



# The Effectiveness of Needs Analysis Informing ESP Syllabus Design

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

In the ESP process, needs analysis initially concerns learners' learning needs, which are then transformed into learning objectives, in turn severing as the foundation for further stages. In practice, how to design ESP syllabus effectively and efficiently still remains controversial. This paper examined how NA informs ESP syllabus design in three steps: preparations, actions, and applications, through the comparison of six academic articles related to their purposes, participants, sample sizes, ethic issues, methods of data collection, data analysis, and applications. The findings suggest that needs analysis should pay more attention on ethic issues, triangulations, and validities.

*Keywords: ESP; needs analysis; syllabus design.*

## **1. INTRODUCTION**

In applied linguistic research, English Language Teaching was divided into two main categories: General English (GE) and English for Specific Purposes (ESP) [1]. Unlike General English which usually focuses on linguistic forms or

communication activities to improve learners' overall competency in listening, speaking, reading and writing on a wide range of topics, ESP, however, is more likely to center on the learners' needs in some specialized fields or disciplines, such as business, engineering, medical, accounting and economics etc. As

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defined by Dudley-Evans and St John [2], ESP could be designed to cater learners' specific needs, provide the disciplines with the underlying methodology and tasks, and emphasize linguistic forms, professional skills, discourse and genres which were suitable for these tasks.

To meet the specific needs of learners, ESP courses or syllabuses should be designed to help learners develop particular occupational, academic, or professional skills. ESP syllabus design is usually derived from an analysis of learners' needs in respect of their target situations [3]. Indeed, needs analysis (NA) and syllabus design are not alone in the ESP process, which are often followed by three more stages: teaching and learning, assessment, and evaluation, and the cyclical relationships of the five stages are interdependent rather than separate and linearly-related [2]. Among them, NA is possibly regarded as the most fundamental, vital and key role in the process of ESP syllabus design.

The importance of NA in the ESP process lies in not only its role which is the first and essential step, but also its results which could be used to inform ESP syllabus design. In the ESP process, NA initially concerns learners' learning needs, which then are transformed into learning objectives, in turn serving as the foundation for further stages [4]. In the literature, however, NA is not without any debates in its practices, nor is it a lack of controversy in its methods. This paper will examine how NA informs ESP syllabus design in three steps: preparations, actions, and applications, through the comparison of six academic articles related to their purposes, participants, sample sizes, ethical issues, methods of data collection, data analysis, and applications.

## 2. PREPARATIONS OF NA

### 2.1 Steps in a NA

To inform ESP syllabus design, by and large, NA is identified as the first and essential stage, while for steps in the NA, they still remain controversial and appear to be rather complicated. For example, Graves [5] advocated using seven steps in a NA: (1) the decision of what data to collect and explaining why; (2) the decision of the best method to collect it: when, how and from whom; (3) the collection of the data; (4) the analysis of the data; (5) the action on the data; (6) the evaluation of the effect and effectiveness

of the action; and (7) the determination of further or new data to collect. These steps emphasized the purpose of NA, the method of NA, and the reflection of NA, but ignored the target population, the determination of objectives, ethical issues, and the implementation of syllabuses.

As Brown [4] pointed out, however, there could be three overall stages of NA: (1) prepare to do NA; (2) carry out the NA research; and (3) implement the NA results, with ten secondary steps: 1(a) the definition of NA purposes; 1(b) the delimitation of the target population; 1(c) the decision upon approach(es) and syllabus(es); 1(d) the identification of constraints; 1(e) the selection of information collection procedures; 2(f) the collection of information; 2(g) the analysis of information; 2(h) the interpretation of results; 3(i) the determination of objectives; and 3(j) the evaluation and report on the NA project. These steps highlighted the classification of the ten secondary steps with three general stages, and provided researchers with more precise guidance in informing syllabus design. Like steps proposed by Graves [5], ethical issues were also neglected in Brown's.

### 2.2 Purposes of NA

The purposes of NA could be divided into three categorizations: a target situation analysis (TSA), a learning situation analysis (LSA), and a present situation analysis (PSA), underlying the frameworks of NA and serving as the basis for the conduction of NA, and a TSA was further sub-categorized into objective, perceived and product-oriented needs; an LSA was sub-divided into subjective, felt and process-oriented needs; a PSA was sub-classified as strengths and weaknesses in language, skills, learning experiences [2]. Such a classification of NA purpose may help researchers interpret the data appropriately, and finally establish an efficient syllabus.

According to this classification, the purposes of NA were examined and compared in 6 academic research articles, in which 4 articles were from the journal *English for Specific Purposes* and 2 from *Procedia - Social and Behavioral Science*. Comparing the purposes of NA in these articles, the results showed that their purposes varied from each other, ranging from language skills to occupational competence, from syllabus revision to terminology identification. As Dudley-Evans and St John [2] suggested, these purposes might somehow be classified into PSA, LSA, and TSA.

Although this classification seemed to be controversial to some extent, it could provide researchers and readers with another perspective on how NA was conducted and how NA was used to inform syllabus design. See Table 1.

### 2.3 Sources of NA

In the process of NA, once the purposes of NA are settled in research, sources of NA should be selected and examined. The sources of information in a NA mean who can provide useful information and when it would be appropriate for them to do that, and the sources may include eight major types: learners, people working or studying in the field, ex-students, documents relevant to the field, clients, employers, colleagues and ESP research in the field [2]. As Long [6] pointed out, however, the sources of information may contain five main options: published and unpublished literature, learners,

teachers and applied linguists, domain experts, and triangulated sources. Although they listed rather different types of NA sources, they still shared two types in common: learners and instructors.

Learners and instructors were also the sources of information in the 6 academic research articles (Table 2). The learners were selected in 5 articles: 2 related to employees, 1 to undergraduate students, and 1 to postgraduates, and the instructors were chosen in 1 article. The learners, age from 20 to 46, were all adults from non-English speaking countries (Japan, Greece, Iran, Thailand, and Germany), and their target language was English. And also, some of the learners were students from medical or accountancy major, while some of the learners were employees from industry, tourism, or bank. The variety of learners' background may lead to different results of NA, thus inform different syllabuses.

**Table 1. Purposes of NA**

Authors	Purposes	Classifications
Cowling [7]	To give students practical English language training.	PSA
Chostelidou [8]	To identify the learners' needs in terms of language skills and tasks; To elicit the learners' preferences with respect to learning styles, methodology, and teacher roles.	PSA
Edwards [9]	To identify learners' needs of English speaking in meeting, negotiations, and presentations, writing for reports, and reading for short articles related to banking.	TSA
Dehnad <i>et al.</i> [10]	To revise syllabuses of English language courses and make suggestions for changes in course plan.	LSA
Prachanant [11]	To investigate the expression language needs, functions and problems faced by tourism employees.	TSA
Shamsudin [12]	To identify the engineering topics trawling the engineering terminology.	TSA

**Table 2. Participants of NA**

Authors	Identification	Age	Discipline/ workplace	Country
Cowling [7]	Employees in industrial companies	24-28	Industrial firms	Japan
Chostelidou [8]	Undergraduate students	20-22	Accountancy	Greece
Edwards [9]	Officials at the German Central Bank	Not mentioned	Bank	Germany
Dehnad <i>et al.</i> [10]	Postgraduate students	22-40	Medical	Iran
Prachanant [11]	Employees in five international tour companies	24-46	Tourism	Thailand
Shamsudin [13]	Lecturers and tutors in a tertiary institution	Not mentioned	Engineering	Malaysia

**Table 3. Sample sizes and ethical issues**

<b>Authors</b>	<b>Sample size</b>	<b>Population</b>	<b>Ethical issues</b>
Cowling [7]	60	60	Not mentioned
Chostelidou [8]	395	>395	Not mentioned
Edwards [9]	3	3	Not mentioned
Dehnad et al. [10]	56	56	Approved
Prachanant [11]	40	>40	Not mentioned
Shamsudin [12]	45	>45	Not mentioned

Not only the learners' background but also a sample of target population might affect the NA results. In the steps of NA, sampling is the process of drawing a sample from the target population, such as students, employees, lecturers, and officials (Table 3). Based on the study of the sample, the generalizations of NA in the target population could be made. Thus the sample size, to a large extent, influences the results of NA, namely, the bigger sample size may result in more accurate generalizations.

When the relationship between the sample size (3-395) and accuracy of NA was investigated in the six articles (Table 3), it appeared to be easily judged by the number of sample size: the smaller size of samples would make less accurate generalizations. Compared the sample size with the target population revealed that the smaller sample size was not always inconsistent with more accurate results. For example, Cowling's sample covered the whole target population, whereas, Chostelidou's sample might be selected from the population. Therefore, it could be inferred that Cowling's generalizations were more accurate than Chostelidou's, regardless of the fact that Cowling's sample size was smaller than Chostelidou's.

Johnson and Christensen [13] defined ethics as the principles and guidelines that helped researchers uphold the things they valued. Consideration of ethic issues is a necessity for the conduction of any research program. Before carrying out a NA program, the ethical issues, obtaining participants' informed consent and remaining their anonymity, should be carefully considered. In the six articles (Table 3), all studies maintained the participants' anonymity, but only Dehnad's research mentioned ethic issues of getting approval of the participants. The other five researches might be in high risks of revealing the participants' privacy, which should be avoided in any further research.

### **3. ACTIONS OF NA**

#### **3.1 Data Collection**

In the process of NA, data collecting is a necessary and essential step to obtain information that will provide answers to inform syllabus design. But researchers held different views towards the methods of data collection. For example, Long [6] presented 11 types of methods: intuitions, interviews, questionnaires, observations, language audits, ethnographic methods, content analysis, discourse analysis, genre analysis, tests, and triangulated methods. Yet, Brown [4] offered another eight methods: existing information, tests, intuitions, observations, interviews, meetings, questionnaires, and target languages. More recently, Johnson and Christensen [13] proposed six common methods: tests, questionnaires, interviews, focus groups, observations, and constructed and secondary or existing data. The findings showed that the methods of data collection consisted of some alternative methods and some key methods: tests, questionnaires, interviews, and observations.

In the practice of NA, the selections of the methods usually depends on the purposes of NA and the purposes of NA depends on what syllabus needs to be designed. In the six articles (Table 4), the methods of interviews and questionnaires were chosen to serve for different syllabus designs. For example, the purposes of Shamsudin's [12] study were to identify the engineering topics trawling the engineering terminology, which needed to obtain information from instructors or tutors. Thus, the questionnaires were designed to collect the topics used by the instructors and opinions towards the engineering topics. The purposes of Chostelidou's [8], however, were to identify students' language needs, which required to collect the students' information. So, the questionnaires were established to gain data about the students' reading, writing, listening and

speaking skills. Although these well-designed questionnaires might be appropriate for the syllabus design, it could still be argued that only relying on the questionnaires may fail to present the whole picture of syllabuses' requirements, thus, it may lead to unsuccessful and inefficient syllabuses.

### 3.2 Data Analysis

In the steps of NA, data analysis aims at summarizing the collected information clearly and informing syllabus design effectively. For data analysis, there are many factors to be

considered, including triangulation, validity, reliability, and meaningfulness, and consistency [4]. Some of these factors were concerned in the six articles (Table 5), such as triangulation in 2 articles: Cowling [7] and Dehnad et al. [10]; validity in 2 articles: Dehnad et al. [10] and Prachanant [11]; reliability in 3 articles Dehnad et al. [10], Prachanant [11] and Edwards [9], which might lead to clear information collection and effective syllabus to some extent. But those ignored the factors might result in few valid conclusions, thus, they failed to guarantee credible information collection and reliable syllabuses.

**Table 4. Methods of data collection**

Authors	Types of data collection
Cowling [7]	Discussion with the clients; Semi-structured interviews with the target group teachers; Interviews with the target group students; Open-ended, structured questionnaires for students.
Chostelidou [8]	Questionnaires with closed- and opened-questions; Semi-structured interviews with the students.
Edwards [9]	Interviews with the employer; Questions with the learners.
Dehnad <i>et al.</i> [10]	Questionnaires with six-point Likert Scale; Semi-structure interviews with the students.
Prachanant [11]	Questionnaires with 5-rating scale and open-ended form with learners.
Shamsudin [12]	Questionnaires with demographic and open-ended questions.

**Table 5. Data analysis for NA**

Authors	Triangulation	Analysis tool	Validity	Reliability
Cowling [7]	A sales director; Clients; English language instructors.	Not mentioned.	Mentioned but without any clarification.	Mentioned but without any clarification.
Chostelidou [8]	Mentioned but without any clarification.	Not mentioned.	Mentioned but without any clarification.	Mentioned but without any clarification.
Edwards [9]	No	Not mentioned.	Mentioned but without any clarification.	Employer; Students.
Dehnad et al. [10]	Five ESP teachers; Head of departments; Policy makers.	SPSS	Checked by two faculty members.	Test-retest.
Prachanant [11]	No	SPSS	Revisions from other experts; Pilot study.	.9538 alpha reliability coefficient.
Shamsudin [12]	No	Frequency count and content analysis.	Not mentioned.	Not mentioned.

**Table 6. Applications of NA**

<b>Authors</b>	<b>Syllabus design</b>
Cowling [7]	Syllabus design was required to provide nine areas of study, focusing on communication, culture, and authentic examples.
Chostelidou [8]	The identification of the learners' needs are required in syllabus; Learners' language needs at the macro- and micro-level should be considered in syllabus.
Dehnad <i>et al.</i> [9]	Writing is considered as the most important for students, followed by reading, speaking and listening; The committee of syllabus design should include students, ESP teachers, and subject matter specialists.
Edwards [10]	A multi-layered syllabus was established through the integration of functions, topics, and vocabulary.
Prachanant [11]	Speaking is considered as the most important skills for tourism employees, followed by listening, reading and writing.
Shamsudin [12]	For beginner engineering students, introductory engineering topics and an engineering glossary should be included in the syllabus.

#### 4. APPLICATIONS OF NA

In the process of NA, the last step is to apply the results of NA into syllabus design. The syllabus design is natural outcomes, objectives, and applications of NA. As seen in Table 6, applications of NA in the six articles seemed to be rather complicated and different, focusing on informing different syllabus design. For example, Cowling's applications of NA were to inform syllabus design providing a communicative course, cultural issues, and authentic examples of language. Compared with Cowling's, Shamsudin's applications presented another picture, emphasizing the introductory engineering topics and glossary. The differences of application in these syllabuses may be the results of their different objectives of NA.

#### 5. CONCLUSION

In sum, this paper investigated how the conduction of NA informs ESP syllabus design in three steps: preparations, actions, and applications, through the comparison of six academic articles involving their purposes, participants, sample sizes, ethic issues, methods of data collection, data analysis, and applications. In the stage of preparations, the purposes of NA in the six articles were divided into three categorizations: a target situation analysis (TSA), a learning situation analysis (LSA), and a present situation analysis (PSA), underlying the frameworks of NA. In the comparison of sample sizes, it revealed that the smaller sample size was not always inconsistent with more accurate results. And for ethic issues, 5 out of 6 articles ignored the process of getting

approval of the participants, which may result in revealing the participants' privacy.

In the stage of actions, data collection and data analysis were examined in the six articles. For data collection, the methods of data collection consisted of some alternative methods and some key methods: tests, questionnaires, interviews, and observations, and the methods of interviews and questionnaires were chosen to serve for different syllabus design in the six articles. For data analysis, the factors of triangulation, validity, and reliability were investigated, the findings showed that those ignored some of the factors may fail to guarantee credible information collection and reliable syllabuses. In the final stage of applications, the results of NA were applied to establish syllabus design, and the different objectives of NA may lead to different syllabus design.

All in all, the six articles conducted NA to inform ESP syllabus design with clear objectives, proper methods, and meaningful applications to some extent. But these articles also revealed some limitations, such as ethical issues, triangulations, and validities. These findings suggest that researchers should pay more attention on the stages of preparations, actions, and applications of NA, carefully design the research program, appropriately choose research methods, and try to avoid the limitations, thus to inform ESP syllabus design effectively and efficiently.

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## COMPETING INTERESTS

Author has declared that no competing interests exist.

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