AN INTERDISCIPLINARY ASSESSMENT OF NEEDS IN ESP: PH.D DEGREES EXPLORED

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A B S T R A C T

With the growing speed of English language communication all over the world, and the improvements made in the ELT programs, many language instructors rethink their pedagogy and have updated their materials for students' needs in different countries. This is more outstanding in post-graduate studies (PhD degrees). Hence, this study aimed at, classifying the language needs of PhD candidates, comparing ESP needs of candidates doing their degrees in different disciplines, comparing their ideas with those of their instructors, assessing the current language proficiency level of candidates, and finally matching the current ESP classes with candidates' real needs as well. To this end, 54 PhD candidates and 32 instructors participated in the study. Data were collected through a highly reliable (r =. 96) tailor-made questionnaire. In addition, FCE (First Certificate in English) test and CEFR (Common European Framework of Reference) were utilized to assess the current proficiency level of the candidates. The results signified: Reading articles in field-related journals, and Writing articles for journals as the main language needs of the participants, significant differences between the needs of the candidates across different disciplines, differences between the ideas of the candidates and professors concerning candidates' language needs. Further analysis of the interview data indicated that the participants were not satisfied with the current ESP courses, and that the courses failed to improve their proficiency. Insufficient amount of time allotted to this course, unqualified instructors, low proficiency level of the learners, and inappropriate materials and textbooks were reported to be the main problems in ESP courses.

Introduction

Globalization as a recent phenomenon in the developing universe has made English, as the international language, a necessary and indispensable part of university curriculum in countries all over the world.

Therefore, Teaching English as a Foreign Language (TEFL) in most countries has been the focus of attention of many scholars during the last decades. In this vein, English for Specific Purposes (ESP) courses were developed after the Second World War in order to meet the needs of the learners in both occupational and academic environments. Making use of the underlying methodologies and activities of the discipline which it serves, ESP according to Dudley- Evans and St. John

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

(1998) is centered on the language, skills, discourse, and genres appropriate to the activities and is designed to meet specific needs of the learners. Needs analysis (NA) being introduced into language teaching through ESP courses, aims at identifying such specific needs of learners by using a set of procedures. To put it in other words, needs analysis as an ongoing process uses the opinions of different stakeholders (e.g., learners, instructors, employers, etc.) by utilizing a variety of tools. The end product of NA is information which would be the basis of developing a curriculum which meets the learning needs of a particular group of students.

Several needs analysis studies have been conducted in the realm of ESP courses. Seedhouse (as cited in Liu, Chang, yang, & Sun, 2011) studied Spanish teenagers' language learning needs in general English courses. The study not only shows that learners in EGP (English for General Purpose) courses have a clear understanding of their needs, but also how findings from needs analysis could be useful even for EGP course design, class implementation and evaluation.

In this vein, Chou (1998) reports on a course evaluation and needs analysis conducted on writing skill of English language learners. Results indicated that native- English- speaking instructors play very important role in teaching non-natives and it was found that the main problem of students regarding writing was an organization and logical development of ideas and expression. Some valuable suggestions concerning duration of time and supplementary materials are also provided.

In a needs analysis project by Alharby (2005) on hospital staff, the participants asserted that high level of English language proficiency was vital to future career success. In addition, the high command of all four skills was necessary in the workplace. The results also revealed that the curriculum of English language courses at the college level was not adequately defined in terms of medical students' future occupational needs, though there were some improvements in language proficiency.

In a needs analysis survey done by Nola Bacha and Bahous (2008) on 500 business students and faculty at Lebanese American University, different opinions of students and their corresponding instructors were found. The results of the questionnaire and interviews indicated that faculty considered listening skill to be more important, whereas reading was considered as the most important skill by students. Concerning the students' level of language ability, faculty viewed students as having significantly lower language abilities than the students did. Although students considered other skills to be more important than writing, they realized the vitality of the writing tasks that they regularly needed to practice.

In another comprehensive study performed by Dehnad, Bagherzadeh, Bigdeli, Hatami, & Hoseini, (2010), at an Iranian University of Medical Sciences with 56 postgraduate students of different disciplines, through questionnaires and semi-structured interviews, learners expressed their real needs of writing skill as the first need, followed by reading, speaking, and listening. There was no match between what the graduate students, current students, and ESP teachers described as the real needs of post-graduate students and those stated by the heads of the department.

In her study, Eslami (2010) assessed the students' and instructors' perceptions of problematic areas in ESP programs in Iran. A total number of 693 ESP students majoring in different academic fields and 37 instructors English as Foreign Language experts and subject-matter experts filled in the questionnaires. The outcomes revealed that improvement of the general language proficiency of the learners is necessary and that the learners preferred learner-centered class with more involvement and communications in class activities. Presence of discrepancies among the perceptions of instructors and students was also reported.

In the same line, in a needs analysis study by Ulucay and Demiral (2011) on logistic students and professors at Istanbul University, findings indicated that all parties agreed that the university needed a new curriculum for logistics department. The notable finding was that the perceptions of the students on the objectives and the content of the syllabus were in line with professionals' who indicated that students were well-aware of the needs and expectations of their field of work. All considered reading skill as important and agreed that improving writing skills should be an essential of the suggested curriculum since the Logistics sector widely require international correspondences.

Similarly, in an analysis of 45 Iranian Business Administration students, Rajabi and Azarpour (2011), found reading and writing as the most important skills practiced in ESP classes in university. However, it was found that speaking skill had high priority in success in future jobs of these students. In addition, it was found that the textbooks lacked enough exercises regarding writing. Furthermore, the opinions of the learners were in line with their corresponding instructors in this regard.

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

Regarding the listening skill, as teachers and learners believed, there was a great gap concerning this skill, which should be taken into account in renewing the syllabus.

In their comprehensive study, Atai and Shoja (2011) analyzed the target and present situation needs of undergraduate computer engineering students. Undergraduates, graduates, computer engineering instructors, and ESP teachers participated in their study. Triangulation approach was taken towards data collection utilizing both quantitative and qualitative instruments. The results revealed that the participants' perceptions were significantly different regarding target situation needs of students. Moreover, the GEP (General English Proficiency) level of the majority of the undergraduate students of computer engineering proved to be low. Low motivation of students, inadequate qualifications of the instructors, insufficient hours dedicated to the course were among other problems of ESP courses recognized in this study.

Finally, in a very recent study (Pourshahian, Gholami, Vaseghi, & Rezvani kalajahi, 2012), grammar, vocabulary, and writing skill were found as the major needs of postgraduate students. In addition, a significant difference between males and females regarding their expressed needs was recognized. It seemed that females needed all language skills more than their male counterparts. It is suggested that writing should be emphasized more in postgraduate studies concerning the learners' target needs. Apart from writing, to enhance learning, vocabulary and grammar should be infused to language programs as well.

Clearly, most of the researches conducted so far have focused on only a small part of learners' needs (i.e., one skill at a time) or they were very limited and have been conducted on a specific group of students. In addition, most of the studies had been done with graduate and rarely on postgraduate students. With the researcher's best knowledge, no studies have concerned PhD candidates' language needs, for whom learning the second language (i.e., English) is more essential as they have more opportunities of entering international communities.

Furthermore, in most of the studies, the participants/ stakeholders were very limited, and as prominent figures (Brown, 1995; West, 1994) in this field suggest, a comprehensive needs analysis should utilize different resources and various tools of gathering information to have more reliable results. Moreover, the questionnaires utilized in most of the studies lacked the main parts (i.e.,

considering current language proficiency of the learners) mentioned by scholars of the field. Additionally, the interdisciplinary aspect of the present study is another aspect ignored in the previous studies.

Therefore, regarding the gaps in previous studies, in this study, the researcher conducted a needs analysis on a range of PhD candidates of various disciplines, finding their different language needs of all skills, using different stake-holders' opinions (i.e., PhD candidates and their corresponding instructors). In addition, several tools of gathering data were utilized including interviews, observations, proficiency tests as well as a highly reliable tailor-made questionnaire, to give ideas for designing a syllabus. Accordingly, the following research questions were raised in this study.

a) What are the specific language needs of Iranian PhD candidates?
b) Is there a difference between language needs of PhD candidates doing their degrees in various fields (Agriculture, Engineering, Humanities, Sciences, Physical Education, & Chemistry)?
c) Is there a match between PhD candidates' opinions and those of their corresponding professors' regarding candidates' real language needs?
d) Is there a match between the PhD candidates' real needs and what ESP courses offer in Iran?

Methods and materials:

Participants

A total of 86 PhD candidates and ESP instructors participated in this study. Fifty-four of male and female participants who were within the age range of 24 to 39 were doing their PhD degrees in one of the academic disciplines, that is, Humanities, Sciences, Engineering, Agriculture, Physical Education, and Chemistry. In addition, 32 instructors teaching ESP courses in PhD degrees in the above mentioned colleges cooperated with the researcher. The instructors encompassed 27 males and 5 females, with the age range of 29 to 62.

Instruments and Procedures

Nonparticipant observations of ESP classes, interviews with PhD candidates, Interviews with ESP instructors,

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

Students' questionnaire, Instructors' questionnaire, and a Proficiency test, that is, First Certificate in English (FCE), formed the main data collection tools of this study.

A series of non-participant observations of several ESP classes were done during four months. Next, semi-structured interviews, the results of which could aid the researcher to design a comprehensive questionnaire, were conducted with 20% of the PhD candidates (N= 11) and instructors (N=7).

A tailor-made questionnaire, basically inspired by the results of consultations with several resources (e.g., Nunan, 1988; Dudley-Evans & St. John, 1998; Chou, 1998) and findings from the interviews as well as class observations, was designed. Other than demographic information and a focus on language skill(s), the questionnaire included items with regard to participants' progress check though the CEFR (Common European Framework of Reference). The questionnaire finally ended with 12 open-ended questions, requiring PhD candidates' opinions about time, textbooks, and the methodology of teaching in ESP classes, with suggestions for further improvement of the course. The reliability estimates of the questionnaires were. 96 and. 88 as for the candidates and instructors, respectively.

The third paper (i.e., Use of English) of the FCE test used to testify candidates' present language proficiency level status. The modification to the original test was inevitable regarding the time restrictions at graduate level and the need to cover the course syllabus. The test involved four sections of Cloze test, following a four-option multiple-choice items. The second and third sections of the test were open-Cloze items focusing on lexical-grammatical aspect of the language, word-formation, respectively. The fourth and the last section of the test included eight separate items, each with a lead-in sentence and a gapped second sentence to be completed in two to five words, one of which was a given key word.

Already proved by scholars of the field, Cloze tests can amalgamate all language skills together, especially reading comprehension and grammar and other language skills into one piece. Cloze tests, word formation, and open-ended parts can measure the language use or how one can communicate in English.

Results and Discussion:

In order to find out the specific language needs of the PhD candidates, item by item frequency analysis, the results of which clarify the most important specific language needs of the six groups, was done on the items of the needs analysis questionnaire. Undoubtedly, *Reading articles in journals,* was expressed as the most important (85.16%) language need of the candidates. *Writing articles for journals,* (84.33%) was stated as another important sub-skill needed by the participants. *Reading textbooks on the subject-related field* (80.53%), *Reading Text on Internet* (79.58%), *Skimming the text (73.55%), Learning technical conversation (72.09%), Learning technology of the field (70.4%),* and *Scanning the Text (70.38%)* were also recognized as participants' essential language needs. However, *Writing Lab reports,* (49.13%) and *Writing term papers (46.85%)* were the sub- skills participants believed they rarely used. Sub-skills as *Listening to class lectures (35.8%), Taking lecture notes (31.31%),* and *Listening to the media (28.91%)* were also considered less vital in the success of the PhD candidates (Table 1).

Table 1. Frequency Table

Items	Little	To a great extent
Reading articles in journals	-	85.16
Writing articles for journals	-	84.33
Reading books in the field	-	80.53
Reading texts in the internet	-	79.58
Skimming the text	-	73.55
Writing lab reports	-	49.13
Writing term papers	-	46.85
Listening to class lectures	-	35.88
Listening to the media	-	31.31

With regard to the second research question, one-way between groups ANOVA was conducted.

Regarding the speaking skill, the analysis of results indicated that the mean score for group 4 (humanities) (*M*= 12, *SD*= 6.6) was significantly different from other

International Journal of Advanced Multidisciplinary Scientific Research(IJAMSR) ISSN:2581-4281 Volume 1, Issue 3 , May,2018

https://doi.org/10.31426/ijamsr.2018.1.3.133

groups. In other words, humanities students considered speaking skill less important than learners in other disciplines (Table 2).

Table 2. ANOVA Results: Groups across Various Disciplines Compared in terms of their Speaking Needs

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	390.29	5	78.05	1.969	.100
Within Groups	1903.04	48	39.64		
Total	2293.33	53			

Table 3 *ANOVA Results:* **Groups across Various Disciplines Compared in terms of theirListening Needs**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	390.29	5	78.05	1.969	.100
Within Groups	1903.04	48	39.64		
Total	2293.33	53			

However, regarding the reading skill (Table 4), among the 6 groups of participants, significant difference was observed at $p < .05$ levels: $F (5.48) = 8.14$, $p = .00$ with humanities candidates, giving less prominence to this skill.

Table 4. ANOVA Results: Groups across Various Disciplines Compared in terms of their Reading Needs

	Sum of Squares	f	Mean Square	F	Sig.
Between Groups	4305.10	5	861.02	8.14	.000
Within Groups	5075.49	48	105.74		
Total	9380.60	53			

As another important skill in language, participants' views with regard to writing were compared across the six groups. Significant difference, that is, $F (5.53) = 3.73$, $p = .00$, reflected through the ANOVA Table (Table 5) turned out to exist among the groups.

Table 5. ANOVA Results: Groups across Various Disciplines Compared in terms of their Writing Needs

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1623.35	5	324.67	3.73	.006
Within Groups	4178.52	48	87.05		
Total	5801.87	53			

T-test was run in order to answer research question 3, that is, the comparison of the learners' and instructors' ideas regarding language needs of the PhD candidates was compared through a set of independent *t-test* (Table 6). Concerning the reading skill, no significant difference was detected in the answers of the two groups ($p=.10 > .05$). As for the speaking skill, a similar pattern was observed, that is, no significant difference among learners' and instructors' ideas ($p =.06 > .05$). However, the results indicate significant differences in the ideas of the two groups regarding listening (*p =.006< .05)* And writing skill (*p =.006< .05)*. Mean scores of the groups reported in Table 4 point out that instructors considered these two skills more important than the learners did.

International Journal of Advanced Multidisciplinary Scientific Research(IJAMSR) ISSN:2581-4281 Volume 1, Issue 3 , May,2018

https://doi.org/10.31426/ijamsr.2018.1.3.133

Table 6.Independent Samples t-test:

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
listening	Equal variances assumed	8.09	.006	2.78	65	.007	3.80
	Equal variances not assumed			2.84	58.08	.006	3.80
speaking	Equal variances assumed	16.20	.000	1.85	65	.069	2.84
	Equal variances not assumed			1.89	55.29	.063	2.84
reading	Equal variances assumed	2.78	.100	1.60	65	.114	3.60
	Equal variances not assumed			1.64	54.76	.107	3.60
writing	Equal variances assumed	11.05	.001	2.77	65	.007	5.61
	Equal variances not assumed			2.84	53.28	.006	5.61

To gain a more comprehensive view of the current proficiency level of candidates, the candidates were asked to assess their language proficiency on the six-band scale of the CEFR. The results indicated that 4 (7.69%) participants assessed their level as the lowest in scale, i.e., A1. 14 candidates (26.92%) chose A2. Levels B1 and B2 were selected by 18 and 12 participants, that is 34.61 % and 23.07 % of the candidates, respectively. Finally, 7.69% of the participants (4 of them) reported their language level to be C1 level, with no participant at C2 level. Two of the participants did not fill in the CEFR part of the questionnaire. In other words, 84.6%

of the candidates were at A2 to B2 levels. In addition to CEFR results that indicated the low proficiency of the learners, the FCE test indicated unsuitable language level of the PhD candidates. That is the average score of the participants was 20.5 for a total score of 50. In other words, participants scored below the intermediate level, indicating weak language proficiency.

Qualitative Findings

In-depth scrutiny over the outcomes of the class observations, interviews and open-ended questions were conducted to find the possible match between real language needs of the candidates and the current ESP courses. Most of the PhD candidates were not satisfied with the ESP courses and expressed that no attention is being paid to their language needs in these courses. Observation of the classes also revealed that most of the ESP classes are taught inappropriately through the GTM (Grammar Translation Method), with a main focus on reading. Very little attention is paid to listening, speaking, and writing skills. This means that what is practiced in the actual ESP classes does not actually match with what the students need.

Moreover, the results of the interviews clarified that learners were not satisfied with the current courses, enumerating insufficient time of ESP classes, lack of qualified instructors, and inappropriate materials and improper methodology of focusing only on grammar, as well as their own low language proficiency level as the main shortcomings of the current courses.

However, the interview with the instructors revealed that they recognized learners' low language proficiency as the main predicament in ESP courses, though recently IELTS and MSRT tests have been set as a requirement for PhD candidates, professors still believe these requirements are not adequate and PhD candidates must have enough language knowledge prior to starting the postgraduate studies. Parallel to learners' ideas, professors also believed the amount of time allotted to ESP courses were not sufficient at all, and it was actually out of their control and must be considered by policy makers and curriculum designers. Some of the instructors also believed in cooperation between language instructors and subject- specific instructors, whereas others believed ESP courses could only be taught by content teachers who already had sufficient language knowledge.

Conclusion:

State the conclusions in a few sentences at the closing of the report

This study was an attempt to scrutinize the possible differences in language needs of Iranian PhD candidates in several academic disciplines (i.e., agriculture, engineering, sciences, humanities, physical education, & chemistry). The aim of the study was not only to categorize the specific language needs of PhD candidates, but also to compare their ideas concerning their target language needs with the corresponding instructors' ideas. Furthermore, the present status of learners' GEP was assessed by means of standard proficiency tools (FCE and CEFR) in order to better find the gaps between the current language proficiency of the learners and their future target needs.

Classification of the main language needs of the learners, indicated that reading and writing skills, among other skills, attracted more attention and *writing for journals* and *reading articles on field-related journals* turned out to be the chief sub-skills needed by the PhD candidates. This is in line with findings of Rajabi and Azarpour (2011) and Atai and Shoja (2011), who identified reading and writing as the main language skill needs of the computer engineering students. This means that learners in general and those involved with ESP courses in specific must be able to gain a lot of input in their field in order to expand their knowledge. This is only possible through a good command of reading skill, giving the learner the opportunity to scrutinize the international texts. In addition, to be able to communicate the knowledge to professionals in the field, PhD candidates need to have good command of writing, as well, to convey their knowledge to the scholars in the most appropriate way. The findings are thought to be somehow in accordance with what Pourshahian, Gholami, Vaseghi, & Rezvani kalajahi, (2012) claim, that is, grammar, vocabulary (as two main prerequisites for efficient reading), and writing skill are the key language needs of the learners.

The dissimilarity of learners' and instructors' ideas regarding some of the skills may indicate that learners may not be perfectly aware of their target language needs in some aspects, an issue that warrants further investigation. This is in line with what Nola Bacha and Bahous (2008) reported with regard to different opinions by students and their corresponding instructors. However, these implications seem not to be corroborated with that of Seedhouse (1995), and Ulucay and Demiral (2011) where they believe the learners are totally aware of their needs.

Regarding the language proficiency level of the participants, most of the learners proved to be at A2 to B2 levels, that is beginner to intermediate level, which is not a satisfactory level for a PhD candidate. This means that the ESP courses fail to improve learners' proficiency. This is in line with findings of Alharby (2005) and Atai and Nazari (2010), and Eslami (2010) where the participants expressed having a high level of English language proficiency is vital to their future success, while similar to those in the current study, they lacked sufficient knowledge of English and the ESP courses were observed to fail to improve their proficiency.

The current study also found many commonalities with Atai and Shoja's (2011) study. Low general English proficiency of learners, inadequate qualifications of the instructors, insufficient hours dedicated to the courses, and inappropriate materials were similar among the findings of the researches, serving failure of ESP courses.

The interdisciplinary aspect of the current study also revealed differences in language needs of PhD candidates in different academic disciplines. This means that one size fits all methodology and materials may not prove to be fruitful for every discipline. That is why all course designers and the current trend in syllabus design as well as the current researcher put an emphasis on doing a more discipline specific needs analysis prior to any material development or teaching.

By implying that learners in different academic disciplines need to acquire diverse skills of language and must have sufficient basic knowledge of language to accomplish well in their future career, The current study makes its greatest contribution to education that bears the greater burden of establishing desirable and efficient norms and standards of EFL learning in a variety of educational fields. It is proposed that long term programming and required budget as well, need to be officially ratified in advance of educating the learners, more specifically the PhD candidates for whom there is no good-established ESP materials. Moreover, the discrepancies found between the current ESP programs and target needs of the participants highlight the necessity of renewing the current syllabuses by consulting all stakeholders. Furthermore, the low GEP

International Journal of
Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

level of the learners found as the outcome of a standard tool, that is CEFR, is a warning to the educational system before planning ESP courses. Regarding GEP level of learners as a decisive factor in success, setting the criterion GEP level by program designers, for students upon entry to the ESP courses, is suggested. Furthermore, to incorporate a balanced amount of language and content knowledge into ESP classrooms, there must be a good cooperation between language and subject specific departments. This means that ESP instructors should gain a comprehensive outlook towards the real language needs of their students, adjusting their teaching materials and methods in a more prolific way, and teaching the most specific language their students need.

The results of the study, notwithstanding its limitations, provide another key evidence of importance of needs assessment procedure before planning any ESP course. Meanwhile, it is hoped that the current study sheds more light on EFL teaching context, especially postgraduate programs that have been paid little attention in the past years. In this respect, the findings are hoped to lubricate the wheels of educational system, bringing about efficient implications to EFL curriculum developers, teachers, and students, by feeding the findings into university curriculum, possibly encouraging instructors to rethink their pedagogy and orient their teaching on the basis of the systematic needs analysis study and to move towards more communication-based classes; and syllabus designers to potentially break the ice of traditional grammar-based textbooks to develop more effective books applicable to specific disciplines. The interdisciplinary characteristic of this study can also be used as the starting point in delving deep into the target language needs of candidates in various academic disciplines, comparing the language needs of learners on the basis of their academic disciplines.

On the whole, the novelties and the interdisciplinary aspect of the current study paved the way for future researchers to deeply scrutinize the real language needs of learners in specific academic disciplines, and to update the teaching materials and methodologies, to better fertilize the EFL educational foundation for the upcoming generation.

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