed by compliments, providing thus a positive frame to the face threatening act of criticism. The second most frequent pattern was pure criticism without any compliment, occurring in 24 PRs, despite the fact that 22 of them concerned manuscripts that had been accepted for publication in the given journal.

Assessment of reviewer and review. The question of reliability of PRs remains a rather controversial issue. SMALL (1974) found that the most highly cited papers had generally received the lowest evaluation by reviewers. The major "error of judgement" of a reviewer concerned an article which became a

constant reference with 751 citations in 8 years. This is a rather high number as a paper which receives more than 10 citations is already considered a well cited paper. The mean citation rate is 1.9 per year within the first 10 years after publication.

In the present study, one manuscript received only negative comments and was not recommended for publication. However, the editor ignored the suggestions and published the article, which turned out to be a major success with 40 citations within 3 years.

There are several famous examples of rejected papers. Thus Jenner's account of the first use of vaccination against smallpox was rejected for publication by the President of the Royal Society. Jenner then published his findings himself as a monograph. In this way the Royal Society was never associated with one of the most important medical discoveries of the 18th century even though it was made by one of its fellows (LOCK 1991). Well known is the fate of Yalow's paper on radioimmunoassay, a study for which she was awarded the Nobel Prize. Her original article was rejected by *Science* and initially by the *Journal of Clinical Investigation*. A compromise with the editors of the latter journal, including their insistence on leaving out "insulin antibody" from the title, eventually resulted in acceptance (YALOW 1982). She commented the poor reviewing of her work: "The truly imaginative are not being judged by their peers. They have none."

Overall, however, peer review has worked efficiently and such misjudgements are not considered typical, although some authors are rather pessimistic. HORROBIN (1982) suggests that one third of PRs are estimated to be competent and fair; another third though competent, are assessed to be concerned with the trivial; and one third are considered to be incompetent on objective grounds.

Tab. 3 shows the data of our study obtained through questionnaires in which the authors of the manuscript provided their subjective assessment of the reviewers and their comments.

In my analysis of PRs, I could not assess the competence of the reviewers, yet I evaluated the pragmatics of politeness which was practically in agreement with the authors' overall impression of politeness. In accordance with the assessment shown in Tab. 3, I also found 9 reviews to be very polite and

Table 1
Series characteristics

(peer reviews of manuscripts (n= 80) written by Slovak authors and submitted to British and American medical journals)	
1. Type of journal (according to impact factor)	No. of manuscripts submitted
Elite-core	3
High-ranking	61
Lower-ranking	16
Total 80	
2. Length of review	No. of words
Longest review	720
Shortest review	29
Total series	17 210
3. Paragraphing	
Greatest number of paragraphs per review	29
Lowest number of paragraphs per review	1
Total number of paragraphs	420

Table 2
Organization of peer reviews into purpose-based proto-sections

Pattern	No. of reviews
Compliment + criticism	39
Criticism	24
Criticism + compliment + criticism	8
Compliment + criticism + compliment	4
Compliment + polite suggestion	2
Compliment	2
Criticism + compliment	1
Total	80

13 (compared to 12 marked by the authors) to be impolite, interlaced with ironical remarks.

Rhetoric of evaluative features in the series. Science reporting in English journals and monographs is characterized by a high degree of politeness. The author's claims are mitigated, rival claims are treated politely. Politeness devices of epistemic modality, which cover a very broad range of lexical and grammatical tools available in English, are used abundantly. Personal attacks are inadmissible and a carefully impersonal surface is maintained particularly where personal commitments and choices are involved (MYERS 1988; SWALES 1990; KOURILOVÁ

Table 3
Authors' subjective assessment of peer reviews

	n	%
1. Reviewer		
Competent	66	82.5
Incompetent	14	17.5
Total	80	100.0
2. Review		
Relevant	54	67.5
Irrelevant	26	32.5
Total	80	100.0
3. Thought provoking		
Yes	31	38.7
No	49	61.3
Total	80	100.0
Very polite	9	11.2
More or less polite	59	73.8
Impolite	12	15.0
Total	80	100.0

Table 4
Commands, doubts, suspicion, criticism

	n
Commands unmitigated	
Personal	29
Authoritative	131
Total	160
Mitigated to suggestions	
Total	64
Doubt and suspicion	
Total	22
Critical items blunt	
(including 24 instances of irony and 168 negatives signaling strong criticism)	550
Mitigated	121
Total	671
Ratio per 1 peer review	
Blunt criticism	6.88
Mitigated criticism	1.51
All critical items	8.39

1994). In the anonymous PR, however, politeness pragmatics appears to be different. The evaluative feature of the PR is inherently threatening to both the positive and negative face of the author, namely the desire to be approved of and the desire not to be interfered with (BROWN and LEVINSON 1987). Yet though face threatening acts (FTAs) are unavoidable in PRs, they should be redressed by politeness devices to mitigate negative judgements.

In our series we analyzed the nature of FTAs and the distribution of modality devices, which is a sensitive index of social, intellectual, and professional equivalence/nonequivalence, closeness/remoteness between the participants of the communicative act. On the whole, the reviewer seemed to emerge as a prominent authoritative person. Indices of this position were the frequent use of the pronoun "I" (46 times), as well as expressions of objective modality with concealed subjectivity, presenting the reviewer's perspective as a universal one and thus implying his power ("one cannot accept"; "there is ample evidence"; "it is generally considered"). Further, there was a relatively low rate of assumptions (60), and of these 44 were assumptions with high degree of commitment ("the data strongly suggest"), while only 16 were of low affinity, indicating the desire to show solidarity. Most importantly, however, there were many FTAs in our series, as documented by the number of unmitigated commands, doubt, suspicion, and items of blunt criticism (Tab. 4).

Commands, doubt, suspicion. As seen in Tab. 4, personal commands, using the imperative, along with authoritative commands expressed by the verbs "must, need, have to, ought to, should", amounted to 160 unmitigated commands, while the number of commands mitigated to suggestions was only 64. The highly FTA of doubt and suspicion occurred 22 times (e.g. "I suspect the authors are trying to imply"; "it is hard to trust the author's results").

Critical comments. The social matrix in communication by PR is characterized by great difference in power between the author of the manuscript who asks for the admission of his/her contribution to the research fund of the scientific community and the reviewer who represents the community.

The reviewer's authoritative position and even authoritarian attitude was strongly manifested by overt expressions of judgement in the form of blunt criticism (e.g. "the paragraph is screaming for comment"; "there is no point in discussing this, keep in mind the thesis of the paper"; "you are absolutely wrong in suggesting that .."; "how dare you use the present tense?"). The occurrence rate of blunt critical items (550) was far higher than that of hedged criticism (121), as shown in Tab. 4. The 550 items of blunt criticism included 24 instances of irony (e.g. "flowery language, fit for a fiction book"; the exclam-

mation “Phew!” following a quotation from the manuscript; or the comment “rather poetic, hardly scientific” concerning the author’s statement “the data are on the boundary between positive and negative values”.

As to the derisive, ironic flavor of some reviews, LOCK (1991) states that it is one of the editor’s tasks to censor such wounding comments out of any report that is to be sent to the author. As documented by the 24 instances of irony in our series, editors do not always consider it their task to shield the author from acerbic comments. INGELFINGER (1975), as editor of the elite-core periodical *New England Journal of Medicine*, detailing some of the words reviewers used (“naive, ridiculous, gross stupidity, waste of effort and money, lacking all qualification”) stated that some referees seem to have a hidden cruel streak which they cannot resist using.

In the “Guidelines for Reviewers” of biomedical papers suggested by the Council of Biology Editors (LOCK 1991, p.110) one of the 12 items listed (No. 2) runs as follows: “A reviewer should consciously adopt a positive, impartial attitude toward the manuscript under review. Your position should be that of the author’s ally...”, and item No. 8 states: “In comments intended for the author’s eyes, criticism should be presented dispassionately, and abrasive remarks avoided”. Practice seems to differ from the suggested norms.

Unsubstantiated value judgements also fall under the heading of irony, since even those of triviality, irrelevance, and lack of clarity can be substantiated and documented (PICKARD, 1982). In the series analyzed, criticism, though often blunt or caustic, was only rarely unsubstantiated (e.g. “statistical analysis needs revision”). A major exception to this practice concerned critical remarks on language and style (see Table 5 below), where out of 59 instances 35 were unspecified (e.g. “The English needs improvement”). This is understandable, as reviewers either do not feel like doing the job of language subeditors, or they often just have an uneasy feeling but are unable to pinpoint what makes a paper written by a non-native speaker un-English. In some instances, however, they may be biased against non-native speakers and feel compelled to criticize the language. An example of the latter was the manuscript of a Slovak doctor in which the English was thoroughly subedited by his

Table 5
Targets of criticism

1. Areas of omission	No. of items
a. Data	275
b. References	75
c. Explanations	29
d. Discussion, conclusions	24
e. Evidence	9
f. Figures	8
Total	420
2. Failure of economy of:	
a. Words	39
b. Thought	19
c. Illustrations	4
d. Selfreferences	4
e. References	3
Total	69
3. Language	
a. Style, grammar (unspecified)	19
b. Lack of clarity (6 times unspecified)	16
c. Inappropriate use of modality devices	11
d. Lack of cohesion	7
e. Terminology	5
f. Hyphenation	1
Total	59
4. Design, deficiencies	
a. Criteria	21
b. Methods, procedures	20
c. Samples	5
Total	46
5. Unjustified conclusions (including three refuted priority claims)	38
6. Formal mistakes	
a. Typing errors	16
b. Numbering	4
c. Listing of references	3
d. Abbreviations	3
Total	26
7. Presentation shortcomings	
a. Titles	2
b. Figures	2
c. Summaries	1
d. Paper as a whole	1
Total	6
8. Ethical considerations	5
9. Statistics	2
Total number of critical comments	671

friend, a British scientist, whose name however did not appear in the paper. One reviewer acknowledged

Table 6
Frequency of full and down-toned compliments

	n
Full compliments	94
Weak compliments (hedged by 32 downtoners)	24
Total	118
Ratio per 1 per review	
Full compliments	1.17
Weak compliments	0.30
All compliments	1.47

the high level of language and style, while the other one asked for complete language revision by a native speaker.

Implications of criticism. In the present study, the critical items were analyzed not only as to their occurrence rate but also as to the nature of the charge involved (Tab. 5).

Though omission of data was the most frequent target of criticism, that of unjustified conclusions appears to be the most severe one. These charges concern a not rarely encountered feature of Slovak expository prose, i.e. insufficient justifying support, with main ideas inadequately qualified and elaborated (KOURILOVA 1995). This becomes even more marked when Slovak researchers write in English, where they lack the ability to show that their argument is well thought-out. As GOSDEN (1992) states, lack of proficiency in handling sentence by sentence development of the author's argument and clear logical linking of the propositions present the greatest potential to distract the referee's attention from judgement on the scientific merit of the research article.

Other areas of criticism in the series concerned particularly condensation techniques, cohesion devices, and very importantly, the highly culture-determined use of modality. The charges involved excessive assertiveness, unhedged, unmodified statements, the use of the verb "demonstrate" (synonymous with "prove" and thus asserting the author's commitment to the attendant proposition where "suggest" or "indicate" would have been appropriate), inadequate applications of the article signaling unjustified generalizations, as well as the use of the present and present perfect tense where the neutral

simple past was required to leave the knowledge claim open to negotiation by the scientific community.

Utterances may be assigned a different pragmatic force by native and non-native users of the language. Modality markers of politeness, honesty, modesty, and caution are an integral part of the English cultural system and they should neither be used nor interpreted by reference to the foreign user's native system.

Slovak producers of English discourse appear to be less aware of subtle degrees of truth commitment and of potentially face threatening acts than their English counterparts. This is largely due to the non-native speaker's failure to know the broad repertoire of devices of the English modality system and to understand their pragmatic value and force. The authors of my series of manuscripts were frequently accused of being pretentious, overconfident, unjustifiably conclusive. In many cases these characteristics must have been assigned to the authors in light of the reviewers' expectations rooted in a different culture. Rather than the author's personality, it is the non-native speaker's sociocultural and pragmalinguistic failure (THOMAS 1983) that account for the FTAs produced by the wrong use of extratemporal functions of tenses, the lack of insight into the generalizing value of the article, the inability to master politeness markers in terms of English cultural conventions, the failure to indicate the intended level of commitment to the proposition and to create knowledge claims whose status is open to negotiation. These phenomena fall within the flexible area of hidden grammar, absorbed subconsciously by native speakers, yet very difficult to teach and learn by non-native speakers. Nevertheless, discourse conventions are often viewed as norms of social behavior and when violated by non-native speakers, not the producer's language competence but his/her personality will probably be blamed for the failure. Thus if non-native speakers are to fit in socially when using English, they have to get insight into the complexities of the ideational and interpersonal functions of the English modality system and particularly into the pragmatics of epistemic modality tools for projecting honesty, modesty, caution, and politeness.

Positive comments. To round out the picture, Tab. 6 presents the positive comments of the reviewers.

Of note is the fact that out of 118 compliments 24 were weak, hedged by as many as 32 downtoners (e.g. "the work is of some interest"; "the study is fairly straightforward"). It appears also to be rather noteworthy that, as shown in Tab. 2, there were 24 PRs containing only criticism, without a single appreciative word, and that despite the fact that 78 of the 80 PRs analyzed concerned manuscripts which after the required modifications were accepted for publication in the given journal.

Unbiased objectivity ? The question to what extent personal, national or institutional bias may play a role in the rate of rejections and the harsh criticism encountered in PRs has been addressed by several authors (ROSENTHAL 1982; ANDERSON 1988; DEGENHART and TAKALA 1988; LOCK 1991). They mention personal motivation, status preferences, sectarian intolerance against non-native writers and systematic bias against the author's institution.

A remarkable example was published by PETERS and CECI in 1982 (cited in LOCK 1991, p.25 and p.29). With the aim of testing PR reliability, these authors took a random sample of 13 articles written by well-known authors from high-prestige institutions which had been published in 13 high-ranking journals with about 80 % rejection rates. They changed the names of the authors and institutions to fictitious unknown ones and made cosmetic alterations to the titles and opening paragraph of the introductions. After a period of 18-32 months, they resubmitted the articles to the same journals that had originally published them. One article had to be excluded from the study because the journal had changed its policy. Of the 38 editors and reviewers involved, three recognized the resubmissions. Of the remaining nine articles only one was accepted for publication, while eight were rejected on grounds of poor study design and poor quality. The Matthew effect (New Testament, Matthew 25:29 "For to everyone who has, more will be given, ... but from him who does not have, even what he has will be taken away") may have been operative either in the first acceptance or in the rejection of the disguised articles of no-name authors and low-prestige institutions. Accomplishments of famous people tend to be overestimated, those of unknown authors underestimated. This seems to make blinding not only the reviewer to the author but also vice versa, namely the author's name, nationality and institution to the reviewer, a priority for consideration.

Conclusions

The presented analysis of language used in PRs is based on the assumption that interpretation of communicative characteristics of discourse has to involve also socio-cultural, psycholinguistic and discourse-functional aspects.

In other peer writing genres, particularly in scientific journal articles and monographs, the social matrix suggests great distance between researchers yet no difference in power (MYERS 1988, 1989). Blunt criticism in print is so threatening that it is usually avoided. In today's scientific style, personal attacks on an author's competence and integrity as a scientist cannot be made explicitly, on record. The researcher criticized in a paper is treated as a member of the scientific community. Acts that threaten his or her face are therefore perceived as offensive to the whole community.

In PRs, on the other hand, the discourse status of the author and the reviewer is clearly characterized by great difference in power. Since authors of manuscripts are frequently not treated as members of the scientific community, acts that threaten their face may not be considered to offend the community. This, along with the fact that the PR is not publicly available and the reviewer is anonymous, may account for the striking differences in modality pragmatics and politeness conventions between peer writing and peer reviewing.

Regarding the first aim of this paper, i.e. assessment of features characteristic of communication via PRs, we can state that PRs provide an example of on-record criticism which appears to be rather exceptional in other written scientific communication.

As to the second aim of this paper, several important implications seem to emerge from the study. If non-native speakers of English are to process peer writing in the author's intentions, and if they are to produce discourse that would not violate the native speaker's expectations, they have to master not only linguistic but also socio-cultural strategies. Native speakers receive language and culture as an integrated experience. Since non-native speakers do not share this subconscious feeling for strategies of interactional and social role relationships that are operative in communicating messages, they have to be brought to their conscious awareness. The principles and conven-

tions involved are often viewed as norms of social behavior, yet they are hard to learn for social outsiders, i.e. non-native users of the English language.

Understanding scientific discourse in the producer's intentions and generating understandable discourse requires not only professional insight but also academic literacy. Along with many strategies that govern the expected development of ideas, this involves also interactive skills of implying and inferring with an appropriate use of devices of the English modality system. Non-native speakers of English, with their different subsets of expectations and beliefs and operating in frames different from those familiar to native speakers, have to develop socio-cultural sensitivity and pragmlinguistic competence, necessary prerequisites if they are to fit in both professionally and socially as members of the scientific community.

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Accepted: March 15, 1998