ASSESSMENT OF ENGLISH IN THE WORKPLACE: A STUDY OF NON-NATIVE ENGINEERS

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Introduction

The prevalence of English for Specific Purposes (ESP) worldwide is no new fact; its history goes back about four decades (Johns, 1991). In particular, the relevance of ESP to English as a Second Language (ESL) is significant because of the role English plays internationally (Johns & Dudley-Evans, 1991) in the transmission of knowledge specific to science, technology, and business, etc. Needs assessment is therefore an essential element critical to ESL use in the workplace. In literature relevant to English in the workplace, much reference is made to the strategies employed in determining and meeting language needs of ESL speakers.

The aim of article is to examine the potential problems that the engineers had in communicating in English, to investigate the techniques they found effective in this effort, and to offer possible strategies for improving their language skills.

The objectives of the article are the following:
1. To discuss English language assessment of non-native speaking engineers who were working for an engineering company.
2. To identify troublesome aspects of English language learning.

The following *research methods* have been used: qualitative research (interview, questionnaire) and descriptive analysis.

Aspects of ESL Needs

Different meanings or types of needs have been considered by a number of people (see Johns, 1991; Berwick, 1989; Brindley, 1989; Mountford, 1981; Widdowson, 1987). According to Widdowson (Widdowson, 1987), needs can be identified as goal-oriented – what the learner actually does in order to reach the desired goal, i.e., to master the language. Needs are also interpreted in terms of what educational institutions consider necessary and what students themselves hope to benefit from a course or program. Brown (Brown, 2004) alludes to this in the "possible goals" he suggests for teachers using the interview as an assessment tool.

A general definition for *needs* is *lacks*: what is lacking or missing in the students' knowledge or ability to use English (Robinson, 1991). Lacks, however, due to the varying opinions of analysts as to what constitutes instruction and learning needs of students and the possible variance between students' and authorities' perceptions of needs, do not fully anticipate the needs of the students. The development of a learner-centered curriculum and the involvement of students in ascertaining their language needs should be encouraged.

Likewise, ESL use in the workplace is also progressive in terms of practitioners attempting "to improve their methods and approaches to needs assessment; [and] the literature is filled with proposals for new methodologies and critiques of existing ones" (Johns, 1991; Brown, 2004).

Moreover, as mentioned by Johns and Dudley-Evans, ESP is still dominated by English for academic purposes (Johns, Dudley-Evans, 1991). However, with the influx of immigrants into English-speaking countries, there has been a demand for "professional and business English, vocational English... and English in the workplace..." (Ibid.). Needs assessments in these fields are therefore necessary in order to prepare students for the workplace.

The analysis of needs can also be focused on students' needs at the conclusion of a language course. Such an analysis may be referred to as "a target situation analysis (TSA)" (Robinson, 1991; Chambers, 1980; Munby, 1984). Such an analysis needs not directly be connected to Teaching English as a Second/Foreign Language (ESL/EFL), but draw on the work of these disciplines to incorporate what Swales refers to as "wider roles" i.e., language roles beyond the classroom (Swales, 1988).

Before engaging in a needs assessment exercise, those taking part in the evaluation are going to need to have an awareness of the communication needs immigrants and sojourners have as they try to settle into a new culture and community. Suitable assessment instruments need to be designed to elicit information pertinent to areas of need. These could be in the form of interviews and/or questionnaires.

A good example of this approach was a study

on non-native speaking engineers who were working for an engineering company.

Procedure and Instrumentation of the Research

To obtain information about the subjects, a case study design was used. Data were collected through a combination of an interview and a questionnaire developed especially for the study. The needs assessment questionnaire developed attempted to address broader aspects of English in the engineer's workplace rather than what comes to mind in reference to "technical" English; for technical communication encompasses general as well as specialized vocabulary, pronunciation, grammar, syntax; mechanics such as spelling, punctuation, and capitalization; verb conjugation, etc. and nonverbal communication. For practical purposes, the questionnaire was designed to cover a spectrum of possible needs during the interview and could be completed in a reasonable length of time (i.e., approximately one-and-a-half hours). Examples were included, where necessary, to make the questions more easily understood. An important part of the questionnaire was the section on background. The background information elicited from the subjects provided some insight into their learning styles and the route they took to acquire English skills. Also during the interview, speech patterns and overall command of the language were observed and noted. Five subjects (identified as B, G, J, T, and S) were interviewed in 2003: B (a native of Nigeria), G (a professor from Egypt who completed his Ph.D. in electrical engineering in Germany), J (a Turkish engineering student from Berlin), and T (an engineering professor whose languages are German and Polish). S returned to Germany before the more formal interviewing process took place, but he did however provide background information on his experience in learning English. All five subjects were in the employ of an engineering firm in Omaha, Nebraska.

Data from the interviews were integrated into two descriptions of the subjects: first biographical data pertaining to differences and similarities in the educational backgrounds and opinions of the subjects; and second, needs assessment applicable to language skills and proficiency.

Differences among the Subjects of the Research

Besides the differences mentioned under "Subjects," interviewees differed in other respects, as outlined below:

1. They ranged in age from 25 to over 60, and the native languages they spoke were German and Polish (T), Yoruba (B), Turkish and German (J), Arabic (G), and German (S).

2. J was bilingual before learning English; T was multilingual (English, Turkish, German and French), but he had also studied Latin and Russian before undertaking to learn English. S acquired the third language, French, in high school, while learning English.

3. All but one, T, started learning English in elementary school and continued learning through high school. B's instruction began in kindergarten (Nigeria was still a British colony at that time). By second grade, English was the predominant language in the classroom and by high school it was used exclusively. For J, English instruction began at the age of ten, continued through high school, and included three semesters of English for Science and Technology (EST) at the college level. S's schooling in Germany was similar. G began learning English at the age of eight and continued through high school. Two of G's undergraduate engineering courses were taught in English by visiting American professors. The anomaly, T, received only two or three months of private tutoring in English once a week at age 15. At the post-secondary level, T found it necessary to read many technical books in English in preparation for his engineering courses. Thus, his English was largely self-taught.

4. Learning experiences differed in other ways as well. J found himself at a disadvantage in his English classes because he lacked previous grammar instruction. (Turkish is not taught in German schools, and grammar was dealt with only perfunctorily in his German classes). G's lessons included frequent composition assignments and class discussions. Grammar was taught deductively. G's training was thorough, so he was able to give immediate, accurate explanations of grammar (for example, the use of the progressive aspect as opposed to the simple present). S was able to gain fluency and improve his pronunciation by traveling to England during vacations. T's initiation into an English-speaking environment was abrupt: he suddenly found himself teaching electronics at a college in South Carolina and having to deal with regional dialectal differences while learning to think in English.

5. In most cases relatively little assistance came from family members, although T found children to be ideal in providing language feedback ("Uninhibited, they will tell you in a straightforward way what mistakes you are making and laugh with such pure amusement, that no one can be offended"). Colleagues were also found

to be helpful, to a certain extent. S pursued contacts with American students as language-learning opportunities. J made a point of seeking out opportunities to converse with native speakers.

6. At the time of the study, B had lived in America for 30 years, T for close to 15, G for less than 5, and J and S for a matter of months.

7. B speaks English at home; T and G speak English mainly with their children and German and Arabic with their spouses, respectively; J speaks Turkish when at home in Berlin.

Similarities among the Subjects of the Research

Some similarities among the subjects were noted:

1. All are well educated. They are certainly not average ESL speakers, though they may resemble typical ESP learners. All placed heavy emphasis on the formal teaching of grammar, with rules to follow and practice in class. G was the most adamant in favor of traditional instruction by means of texts and exercises, compositions corrected in detail by the teacher, and class discussions followed by teacher feedback.

2. All stressed the importance of a positive attitude toward English and the American culture and began as enthusiastic learners of English.

3. All were strongly reading oriented. Each had his own preference with respect to media, such as TV, radio, tapes, and films software. Most stressed the value of educational programs or news broadcasts. B regretted that radio speakers in America did not have the professional level of those in the British Broadcasting Corporation broadcasts he had grown up with.

4. None of the subjects were taught English by a native speaker of English.

5. All considered it essential to learn the language in the country where it is spoken.

Needs Assessment Findings of the Research

Assessment questions on vocabulary, pronunciation, grammar, listening, reading, speaking, writing, and nonverbal communication yielded the following general perceptions:

1. The subjects tended to over-estimate their English proficiency and not admit that they had a problem in a particular area. One interviewee responded thus: "I don't think that I need to work on that, although you may notice that I do." When shown an example and asked if they knew when to use the appropriate prepositions, the standard response was "No problems." Later, however, a collocation such as "wait on" instead of "wait for" might occur. Similarly, when asked in layman's terms if they felt comfortable generating formulaic expressions for various situations, they would unhesitatingly answer in the affirmative. In the course of the interview, though, it was obvious that this was not the case. For example, J thought it would be appropriate to tell someone who is ill, "You have my sympathy." The assumption that can be made from this is that the interviewees were able to communicate most of the time without being misunderstood, so they generalized that their English was basically error free, which is not always the case.

2. All rated listening as the most difficult skill to master. All but G considered listening to be the first or the second most important skill. He ranked reading first, writing second, listening third, and speaking fourth. As B phrased it, "We are talking here about careful, conscious listening – to clients, for instance. We do not simply mean *hearing.*"

3. All but the youngest two (J and S) reported having at least some difficulty learning informal English and code switching from one register to another. T and B, in particular, said they used formal English almost exclusively. T's vocabulary, for example, contained copious Latin derivatives and terms for abstractions, but few colloquialisms.

4. All tended to view nonverbal communication, in general, more as idiosyncrasies of individuals than as cultural manifestations. They did, however, acknowledge some degree of difference in the distance maintained between speakers and in voice qualities such as volume and rate.

5. All found English far less structured and more difficult than other languages they spoke. The impression they gave was that they might be underestimating the precision that can and, in some circumstances, must be achieved in English. Their view appeared to be that English is as relaxed as American culture.

6. All were able to transfer language learning skills successfully from the other languages they know, but they also had difficulties because of interference from L1 and L2. The interference was especially noticeable in their pronunciation. Since no writing samples were analyzed as a part of this project, interference in their writing was not determined.

Observations of the research

A key observation is that the subjects had been largely successful in terms of being able to use the language with a degree of fluency. This study, though focusing on assessment of performance with the purpose of discovering subjects' language needs,

produced interesting information on their second language learning background and the process involved in acquiring their language skills. Any strategies for improvement on the part of the respondents would have to be based on a detailed individual analysis. The respondents' fluency and relative grammatical accuracy may indicate that the methods they employed to learn English were effective, but other factors may also be involved. Exposure to multilingualism at a young age, eagerness to absorb the American culture, strong motivation, well-developed learning skills, innate ability, and transfer of effective language strategies from L1, are examples. Only B (who began speaking English at age five, came to the U.S.A as a college student and has lived here the longest) has achieved the greatest mastery of English in terms of grammatical accuracy and flexibility of expression. It should also be noted that B spent 12 years in Toastmasters, eventually reaching the highest level attainable. In addition, in a previous position, he taught oral and written communication to American engineers.

Research indicates that a gamut of factors contribute to second language learning and acquisition. Grammar instruction, for Ellis (Ellis, 1992), is a type of consciousness-raising approach, actually consistent with current thinking on how learners acquire second language grammar. Consciousness-raising, Ellis maintains, is more appropriate for older learners than it is for younger learners, since many younger learners prefer to learn by "doing" rather than by "studying." Much space in language acquisition literature has been devoted to the affective domain and related factors, as outlined by Richard-Amato (Richard-Amato, 1988), Ellis (Ellis, 1988), Brown (Brown, 1988), Mordaunt (Mordaunt, 1991) and others.

At the same time, all of the individuals interviewed lacked an accent-free pronunciation. B's speech had a distinctive character: it was lilting, which may indicate that Yoruba is a syllable-timed language, and it sounded deliberate and unhurried since he did not reduce unstressed vowels or use blending. J, who had been forced to rely on his ear to develop proficiency in German while continuing to speak Turkish in his home environment, showed promise in developing the most near-native pronunciation of those interviewed. G did not appear to be very concerned with pronunciation although he listened to books on tape in his spare time. The person interviewed who was closest to threshold-level pronunciation, and on occasion lapsed below that level, was T. Without the benefit of classroom instruction or tapes, he had taught himself by reading. His pronunciation reflected this: he spoke words the way he had repeatedly

sounded them out to himself (for example, he vocalized "right" as /vrait/ and "three" as /tri/). These habits seem to be fossilized.

The results of the study show that the subjects were very successful in learning English. Burling, in contrasting and comparing adults with children learning a second language, notes that "with the single but important exception of pronunciation, there is no convincing evidence to show that adults are any less capable of learning a language. With an equivalent amount of time and effort, adults generally learn more." (Burling, 1992).

Conclusions

1. This study on English in the workplace provides some information on the end result of the effort that is put into target language learning. The information elicited from the subjects covered background in English, language needs evaluation questions on vocabulary, pronunciation, grammar, skill areas (listening, reading, writing and speaking), and nonverbal communication.

2. It is significant that the findings of this study indicate some of the language issues pertinent to non-native speakers of English who now have to "fit" into the real world of work of the target language culture.

3. The pedagogical implications of (and possibilities for) this kind of research are enormous. Extensive research of this kind (follow-up in the workplace) could yield further results which could be invaluable to those involved in assessing ESP or ESL in the workplace as well as syllabi or curricula design. To concur with Johns, "it is the responsibility of those who advocate the principles of English for Specific Purposes to remain flexible and current so that they may understand the needs of new students and the discourse of new pedagogical settings." (Johns, 1991).

4. One limitation of the study is that the subjects in the study do not represent a cross-section of the large number of non-native speakers living in this country who struggle with English and are at a lower educational and socio-economic level.

5. In the United States of America English there is a need to improve proficiency of the new arrivals and others with limited linguistic competence whose language needs to be assessed and then given help through adult language teaching programs, etc. to empower them to communicate at a level where they can fit into the wider language community.

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Summary

This article presents the results of a qualitative research study with nonnative-speaking engineers relative to their background in English and current language needs in the workplace. An interview and a questionnaire were designed; also a descriptive analysis of theoretical literature was employed. Subjects consisted of five individuals who specialize in engineering, and data were collected through a combination of an interview and a needs assessment questionnaire developed specifically for the study. It was found that the subjects tended to over-estimate their English proficiency, but all were able to transfer language learning skills successfully from the other languages they know, but they also had difficulties because of interference from L1 and L2. The key observation is that the subjects had been largely successful in terms of being able to use the language with a degree of fluency. Extensive research of this kind (follow-up in the workplace) could yield further results which could be invaluable to those involved in assessing English for Specific Purposes (ESP) or English as a Second Language (ESL) in the workplace as well as syllabi or curricula design. It is significant that the findings of this study indicate some of the language issues pertinent to non-native speakers of English who have to "fit" into the real world of work of the target language culture. The findings of the study have implications for ESL research and pedagogy in terms of the project being a type of assessment of second language acquisition outcomes. The study also deals with the kind of research which is relevant to those interested in second language acquisition and learning.

Keywords: non-native engineers, English language assessment, case study design, learning experiences.

PROFESINĖS ANGLŲ KALBOS MOKĖJIMO VERTINIMAS: NEGIMTAKALABIŲ INŽINIERIŲ KALBOS ANALIZĖ

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Santrauka

Straipsnyje pristatomi kokybinio tyrimo rezultatai. Tirtas negimtakalbių inžinierių anglų kalbos atitikimas jų kvalifikacijai bei dabartiniai poreikiai vartoti anglų kalbą darbo vietoje.

Buvo paruoštas interviu ir klausimynas, taikyta teorinės literatūros aprašomoji analizė. Tiriamieji – penki asmenys, kurie specializavosi inžinerijoje. Nustatyta, kad tirti asmenys pervertino savo anglų kalbos mokėjimą, bet sugebėjo sėkmingai perkelti kalbos mokymosi įgūdžius iš kitų kalbų, kurias jie moka; turėjo sunkumų dėl pirmos ir antros kalbos interferencijos. Pagrindinis pastebėjimas – tiriamieji asmenys sėkmingai sugebėjo vartoti anglų kalbą, demonstruodami tam tikrą sklandumo lygį. Tolesnis tokio tipo tyrimas (paskesnis tyrimas darbo vietoje) galėtų pateikti papildomos naudingos informacijos asmenims, įsitraukusiems į anglų kalbos nespecialistams arba anglų kalbos, kaip antros kalbos, vertinimą darbo vietoje kurso programų vertinimą arba mokymo programos planus. Svarbu, kad tyrimo išvados atskleidžia probleminius klausimus, susijusius su negimtakalbiais anglų kalbos vartotojais, kurie turi „prisitaikyti" prie realios profesinės kalbos.

Tyrimo rezultatai reikšmingi pedagogikai, nes atliktas tyrimas, susijęs su antros kalbos įgijimo rezultatais, yra vertinamojo pobūdžio. Atliktas tyrimas taip pat nagrinėja tyrimo tipą, kuris tinkamas mokslininkams, besidomintiems antros kalbos mokymu, mokymus ir išmokimu.

Prasminiai žodžiai: negimtakalbiai inžinieriai, anglų kalba nespecialistams, anglų kalbos vertinimas, socialinio tyrimo modelis, mokymosi patirtys.