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Senior Editor: Winnie Cheng

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Table of Contents

Foreword

Winnie Cheng

Senior Editor

It is my pleasure to present the Autumn 2009 issue of the *Asian ESP Journal.* All the papers in this issue were reviewed under the editorship of Dr John Adamson, Senior Associate Editor. In the Foreword of the June 2006 edition, John announced the new title of the journal, *Asian ESP Journal,* that signals a clear direction and reflects "the core vision that we hold of creating a forum for ideas into English for Specific Purposes in Asian education" and for embracing the depth and diversity of ESP education, practice and research across a variety of academic and work contexts both in Asia and beyond the Asian zone. As in all of the previous issues, the Autumn 2009 issue represents a mixture of rigorous research studies and insights into different genres in different disciplines in different regions in Asia. It covers a range of genres, from ESP textbooks, student presentations, academic research articles, research article abstracts, to an ESP writing course.

Philippa Mungra's 'Conceptual metaphors in academic medical research articles' is a corpus-based study, and has identified and discussed two groups of linguistic metaphors: primary metaphors using input domains relating to bodily or cultural experience and blends of words or phrases.

Md. Momtazur Rahman et al.'s article 'Needs analysis for developing an ESP writing course for foreign postgraduates in science and technology at National University of Malaysia' is underpinned by the theoretical aspects of Present Situation Analysis (PSA) and Target Situation Analysis (TSA). Through semi-structured interviews and analysis of master's degree theses, the study identifies the students' needs and difficulties in writing for academic purposes, and suggests important writing tasks and skills for the proposed ESP writing course.

In the third article 'Simultaneous group presentations', Mark Brierley and Jonathon Adams discuss a method of increasing the speaking time of students in class and reducing the audience size within oral presentations. They also discuss issues relating to classroom management and implementation and participant roles in the context of student presentation within the broader context of communicative language teaching.

Khaled Jebahi's 'Using a commercially developed ESP textbook: A classroom dilemma' focuses on the emotional and intellectual reactions of the students towards this textbook, and the rectifications made in the lessons contained in this textbook in light of student attitudes, current research on textbook evaluation, and Communicative Language Teaching (CLT). The results of the study show that learners are dissatisfied with topics, tasks, listening, pronunciation, how to take part in conversation, skill coverage, skill integration, recycling, and revision. The study underlines the need to modify instructional materials to suit the needs and levels of specific learners in specific contexts.

Ebrahim Zangani's study 'The ESP textbook problem: The evaluation of ESP textbooks in Humanities in the undergraduate program of Iranian universities' uses different questionnaires for students and professors, and has identified some problems in the ESP textbooks used in Iran which need to be resolved. Using z tests, the study finds that these textbooks should be modified in the light of new approaches in language learning and teaching and student needs. Based on the findings, the article suggests some guidelines for the selection or adaptation of ESP textbooks.

Hesamoddin Shahriari Ahmadi's 'A comparison of genre: Biological science research article abstracts by Iranian and native English-speaking scholars' analyses thirty published abstracts in established, international journals. The step and move analysis of the abstracts shows that Iranian writers tend to focus on the methodology and procedure of the study, and pay little, if any, attention to relating the findings to the outside world, or to solving a genuinely perceived problem. The study also conducted interviews with Iranian researchers to investigate the reasons underlying such an inclination.

We hope you will enjoy reading the six papers and find the wide-ranging research findings and pedagogical implications useful for your academic and research pursuits.

Conceptual Metaphors in Academic Medical Research Articles

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Biodata

Philippa Mungra is a trained biologist and has been a lecturer in English at the First Medical School of the University of Rome "La Sapienza" for the past 12 years. Her current research priorities revolve around the structure and evolution of specialist medico-scientific publications from a communicative and textual point of view. She has recently published a textbook for reading and writing skills within the new 5-year syllabus for Italian Medical Schools *(Reading Skills in Medical English, AntonioDelfinoEditore, Rome, 2005)*.

Abstract

Figurative language comprehension has strong connections within the area of metaphor. While research has been done in classic English literature and poetry on metaphors, and some attention has been paid to the areas of economics and finance, very little attention has been paid to metaphors in the medical or scientific literature. We conducted an observational study of linguistic metaphors in a small pilot corpus of the discussion sections of medical research articles. We observed two groups of metaphors. The first group consisted of primary metaphors using input domains relating to bodily experience or to a cultural one, such as *container, movement, fictive motion* and *justice*. A smaller group of metaphors were found to be blends of words or phrases. Here an explanation of the formation of these metaphors and blends is given.

Key words: metaphor, research articles, medical literature, conceptual blends, mapping of metaphor domains.

Introduction

Figurative language comprehension has strong connections within the area of metaphor. Pragmatically, a metaphor can be defined as an expression or focus word, referring to one area (A) but having a meaning grounded in another (B). The area (A) is referred to as the topic, target or tenor, and

the area (B) the vehicle or source (Richards, 1936, Ortony, 1979, Black, 1979). For reasons of simplicity, I will refer to these areas as target and source.

Metaphors are ubiquitous, and the disambiguation of metaphors has recently been the subject of extensive study (Goatly, 2007; Deignan, 2005; Cameron, 2007). In the classical theory of metaphors, human beings systematically characterize ideas—thoughts, religious beliefs, political and ethical situations—in terms of body domains such as spatial movements (Gibbs, Costa-Lima & Francozo, 2004; Gibbs, 2006). This characterisation gives rise to the simplest form of metaphors called primary metaphors.

A major contribution to understanding metaphor has come in recent years from the cognitive science work of Lakoff & Johnson (1980) who identified mappings to the target domain, in which the properties or events of an abstract concept, such as life goals or belonging, are visualized and lexicalized in concrete terms, such as a journey, from the source domain. Conventionally, in this Cognitive Metaphor Theory (CMT), a metaphor would be represented in a propositional form, generally using the verb *to be,* as in X IS Y. In addition, the metaphor domains are capitalized, such as in LIFE GOALS ARE A JOURNEY. The mapping of difficulties in achieving life goals would have ontological correspondences to car troubles or other upsets while traveling. According to Lakoff (1993, p. 208) metaphors are "not just a matter of language, but of thought and reason. The language is secondary but the mapping is primary in that it sanctions the use of Source domain language and inference patterns for Target domain concepts."

A further elaboration of cognitive science to analyze or unpack metaphors was suggested by Turner & Fauconnier (1995) then later elaborated by Fauconnier & Turner (2002), who proposed another conceptual mechanism of interpreting metaphors called Blending Theory (BT). In this, the base meaning in one domain was shifted or mapped to a new and unrelated domain thus creating a new inferential structure, called a *conceptual blend*. This mechanism, like CMT, uses domains and mappings, but suggests that mappings may not be fixed ontological correspondences, and may operate in two or more

mental spaces, called the inputs, in order to yield a third space, the blend. Thus, according to Fauconnier & Turner (2002, p. 150-151), "Properties from the input spaces are projected onto the properties of the blended space, which are conceived as having a new structure of its own." For example, in the sentence *he has had a rich life*, the LIFE IS A JOURNEY metaphor works in tandem with WEALTH IS ACQUIRING VALUABLE OBJECTS to create a new space: *in a journey through life, experiences are accumulated and can be spent, like money, in future events as knowledge and perception.*

Another approach to disambiguation of metaphorical language was given by Halliday (1985). Using a Systemic Functionalist (SFL) approach, he exhaustively describes the formation of grammatical metaphors in terms of changes in the function of words or groups of words. In this theory, any one clause or sentence may exist in congruent forms, and when these congruent forms are compared, a change in function is observed. One important manifestation of grammatical metaphor is nominalization, which may be considered a shift in lexis such that a process becomes a noun or thing. Galve (1998), in the medical literature, noted that high lexical density involves grammatical metaphors. Such consideration of grammatical metaphor is outside the scope of this paper, which is limited to conceptual metaphors in medicine, but this does not preclude the possibility that many metaphors may be interpreted best through grammatical metaphor.

Metaphors and similes in abstract sentences are thought to play a primary role in abstract thought since they take old concepts to forge and shape new ideas and descriptions (Danesi, 1974) and aim at achieving the following discourse goals: to contrast differences, to add emphasis, to provoke thought or to show negative emotion (Harris, Friel & Mickelson, 2006) as well as to propose an ideological interpretation (Goatly, 2007).

Disambiguation of metaphors and other forms of figurative language such as metonymy, may share the same cognitive processing (Geeraerts, 2002), and Grady, Oakley & Coulson (1999) suggested that there may be a continuum of methods of the creation of imagery which includes metonymy,

metaphors, and blends. The aptness of a metaphor and ease of interpretation of a metaphor is thought to be related to the closeness between the target and the source domains (Jones & Estes, 2005).

Literature Review

Metaphor and Science

Much work has been done on the cognitive base of metaphors, but while most research has been carried out in classic English literature and poetry, and some attention has been paid to areas such as economics and finance (White, 2003; Charteris-Black & Musolff 2003), and architecture (Ubeda-Mansilla, 2003; Cabellero-Rodrigez, 2003), relatively little attention has been paid to metaphors in the medical or scientific literature, with a few exceptions. Salager-Meyer (1990) examined metaphors in a comparison between French, Spanish and English medical publications and Divasson-Cilveti & Leon (2006) classified metaphors in a medical dictionary from a lexical viewpoint. According to Cuadrado-Escalapes (2004), the norms of the community of practitioners underlie the formation of metaphors in science and underpin the types of metaphors in science. A comparative study of metaphor presence between academic versus popular scientific texts on the genetic code (Knudsen, 2003) and a cross-genre comparison of metaphor in behavioural genetics texts (Nordgren, 2003) have also been carried out. More recently, identification of metaphors has been addressed in explaining scientific models (Pickering, 1999) and in doctor-patient interviews about cancer (Semino, Hayword & Short, 2004). These last authors highlighted the problems they have had in identifying metaphor focus words relating to cancer, such as in CANCER IS A GALLOPING HORSE or CANCER IS A VOLCANO.

The paucity of research into metaphoric language in the medical literature is perhaps in part due to the fact that the tools for analysis have not been well-defined for identifying metaphors, and corpus studies have rarely been used. To the best of our knowledge, no systematic study of metaphor occurrence has been carried out in the medico-scientific literature. We applied the five-step procedure used by Steen (1999), the only one so far defined, to identify metaphors in a small corpus of academic

medical articles. We limited our corpus to the discussion section of research articles (RAs) because first, the genre of research articles (RAs) is well characterised and have an Introduction, Methods, Results and Discussion/Conclusion (IMRaD) structure (Swales, 1990) and thus a clearly defined discussion section, and secondly, the discussion section is where authors develop a hypothesis and present their argumentation (Hyland, 1998). IMRaD was first used by Swales (1990) to refer to the sections, commonly used in preparing scientific laboratory reports and primary RAs.

Methods

Corpus Design

Using the key words: "clinical" and "articles" and restricting our search to core journals, we downloaded as many publications as we could find electronically concerning "diabetes" and "cardiovascular disease" from the medical database PubMED. This database, created and maintained by the US National Library of Medicine (NLM), allowed us to retrieve a small corpus of 15 RAs, and we proceeded to examine the discussion sections of these publications for metaphor focus words according to Steen's (1999) criteria, outlined in the section below on metaphor identification. Clarifications about clinical information were sought from a doctor-informant. Using the Lakoff & Johnson (1980) definition of metaphor, we attempted to unpack the metaphors identified and interpret their source, target domains and any potential mappings.

Metaphor Identification

First, we had to identify a potential metaphor by the non-literal meaning of a phrase or sentence in the corpus. When this potential metaphor was identified in steps 1 & 2 of Figure 1, then it was verified in step 3 (a-e) in the same Figure 1 published by Steen (1999, p. 57). In his procedure, Steen (1999, p. 57) uses five steps (3a-3e) for verification as follows:

Figure 1: Steps used by Steen (2007) to identify metaphors

IDENTIFICATION STEPS
1. Read the entire text/discourse to establish a general understanding of the meaning.
2. Determine the lexical units in the text/discourse.

Verification step
3a. **Focus identification**: For each lexical unit in the text, establish its meaning in context, i.e. how it applies to an entity, relation or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.
3b. **Propositional analysis**: For each lexical unit, determine if it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be:
- more concrete; what they evoke is easier to imagine, see, hear, feel, smell, and taste.
- related to bodily action.
- more precise (as opposed to vague)
- historically older.
Basic meanings are not necessarily the most frequent meanings of the lexical unit.

3c&d. **Nonliteral comparison and analogy identification.** If the lexical unit has a more basic current/contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it.
3e. **Non-literal mapping identification**
If yes, mark the lexical unit as metaphorical and identify the mappings.

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1. **Focus identification:** In this step, labelled 3a of Figure 1, the Things in the Process "cannot be literally applied to the referents in the world evoked by the text'' (Steen, 1999: 61).

Example 1:

> The **grey literature** are documents that are not published…

The verb expresses a Situational Process of Being so it cannot have the referent quality of "grayness," coming from the domain of color. So there must be a metaphorical meaning to the sentence in Example 1. The word "gray" is identified in Steen's scheme as being the focus word of the metaphor, where the term "focus" (Black, 1962: 27) refers to the word bearing metaphorical meaning, as opposed to the rest of the proposition called the "frame."

2. **Propositional analysis (**Steen, 1999) consists of the identification of the sequence of propositions. This step, labelled 3b of Figure 1, was necessary when the metaphor was not explicit or if the frame, or

the terms of comparison of the focus was not clear. In Example 1 above, the entire sentence is a simple proposition.

3: Non-literal comparison identification: In this step, labelled 3c in Figure 1, a formal logic approach identifies the process (F) of association together with the Actors **y** and **y'.** The words in the metaphor or focus are associated so that, according to Steen (1999, p, 67):

> **{words in metaphor}**→ **(∃F) (P y, y′)**

This may be read as "for the focus in the metaphor, there exists a process F such that *the actor or attribute y* refers to or means *y′*"

Applied to Example 1, then:

{grey literature}→ **($ is) (P** black, invisible) or alternatively

{grey literature}→ **($ is) (P** white, visible)

the focus words "grey literature" represent unpublished material which is "black" (y) or "invisible" (y′), and the contrasting colour white (x), represents the opposite, viz. published material and thus visible (x′). We could just as well assign visibility to black, in which case white represents invisibility. In any event, the words in the metaphor {gray literature} give rise to a relation (F) of being or existing or representing two entities black (y) and white (x) such that there is a similarity between the entity black (y) or white (x) and a new Thing or Attribute invisible (y′) and visible (x′).

Steps 2 and 3 were often omitted or compressed if the relationship between the two domains was obvious or explicit, as in Example 1, where the color gray is the result of mixing of the opposite black and white pigments.

4: Non-literal analogy identification

This step consists of the interpretation, whereby a literal expression is filled in to replace the metaphorical Process and the Thing or vehicle identification. Thus, for the Example1 "grayness" refers to "a mixture" of "two opposites of published VISIBILITY." In this way, some elements or Attributes of the source domain evoked by the metaphorical focus can be identified.

5: Non-literal mapping identification

This step involves the identification of "the complete non-literal mapping...by filling out the conceptual structure of the two sides of the non-literal analogy, the source and target domain" (Steen, 1999: 71). Mapping was important in the second group of metaphors. Once the focus word of the metaphor had been identified, which in Example 1 above is "grey" in "grey literature," we grouped the metaphors according to types as defined by Lakoff & Johnson (1980). The following section details the metaphors found according to broad categories of mappings using the Lakoff & Johnson schema.

Results

The corpus consisted of a total of 17,500 words and there were 30 tokens of metaphor focus words which could be identified as conceptual metaphors. Details of these 30 tokens with explanations of the mappings are given below.

Primary Metaphors

As Lakoff & Johnson (1980) suggest, metaphoric language is a manifestation of conceptual structure organized by a systematic set of correspondences between two domains that results when cognitive models from a source or input domain are mapped onto a target or output domain. These image schemata are simple recurrent patterns which comprise the meaningful structures of our experience, such as COLOR, CONTAINER, MOVEMENT, WAR, and JUSTICE and can be thus classified as primary metaphors.

Color Metaphor

Example 1 illustrates the expression "gray" as a color metaphor:

Example 1:

The **"gray" literature** are documents that are not published as books by commercial publishers and as papers in refereed journals. Those documents are an enormous source for information...but there are a limited number of published and purely distributed documents or non-published technical documents and reports in different languages. [C1=cited in C1 of the corpus]

In Example 1, gray represents a combination of the two basic colors: black and white combine to make gray. In the metaphor COLOR IS VISIBILITY, gray represents something that is neither black nor white in terms of visibility. Gray therefore can be conceptualized as something partially visible and in the context of the literature of medical research, partially hidden, meaning "unread or unknown thus unofficial or unrecognized." This metaphor is seen in other areas of knowledge besides the health sciences, as in the following Example 2 below, from marine sciences:

Example 2:

Using fishers' anecdotes, naturalists' observations and **gray literature** to reassess marine species at risk: the case of the Gulf grouper in the Gulf of California, Mexico. [C2]

Container Metaphor

In the following Example 3, the underlined "dropout" may be the focus word in the metaphor:

Example 3:

Methodologic standards need to be followed with rigorous application of good study design principles: allocation concealment, minimization of attrition, follow-up of **dropouts**, comparison of **dropouts** with **completers** at... [C5]

This is a more complex or multiple metaphor since it uses the concept of CONTAINER where a patient who adheres to a treatment regime is considered a *completer* while a *dropout* does not adhere and thus drops "**out of**" the metaphorical container. In the CONTAINER image schema, IN carries a good connotation while OUT carries a negative connotation, but this is not necessarily so in the context of patients who complete their treatment.

Movement Metaphor

In examples 4 and 5, the MOVEMENT metaphor uses the word "trigger" to signal the start of a process of movement, followed by "cascade," which implies a rapid and uncontrollable consequence.

Example 4:

These interventions are thought to **<u>trigger</u>** the same signaling **<u>cascades</u>** as ischemic preconditioning, which include activation of extracellular signal-regulated kinase and phosphatidylinositol 3-kinase and also somehow prevent mitochondrial permeability transition pore formation. [C12]

Example 5:

…is a common **trigger** for tissue-remodeling and anatomic change consistent with degeneration in humans. [C12]

In Example 6 we see MOVEMENT in the TELECOMUNICATIONS domain:

Example 6:

...lesions of the association cortices, the latter acting as **<u>relay stations</u>** between primary motor, sensory and limbic areas. [C13]

Fictive Motion

This is an unusual mode of expression because it conveys **motion and immobility** at the same time in the domain of MOVEMENT:

Example 7:

...femoral vein or artery runs from ... to the popliteal node. [C4]

In Example 7, the vein or artery appears to move from one point to another via hypothetical or fictive motion, since there is no actual "running" because the vein or artery is quite still, but at the same time, it gives impression of motion while remaining still. Thus immobility is expressed along with conceptual motion using the conceptualizer's imagination or mental scanning. Similarly, in Example 8 both the patient and risk "run" concurrently but both are immobile.

Example 8:

…patients treated with EDD by means of a high-flux dialyzer (polysulphone; surface area, 1.3 m; blood and dialysate flow, 160 mL/min; EDD time, 480 mins) and current dosing regimens **run the risk** of being significantly underdosed...

In Example 8, the word "run" in "run the risk" uses the idea of motion, but again there is no actual motion. Similarly, in Example 9 the idea of motion and immobility recur where an experiment "runs" with time. This example is interesting because ~~of the fact that~~ the word "run" forms part of a nominal group, although it expresses a process.

Example 9: Handpiece **run-**time increased with the number...

Although the word "run" falls in the conceptual domain of MOVEMENT, we found that "run" can be used in the sense of "carried out" in a PERFORMANCE domain as in Example 10

Example 10:

Five studies were **run** with house dust mite (HDM), one with olive pollen, one with wall pellitory (Parietaria) pollen...

In Examples 9 and 10, "run" may be interpreted as a logical polysemy, in the sense that motion is not literal but hypothetical, but at the same time there is some form of movement, hence the category "fictive motion."

War Metaphor

The WAR metaphor was quite frequent, with two opponents responding to an incursion by one of the two warring parties. In Example 11 the word "attack" is adopted as part of the name of the study and refers to a transient ischemic episode or heart "attack":

Example 11:

The long-awaited results of the Management of Atherothrombosis with Clopidogrel in High-Risk Patients with Recent Transient Ischemic **Attack** (MATCH) study, a large-scale trial undertaken to evaluate the safety and efficacy of clopidogrel + aspirin for secondary prevention of stroke, have been published. [C9]

Example 12 refers to a metaphorical "attack" using biological weapons and refers explicitly to "victims":

Example 12:

Limitation of a bioterrorist anthrax attack will require rapid and accurate recognition of the earliest victims... [C8]

The unpacking of this metaphor follows closely a grammatical metaphor, which implies an action "limitation of an attack" glossed as a noun with two attributes "bioterrorist" and "anthrax." Also, the anthrax is seen as attacking a victim-patient, but here we also find conflation of a "bioterrorist attack," using the instrument of anthrax, which may be considered a metonymic transfer.

Example 13 demonstrates an extended WAR metaphor using not only the word "attack," but also "engage... targets" and "potent," which are associated with a bellicose domain.

Example 13:

Many viruses have learned to evade or subvert the host antiviral immune responses by encoding and expressing immunomodulatory proteins that protect the virus from **attack** by elements of the innate and acquired immune systems. Some of these viral anti-immune regulators are expressed as secreted proteins that **engage** specific host immune **targets** in the extracellular environment, where they exhibit potent anti-immune properties..... [C10]

Justice Metaphor

In Example 14 and 15 we see the use of the term "trial":

Example 14:

In previous studies, impaired endothelial function by brachial artery Flow-Mediated Dilatation (FMD) was associated with the occurrence of future cardiovascular events in patients with chest pain who were undergoing coronary angiography10 and in those treated with vascular surgery a large prospective **trial** the role of brachial artery FMD in predicting cardiac events in a healthy population is ongoing… [C4

Example 15:

 Clinical trials of therapies for heart failure (HF) are usually performed in patients with left ventricular systolic dysfunction (LVSD) and reduced left ventricular ejection fraction (LVEF). The substantial proportion of HF patients who have preserved systolic function (PSF) and an LVEF of 40–50% or more are rarely included in **HF trials**, and as such there are very limited data on their characteristics or outcomes. [C4]

The term "trial" is generally associated with the application of JUSTICE, but here we see "trial" used in the sense of an investigation, as defined in the glossary (n.d) found in the website of PubMED, a database of citations held by the National Library of Medicine of the US Department of Health:

A **clinical trial** is a research study to answer specific questions about vaccines or new therapies or new ways of using known treatments. Clinical trials (also called medical research and research studies) are used to ... **Trials** are in four phases: Phase I tests a new drug or treatment in a small group; Phase II expands the study to a larger group of people; Phase III expands the study to an even larger group of people; and Phase IV takes place after the drug or treatment has been licensed and marketed.

Although according to the definition, the clinical trial can be called "medical research" or "research study," the authors of Example 14 and 15 prefer "trial," an expression which originates within the domain of the JUSTICE metaphor because like an accused person, the clinical trial is subjected to "questions" and because of its presence within the cluster of several other words associated with the JUSTICE domain, which are used often with respect to clinical trials, such as *investigation*, *investigator*, *outcome*, *bias,* and *blind* or *blinding* as in Example 16:

Example 16:

In this study, **bias** is controlled by **blind**ing... [C4]

If we consider the word "trial" as "a first approach" to observe the effect of a clinical intervention, then the expression can be interpreted as metonymic transfer within logical polysemy, to the JUSTICE and RESEARCH domains. It is arguable that the vehicle for this metaphor is JUSTICE, but the concurrent cluster of JUSTICE terms may constitute a mechanism of ontological associations and thus function as a primer for understanding the associated domains.

The word "blinding" in Example 16, in the sense of vision, or rather the absence of vision, is an attribute often associated with the administration of justice. In the medical context, "blinding" of a clinical "trial" means that those patients were not aware of whether they had a drug intervention or a placebo. In many instances, a study which is "double blind" means that neither patients nor evaluating physicians knew the treatment administered. In this sense, the use of "blind" may achieve its figurative meaning by metonymic transfer.

Concept is an Object Metaphor

As in the classification proposed by Barnden (1997), one class of metaphor is the projection of the properties of a concrete domain onto a non-concrete or non-material domain and is known as CONCEPT IS AN OBJECT. In Example 17 the PROPERTY of *imperfection* as implicit in the word "flawed" is projected onto the "trial" using the metaphor PERFECTION IS GOOD, and the agent of imperfection is "bias," itself a non-concrete agent.

Example 17:

...it was superior to vasopressin for the control of bleeding in a single trial, **<u>flawed</u>** by a potential
detection bias. [C11]

Similarly, in Example 18, the immune system, a non-physical object, is likened to an uncontrolled wild beast:

Example 18:

...**<u>to tame</u>** the hyperactive immune system... [C10]

Similarly, metonymic transfer of an attribute of being uninhibited or immunologically "free from constraints" is mapped onto the surface of a cell, as in Example 19:

Example 19:

…the surface of the T-cells become immunologically **<u>disinhibited</u>**... [C10]

Examples 17, 18, and 19 may be considered three examples of ontological mappings of a source domain onto a more abstract target domain. The CONCEPT IS AN OBJECT metaphor is perhaps more common than we believe and is similar to the nominalization of a process which, according to Galve (1998) and Gotti (2002), is quite common in the medical literature. Examples 20 and 21 show such nominalizations:

Example 20:

In type 2 diabetes, professional dietary advice, **reduction of overweight** and increased physical **activity** should be the first treatment aiming at good glucose control. [C5]

Example 21:

…blood pressure **management** in asymptomatic people is given in... [C5]

Similarly, in Example 22 the expression "reduction of hyperglycaemia" refers to the reduction in value upon measuring the level of blood sugar.

Example 22:

Drug therapy must be added if these measures do not lead to a sufficient **reduction of** hyperglycaemia. [C5]

Here the concept "lowering of blood sugar" is conflated with reduced "episodes of hyperglycaemia," and the concept inherent in the word "reduction" becomes a Thing: that is, an object, which in this case is "lowered." This kind of metaphor is very commonly used in describing patient symptoms, as in Example 23 where a feeling or symptom is described as "tired and achy":

Example 23:

...tired and achy feelings...

In actuality, a "feeling" cannot be "tired or achy," but a patient can be tired and achy. The reader automatically mentally confers this feeling onto the sensation perceived by the patient. In this way, the perception is conflated with the actual feeling and the same descriptors of Agent /Goal. Logical polysemous meaning by metonymic transfer might explain why a feeling might be considered as giving a sensation of tiredness or achiness.

The body as a material anchor metaphor

According to Hutchins (2005), a material structure as a referent for a metaphor offers the possibility of anchoring or stabilizing the metaphor because of its close association. Thus he uses the term material anchor to emphasize the stabilizing role of a material structure within a metaphor. One such example of a material anchor is the use of the term "arm" to represent a group of patients having the same treatment in Example 24.

Example 24:

Our examination of weight change in **individual study arms** (intervention and comparison) produced somewhat more promising results. [C15]

Here, the word "arm" is meant as a branch or appendage of the study as it is in the human body. As in the human body, arms generally exist in matched pairs thus one "arm" is meant to be compared with the opposite branch or "arm." Similarly, in Example 25 we see the use of the word "cohort," common in military literature.

Example 25:

A widely quoted retrospective analysis of survival of HD patients in the US concluded that...but this historical **cohort** study was not randomised, and a prospective, randomised study is needed to explore this important observation. [C15]

Such a reference to a "cohort," defined as a "body of soldiers all having the same training and physical prowess," is mapped onto a body of patients selected and having the same set of physical characteristics such as a prior disease or condition.   This is clear in Example 26:

Example 26:

Furthermore, they found a significant association between steatosis and hepatic fibrosis in their **cohort** of patients with chronic hepatitis C virus. [C7]

The "cohort" at first glance may appear as a MILITARY metaphor, but it may be considered simply a term referring to a group with well-defined characteristics and could be a common academic lexical item.

Other Metaphors and Blends

As indicated in the introduction, selective content from *input* spaces is projected to a *blended* space in a process called *composition*. In composition, one of the input spaces supplies an event or scenario that helps create content in the new blended space. For this reason, these metaphors are referred to as blends. Other processes of *completion*, *elaboration,* and *compression* help fortify the metaphor so that inferences from the blended space can be projected to a *target* space (Fauconnier & Turner, 2002). Blends found at the level of words were easy to understand but required some decoding when they were found in phrases. In Example 27, the word "core" is used as a substitute for "centrality," just as the core of an apple is found in the central part.

Example 27:

A **core** element of the model is that risk is now defined in terms of the absolute 10-year probability of developing a fatal cardiovascular event. [C5]

Here, "core" refers to "centrality of the model" while the target domain refers to the new mode of calculating "risk."

Example 28 uses common words in English, but invests them with additional meanings such as "between-group" or "within-group" comparisons. Here new adjectives or descriptors are coined from other words which collocate together in the same mental space:

Example 28:

Thirteen studies (12, 29, 31, 34, 35, 37-41, 43, 46, 47) reported **between-group** changes in total cholesterol level ranging from 0.4 mmol/L (7.2 mg/dL) to 0.33 mmol/L (5.9mg/dL). [C5]

Similarly, in Example 29, we find the expressions "follow-up" ~~as in:~~

Example 29:

For net change in weight, we found no significant interactions with **follow-up** interval, but attrition is an important issue in weight loss studies because selective **loss to** **follow-up** has been demonstrated [C5]

According to our medical informant, "follow-up" refers to the series of ambulatory visits at intervals during the 3- to-6-month period following the suspension of treatment, when patients are subject to check-up visits by an attending physician to examine the efficacy of the intervention treatment. Clearly, Example 29 implies that many patients do not attend the follow-up visit and are therefore "*lost to follow-up.*"

One very interesting example of blended spaces is seen in the expression "intention-to-treat":

Example 30:
...comparison of groups...with...at **baseline...** and we had to do an intention**-to-treat** analysis...

[C6]

According to our doctor-informant, the use of "baseline" indicates the starting point of an investigation, and the starting or baseline data are compared with other data obtained at other intervals after pharmacological or other treatment. Again, if data are missing because patients have stopped the

study, the validity of the study may be compromised, but researchers use data in their possession, despite this "loss to follow-up" of participants. This is what is known as "intention-to-treat" analysis and gives the idea that it was their intention to treat all participants, even those missing. As the context of Example 30 shows, the expression "we had to do" indicates unwillingness to use partially completed data and shows dynamic modality.   The blending of several adjectives as in "intention-to-treat" result in foregrounding relevant information such as "*not all our patients were compliers so we had to treat the data as though all patients intended to complete treatment*." This is also evident in Example 31:

Example 31:

...but patients with **long-standing lamivudine-resistant** mutations may experience worsening

liver disease. [C4]

We see that the decoding of the elements of this complex of adjectives results in the blending of two ideas in the same conceptual space, as follows: "*patients have genetic mutations,*" and "*these genetic mutations cause resistance to the drug lamivudine when taken for long periods.*"

In Example 32, the expression "*lifestyle intervention...can be translated*" appears to be a complex nonsensical idea.

Example 32:

Whether the **lifestyle interventions** in these large trials **can be translated** to diabetic populations

has yet to be determined. [C15]

In terms of health care, the author is using the TRANSLATION AND CHANGE/MOVEMENT

domains as two input domains. In linguistic terms, translation consists of movement of words and

concepts from the source language to the target language with equivalence in the formation of a new text.

Similarly, in the new blended domain, there is movement to take diabetics to normalcy or health, from an

old lifestyle to a healthier lifestyle, where lifestyle may be seen as the output or blended domain as in Figure 2.

Figure 2: Domains blended in metaphor 32: *Lifestyle interventions can be translated.*
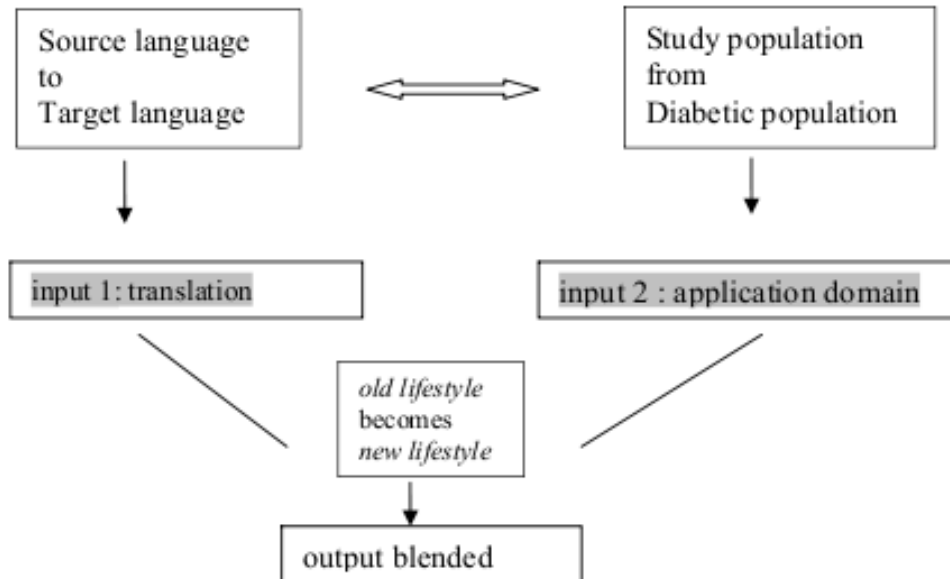
Thus, movement as in a translation of the source language to the target language can be applied to data or standards or procedures from the study population to a new population of diabetics so as to achieve a desired movement in a change in lifestyle, considered the new blended space.

Example 33 demonstrates investing a metaphor with the attributes of a process:

Example 33:

In a brain composed of localized but connected specialized areas, **disconnection** leads to dysfunction… Although **disconnectionism** fell out of favour with the move against localized brain theories in the early 20th century, in 1965, an American neurologist brought disconnection to the fore once more in a paper entitled, 'Disconnection syndromes in animals and man'. In what was to become the manifesto of behavioural neurology, Norman Geschwind outlined a pure

disconnectionist framework which revolutionized both clinical neurology and the neurosciences in general. [C13]

In this example, we see the process of the verb *to disconnect* is transformed by association with dysfunction into a thing *disconnection* and that thing or agent become representative of a group and its functioning explained by a theory. In this way, the theory, by association or metonymic transfer, explains a school of thought and an agglomeration of clinical features.

Conclusions

This observational study attempted to collect and identify metaphorical language in the discussion section of primary and secondary research articles, often called reviews or overviews. We did not attempt theoretical explanations or cultural and sociological interpretations of metaphors but limited ourselves to identifying focus words and source or target domains and indicating why they might be considered metaphors, by observing them *in loco* a selected branch of the medical literature. A more detailed analysis of frequencies in this corpus still remains to be done together with clustering of metaphors and an investigation into how metaphors are perceived and interpreted.

The interpretation of metaphors in complex texts may present reading difficulties for beginner students of English. Non-native speakers of English (NNS) have difficulty in reading and interpreting complex medico-scientific text which requires precision and correct interpretation (Schäffner, 2004), and beginners find review articles and long texts intimidating, but since this type of synoptic text has the function of being a review of current knowledge, it is an important text type to be mastered. In particular, the discussion of this text-type is of particular importance since it is there that authors offer scientific reasoning and arrive at conclusions—often of importance for patient treatment.

For such beginners, comprehension of difficult and long texts may be increased by explaining metaphor focus words in terms of different models mentioned in this paper: primary metaphors explained by physical or conceptual anchors (Lakoff & Johnson, 1980; Gibbs, 2006) and identification of domains

and formulation as a proposition, as suggested by Shen (1999). More complex metaphors may be explained in terms of conceptual blends and Blending Theory, (Fauconnier & Turner, 2002), or by blending in new mental spaces as proposed by Coulson & Oakley (2005), or even in terms of Hallidayean nominalization or grammatical metaphor. The explicit teaching of both genre and metaphor has been advocated in the specialist classroom in ESP (Danesi, 1974; Caballero-Rodriguez, 2003), and it is hoped metaphors in the classroom would help beginners overcome the hurdle of speaking and thinking in L1 while having to function professionally in an L2 and facilitate the language-mediated enculturation that makes professional jargon more relevant and easier to retrieve.

Author's Note

Thanks are due to Theron Muller for pointing out, in regards to Example 13 that "the idea of a virus l**earning** something" is quite unusual since mutations of a virus are written in its RNA, hence this may be a metaphor. Indeed, a quick check using a corpus concordancer revealed that the word *virus* would collocate with the following verbs: *carry, infect, copy,* but the verb *to learn* is not a common collocate. Applying Steen's procedure, the verb *learned* here appears to be used metaphorically. This could be an example of anthropomorphic usage, similar to "…the White House today admitted/said/confirmed…" or could it be lexicalization of a grammatical metaphor. Here we have an image of a battle or war with skirmishes, and one of the combatants (the virus), like a good soldier or general, has sent spies out (cytokines and interleukins) in order to "**learn**" the weak points of the other combatant (the immune system). This could be a case of the verb *to learn* being lexicalized for metaphor use, just as a process becomes a thing or noun and such meaning being domesticated (Halliday, 1994).

Appendix: Corpus of Publications

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Needs Analysis for Developing an ESP Writing Course for Foreign Postgraduates in Science and Technology at National University of Malaysia

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Abstract

ESP Needs analysis is the first step to design a language course which is more appropriate and accommodating in meeting learners' needs. The purpose of this paper is to propose an ESP writing course development framework for foreign postgraduates in the fields of science and technology of three faculties of National University of Malaysia. The theoretical aspects of the needs analysis are based on

PSA (Present Situation Analysis) and TSA (Target Situation Analysis). Semi-structured interview and document analysis, as the instruments for data collection, are used for the language needs analysis. The samples include interviews of 10 foreign postgraduate students in the fields of science and technology of these three faculties in the university. The samples of documents were four masters theses, written in English by foreign postgraduates in the concerned faculties in the university. Document analysis is based on the methodological framework of language analysis suggested by Ellis and Johnson (1994). This paper reviews literature on some fundamental features of ESP, EAP, language needs analysis, components of needs analysis and ESP writing skills. First, as part of investigating writing needs, the paper looks into the areas of students' difficulty in writing for academic purposes through interviews. In addition, it looks into foreign students' difficulty and differences[2] in academic culture. It also focuses on identifying foreign students' specific writing difficulty and their writing needs required for ESP writing purposes through document analysis. In fact, the findings of the needs analysis determine some important writing tasks and skills for the proposed ESP writing course. In conclusion, the paper contributes to introduce a framework for the ESP writing course development process, necessary for these foreign postgraduates in the concerned fields of the three faculties in the university.

Keywords: ESP; EAP; Needs Analysis; ESP Writing Course; Foreign Postgraduates in Science and Technology

1   Introduction

The most significant feature of the rapidly developing field of English language teaching over the past decades has been the importance attached to 'English for Specific Purposes' (ESP), which is part of a more general movement of teaching 'Languages for Specific Purposes' (LSP). In fact, the teaching of ESP was pioneered in the 1950s and 1960s (Dudley-Evans and St. John, (1998). However, the enterprise became a vital and innovative activity within the teaching of English in the 1970s. According to Dudley-Evans and St. John (1998, p. 2), for much of its infancy, ESP was dominated by the teaching of English for Academic Purposes (EAP). Today, the teaching of ESP, particularly EAP, is gaining in popularity throughout the world for several reasons including: to expose students to the expectations and requirements of the faculties in terms of target situation needs and academic culture (Jordan, 1997, p. 80) and to help international students reach their full academic potential (Dudley-Evans and St. John, 1998, p. 36).

Malaysia, today, stresses the importance of English in higher learning institutions. Some universities in Malaysia offer ESP/EAP courses to equip the undergraduate students in terms of specific needs of English language. Based on reviews of literature on ESP courses in Malaysia, we have come to know that there are no ESP courses in postgraduate studies based upon the language needs analysis in public universities of the country. Language needs analysis is a prerequisite for designing a language course in the ESP setting (Munby, 1978; Robinson, 1991; Dudley-Evans and St John, 1998). In line with the advancement of higher education in science and technology in Malaysia, there are a number of foreign postgraduate students studying in the science related fields in public universities in the country. Like other public universities in the country, there are quite a large number of foreign postgraduate students in the fields of science technology in National University of Malaysia. These foreign students are mainly from three faculties in the university: 1. Faculty of Science and Technology, 2. Faculty of Information Science and Technology and 3. Faculty of Engineering. These students of the university are from the following regions including Southeast Asia, East Asia, South Asia, Africa and Middle-East. In fact, most of them are from non-English speaking backgrounds. Since the medium of instruction in their studies in the university is mainly in English, they may find difficulty in writing for academic purposes. Therefore, an ESP (English for Specific Purposes) writing course should be designed to prepare these foreign postgraduate students to cope with academic writing required for their study purposes in the university. Hence, this paper is concerned with suggesting a framework for an ESP writing course-development process for foreign postgraduates in the fields of science and technology at National University of Malaysia. The paper, first, focuses on conducting needs analysis for these students in the concerned fields in the university.

2 Literature Review

Literature is an essential aspect of a study. The objective of this article is to suggest a framework for an ESP writing course-development process for the foreign postgraduates in the fields of science and technology at National University of Malaysia. Therefore, some essential fundamental aspects, which provide information on characteristics and theoretical aspects of some terms related to the study, need to be highlighted in this section. In this concern, this section provides description of ESP, notions of needs analysis, components of needs analysis and writing skills in EAP. Finally, this section provides a very concise description of academic culture.

2.1 English for Specific Purposes (ESP)

Dudley-Evans and St John (1998) reason that the original pinnacle of development of the English for Specific Purposes (ESP) movement resulted from general developments in the world economy in the 1950s and 1960s: the growth of science and technology, the increased use of English as the international language of science, technology and business, the increased economic power of certain oil-rich countries and increased numbers of international students studying in UK, USA, and Australia. Hutchinson and Waters (1987, p. 6) state that in ESP context, the effect of the historical occurrences resulted from a mass of people across the globe who wanted to learn the English language because it was the key language for the fields of science, technology and commerce. The emergence of English for Specific Purposes (ESP) teaching movement resulted from the English language needs of the learners for specific purposes in accordance with their professions or job descriptions.

Hutchinson and Waters (1987, p. 19) define ESP as an approach to language learning based on learners' need. What they mean is that ESP does not involve a particular kind of language, teaching material or methodology. They suggest that the foundation of ESP involves the learners, the language required and the learning context, which are based on the primacy of need in ESP.

Strevens (1988) formulates a definition of ESP, which makes a distinction between four absolute characteristics and two variable characteristics. The absolute characteristics are that ESP consists of English Language Teaching, which is:

1. designed to meet specified needs of the learners;
2. related in content (that is in its themes and topics) to particular disciplines, occupations and activities;
3. centred on language appropriate to those activities in syntax, lexis, discourse, semantics and so on, and analysis of the discourse;
4. in contrast with 'General English'.

The variable characteristics are that ESP:
1. may be restricted as to the learning skills to be learned (for example reading only);
2. may not be taught according to any pre-ordained methodology.

Dudley-Evans and St John (1998) provide their definition of ESP. This definition is clearly influenced by that of Strevens (1988) and they have included more variable characteristics. They also use absolute and variable characteristics of ESP as Strevens (1988) centres on defining ESP.

Absolute characteristics:

1. ESP is designed to meet specific needs of the learner;
2. ESP makes use of the underlying methodology and activities of the disciplines it serves;
3. ESP is centred on the language (grammar, Lexis, register), skills, discourse and genres appropriate to those activities.

Variable characteristics:

1. ESP may be related to or designed for specific disciplines;
2. ESP may use, in specific teaching situations, a different methodology from that of 'General English';
3. ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be used for learners at the secondary school level;
4. ESP is generally designed for intermediate or advanced students, but it can be used with beginners. Most ESP courses assume basic knowledge of the language system.

ESP has traditionally been divided into two classified main branches such as English for Academic Purposes or EAP and English for Occupational Purposes or EOP (Dudley-Evans & St John, 1998; Hutchinson and Waters, 1987; Munby, 1978; Robinson, 1991; Strevens, 1980). It is apparent that today teaching of EAP has spread in English-speaking countries as well as other countries.

2.2 Writing Skills in English for Academic Purposes

EAP writing involves writing accurately and appropriately for a particular purpose of audience. In academic context, students should be able to organize materials logically, coherently and cohesively to produce essays, term papers, assignments, reports, summaries, and examinations. Students need English for writing thesis/project papers, writing assignments, and writing examination papers. Dudley-Evans & St. John (1998, p. 119) state that teaching of writing skills involves the following exercises:

1. rhetorical awareness;

2. particular skills or language features step-by-step;

3. more extensive writing skills through tasks;

4. editing skills through peer review;

5. more specific rhetorical and linguistic awareness through integrated teaching with subject specialists.

According to Dudley-Evans & St. John (1998), developing writing skills also involves other skills, notably the skills of planning, drafting and revising so that the end product is appropriate both to the purposes of the writing and the intended readership.

Robinson (1991, p. 104) argues that EAP students have clear targets or products in mind. They must, at some stage, produce texts, which conform to certain specifications, often quite rigorous specifications in terms of the sequencing and perhaps the actual wording of points and layout. Thus, in addition to process-oriented activities, the EAP writing class must include some study of models or final products (Robinson, 1991, p. 104).

Finally, the term, 'genre' or 'texts type' plays an integrated role in academic writing. Jordan (1997) stresses the need for genre in academic writing. The types of genre that students are expected to become familiar with, include the following: essays, reports, case studies, projects, literature reviews, exam answers, research papers/articles, decortications and theses. Each of these will have its own content structure or format, style, and various conventions (Jordan, 1997).

2.3 Academic Culture

Cultural aspect is an important issue for investigating language needs of foreign students. Cultural differences in academic settings can result in difficulty in language skills and learning. Based upon literature on academic culture, it is apparent that the cultural aspect in the academic setting is not prioritized to assess language needs.

Jordan (1997) notes that academic culture consists of a shared experience and outlook with regard to the educational system, the subject or discipline, and the conventions associated with it. According to him, these conventions may, for example, take the form of the respective roles of student and

lecture/tutor/supervisor, etc. and their customary behaviour, or the conventions attached to the academic writing, with its structuring and referencing system. Jordan (1997) argues that if a student enters this culture as an outsider from a different academic culture, there will inevitably be some mismatches of experiences, or misunderstandings, which may occur at two levels. Firstly, the student has to adjust to the organization, system and ethos of the university: in other words, a process of socialization. The next stem is a more specific kind of acculturation (Jordan, 1997). Greenall and Price (1980, cited in Jordan, 1997, p. 99) reveal that specific cultural profiles are considered to relate to students from Iran, the Middle East, Thailand and the Indian sub-continent.

2.4 Notion of Needs Analysis in ESP Setting

The key stage in ESP (English for Specific Purposes) is needs analysis. Needs analysis is the corner stone of ESP and leads to a focused course (Brown, 1995; Chambers, 1980; Dudley-Evans & St. John, 1998; Ellis & Johnson, 1994; Jordan, 1997; West, 1994). According to Robinson (1991, p. 7), "needs analysis is generally regarded as critical to ESP, although ESP is by no means the only educational enterprise which makes use of it". Strevens (1977) suggests that needs analysis is a necessary first step for specific purposes language teaching; it is more concerned with the nature of scientific discourse. Hutchinson and Waters (1987, p. 53) argue that any language course should be based on needs analysis. Needs analysis is fundamental to an ESP/EAP approach to course design (Hamp-Lyons, 2001, p. 127). Dudley-Evans and St John (1998, p. 121) also state that "needs analysis is the process of establishing the *what* and *how* of a course". West (1994) states that language needs analysis is essentially a pragmatic activity focused on specific situations, although grounded in general theories, such as the nature of language and curriculum. Therefore, in the ESP/EAP context, needs analysis is crucial in determining the aspects of language that are critical for a particular area of teaching.

As Robinson (1991, p. 8) suggests, needs analysis is not only for determining the "*what and how of a language of teaching*". Robinson (1991) also suggests that needs analysis study should be repeated so that it can be built into the formative process. This would lead to a very informative database of learners, sponsors, subject-specialists and above all ESP practitioners' views and opinions of English language (Robinson, 1991).

The main sources for needs analysis are the learners, people working or studying in the field, ex-students and documents relevant to the field, clients, employers, colleagues and ESP research in the field (Dudley-Evans and St John, 1998, p. 132).

2.5 Components of Needs Analysis

Different components to language needs analysis are employed to investigate different focuses and issues in language planning, development, teaching and learning. Many ESP scholars suggest that TSA (Target Situation Analysis) and PSA (Present Situation Analysis) are the fundamental components for assessing language needs of learners. The theoretical aspect of the needs analysis is based on PSA and TSA components. So, it is necessary to inform readers of the definitions and discussions of TSA and PSA.

2.5.1 Target Situation Analysis (TSA)

The term, 'Target Situation Analysis' (TSA) was introduced by Chambers (1980). Target Situation Analysis (TSA) is a form of needs analysis, which focuses on identifying the learners' language requirements in the occupational or academic situation they are being prepared for (West, 1994). Robinson (1991, p. 8) argues that a needs analysis, which focuses on students' needs at the end of a language course, can be called a TSA (Target Situation Analysis). Munby (1978) formulates the best-known framework of TSA type needs analysis. He presents a communicative needs processor, comprising a set of parameters within which information on the students' target situation can be plotted. According to Dudley-Evans and St. John (1998, p. 124), "TSA refers to task and activities learners are/will be using English for target situation". Finally, they state that TSA includes objective, perceived and product-oriented needs (Dudley-Evans and St. John, (1998).

2.5.2 Present Situation Analysis (PSA)

According to Robinson (1991, p. 8), the term "Present Situation Analysis" (PSA) seeks to establish what the students are like at the start of their language course, investigating their strengths and weaknesses". Dudley-Evans and St. John (1998, p. 124) state that PSA estimates strengths and weaknesses in language, skills and learning experiences. Richterich and Chancerel (1980) formulate the most extensive range of devices for establishing the PSA. They suggest that there are three basic sources of information: the students themselves, the language-teaching establishment, and the 'user-institution'. ESP practitioners might also study the surrounding society and culture: the attitude held towards English

language and towards the learning and use of a foreign language (Richterich and Chancerel, 1980). Munby (1978) argues that PSA represents constraints on the TSA. According to McDonough (1984), PSA involves 'fundamental variables' which must be clearly considered before the TSA.

3 Research Methodology

The research methodology of a study is concerned with how the study is carried out. The section sheds light on semi-structured interviews and document analysis as the two methods for conducting needs analysis for the foreign postgraduates in the fields of science and technology in the university. In fact, the results of the needs analysis will lead to an ESP writing course-development process for these foreign postgraduates in the concerned fields.

3.1 Semi-structured Interviews for the Foreign Postgraduate Students

The questions of the semi-structured interviews were developed for foreign postgraduate students in the concerned fields for the purpose of conducting needs analysis. Mackay (1978) advocates the interview when investigating learners' needs. Dudley-Evans and St John (1998) also emphasize the interview, as one of the main data collection methods of language needs analysis. The interview questions were individual type with open-ended form based on the theoretical framework of needs analysis of the study. The questions in the interviews were formulated on the basis of the PSA (Present Situation Analysis) component of the needs analysis of the study. In investigating the English needs, the questions in the interviews sought information regarding the following themes/aspects: 1. difficulties in writing for academic purposes and 2. differences and difficulties in academic culture.

For the semi-structured interviews in the qualitative research, ten postgraduate foreign students in the fields of science and technology in semester I (academic year-2006/2007) were chosen for the purposes of the needs analysis study. These students completed at least one semester of their academic studies at the selected three faculties of National University of Malaysia. The rationale for choosing these postgraduate students was that they were able to participate in an informed discussion on their English needs and difficulty of academic writing areas in their postgraduate programmes in the university. Purposive sampling strategy was applied in the selection of samples in the students' interviews. According to Punch (1998, p. 193), "qualitative research rarely uses probability sampling, but rather uses

purposive sampling". Purposive sampling is the term often used for sampling in a deliberate way, with some purpose or focus in mind (Punch, 1998, p. 193).

3.2 Document Analysis

Finally, document analysis, a method for data collection of language needs analysis was employed in the needs analysis portion of the study. According to Dudley-Evans and St John (1998), analyzing authentic documents is a crucial stage of needs analysis. The intent of document analysis was to seek the foreign students' weaknesses in writing skills based on PSA (Present Situation Analysis-present needs) as the triangulation method. In addition, document analysis focused on determining target writing needs based on TSA (Target Situation Analysis-target needs). The analysis helped to determine the present level of foreign students' understanding of English in terms of writing. The analysis was carried out on the basis of the methodological framework of language analysis suggested by Ellis and Johnson (1994) as shown in Table 3.1.

Table 3.1: Methodological Framework of Language Analysis by Ellis and Johnson (1994)

Genre: What type of text is being analysed? (e.g., report, letter, memo, etc) (Who is the target audience?)		
Organization: How is the text organized? What is the layout? How many paragraphs/sections are there? Is there an introduction/conclusion? Is there list of points/cohesive paragraphs?		
Sentence structure: Are sentences complete or in note form? Are they correctly punctuated? Are they linked with cohesive devices? Are sentences simple /complex? Are there relative or other clauses? Are there ellipses in sentences?		
Function	**Grammatical Structure**	**Lexis**
What functions are being expressed? e.g., condition, intention, description, request, order.	What are the most frequent grammatical structures? e.g., active/passive, verb forms, complex noun phrases, prepositional phrases, verb tenses.	What type of vocabulary is used? e.g., technical vocabulary, semi-technical. What lexical items occur most frequently?

The samples of documents were four master's theses, written in English by foreign postgraduates in the three faculties in the university. The foreign students who wrote these theses for master programmes were pursuing their PhD in these three faculties in semester two (academic year 2007/2008). Table 3.2 depicts the types of authentic documents.

Table 3.2: Authentic Documents: Theses

Titles of Master's theses	Countries of the students (who wrote theses)	Faculties
1. A Survey of Pollution in Alur Ilmu River of Universiti Kebangsaan Malaysia (Draft one)	Jordan	Science and Technology
2. FPGA Implementation of Fetal Heart Rate Detection Algorithm Modules	Bangladesh	Engineering
3. Insect Diversity in Different Organic Farming Practices	Jordan	Science and Technology
4. Characterization of Erbium-Doped Fiber Amplifiers and Flattened Amplified Spontaneous Emission	Iraq	Engineering

4 Results and Discussions from Interviews

4.1 The Profile of the Interviewees

The interviewees were in their postgraduate levels in the fields of science and technology at the three selected faculties in the university. These students were not new students and had finished at least one semester. They were from different countries namely, Jordan, Libya, Oman, Bangladesh, India and Yemen. Only three students completed their previous studies in the medium of English language. On the other hand, two students possessed English language proficiency certificates such as IELTS. Table 4.1 depicts the profile of the interviewees.

Table 4.1 Profile of the Interviewees

Student	Gender	Country	Programme	Medium of instruction in previous bachelor	Medium of instruction in previous master	TOEFLS/ IELTS	Faculties
A	Male	Libya	PhD	Arabic	Arabic	--	Engineering
B	Male	Libya	Master	Arabic	--	--	Information Science and Technology
C	Female	Yemen	Master	English	--	--	Science and Technology
D	Male	Bangladesh	Master	English	--		Engineering
E	Male	India	PhD	English	English	--	Science and Technology

F	Male	Jordan	Master	Arabic	--	--	Science and Technology
G	Male	Jordan	Master	Arabic	--	IELTS	Science and Technology
H	Male	Yemen	PhD	Russian	Russian	IELTS	Engineering
I	Male	Oman	Master	Arabic	--	--	Information Science and Technology
J	Male	Libya	Master	Arabic	--	--	Information Science and Technology

4.2 Results from Interviews

The section sheds light on foreign students' difficulty in writing in English for academic purposes. It also sheds light on differences and difficulty in academic culture between National University of Malaysia and foreign students' home universities in their countries.

4.2.1 Students' Difficulty in Writing for Academic Purposes

According to the analysis of the responses of the ten students, a majority of the students (six students) stated that they found difficulty in writing thesis/project papers (Students A, B, D, F, I and J) while three students stated that they had difficulty in writing journal articles (Students A, D and J). One student also faced problems in writing assignment papers (Student B). In-depth analysis revealed that three students encountered difficulty in writing grammatically correct sentences (Students B, I and J).

According to the analysis in writing for academic purposes, four students indicated that they had no difficulty in academic writing of thesis/project papers and journal articles, and writing essay and academic texts (Students C, E, G and H).

4.2.2 Differences and Difficulties in Academic Cultures between Students' Home Universities and National University of Malaysia

Jordan (1997) centred upon academic culture as an important factor. It is true that the difference in academic culture is an important factor that influences students' academic studies. It is evident that

foreign students from a different academic learning culture face difficulty in adapting to a new academic teaching and learning culture.

The findings of the interviews revealed that all students in the university felt differences in academic culture between National University of Malaysia and their home universities. They argued that they were from different academic cultures and academic backgrounds. In revealing particular differences in academic culture, nearly all students (nine students) pointed out that there were differences in learning systems/education systems between this university and their home universities. A large number of the students (six students) also stated that education in this university was of a research-based system, which was not the case in their home universities. These students faced problems in coping with research education in this university. But, there were further differences in the medium of instruction for education programmes in this university and their home universities as five students revealed. They had faced problems in pursuing their studies in the medium of instruction in English. According to these five students, they studied their education programmes in their own languages.

4.3 Discussions of Findings from Interviews

According to the findings, the majority of the foreign postgraduate students (six out of total ten students) of the three faculties in the university faced their main problems in writing thesis/project papers. Based on the findings, it would seem that many of the foreign students were not competent in writing thesis/project papers. A study by Jordan (1981), which was found in Jordan (1997), supports this finding. Jordan's (1981) study revealed the overseas postgraduates' writing difficulties in theses at a university in UK. Writing difficulty is one of the major difficult areas in EAP situation (Jordan, 1997). It is arguable that writing theses/project papers is the main and common writing task of the foreign postgraduates of the university for academic purposes, which these students principally require. It is apparent that five of these students were from non-English education backgrounds and were considered low proficient in English. So, it would seem that these students were not capable of producing writing for academic purposes. According to the findings, one student encountered difficulty in writing assignment papers. He may have had difficulty in writing assignment papers due to low proficiency in English. The findings also revealed that three students found difficulty in writing journals articles. It would be assumed that three students had no practice writing papers in journals. Actually, all difficult areas of writing tasks for

academic purposes, identified by the findings of interviews, will be incorporated in the proposed ESP writing course.

On the other hand, the other four foreign postgraduate students of the three faculties in the university did not find difficulty in writing theses/project papers and writing journal articles. It was evident that these four foreign postgraduates of the three faculties were considered highly proficient in English as two of these four students were from English education backgrounds while the other two had IELTS scores. Hence, they were supposed to be capable of writing in English for academic purposes. From the findings, it would seem that they practiced writing in English for their academic studies. Consequently, they did not find any difficulty in academic writing.

Various studies have looked into the difficulties students experience as a result of academic cultural clashes. The vast majority of the students (nine of total ten) in this study revealed that they had difficulty in coping with the new academic culture in this university. If a student from a different academic culture enters a new academic culture, he or she can face difficulty in coping with the new academic culture (Jordan, 1997, p. 98). This finding is similar to the results of a study by Dudley-Evans and Swales (1980). Dudley-Evans and Swales (1980) focused on Middle East students with Arabic mother tongue. They recorded difficulty and differences caused by educational and cultural backgrounds. It is true that foreign students in the different science disciplines found difficulties in coping with the new academic culture in National University of Malaysia due to differences in the academic culture. In the interviews, the majority of the students (seven students) stated that the differences in academic cultures between this university and their home universities influenced their academic studies in this university. Based on the above discussions, it is logical that a new student from different academic and cultural backgrounds faces difficulty in coping with a new academic culture and environment. As a consequence, a foreign student can face difficulty in pursuing his or her academic study in the medium of English in a new academic environment due to differences in academic culture.

5 Results and Discussions from Document Analysis

The findings of the foreign students' interviews revealed that the majority of the foreign students had difficulty in writing theses/project papers in their postgraduate levels. So, using the triangulation method, document analysis focused on identifying the specific problems in writing theses/project papers. It also

examined authentic documents to determine language features in written texts required for ESP context in terms of target needs.

5.1 Language analysis based on framework suggested by Ellis and Johnson (1994)

This section depicts language analysis focusing on genre, organization, sentence structure, function, grammatical structure and lexis, which are based on the framework suggested by Ellis and Johnson (1994).

5.1.1 Genre:

The analyses of the four samples of students' theses found that the types of texts (genre) which were analysed were research reports (theses), written in the English language. Two theses were in the fields of environmental science. The other two theses were in the fields of electrical engineering and electronics. Students and researcher were the target audience for these theses in the concerned fields.

5.1.2 Organization:

The analysis from the four samples of theses revealed that there were five different parts or chapters in these four theses: chapter one (introduction to the study), chapter two (literature review), chapter three (materials and methods), chapter four (results and discussions) and chapter five (conclusion). The analysis found that two samples of these four theses suffered problems in organization of the texts of their chapters. For example, there were no introductions/conclusions and cohesion in the texts of most chapters in these two theses (except one chapter). On the other hand, according to the analysis, there were introductions/conclusions in the texts of all chapters in the other two samples of these four theses, but there were no cohesive arrangements in these texts. The analysis also found that in all four theses, there were lists of points of paragraphs in texts of all chapters.

5.1.3 Sentence structure:

The analysis from the four samples of the theses revealed that there were numerous sentences in paragraphs in all chapters (chapter one-chapter five), which were not complete (e.g., mostly, absence of some verbs or pronouns). The analysis of these four theses found that many sentences were not correctly punctuated. In addition the analysis of these four theses found the most common case that there were few linkages in terms of cohesion between sentences (few cohesive devices/logical connectors) in paragraphs

in all chapters. Most of the sentences were simple while few sentences were complex or compound sentences in these theses. From three samples there were also examples of ellipses in sentences in paragraphs in all chapters of these four theses.

5.1.4 Function:

Functions of the texts in all chapters of these four theses are description.

5.1.5 Grammatical Structure:

According to the analysis of the four samples of theses, the frequent grammatical structures in sentences in paragraphs in all chapters include the following verb tenses: simple present or past active/passive voice. Some verb forms were present continuous. In grammatical structures, there were also many usages of improper prepositions in the sentences within paragraphs of every thesis. It is found from the analysis of the four samples that frequent complex noun parses were used in sentences of paragraphs while some prepositional phrases were also used. In all four samples of theses, in grammatical structures, there were also usages of infinite and gerund in sentences.

5.1.6 Lexis:

The analysis from the four samples of theses revealed that technical or semi-technical vocabulary was used in all texts in the chapters. Certain nouns and verbs were frequently used in texts in these four theses. The analysis found that some specialized acronyms were used in every thesis. In addition some compound nouns are used in the texts in these four theses.

5.2 Discussions of Findings from Document Analysis

According to the findings from document analysis, two samples of the four theses suffered problems in organization of the texts of their chapters (e.g., no introductions/conclusions and cohesion in the texts of all chapters in these two theses except one). From the findings, it would appear that the two foreign postgraduates in the fields of science and technology in the university, who wrote two theses, were not proficient in the organization of texts of chapters. From the findings, all four theses suffered problems in cohesion of texts of almost all chapters. So, it would appear that all four foreign students (who wrote all four theses) were not competent in cohesion. It is true that cohesion is important in organizing texts. The findings from document analysis identified that many sentences in paragraphs in chapters of all four

theses were not correctly punctuated. So, it is assumed that all foreign students in the concerned fields were not competent in using punctuation in sentences. The findings revealed that there were problems with cohesion and few linkages between sentences (few cohesive devices/logical connectors) in paragraphs in all chapters of all four theses. Therefore, it is assumed that all four students had little knowledge concerning cohesive devices/logical connectors) in paragraphs. According to the findings, there were also examples of ellipses in sentences in paragraphs in all chapters of all four theses. The document analysis found that in grammatical structures, there were also many usages of improper prepositions in sentences of all theses. So, it would appear that all four foreign students were not conscious of using proper prepositions in sentences. In conclusion, the above areas of the foreign students' problems in writing skills, which were revealed by the document analysis, will be incorporated in the proposed writing course. The findings from document analysis revealed that the types of texts (genre), which were analysed, were research reports of all four theses, written in English language in the fields of science and technology. So, the findings determined the specific text types (genre), required for the ESP writing course. Finally, the findings revealed that technical or semi-technical vocabulary used in all texts of the four theses is in the field of science and technology, which should be used in the proposed ESP writing course.

6 Developing the Proposed ESP Writing Course

The first stage of the study was to carry out the language needs analysis. In this section, we endeavour to discuss the second stage of the study. The second stage of the study is concerned with designing the ESP writing course framework on the basis of the outcomes of the needs analysis. In developing an ESP writing course, the results of the needs analysis will help course designers in formulating goals and objectives, conceptualizing the content of the course, selecting teaching materials and course evaluation. Here are the following constructs for the course development process:

    a. Goals and Objectives of ESP Course

    b. Content/components of ESP Course

    c. Course details

    d. Selecting and developing ESP materials

    e. Evaluating the Course

6.1 Formulation of Goals and Objective of the ESP Writing Course

Formulating goals and objectives for a particular course allows teachers to create a clear picture of what the course is going to be about. As Graves (1996) explains, goals are general statements or the final destination; the level students will need to achieve. Objectives express certain ways of achieving the goals. In other words, objectives are teachable chunks, which form the essence of a course. It is obvious that clear understanding of goals and objectives will help teachers to be sure what materials to teach, and when and how they should be taught.

Goals:

By the end of the course, the postgraduates in fields of science and technology in National University of Malaysia should be able to coherently and formally produce writing for academic purposes based on their specific needs.

Objectives:

The objectives of the course are to provide the postgraduates in fields of science and technology with clear understandings of some important writing skills for academic purposes so as to produce necessary writing tasks for academic purposes based on foreign students' needs and wants.

6.2 Constructing the Content of the Course

Constructing the content is not a context-free process. When taking into account information on the students' needs, goals, and objectives, course designers need to determine which aspects will be included, emphasized, integrated and used as a core of the course to address students' needs and expectations. The proposed ESP writing course is designed for postgraduates in the fields of science and technology at National University of Malaysia in ESL setting. The postgraduates are heterogeneous students from various fields in science and technology in the university. Therefore, the course should be focused on these groups of students based on their writing needs, namely, "ESP Writing Course for Postgraduates in Science and Technology". The course can be categorized as "English for General Academic Purposes (EGAP)" in the umbrella term, 'ESP'. As Dudley-Evans and St John (1998, p. 41) state English for General Academic Purposes (EGAP) refers to the teaching of the skills and language aspects that are common to all disciplines.

The findings from interviews reveal that the foreign postgraduate students in the fields of science and technology in the university found difficulty in the following writing tasks, which are incorporated in the proposed ESP writing course. The foreign students should gain academic writing skills to accomplish writing tasks for academic purposes. I incorporate some writing skills, which were found to be the areas of students' problems by the document analysis. Additionally, I propose some necessary research and reference skills, which integrate the writing skills for the proposed writing course. Here are the writing tasks and skills in English for academic purposes, which fulfill the content of the course according to the students' needs:

6.2.1 Writing Tasks for Academic Purposes

1) Writing of theses/project papers

2) Writing of articles in journals

3) Writing of assignment papers

6.2.2 Writing Skills for Academic Purposes

Genre in Academic Writing

      1) Definitions of genres

      2) Importance of genre in academic writing

      3) Practice of genre (moves and steps) in research reports, essays, case studies, projects, literature reviews, articles of journals, and theses.

6.2.3 Grammar in Academic Writing

1) Verbs and tenses in academic writing (e.g., case studies, articles, research reports/theses, and short reports)

2) Voice used in academic writing

3) Modals used in academic writing

4) Articles in academic writing

5) Logical connectors in terms of cohesion (nonetheless, moreover, therefore, hence)

6.2.4 Organisation and Sentence Structure in Academic Writing

1) Writing paragraphs

2) Linkage of sentences in paragraphs (cohesion)

3) Usage of introduction and conclusion of texts with proper layout

4) Usage of proper preposition in sentences of paragraphs

5) Usage of punctuation in writing sentences of texts

6.2.5 Lexis

1) Definition of vocabulary

2) General vocabulary

3) Technical vocabulary

4) Semi-technical vocabulary

6.2.6 Reference and Research Skills

1) Using Catalogue

2) Using Books and journals

3) Using Bibliographies and indexes

4) Familiarity with footnotes

5) Paraphrasing quotations

6) Quoting directly

7) Referring to sources

8) Writing a reference list

6.3 Course Details and Teaching Team

The course takes place over one academic semester; duration of 25 weeks and the total length is 90 hours (2 hours/day; 2 days/week). Group sizes are usually between forty and fifty students. The 'target learners' are foreign postgraduates in the fields of science and technology at the three faculties: 1. Faculty of Engineering, 2. Faculty of Science and Technology and 3.Faculty of Information Science and Technology. English Language lecturers from the School of Language Studies and Linguistics, Faculty of Social Sciences and Humanities in the university will conduct the ESP writing course. But, subject

lecturers from the three faculties in the university may join the teaching team. Language lecturers can consult with subject lecturers in terms of selection of teaching materials.

6.4 Suggestion of ESP Teaching Materials for the Course

Selecting appropriate ESP materials is important for ESP teaching and learning situation. Chosen materials determine the content of the course and serves as a justification and explanation of the use of syllabus with different students. In student-centred instruction, the appropriateness of materials includes students' comfort and familiarity with the material, language level, interest, and relevance. However, in some situations, teachers are independent of the materials and are required to use the same textbook over and over. According to Dudley-Evans and St John, 1998, p. 170-171), the purposes of ESP materials are as follows:

1. as a source of language
2. as a learning support
3. for motivation and stimulation
4. for reference.

ESP practitioners/course designers can adapt appropriate materials for the proposed writing course. They can produce in-house materials based on the content of the course. ESP practitioners also have to be good providers of materials. Dudley-Evans and St John (1998, p. 173) reason that a good provider of materials will be able to:

1. select appropriately from what is available;
2. be creative with what is available;
3. modify activities to suit learners' needs; and
4. supplement by providing extra activities (and extra output).

Textbooks:

Language lecturers can select the following textbooks as teaching materials for the course. Language lecturers should go through the following books, which are useful teaching materials for the proposed writing course. They can select other textbooks which are best suited for the lessons.

1. Academic writing course by Jordan (1995)

2. Academic writing for graduate studies by Swales (1994) for genre approach

3. Developments in English for Specific Purposes written by Dudley-Evans and St John (1998)

4. Genre analysis by Swales (1990)

5. English for science by Zimmerman (1989)

6. English for Academic purposes by Jordan (1997).

Online sources:

Language lecturers are encouraged to visit this site for supplementary writing materials for teaching. This site offers a range of exercises in writing in English for Science and Technology:

1. http://geguri.kjist.ac.kr/~est/index.html

2. http://iceusc.usc.es/ccuniversitaria/recursos/ESRe-home.htm

6.5 Suggestion for Evaluation of the Course

Course evaluation is the last, but not the least, important stage. ESP practitioners/teachers evaluate their courses to improve and promote their effectiveness. Dudley-Evans and St John (1998, p. 128) state that "evaluation is fundamentally asking questions and acting on the response".

Mid-course and end-of-course evaluation

Since this ESP writing course lasts one academic semester, a mid-course evaluation questionnaire can be given to learners in order to fine-tune the course before it ends (Feez, 1998). End-of–course evaluation can be achieved through analyzing learners' outcomes, particularly, their final examination results and performance. They can also be asked to review their work and keep diaries of what they think easy/hard, interesting/uninteresting. The findings from such diary input can be analysed periodically (Hedge, 2000).

7. Conclusion

ESP course design should start from analyzing learners' particular needs and wants. Future language use, goals and objectives, content, and appropriate teaching materials can be determined on the basis of

learners' needs. Evaluation should also be integrated into the design process to ensure that these goals and objectives are achieved. The purpose of the paper is to introduce a framework for an ESP writing course for the postgraduates in different disciplines in science and technology at National University of Malaysia. In assessing language needs, the findings of the interview have revealed some difficult areas (such as 'writing of theses/project papers', 'writing of articles in journals' and 'writing of assignment papers') faced by these foreign students in writing for academic purposes, which are the important tasks/aspects for English for academic purposes. The findings of the interview have also looked into difference and difficulty in academic culture between this university and foreign students' home universities. The findings of document analysis further revealed students' difficulty in writing theses and also revealed the writing needs required for ESP writing purposes. In fact, important aspects concerning writing needs for academic purposes, which have been found in the needs analysis, have contributed to suggest the framework for an ESP writing course to accommodate these foreign students in the concerned fields. In conclusion, this article has included and integrated some aspects to introduce the course development framework on the basis of the results of language needs analysis: 1. formulation of goals and objective of the ESP writing course, 2. constructing the content of the course, 3. course details and teaching team, 4. suggestion of ESP teaching materials for the course, and 5. suggestion of evaluation for the course. First and foremost, the end product of the study is to introduce a proposal for an ESP writing course development framework, which may be the salient contribution to the study in ESP teaching and learning. In meeting specific writing needs for the demand of a specific English writing course, this ESP writing course is a timely attempt, which can help the foreign postgraduate students in the concerned fields of these three faculties to cope with their various study programmes in the medium of instruction of English language in the university. It is true that course development process should be viewed as an on-going process. Therefore, the proposed course can be revised and refined through course evaluation. Last, but not least, this paper may contribute to bring benefits to other ESP course designers involved in developing similar courses in other universities in the country.

Appendix: Transcriptions of Students' Interviews

"So the problem arising is basically writing thesis and articles. My supervisor is not satisfied with me. I must write again all the items what I have written to him". (Student A)

"I have writing problems**….**the assignment papers and project papers. Yah..yes..yes….I have also problems in writing grammatical correct sentences, easy." (Student B)

"But I think, I face little difficulty in academic writing like project papers, articles of journals". (Student D)

"Yah…I have problems in writing….especially writing my thesis. I cannot write any topic confidently for my study". (Student F)

"I face problems in writing. I face problems in writing accurately. My supervisor always suggests me to improve my writing…I mean I have many problems in writing my thesis". (Student I)

"I have many problems in writing…. I have faced problems in writing project papers…. I start to write project paper. But many problems I face. Many friends have written articles. But, I cannot write articles also. I know…I have many errors to write sentence". (Student J)

"No, I don't have any difficulty in writing project papers, essay writing. I have known how to write academic texts". (Student C)

"I can write my academic papers and works. I am versed in academic writing such as writing papers, articles and research reports". (Student E)

"I don't have any problem in writing academic papers, research papers, articles. I used to write project paper in English". (Student G)

"I don't have any difficulty in academic writing", (Student H)

"Yes, I face many difficulties to cope new academic culture here. I am from different education and cultural background. So, I have lots of problems of my study here. I don't have research background education in English. So, I still have many difficulties to do research education here. Here research is very difficult for me now. And education is course-work in my country". (Student A)

"I face many difficulties to cope with study in this university. I am from Arabic culture. Many problems I face here to study. I have to present my topic myself. I feel shy when I present. In my country…there is no presentation at all. It is difficult for me. I have still many difficulties. Actually, in my country, my study was course work…no research basis". (Student B)

"No I don't find that much difficulty to cope with the new academic culture here". (Student C)

"No now I don't find so difficulty to cope with the new academic culture in the university. I mean educational environment in UKM is different from my country university. I think, the teaching system

and education in UKM is different from those in my home. Yes……here new academic environment"… (Student D)

"Yah…when I came to this university, I had problem. Now it ok. Yah…now I can adjust this new academic culture, environment". (Student F)

"I have still many problems to cope with the new academic culture here.". This university is new. I have different education background and different culture. I am from Arabic culture". (Student G)

"I cannot say that I don't find difficulty in coping with this new academic culture here. Yes, I face many difficulties to cope new academic culture here"…. especially in interaction with Malay local students here…And..in academic system such as taking Malaysian language course for two semesters is also problem for me". (Student H)

Yes…I have still many problems. I am confused to adjust. This is new university in new country for me. Not for me…but I think every student has problem to cope this culture…I think so". (Student I)

"Yah…many difficulties….because I am from Oman. I am from different background. My culture is different. So, my study here is totally different. I feel different culture, different learning idea in this university. I am trying to adjust this culture here". (Student J)

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Simultaneous Group Presentations

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Biodata

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Abstract

This paper offers a method of increasing the speaking time of students in class and reducing the audience size within oral presentations. We will show how classes can be split into various numbers of groups so that presentations can happen simultaneously. Issues involving classroom management, implementation, and participant roles will be covered in the context of the presentation classroom, within the broader context of communicative language teaching.

Key words: Presentations, classroom management, groups, communicative language teaching.

1. Introduction

With one person speaking and the rest of the class as audience, whole-class oral presentations can take up much time with few people engaged in communication. In short, the potential for output is not being maximised. In this paper, we will first introduce the background of oral presentations as they are used in the language classroom, and then give reasons for carrying out presentations simultaneously. Next, classroom organisation will be discussed, beginning with some general principles for conducting simultaneous presentations, and followed by schemes for classes with five groups and classes with eight groups; an appendix contains schemes for different numbers of groups.

Simultaneous presentations are oral presentation given in the class by more than one group at the same time. Simultaneous presentations increase the speaking time of each student, reduce audience sizes and increase the number of presentation times. Simultaneous presentations can facilitate the repetition of output and lower teacher presence within each group. The idea of dividing the classroom into groups to enable more student interaction is not new (Ur, 1981, p.7). Nunan (1989, p. 44) cites an early research by Long et al. (1976) showing "that small-group work prompted students to use a greater range of language functions than whole-class activities". Klippel (2001, pp. 9–10) compiled organisation patterns for discussion groups of various numbers of students. More recently, Bayne (2005) has suggested using conference-style poster presentations in language classes.

Schemes to organise students into smaller groups for oral presentations, and for those groups to watch many of each other's presentations, were developed over four years within a former Japanese national university with class sizes from 15 to 35 students. Some classes specifically targeted oral English presentation skills while others focused on speaking or general language ability.

2. Presentations in the Language Classroom

Oral presentations have been defined as 'high structure tasks' (Biggs & Telfer, 1987, cited in Nunan & Lamb, 2001, p. 32). However, presentations fall on a continuum from planned to unplanned, from aided to unaided by writing, from less to more reciprocal, and from more to less socially constructed (Cook, 2000, p. 116). Presentations can range from 'careful style'—a highly scripted, polished performance—to 'vernacular style'—standing up and talking impromptu about a familiar topic (Ellis, 1990, p. 22). Agendas in the teaching of oral presentations also involve various non-linguistic issues, such as use of visual materials, gestures, and eye contact (a wide range of textbooks concentrate on presentation skills, for example, Dale & Wolf, 2000, pp. 18–31; Anderson, Maclean, & Lynch 2004, pp. 119–124; DiResta, 1998, pp. 22–24; Powell, 1996, pp. 7–8).

Underlying all the varieties of oral presentations are communicative language aims: to prepare the students for effective language use outside the classroom (Burns, Joyce, & Gollin, 1996, p. 43). Therefore, courses focussed on oral presentation can be seen in the broader context of communicative language teaching (CLT), and oral presentations can play an important role in any CLT course. In language classes, a more informal style is often used in warm-ups, whilst formal presentations can be the final goal of the course. Informal presentation skills cover general spoken skills such as asking for clarification, using fillers, and maintaining a flow of communication outside the set parameters of the presentation itself. However, both formal and informal presentations have a shared communicative purpose: achieving "the effective delivery of some content" (Swales, 2006, p. 46).

Whether presentations are formal or informal, a smaller audience is likely to help focus on presentation skills rather than fear of the audience. The traditional layout of a classroom consists of rows of desks facing the teacher and blackboard at the front, so in student presentations, the presenter is often sent to the front of the class. While this can be perceived as useful experience of public speaking that may also benefit the student in first language situations, it is likely to increase stress among students. Stress and 'language anxiety' have well-known negative effects (Krashen, 2003, p. 6; Gardner & MacIntyre, 1993, p. 5) and standing in front of a class of peers, especially alone, is likely to be a stressful experience, even in the first language. The anxiety generated, both preceding and during a presentation, can inhibit language acquisition and impede production for a large part of the lesson and potentially more of the course. Two things that can be done to reduce this 'language anxiety' are: reducing the size of the audience and increasing the number of fellow speakers with presenters working in groups. By creating smaller audiences, we create a less intimidating environment with more opportunities for speaking. This can be perceived as a support strategy to deal with barriers to learning (Feez, 2002, p. 44). In addition, with more 'background noise' coming from other speakers, the inhibition in the presenters to speak to

the audience will be reduced. With more opportunities to speak, it is hoped that students will feel less anxious and become more comfortable when speaking. This, in turn, should produce a better experience for the audience.

Short attention spans may be stretched if some students will not present or even move position for entire lessons, due to the scheduling of whole-class presentations. If the audience cannot maintain a reasonable level of attention and interest, there may be a negative emotive impact on the learners' attitude towards English. With students moving around and the audience changing roles to presenter more often, higher levels of attention can be maintained. Sending students to the front of the class also consumes a lot of class time while simultaneous group presentations provide more time for students to engage in oral output, which is particularly important in the context of many Japanese universities, with the time constraints of one-semester 15-lesson courses. For example, in a presentation class where twenty, ten-minute presentations are to be carried out at the end of a semester, only five or six whole-class presentations could practically be carried out per lesson. Therefore, it could take four weeks to complete all twenty presentations. If the class is split into several audiences, it becomes possible for every student to give a presentation in one lesson. With simultaneous presentations, it also becomes possible for groups to give their presentations more than once. If groups perform simultaneously and repeatedly, then the teacher can still see all the presentations, which may be necessary for assessment.

Repetition is beneficial as it will give students a second, third, or even fourth chance to apply and repeat the language they have prepared (although students may at first complain about having to give their talks more than once). According to Mitchell and Myles (2001, p. 21), there is wide agreement among theorists that L2 use and performance is vital for developing the skill component of language competence. Repetition of output leads to more experience and further reinforcement of the content as well as more talk time. Experience of a specific genre (in this case, oral presentation) provides the freedom to manipulate the generic conventions and respond to new situations, with the possibility of adding learners' own intentions to the content (Bhatia, 2001, p. 66). With repetition, therefore, the ability to develop individual expression in oral presentations becomes a more realistic possibility.

In creating several smaller presentation environments, simultaneous presentations mean less interference by the teacher. Kachru and Nelson (2001, p. 19) state that the role of student-to-student practice is not only essential for developing their speaking skill, but also to develop "the ability to construct recognizable and ... appropriate discourse". Reduced teacher contact results in less correction and more positive feedback for the students. It has been argued both that teacher corrections can be inconsistent and that students can fail to distinguish between a teacher's corrections and other comments made during the class (Breen, 2001, p. 311). While it may be claimed that some learners make more mistakes without the teacher present, if the learners are clear about the task, the number of mistakes will not be significant (Wright, Betterbridge, & Buckby, 2000, p. 5).

In larger classes, simultaneous presentations can be fairer and more equal; if all students give their presentations in the same lesson, they have the same amount of preparation time. In a situation where time constraints make it impossible for all students to give presentations in one lesson, those who do not present in the first lesson could be at an advantage, as they can spend another week revising their presentations and practicing their delivery based on their observations of that lesson.

3. Procedure

Simultaneous presentations involve a dynamic classroom, which can rapidly deteriorate into chaos. There are six considerations in the implementation of simultaneous presentations that will make the lesson run smoothly.

1. Before the lesson starts, the teacher must know where and in what order each group will give presentations, and which groups will watch. This includes a clear picture of the classroom layout and how the groups will move around. The teacher should know which group to watch each time, as it may become impossible to see certain groups later in the class.

2. Each time the students move, at least one person in each group should know where they are going. This can be reinforced by asking them. If one person knows, the others can follow. A diagram on the board can help this. It is not necessary for students to know the plan for the entire lesson, as once the pattern of movement starts, it should be clear enough to follow.

3. Groups should finish their presentations within a specified time and should all move simultaneously. In situations when a group goes over time, the teacher may need to intervene. It is possible to change the times as the lesson progresses, for example, gradually giving less time for each block of presentations, depending on the specific goals of the presentation and the general dynamic and progress of the class.

4. There are different schemes for different numbers of groups. With odd numbers, it is possible for the teacher to stay in the same place in the classroom and see each group perform. However, this is not possible with four or eight groups. Schemes for five groups and eight groups are shown below. The appendix contains schemes for four to nine groups. As different teachers visualise classroom dynamics in different ways, the schemes have been presented in textual form, diagrams, and tables. These show the order in which groups should present, where in the classroom they should present, and who should watch each presentation.

5. The presenters should generally have their backs to the walls or corners. Reasons for this include: the possibility of displaying visual material on the boards or walls; visually and acoustically attracting the audience away from the other groups; establishing positions for presenters and audiences. Also, having the wall as a background can give an increased sense of security for the speakers. Sufficient chairs and desks for the audience should be turned to face the presenters.

6. A strategically placed video camera can record some groups' presentations so there is a record for assessment purposes in the event that there is not time for the teacher to see all the presentations in one lesson. This becomes more likely as the number of groups increases. Where possible, such a camera should be fixed, on a tripod, with a directional microphone fitted. In some cases, the camera will have to move to see different groups. In such cases, the filming can be delegated to the same two groups of students throughout the lesson.

3.1. Procedure for Five Groups
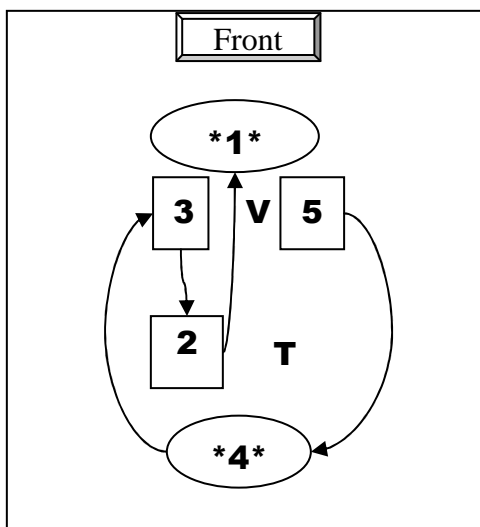
One group presents from the front of the class, with an audience of two groups. Another group presents at the back of the class, with an audience of one group. After each presentation, groups move around the class in a circuit. For example, Group 5 moves into group 4's place, Group 4 into Group 3's place, and so on, with Group 1 moving into Group 5's place. After two or three moves, students usually understand the movement pattern. If the cycle is completed, all groups will see the same number of presentations (three) and give their presentation the same number of times (twice). However, if there are less than five presentations, not all groups will present the same number of times.

The teacher should stay in the same place to see all the groups.

Front Presenter	Audience	Back Presenter	Audience
1	3, 5, V	*4*	2, T
2	4, 1, V	*5*	3, T
3	5, 2, V	*1*	4, T
4	1, 3, V	*2*	5, T
5	2, 4, V	*3*	1, T

Although the cycles presented here and in the appendix are not the only ones that work, there are many cycles which mean that groups see the same presentations more than once, which may not be desirable.
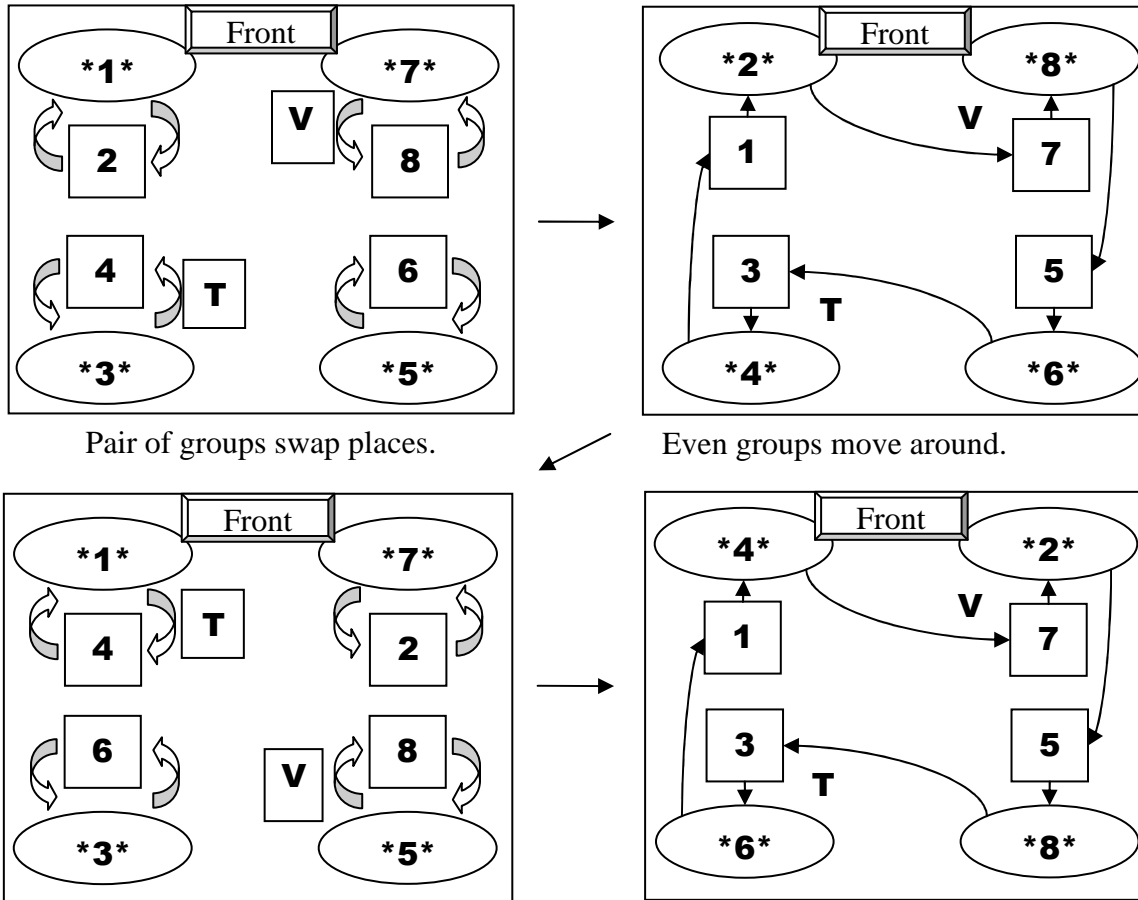
In the diagrams and tables, groups are numbered from 1 to 5, in the hope of making them easier to understand. There is no need to actually allocate numbers to each group in class as long as the patterns are followed, the teacher has a clear plan of the moves for every presentation, and someone in each group knows each time where they are moving.

In diagrams and tables, "*1*" (in an oval) indicates a group that is giving a presentation. Groups with no asterisks (in square boxes) act as their audiences. "T" shows the group the teacher stands to watch and "V" shows the position a video camera is placed.

3.2. Procedure for Eight Groups

With eight groups, pairs of groups should present to each other in turn, and then one group from each pair should move around the class, while the other groups should stay in the same place. While this is straightforward for the students, the teacher must move around to catch all the presentations.

One (odd-numbered) group presents in each corner of the class, with one (even-numbered) group watching. At the end of the presentation, the groups switch around, and the even-numbered group presents to the odd-numbered group. Next, the even-numbered groups move around the class, and the odd-numbered groups go back into the corners to present to the next audience. Unlike the scheme for 5 groups, there is no place that the teacher can stay to watch all groups; the teacher should move around the class each time to watch all of the odd-numbered groups, and go back to the initial position each time to watch all of the even-numbered groups. The video camera, which is increasingly likely to be necessary for assessment as the number of groups goes up, must also move backwards and forwards around the class, and should be entrusted in turn to the moving Group 8 to record all the static odd groups, and the stationary Group 7 to record all the passing even groups.

Pair of groups swap places.

Even groups move around.

Front Left Presenter	Audience	Back Left Presenter	Audience	Back Right Presenter	Audience	Front Right Presenter	Audience
1	2	*3*	4, T	*5*	6	*7*	8, V
2	1	*4*	3, T	*6*	5	*8*	7, V
1	4, T	*3*	6	*5*	8, V	*7*	2
4	1	*6*	3, T	*8*	5	*2*	7, V
1	6	*3*	8, V	*5*	2	*7*	4, T
6	1	*8*	3, T	*2*	5	*4*	7, V
1	8, V	*3*	2	*5*	4, T	*7*	6
8	1	*2*	3, T	*4*	5	*6*	7, V

4. Discussion

There are advantages and disadvantages to simultaneous presentations from both the teacher's and students' points of view, in implementation, time spent between oral production, and students' feelings towards repetition and performing without the teacher's presence.

Although it is hoped that the explanations and diagrams above are clear and easy to understand, the patterns suggested in this paper may appear complex. One concern may be the perceived increase of work for the teacher in setting up simultaneous presentations compared to whole-class presentations. It is likely that these patterns will take longer to set up than a conventional presentation from the front of

class. However, the schemes follow a natural rhythm and once students know the pattern, the time between presentations may in fact be shorter than that in whole-class presentations. In addition, if students have been socialized into this pattern from an early point in the semester, they know what to expect in the following weeks. Even if more time is spent setting up the presentations, these schemes will greatly increase the time students are occupied in target tasks.

There are also benefits to the teacher being absent from many presentations. From the students' perspective, without teacher's presence, there is one less observer—an observer who may be particularly intimidating. The presentation time without the teacher can be seen by students as an opportunity to practice their contents or simply have exposure to speaking English as a warm-up without worrying about possible mistakes before they are formally assessed. Without the main assessor, the speakers may have less tension and be less cautious to produce language.

Another point is the equality of assessment. While we have suggested that simultaneous presentations can give large classes fairer chances as the whole class gives their presentations on the same day, there are still some issues that if a teacher assesses some students' first-time presentation, other students have already presented a few times before being assessed. This issue must be addressed, as it applies to all types of presentation, whether they are simultaneous or whole-class.

5. Conclusions

We believe that simultaneous presentations, when carried out with the schemes above, can greatly improve many aspects of in-class presentations.

The ideas presented offer potential for making efficient use of time by allowing more groups to complete more tasks in one lesson. With simultaneous presentations, students can increase their oral output and reinforce learning through repetition of tasks and engagement in more student-to-student interaction without constant teacher presence. In order to achieve these benefits, it is important for the teacher to critically assess and review the contents of this paper. As different classes have different requirements and different numbers of presenters, different schemes are required.

This method may be of use in any classroom situations where presentations take place. In view of the variety of forms a presentation may take, the application could be wide. The schemes introduced are by no means exhaustive or ideal, and the authors look forward to further development and improvements by teachers who choose the implementation of simultaneous presentations.

Appendix: Simultaneous Presentations Schemes, Four to Nine Groups

Four Groups

Front Presenter	Audience	Back Presenter	Audience
1	2, V	*3*	4, T
2	1, V	*4*	3, T
1	4, T	*3*	2, V
2	3, T	*4*	1, V
4	2, T	*1*	3, V
2	4, V	*3*	1, T
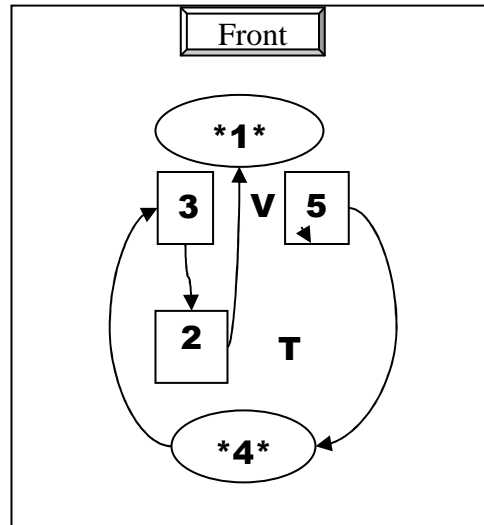
Five Groups

Front Presenter	Audience	Back Presenter	Audience
1	3, 5, V	*4*	2, T
2	4, 1, V	*5*	3, T
3	5, 2, V	*1*	4, T
4	1, 3, V	*2*	5, T
5	2, 4, V	*3*	1, T

Six Groups
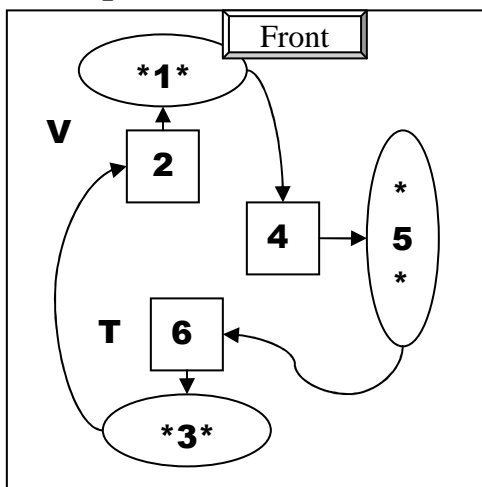
Odd groups move clockwise.
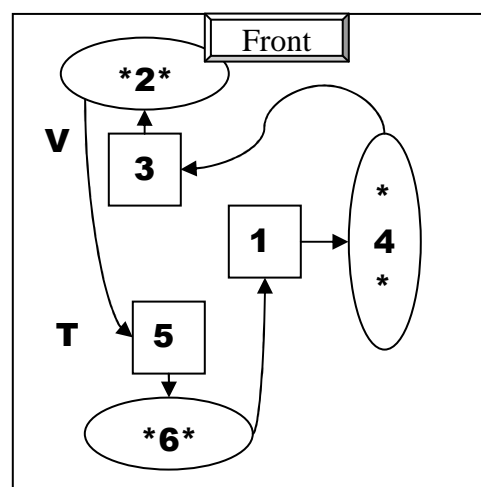
Even groups move anti-clockwise.

Front Presenter	Audience	Back Presenter	Audience	Side Presenter	Audience
1	2, V	*3*	6, T	*5*	4
2	3, V	*6*	5, T	*4*	1
3	4, V	*5*	2, T	*1*	6
4	5, V	*2*	1, T	*6*	3
5	6, V	*1*	4, T	*3*	2
6	1, V	*4*	3, T	*2*	5

Seven Groups

Front	Audience	Back	Audience	Side	Audience
1	6, 7, V	*3*	4	*5*	2, T
2	7, 1, V	*4*	5	*6*	3, T
3	1, 2, V	*5*	6	*7*	4, T
4	2, 3, V	*6*	7	*1*	5, T
5	3, 4, V	*7*	1	*2*	6, T
6	4, 5, V	*1*	2	*3*	7, T
7	5, 6, V	*2*	3	*4*	1, T

Eight Groups

Pair of groups swap places.   Even groups move around.

Front Left Presenter	Audience	Back Left Presenter	Audience	Back Right Presenter	Audience	Front Right Presenter	Audience
1	2	*3*	4, T	*5*	6	*7*	8, V
2	1	*4*	3, T	*6*	5	*8*	7, V
1	4, T	*3*	6	*5*	8, V	*7*	2
4	1	*6*	3, T	*8*	5	*2*	7, V
1	6	*3*	8, V	*5*	2	*7*	4, T
6	1	*8*	3, T	*2*	5	*4*	7, V
1	8, V	*3*	2	*5*	4, T	*7*	6
8	1	*2*	3, T	*4*	5	*6*	7, V

Nine Groups
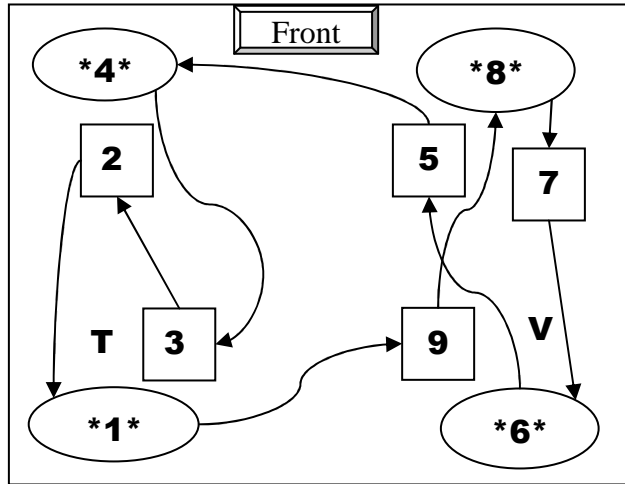
Front Left Presenter	Audience	Back Left Presenter	Audience	Back Right Presenter	Audience	Front Right Presenter	Audience
4	2	*1*	3, T	*6*	9, V	*8*	5, 7
5	3	*2*	4, T	*7*	1, V	*9*	6, 8
6	4	*3*	5, T	*8*	2, V	*1*	7, 9
7	5	*4*	6, T	*9*	3, V	*2*	8, 1
8	6	*5*	7, T	*1*	4, V	*3*	9, 2
9	7	*6*	8, T	*2*	5, V	*4*	1, 3
1	8	*7*	9, T	*3*	6, V	*5*	2, 4
2	9	*8*	1, T	*4*	7, V	*6*	3, 5
3	1	*9*	2, T	*5*	8, V	*7*	4, 6
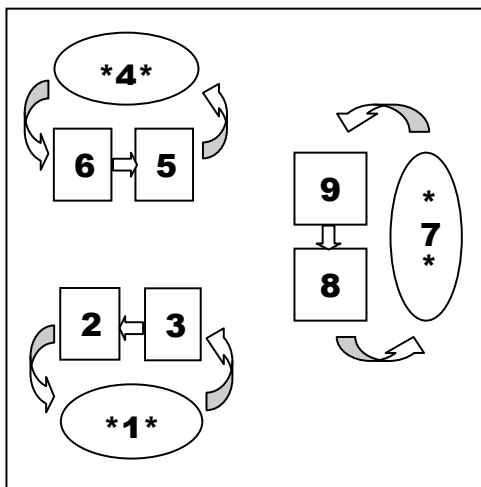
Groups rotate in threes.
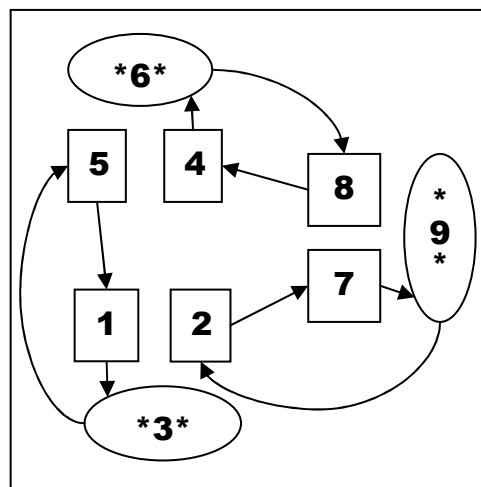
Groups split up and reform.

Front Presenter	Audience	Back Presenter	Audience	Side Presenter	Audience
4	5, 6, V	*1*	2, 3, T	*7*	8, 9
5	6, V, 4	*2*	3, 1, T	*8*	9, 7
6	4, 5, V	*3*	1, 2, T	*9*	7, 8
4	8, 3, T	*1*	5, 9	*7*	2, 6, V
8	3, 4, V	*5*	9, 1, T	*2*	6, 7
3	4, V, 8	*9*	1, 5, T	*6*	7, 2
4	2, 9	*1*	8, 6, V	*7*	5, 3, T
2	9, 4, V	*8*	6, 1, T	*5*	3, 7
9	4, V, 2	*6*	1, 8, T	*3*	7, 5

Four Groups

With four groups, it is possible for every group to see every other group. One group should present at the front of the class with one group watching, and another group present at the back with another group watching. After the first presentation (odd groups), groups swap places and the even groups give their presentations. Next, the odd groups should give their presentations again, with different audiences, and then the presenters and audiences should swap again. For the fifth presentation (by which time the teacher will have seen every group) one of the groups will have to give their presentation again (twice in a row) so the pairings become different, the even groups can watch each other's presentations, and the odd groups also watch each other's.

Five Groups

One group presents from the front of the class, with an audience of two groups. Another group presents at the back of the class, with an audience of one group. Every group gives their presentation twice and sees three presentations. The teacher should stay in the same place to see all the groups. It is usually possible to complete five presentations in one lesson, although it is important for groups to move quickly.

Six Groups

One group presents from the front of the class, another group presents from the back of the class, and a third group presents from the side of the class, each with an audience of one group. After giving their presentation, each group moves around the class, odd groups moving clockwise, even groups moving anti-clockwise; unlike the schemes for five or seven groups, there is no single circuit that all groups follow. After watching a presentation, each group moves into that position to give their presentation. Every group gives their presentation three times and sees three presentations. As with five and seven groups, the teacher should stay in the same place to see all the groups.

Seven Groups

One group presents from the front of the class, with an audience of two groups. Another group presents at the back of the class, with an audience of one group, and another group presents at the side of the class, with an audience of one group. Every group gives their presentation three times and sees four presentations. Again, the teacher should stay in the same place to see all the groups. With seven groups, the possibility of running out of time becomes greater, and a video camera can be set up at the front of the class to capture groups that the teacher may not be able to see live.

Eight Groups

With eight groups, it is impossible to create schemes similar to those for five, six, or seven groups; whatever happens, the same groups will meet each other. Instead, pairs of groups should present to each other in turn, and then one group from each pair should move around the class, while the other should stay in the same place. While this is not particularly complicated for the students, the teacher must move around to catch all the presentations.

One (odd-numbered) group presents in each corner of the class, with one (even-numbered) group watching. When finished, the groups swap around, and the other group presents. Next, the second groups to present move around the class, and the first groups go back into the corners to present to the next group. It is important that the even-numbered groups move around each time, and the odd-numbered groups stay in their corners throughout. Unlike for five, six, or seven groups, there is no place that the teacher can stay to watch all groups; the teacher should move around the class each time to watch all of the odd-numbered groups, and go back to the initial position each time to watch all of the even-numbered groups. The video camera, which is increasingly likely to be necessary for assessment as the number of groups goes up, must also move backwards and forwards around the class, and should be entrusted in turn to the moving group 8 to record all the static odd groups, and the stationary group 7 to record all the passing even groups.

Nine Groups

It is possible to place one group in each corner, three with one-group audiences and one with two groups watching, similar to the schemes for five or seven groups. If the cycle runs its full course, each group will give its presentation four times, seeing five. It is unlikely that nine presentations will be attainable within one lesson, unless particular attention is paid to efficiency and decreasing time limitations are imposed upon students. Another method is possible that will allow each group to give the same number of presentations (see below).

Nine Groups Alternative

Alternatively, groups are put into three trios of three groups, each presenting to the other two in turn. After three presentations, in each trio, one group stays in the same place, while the other two go to different places. In this way, after six presentations, each group will have given two presentations and watched four. If the full nine-presentation course is followed, each group will have given three presentations and watched six. The teacher should stay in the same place for the first three presentations, and subsequently move from group to group. If a video camera is used, it should stay with the same two groups. (In the scheme, group 4 should record the groups that they watch. When group 4 is presenting, group 6 should record the group they watch.)

Universal Group Alternative

There is an alternative for any number of groups, which will allow all students to watch all presentations. Each group should split into two halves, each half prepared to give the presentation. In a similar scheme to that for eight groups, one half of each group remains static, while the other half moves around the class, from group to group. They give their presentations in turn to what will be a very small audience, then the moving groups move around to the next group. As with the eight-group scheme, the teacher should move around the class while the static speakers are speaking, and return to the same place to catch the moving speakers. If groups take the full course around the class, this method has the additional advantage of allowing all groups to see the presentations of all other groups.

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Using a Commercially Developed ESP Textbook: A Classroom Dilemma

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Biodata

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Abstract

This paper discusses an academic experience of using *Science Vistas* by Dean Curry (1981) as a textbook to teach English for first year students of Biology at the Higher Institute of Applied Biology, Medenine, Tunisia. The paper focuses on: (i) the emotional and intellectual reactions of the students towards this textbook, (ii) the rectifications made in the lessons contained in this textbook in light of students' attitudes, current research on textbook evaluation, and Communicative Language Teaching (CLT). Results show that learners are dissatisfied with topics, tasks, listening, pronunciation, how to take part in conversation, skill coverage, skill integration, recycling, and revision. This implies the need to modify materials to suit the needs and levels of specific learners in specific contexts.

Keywords: ESP; Textbook; Evaluation; Attitudes; Modification; CLT

1. Introduction

Textbooks are the visible heart of any language teaching program. With regard to Tunisia, students specializing in subjects other than English are required to study English for the first two years at university (Battenberg, 1996). The Tunisian Ministry of Higher Education, however, does not provide the teachers concerned with textbooks that could be used in the classroom. Teachers are left with the task of selecting the textbooks they deem appropriate even though they are unlikely to have an adequate training in terms of how to select or evaluate materials beforehand; and intuition may be the only

reference to these teachers. Intuition, however, is implicit, "difficult to explain to others, and therefore difficult to defend" (Chambers, 1997: 31).

The result would ultimately be using inappropriate materials that might not suit the level or the needs of learners. The term 'materials', as defined by Tomlinson (1998), refers to anything that is used by learners or teachers to facilitate language learning. Yet, because teachers are not provided with textbooks by the ministry and because designing one's own materials is too demanding a task, teachers tend to select from those available. The ESP Center at the High Institute of Languages, Tunis is where English language textbooks meant for students specializing in the sciences are supposed to be found. Most of the English language textbooks I found at the center were meant for business, technology, law, and medical students, but one stood out as useful for my students: *Science Vistas* by Dean Curry (1981). The textbook, old as it may seem, was the only in-print material available; and teachers in different parts of the world are likely to be faced with the same dilemma and consequently have to make use of what is available.

In this paper, the focus is to report on the emotional and intellectual reactions of my students to the textbook being used and the rectification made to its lesson contents after the first six lessons were covered. It also demonstrates how modification was carried out and how it helped them better react to the lessons. This could serve as a prelude to an ESP course design as it determines the "what" and "how" of an ESP course (Jiajing, 2007: 99).

2. Theoretical background

Textbooks are of paramount importance in the ESP classroom. Yet the feeling is that most textbooks used in the ESP context are "in various ways deficient" (Robinson, 1980). The utility of ESP/EST textbooks has been questioned by Ewer and Boys (1981) because approach and methodology are overemphasized at the expense of more essential factors like linguistic content validity, the accuracy

of the given examples and explanations, and the coverage of the provided exercises. Such deficiencies are attributed to the textbooks' being supposed to be used for "remedial" or "supplementary" courses (Ewer & Boys, 1981: 97) and also to the fact that they do not seem to provide sufficient coverage of skill area and practice materials (Swales, 1980).

Considered from an ELT perspective, textbooks might be a cause of disappointment for teachers owing to design related flaws and scepticism regarding theoretical premises of a number of textbooks (Sheldon, 1988). Brumfit (1980: 30) makes the point that, in publishing textbooks, "masses of rubbish is skillfully marketed", and there is "a coursebook credibility gap" (Greenall, 1984: 14) because of some strongly marked contradictions relative to factors such as the designers' or creators' agendas, the selection criteria resorted to, the real classroom implementation, and also the chasm between what is financially profitable and what is educationally sought-after (Apple, 1984; Jones, 1990; Gray, 2002). All this seems to question the utility of using textbooks and seems, especially in an ESP context, to call for a systematic use of in-house materials, and considerable literature has been written on the genesis of ESP materials (Widdowson, 1981; Bates, 1976; Jordan, 1990; McDonogh, 1984; Philips & Shettlesworth, 1987; Swales, 1980).

The viability of such endeavour, however, remains to be seen for a number of reasons. Though in-house materials may be more appropriate and to the point than published textbooks in terms of language content, methodology, and flexibility, they may be impracticable in that their production is very time-consuming and expensive (Swales, 1980; Pilbeam, 1987). Pilbeam (1987: 123) makes the point that "it is highly unlikely that one-off ESP courses justify the expense of producing tailor-made materials". Furthermore, in Tunisia and in the context of this study, teachers of English for students specializing in subjects other than English are reluctant to do that part of the job they are not paid for: materials design and development. Variables like having a complete set of lessons as a whole and a full syllabus at hand seem to be indisputable qualities that weigh heavily in favour of the use of published textbooks.

Nevertheless, and for the reasons mentioned above, textbook contents need to be cautiously dealt with in the sense that a systematic textbook evaluation appears to be warranted. In the present study we are seeking to establish the appropriateness of the textbook mentioned above in the light of students' emotional and intellectual attitudes, which were gauged with reference to textbook evaluation frameworks (Sheldon, 1988; Cunningsworth, 1995; Ur, 1996) and through the use of questionnaires and interviews (Appendix A & B). While constructing the questionnaire, the researcher resorted to textbook evaluation frameworks (Sheldon, 1988; Cunningsworth, 1995; Ur, 1996) the criteria of which, as listed below, (those criteria most recurrent in the three models) were the basis of most of the questions put forth to the students.

- Variety of topics and tests

- Clarity of instructions

- Content organization and sequencing

- Listening materials

- Good pronunciation, vocabulary, and grammar explanation and practice

- Adequate revision and recycling

- Conventions of language use beyond the sentence level

- Skill coverage and integration

The main aim was to gauge the emotional and intellectual attitude of learners towards the textbook. When it came to lesson rectification, great care was taken in order to be consistent with the CLT activity types as stated by Richards (2005):

- Information-gap activities

- Task-completion activities

- Information gathering activities

- Opinion-sharing activities

- Information-transfer activities

- Reasoning-gap activities

- Role plays

- Pair work and group work

The reason behind using CLT as a theoretical framework for this study is that "it marks the beginning of a major paradigm shift within language teaching in the twentieth century, one whose ramifications continue to be felt today. The general principles of Communicative Language Teaching are today widely accepted around the world" (Richards & Rogers, 2001:151) and "since the advent of CLT, teachers and materials' writers have sought to find ways of developing classroom activities that reflected the principles of a communicative methodology" (Richards, 2005: 13).

It is noteworthy that the framework referred to in assessing textbooks needs also to be applied even to the evaluation of modified textbooks so as to check if the modifications being made are beneficial. Now, whether an internal or an external evaluator is to conduct the evaluation is one question that received much interest in the literature (Stufflebeam et al., 1971; Love, 1991; Mathison, 1991; Scriven, 1991; Sonnichsen, 2000).

In the context of program evaluation, Scriven (1991: 159) states that, in contrast to an internal evaluator, "an external evaluator is someone who is at least not on the project or the program's staff". At the school level, evaluation is mainly undertaken by external evaluators, such as inspectors, who are commonly viewed by insiders as a threat (Alderson & Scott, 1992). At the university level, at least in the context where I teach, evaluation is only undertaken by teachers (internal evaluators), who can have a better understanding of the material, project, or program being evaluated. As far as this study is concerned, the evaluator is the teacher himself. He is aware of the local context of the evaluation in that

he knows the local problems and he is better qualified to implement any evaluation recommendation. In line with this, Weir and Roberts (1994: 23) implicitly point out that insiders carry out more valid evaluations.

3. Method

3.1. Corpus

The corpus of this study is a textbook entitled *Science Vistas* by Dean Curry (1981), which was meant for intermediate level learners. The textbook comprises the twelve chapters listed below.

- Chapter 1: How to be a scientist

- Chapter 2: Light wave communication

- Chapter 3: Fabulous fake

- Chapter 4: False teeth

- Chapter 5: Auroras

- Chapter 6: Laser beams

- Chapter 7: Electric fish

- Chapter 8: Computerized tomography

- Chapter 9: Spider webs

- Chapter 10: Heredity

- Chapter 11: Nature's perfect garment

- Chapter 12: Essential minerals for the body

It is pointed out in the textbook foreword that it should "prove of special interest, because of the information contained, to students of both biological and physical sciences" (p. i).

3.2. Participants

The participants consisted of 60 first-year students enrolling at the Higher Institute of Applied Biology, Medenine, Tunisia. Of the students, 43 were females and 17 were males. They were all Tunisian but came from different parts of Tunisia. They all speak some variety of the Tunisian dialect as a mother tongue, Modern Standard Arabic, French and some English. The vast majority of them (55 out of 60) were in the 18-22 years age range. They were randomly selected from the enrollment lists so as for every individual to be given the opportunity to be selected (Hatch & Lazaraton, 1991). The questionnaire was conducted immediately after class time, and hence the rate of return was 100 per cent. As to the interview, it took place during the four week period following the questionnaire, one at a time with the same questioned students, and it was mainly meant to check on the result of the questionnaire. Both the questionnaire and the interview were conducted in Arabic on account of the subjects' level in English.

3.3. Instruments: Questionnaires and Interviews

In constructing the questionnaire (Appendix A), various evaluation frameworks (Sheldon, 1988; Cunningsworth, 1995; Ur, 1996) were consulted. Criteria most recurrent (as listed in the theoretical background section) in the three frameworks were the basis of the questions forming the questionnaire.

The main aim was to gauge the emotional and intellectual attitude of learners towards the textbook. When it came to lesson rectification, great care was taken in order to be consistent with the CLT activity types as stated by Richards (2005: 18).

- Information-gap activities
- Task-completion activities
- Information gathering activities
- Opinion-sharing activities
- Information-transfer activities

- Reasoning-gap activities

- Role plays

- Pair work and group work

As to interviewing (Appendix B), the decision was to use open interview which "has to start with some kind of agenda, but it is usually a loose one, a rough checklist built around issues formulated in outline only" (McDonough & McDonough, 1997: 184). Thus, while interviewing the subjects, only a list containing the topics and issues which were to be focused upon was used. This style of interviewing would help obtain unasked-for, yet pertinent, information. A margin of freedom was tolerated so as to account for what Hennerson (1987) called the "ventilation of feelings".

4. Results and Discussion

4.1. Results of the Questionnaire and the Interview

Statement 1 (S1) attempts to find out if the textbook being used contains a variety of interesting topics. The majority of students (57%) did not approve of the statement, entailing that they were not totally satisfied with the textbook topics. The following comment could be called typical.

> I think some of the topics are not very recent. One of the lessons is about lightwave communication and old phones. I do not know why it was not about mobile phones. I mean in 2007, what is the point in studying something so old? (Student X)

Such a comment clearly shows that the students preferred topical topics, i.e. topics that could be of special interest in the present time in such a way as to hold their attention. Indeed, how interesting a topic is generally is a decisive factor in the learning process.

While 7% (5% + 2%) of the students agreed with the statement that the textbook included varied interesting tasks, 70% (48% + 22%) disagreed with it. As pointed out by a student: "there is a lot of repetition in the textbook. We always have the same type of exercises and one cannot feel any sort of

creativity. I become very bored as we move from one task to the other" (Student Y). This seemed quite justified and one clear example is the first kind of task that kept being repeated in all the chapters wherein learners were asked to guess the meaning of a list of vocabulary items. Such dissatisfaction with topics and tasks is hence mainly due to two main factors: the age of the textbook on the one hand, and the change in students' needs over the years on the other hand.

One positive attitude that we could find out, however, was their overall satisfaction with the clarity of instructions (30% + 47%). One of the comments that students made was that most of the instructions were short sentences and were in the infinitive form, qualities which made the tasks they were required to do clear enough. Another somewhat positive view had to do with statement 4 (S4), regarding the basis on which the lesson tasks were sequenced. A total of 47% (16% + 31%) seemed to agree that tasks were sequenced from easy to difficult.

In response to questions 5 and 6, 100% reported deficiencies in relation to listening materials and pronunciation explanation and practice. Nowhere in the textbook could they find any tasks where listening and pronunciation were covered. The dissatisfaction of the students held for statements 7 (taking part of conversation), 8 (revision and recycling), 9 (skill coverage), and 10 (skill integration) with percentages of disagreement equaling 13%, 17%, 0%, and 6%, respectively. The strengths of the textbook, however, in vocabulary (statement 11) and grammar (statement 12) appear evident, as 54% (11% + 43%) and 59% (17% + 42%) agreed on both statements respectively. Students also agreed on the textbook's utility in helping them structure pieces of extended writing (statement 13) (55%), skim for general ideas (statement 14) (83%), and scan for details (statement 15) (76%) in the reading passages. The table below summarizes these findings.

Table 1. Students' Attitudes and Intellectual Reaction towards the Textbook

Statements	Strongly Agree %	Agree %	Neither Agree Nor Disagree %	Disagree %	Strongly Disagree %
1. The textbook we use contains a variety of interesting topics	1%	19%	33%	57%	0%
2. The textbook lessons include varied interesting tasks	5%	2%	23%	48%	22%
3. The question instruction are clear for me to do the tasks	30%	47%	17%	4%	2%
4. The lessons tasks are sequenced from easy to difficult/from simple to complex	16%	31%	44%	9%	0%
5. Listening is one skill which is adequately covered by the textbook in use	0%	0%	0%	66%	34%
6. There is good pronunciation explanation and practice in the textbook	0%	0%	0%	65%	35%
7. The textbook lessons help me be able to take part in conversation	0%	13%	45%	38%	4%
8. The textbook provides satisfactory revision and recycling	0%	17%	19%	64%	0%
9. The textbook in use covers the four skills (reading, speaking, listening, and writing)	0%	0%	17%	63%	20%
10. There is an integration of skills in the textbook	0%	6%	20%	61%	13%
11. There is good vocabulary explanation and practice in the textbook	11%	43%	16%	20%	10%
12. There is good grammar explanation and practice in the textbook	17%	42%	30%	11%	0%
13. The textbook lessons help me be able to structure a piece of extended writing	4%	51%	39%	6%	0%
14. The textbook lessons help me be able to identify the general ideas of the reading passages	26%	57%	5%	12%	0%
15. The textbook lessons help me be able to scan for specific details in the reading passages	13%	63%	10%	14%	0%

In the interview and part B of the questionnaires, the majority of students expressed their hope to see some change in the lessons. The histogram below illustrates the number expressing their attitude towards the prospect of modifying the textbook lessons.

Figure 1. Students' Attitudes Towards Lesson Content Modification
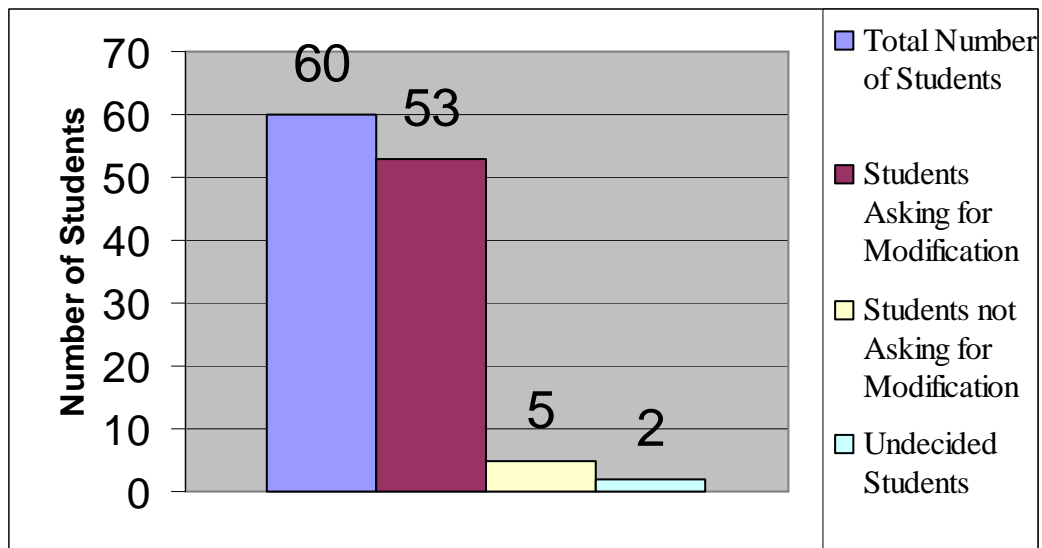
They voiced their concern about listening skills and made the point that they needed to listen to native speakers of English, and some of them said that it would be difficult to improve their English unless the listening skills were adequately covered. A number of students articulated their expectation to have reading passages on recent topics like bird flu, cloning, and genetically modified food.

4.2. Modifying Lessons

Modification was made with reference to students' attitude and intellectual reaction towards the textbook in question. Those aspects of the textbook viewed most critically by the students were subject to change, which was made on the basis of the CLT activity types as put forward by Richards (2005) as stated above. These were: topics, tasks, integration of skills, taking part in conversation, listening, pronunciation, and finally recycling and revision.

The first step was to look for reading passages that could hold the attention of learners and that could also be a repository of vocabulary items that those specific learners were most likely to need to use. Specialty-based online resources like http://www.biology.arizona.edu/, http://www.sciencedaily.com/, and http://naturalsciences.sdsu.edu/links.html were referred to in order to

seek suitable and authentic texts. Then, new and varied tasks were designed so as to do away with the repetition the students complained of.

In one case, the reading passage was about genetically modified food. The technique of pre-set questions was used in the warm-up activity for the purpose of preparing the learners for the reading passage which was later handed in to five separate groups of learners. Each group was given one particular section of the text, and one of each group had to read the section aloud in order for the rest of the students to put the whole text together. That kind of task was based on the information-gap activities principle. In the while-activities, care was taken to ask a wide variety of questions; and the types of questions asked in a particular lesson were avoided in the next one.

Information transfer, multiple choice, matching, gap-filling, classifying, re-ordering, word completion, true/false, referential questions etc., helped me use a wide variety of tasks. To mention one example, the information transfer question required the learners to transfer information from a reading passage to graphic forms such as tables and charts. As to integration of skill, in the lesson on genetically modified food, pairs of students worked upon a post-activity wherein they had to compose and then to perform a dialogue between an advocate and opponent of genetically modified (GM) foods, putting into practice the focused upon lexical items relative to the topic and meanwhile practicing how to tentatively express their opinions in such as way as to help them take part in real-life conversations.

With respect to listening and pronunciation, mp3 files were downloaded from the Voice of America special English science section. Then tasks were designed for the purpose of covering individual sounds, word stress, sentence stress, and intonation.

Finally, and in relation to recycling and revision, the fourth week of every month was dedicated to revising and recycling the lesson content covered in the prior three lessons. That required a thoroughly developed lesson but the benefits certainly warranted the time and effort put into it.

5. Conclusion

This study presented the findings of an evaluation of an ESP textbook at the Higher Institute of Applied Biology, Medenine, Tunisia. The textbook used was the only choice provided because English for biology materials are thin on the ground in Tunisia.

The argument in this paper is that adopting ESP commercially produced materials is unlikely to be of much interest and benefits to learners coming from specific educational contexts. Yet, most teachers are not trained enough and qualified enough in terms of material development and design and hence may find the task too demanding. Equally important, they are not paid to develop materials and therefore this might be a reluctant undertaking. The present study attempts to provide an example of how a commercially produced textbook was used, evaluated, and partly modified in such a way to meet the needs of learners. The study can be of real benefit to teachers in parts of the world where there is a shortage of up-to-date materials.

Appendix A

Students' Questionnaire (English Version)

Name: ……………
Age: ……………..
Sex: ……………...

PART A. **Please tick (✓) in the column that best matches your opinion.**

Statements	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
1. The textbook we use contains a variety of interesting topics					
2. The textbook lessons include varied interesting tasks					
3. The question instruction are clear for me to do the tasks					
4. The lessons tasks are sequenced from easy to difficult/from simple to complex					
5. Listening is one skill which is adequately covered by the textbook in use					
6. There is good pronunciation explanation and practice in the textbook					
7. There is good vocabulary explanation and practice in the textbook					
8. There is good grammar explanation and practice in the textbook					
9. The textbook provides satisfactory revision and recycling					
10. The textbook in use the four skills (reading, speaking, listening, and writing)					
11. There is an integration of tasks in the textbook					
12. The textbook lessons help me be able to take part in conversation					
13. The textbook lessons help me be able to structure a piece of extended writing					
14. The textbook lessons help me be able to identify the general ideas of the reading passages					
15. The textbook lessons help me be able to scan for specific details in the reading passages					

PART B.

1. **Please feel free to use the space below to give any further explanations for the above choices.**
………
………
………
………
………
………
…………………………………

2. **In your opinion, should the teacher continue to use the same textbook? Or should there be a change?**
………………………………………………………………………………………………………..
………………………………………………………………………………………………………..

3. **If you think there should be a change, what parts or aspects of the textbook should be altered?**
………………………………………………………………………………………………………
………………………………………………………………………………………………………

Appendix B

Students' Interview (English Version)

PART A.

1. How varied the topics and tasks are.

2. Are the instructions clear?

3. On what basis is the content organized and sequenced?

4. Are there listening materials?

5. Good pronunciation, vocabulary, and grammar explanation and practice?

6. Is there an adequate revision and recycling?

7. Are the four skills covered? Integrated?

8. Conventions of language use beyond the sentence level (how to take part in conversation/how to structure a piece of extended writing/how to scan and skim for information).

9. Whether or not the textbook or some of its lessons should be modified.

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The ESP Textbook Problem: The Evaluation of ESP Textbooks in Humanities in the Undergraduate Program of Iranian Universities

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Biodata

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Abstract

The importance of the textbook is undeniable for it determines the major part of classroom teaching and student learning. To make the most effective use of textbooks, it is necessary to carefully examine all aspects of the text and compare it against an assessment tool. Therefore, one of the issues that a language teacher has to deal with is material selection or adaptation. The intent of the present study was to evaluate ESP textbooks in Humanities in the undergraduate program of Iranian universities. In trying to achieve this goal, two types of questionnaire were administered among participating students and professors. The results were analyzed both descriptively and inferentially. The results indicated some parts of the ESP textbooks used in Iran are inappropriate and need to be improved. Accordingly, the results of z tests also indicated these textbooks should be modified in terms of new approaches in language learning and teaching, as well as student needs. Finally, some suggestions were presented as guidelines for selection or adaptation of ESP textbooks.

Key Words: ESP, Textbook, Evaluation, New approaches, Student needs

Introduction

Since the early 1960s, English for specific purposes (ESP) has grown to become one of the most prominent areas of ELT teaching. The growth of ESP has also generated an increasing number of specialized textbooks. The importance of the textbook is undeniable for it determines the major part of classroom teaching and student learning. Although choosing a textbook is daunting, it has a significant influence on the ability of students to meet their language learning objectives and affects both the process of learning and outcomes. Nevertheless, as Swales (1980) states, textbooks, especially course books, exhibit problems and in extreme cases are examples of educational failure. Despite the fact that textbooks are a staple in most ESP classes, there has been surprisingly little investigation in terms of how and why materials are selected. Therefore, to make the most effective use of a textbook, it is necessary for individuals to carefully examine all aspects of the text and compare it against an assessment tool. The present ESP textbooks used in Iran have been published by the Center for Studying and Compiling University Books in Humanities (SAMT) in the last two decades. The contents of these textbooks have been compiled by professional experts and TEFL professors, even though they are now open to a lot of criticism by researchers and curriculum writers. Therefore, it is vital that all involved consider the importance of their decisions and strive to effectively match course books with the needs of students. The only way to gain this information is through careful evaluation of textbooks and other curriculum materials. The present study evaluates ESP textbooks in Humanities used in undergraduate programs at Iranian universities. Here the purpose is not to criticize. The important issue is to assist teachers in choosing a text whose flaws are correctable.

This research was an attempt to find answers to the following questions:

1. Are different parts of the ESP textbooks satisfactory in terms of favorability?
2. To what extent has the content of textbooks incorporated new goals in language learning and teaching?
3. To what degree have the textbooks predicted the language and learning needs of students?

The main purpose behind the present research is to provide textbook developers with data and suggestions for modification of ESP textbooks used in the Humanities in Iran. Although the success and failure of course books can only be determined during and after classroom use, evaluation and

reevaluation of texts could help teachers decide whether to continue using the text or to look for a new one. Therefore, the main motive was to pinpoint perceived flaws and to correct these flaws, making the texts compatible with current language and learning needs of students and the latest developments in language learning and teaching.

Literature Review

In defining ESP, Dudley-Evans and St John (1998) modified Strevens' (1988) definition of ESP, who made a distinction between absolute and variable characteristics:

a. Absolute characteristics:
1. ESP is defined to meet specific learner needs;
2. ESP makes use of the underlying methodology and activities of the discipline it serves;
3. ESP is centered on the language, skills, discourse and geneses appropriate to these activities.

b. Variable characteristics:
1. ESP may be related to or designed for specific disciplines.
2. ESP may use a different methodology from that of general English education.
3. ESP is likely to be designed for adult learners or for learners at the secondary school level.
4. Most ESP courses assume some basic knowledge of the language system, but it can be used with beginners.
5. ESP is generally designed for intermediate or advanced students.

Hutchinson and Waters (1987) define ESP as an approach to language teaching in which all decisions as to content and method are based on learners' reasons for learning. Carter (1983) identifies three characteristics of ESP courses as follows:

a) authentic materials
b) purpose-related orientation, and
c) self direction.

Sheldon (1988) states that course book assessment is fundamentally a subjective rule of thumb activity and no neat formula, grid or system will ever provide a definitive yardstick. According to Hutchinson and Waters (1987), evaluation is basically a matching process: matching needs to available solutions.

The most effective manner by which to evaluate textbooks is to examine the language objectives contained in them. Most often an evaluation of the content of the text is advocated but under this broad topic what should be included? Hartley (1994) advises assessors to ask the following questions:

1. Does the book meet their teaching objectives?
2. Is there sufficient depth and breadth of material?
3. Will it need to be supplemented?

Many experts advocate a very detailed examination of textbook language content, which has led to the production of extensive evaluation checklists. These include Cunningsworth (1984), Sheldon (1988), Skierso (1991), and Littlejohn and Windiest (1989).

Grant (1987) believes that the perfect textbook does not exist, and the best book should satisfy three conditions:

1. It should suit the needs, interests and abilities of students.
2. It should suit the teacher.
3. It must meet the needs of official public teaching syllabuses or examinations.

Furthermore, for any given set of materials the choice is not only between using them and rejecting them. Adaptation as a third alternative can prove effective. Rea-Dickins and Germaine (2001) state that in evaluating materials it is necessary to examine the ways in which teaching and learning materials are sensitive to the language learning process. Evaluation criteria should relate not only to the aims and contents of language, but also to the procedures for working with texts and performing tasks in the classroom (p. 258).

Ward (2001) examined some chemical engineering students' attitudes in Thailand to text and other parts of English language textbooks. He concluded that science and technology students in foreign language settings compensate for their difficulty in reading English language textbooks by concentrating their attention on the application, and especially the examples, given in those textbooks.

According to Tomlinson (2005), content approaches should make more use of English materials for Asia and materials for young children should focus much more on enjoyment, fun and creativity. Beretta

and Davies (1985, cited in Tomlinson) evaluated the Bangalore Communicational Teaching Project positively without any reference to problems encountered because of the cultural unfamiliarity of the approach.

Methodology

For the purposes of this study, two types of questionnaires for students and instructors were constructed. The questionnaires were constructed based on interview, library research, and available checklists. However, the main source was a composite checklist. In other words, the researcher made use of different types of checklists. Skierso's checklist (1991), Sheldon's checklist (1988), and Grant's questionnaire (1987) for choosing a textbook. The reliability of the questionnaires was estimated through the test-retest method. They were administered to the same students and instructors twice in a two–week interval. The results showed a reliability index of **.**9339 for the student questionnaire and .8863 for the instructor questionnaire, indicating high reliability. The resulting versions were handed out among the participating ESP students and instructors at Zanjan, Abhar, and Takestan Islamic Azad universities. All the subjects were selected randomly**.** 250 ESP students (out of 350) who were majoring in Persian Literature, Theology, and History, and 20 ESP instructors (out of 35) including TEFL and subject teachers completed the questionnaires.

The student questionnaire (see Appendix) consisted of 30 items and the teacher questionnaire had 28 items. The categories involved in the questionnaires elicited the respondents' opinions on favorability of the different sections and subsections of the textbooks, including pronunciation practice, reading comprehension questions, vocabulary exercises, word formation, grammatical exercises and translation practice. The other categories were on the areas of the language and learning needs of the students, new approaches and developments in language learning and teaching and textbook objectives. After administering the questionnaires, the raw data was analyzed by computer, using SPSS version 6. To collect data through the questionnaires, the Likert scale was used. The percentages driven out were quite suggestive of the favorability or unfavorability of the factors under question. However, in order to come up with logical answers to research questions which can be generalizable the obtained data was analyzed both descriptively and inferentially.

Results and Discussions

Each unit of ESP textbooks in Humanities consists of three parts; pre-reading, reading comprehension and homework. The pre-reading part includes three subsections; pronunciation practice, vocabulary study through definition and vocabulary study through examples. The reading part consists of a reading comprehension text followed by comprehension questions. The homework section consists of four sections; vocabulary exercises, word formation exercises, grammatical exercises and translation practice. To analyze data descriptively, the percentages of each part of textbooks obtained from the students' and instructors' responses to the questionnaires were used (see Tables 1, 2, 3, 4, & 5). The labels of *very much, much, very little,* and *little* used in the table columns correspond with the Likert-type scales of *strongly agree, agree, strongly disagree,* and *disagree* respectively.

Table 1. Attitudes towards the pre-reading part

Sections	Groups	Very Much	Much	Adequate	Little	Very little	No Answer
Pronunciation	Ps	20	40	40	0	0	0
	Ss	11.6	24	21.6	30.4	6.2	6
Vocabulary through definition	Ps	0	50	30	10	10	0
	Ss	19.2	49.6	12.4	12	4	2.8
Vocabulary through examples	Ps	30	60	10	0	0	0
	Ss	21.6	36	16.4	19.2	2.4	4.4

Ps= professors   Ss=students

Table 2. Attitudes towards the Reading comprehension part

Groups	Very much	Much	Adequate	Little	Very little	No Answer
Instructors	20	60	10	10	0	0
Students	17	37.6	20	13.6	9.4	2.4
Total	18.5	48.8	15	11.8	4.7	1.2

Table 3. Attitudes towards the homework part

Sections	Groups	Very much	Much	Adequate	Little	Very little	No Answer
Word formation	Ps	20	30	20	10	20	0
	Ss	14.8	30.4	26.4	19.6	7.2	1.6
Vocabulary	Ps	20	20	20	40	0	0

	Ss	12	36	23.6	21.2	4.4	2.8
Grammar	Ps	10	20	30	4	0	0
	Ss	12.8	42	16.4	21.6	4	3.2
Translation	Ps	10	20	50	20	0	0
	Ss	11.2	49.2	16.4	17.2	3.2	2.8

Ps= professors   Ss=students

Table 4. Attitudes towards the content with regard to new approaches.

Groups	Very much	Much	Adequate	Little	Very little
Professors	14.40	20	25.4	30	10.2
Students	6.6	26.4	35	28	4
Total	10.5	23.2	30.2	29	7.1

Table 5. Attitudes towards the textbooks with regard to students' needs.

Groups	Very much	Much	Adequate	Little	Very little
Professors	5	20	30	30	15
Students	10	22	45.2	22.4	4
Total	7.5	21	37.2	26.2	7.7

The main yardstick used in assessing the factors under question regarding the favorability or unfavorability of the different parts of the textbooks was inferential statistics. To analyze data inferentially, z test was used.

The results of both descriptive and inferential analyses of data indicated that word formation and vocabulary exercises from students and instructors' points of view, grammatical exercises and translation practice from the instructors' point of view, and vocabulary study through examples and reading comprehension and comprehension questions from the students' point of view are inappropriate.

The results of z test for word formation exercises and vocabulary exercises were 1.71 and 1.33 respectively which did not exceed the critical value of 1.96 at .05 level of significance. The observed z value for grammar and translation from the instructors' point of view were 1.03 and .43 respectively which were smaller than the critical value of 1.96 at .05 level. Consequently, these two parts need to be amended. Similarly, the results of z test for vocabulary study through examples and reading

comprehension from the students' point of view were 1.33 and 1.38, smaller than the critical value of 1.96 at .05 level, which indicates these parts are also inappropriate and need modification and improvement. On the other hand, the results showed pronunciation practice and vocabulary study through definition from students and instructors' points of view are appropriate and need no modification. The observed z values for these were 4.25 and 2.06 from the instructors' point of view, and 4.87 and 3.81 from the students' point of view respectively. The z tests also indicated the grammar and translation exercises from the students' point of view, and reading comprehension texts and vocabulary exercises form the instructors' point of view are appropriate and need no modification.

Therefore, in the light of the findings, Humanities ESP textbooks used in undergraduate programs at Iranian universities need modification and improvement. In other words, adaptation of the present textbooks is necessary. These modifications should mostly include those parts of the textbooks which have not received satisfactory ratings by students and instructors.

To investigate to what extent the content of ESP textbooks have incorporated new goals in language learning and teaching, respondents' perceptions of the inclusion of such new orientations in textbooks were elicited. The results of z tests from the students and instructors' points of view were .33 and 1.23 respectively which did not exceed the critical value of 1.96 at .05 level of significance. Hence, the content of ESP textbooks in Humanities has not incorporated new goals in language learning and teaching. In other words, they have not been properly designed so as to enhance linguistic and communicative competence. For this reason, the textbooks should be modified in this regard.

Regarding respondents' attitudes on the inclusion and consideration of language and learning needs of students, the z values for students and instructors' responses were 1.42 and 1.25 respectively which did not the exceed critical value of 1.96 at .05 level of significance, indicating ESP textbooks in Humanities have not accurately predicted the language and learning needs of students. Consequently, the objectives and materials of the textbooks are not in line with students' present language and vocational needs. As a result, the textbooks need to be examined thoroughly regarding students' needs.

Conclusion and Suggestions

The main reason why I dealt with evaluation of ESP textbooks was that they are the staple textbooks that inform foreign language education in undergraduate programs in Iran. Furthermore, the choice is not only between using them and rejecting them. Sometimes, adaptation as a third alternative should be examined. The purpose of this paper was not to criticize but to pinpoint perceived flaws in the textbooks by their users, students and instructors, and to discuss how to make them compatible with current

students' needs and the latest developments in language learning.

The following are some suggestions in the light of the previous analyses regarding how to enhance the standards of textbooks rather than criticize them.

1. In dealing with vocabulary, new vocabulary should be presented in meaningful and appropriate contexts. It should be recycled in subsequent lessons for reinforcement and integrated in varying contexts and situations in order to portray its range of applicability in English (Skierso, 1991). Most of the new words in the textbooks analyzed are introduced out of context.

2. In the case of reading passages, textbooks should contain an assortment of suitable text types (dialogs, essays, poetry, drama, and folk tales) (Cowles, 1976). The books should contain subject matter which covers a variety of topics suitable to the interests of the intended audience, including age, sex and cultural orientations. Care should be taken to select materials which are accurate, authentic, current and specific to the particular field of study.

3. With grammar exercises, linguistic items should be introduced in meaningful contexts in a way that facilitate students' understanding. Grammatical items should be recycled and integrated in various ways. For example, using language functions to introduce different forms and different forms to explain different language functions would add additional variety.

4. The majority of exercises or activities in ESP textbooks in Humanities are text based and structural. Rarely do these exercises involve students in developing language skills or communicating ideas. None of the exercises are in accordance with new communicative approaches in language teaching and learning. Task-based learning, process oriented learning and cooperative learning are not incorporated into the texts. Thus:

5. Any attempt in compiling or writing ESP textbooks should be in line with new current approaches in that particular field and reflect the applications and experiments of that era.

6. Activities should promote critical thinking (interpretation, application, analysis, synthesis, and evaluation) (Hetherington, 1985).

7. Activities should promote development of study skills such as skimming, note taking and looking up words in a dictionary (Allwright, 1981).

8. Activities should integrate all four language skills.

9. Activities should encourage students to participate in classroom activities like role play, pair

work and problem solving tasks.

10. ESP materials should be written and compiled on the basis of students' needs and interests. Thus, needs analysis is an essential step before designing materials for ESP courses.

Consequences and Implications

There is a need for frequent evaluation of ESP textbooks. Any attempt to improve or modify textbooks should not be confined to a specific period of time. Reevaluation and revision according to instructors or experts' comments should be made regularly. This will remove much of the burden and time involved in creating materials. Finally, it should be asserted that there is not any absolute demarcation line between ESP and general English. As Anthony (1997) notes, it is not clear where ESP courses end and general English courses begin. Designing course books which take both general English and subject matter into account should be considered by textbooks developers in an ESP course in which the ultimate goal is achieving teaching and learning through the medium of English. It should also be remembered that textbooks are not the sole determining factor in the context of ESP teaching; the role of language teachers and their teaching methodologies is also important.

Appendix. Student Questionnaire

Study the following questionnaire carefully and kindly check the appropriate column.

	Strongly agree	agree	undecided	disagree	Strongly disagree
1. Learning English is necessary for the students who are majoring in this field of study.					
2. The present ESP textbooks meet the specialized language needs of the students.					
3. The present ESP textbooks increase students' language knowledge and help					

them to use scientific foreign resources.					
4. ESP textbooks meet the students' vocational needs.					
5. The contents of ESP textbooks are interesting and attractive.					
6. The subject matters cover a variety of topics suitable to the interests of the ESP students.					
7. The reading comprehension texts are graded according to the language and background knowledge of the students.					
8. Pronunciation practice in pre-reading part alleviates students' phonological problems.					
9. After learning new words, students are able to produce them in new sentences.					
10. Vocabulary is introduced in appropriate contexts.					
11. Reading comprehension questions help students to gain deep understanding of reading passages.					
12. Vocabulary exercises build up the learners' repertoire of specialized terms.					
13. Grammatical structures and exercises help students to understand reading passages and read easily.					
14. Translation exercises enhance learners' understanding of specialized concepts and terms.					

15. Textbook exercises develop the students' ability to communicate independent of text or teacher direction.					
16. Textbook exercises promote meaningful language use.					
17. Textbook exercises encourage students' active participation, pair work and group work.					
18. Students are persuaded to use mono-lingual dictionary for doing textbook exercises.					
19. Topics or themes refer to realistic and real-life situations.					
20. Textbook exercises and activities emphasize more on process rather than product of learning.					
21. Language skills of listening , speaking , reading and writing are equally emphasized in ESP textbooks.					
22. ESP textbooks provide for the development of study skills and learning strategies.					
23. Translation exercises are accompanied with principles and techniques of translation.					
24. The study of parts of speech and derivation assist learners to comprehend the text easily.					
25. The exercises and activities promote critical thinking, group discussion and interaction.					

26. Which one of the following topics should be more highlighted in an ESP course?
     a. Understanding spoken English.
     b. Developing the knowledge of grammatical structures.
     c. Developing reading skills of specialized texts.
     d. Building up specialized vocabulary.
     e. Improving writing skills in English.
     f. Improving spoken English and communication skills.
     g. Others. Please specify:
     ……………………………………………………………………………………

27. Which part(s) of the present ESP textbooks did you find effective and useful?
     a. Pronunciation practice.
     b. Vocabulary study through definition and context.
     c. Reading passages and comprehension questions.
     d. Vocabulary exercises.
     e. Grammatical exercises.
     f. Translation exercises.
     g. Determining the Persian equivalents of English terms.

28. How do you assess the present ESP textbooks in Humanities? (Give your suggestions or comments for improvement, if necessary.)

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A Comparison of Genre: Biological Science Research Article Abstracts by Iranian and Native English-Speaking Scholars

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Abstract:

This paper describes an analysis of research article abstracts written by Iranian and native English-speaking scholars of the field of Biological Science. The analysis is mainly focused on the genre structure (moves, steps) employed by the two groups. Throughout the course of this study, thirty published abstracts by Iranian researchers and another thirty by their native English-speaking counterparts, all appearing in established, international journals, were selected and analyzed. The model proposed by Bhatia (1994) was used as a general guideline and the steps and moves were identified and studied in both groups of abstracts. Finally, a comparison was made between the applications of the steps among the two groups. The findings show that Iranian writers tend to write abstracts in which the main focus is on the methodology and procedure, and little, if any, attention is paid to relating the findings to the outside world, or to solving a genuinely perceived problem. This seems to imply that Iranian researchers of the field of Biological Sciences are quite often driven by incentives other than those of

purely academic inquisition. In the final phase of the study, interviews were carried out with Iranian researchers so as to investigate the reasons underlying such inclinations.

Keywords: Genre analysis, Research article abstract, Contrastive rhetoric, Moves, Steps

Introduction

The present paper will begin by reviewing the most pertinent aspects to the study at hand, such as the research article as a genre; aspects such as cultural variation in genre; and a model of abstract genre structure. In the method and procedures section, an account will be given of the process and details of data gathering, including the selection and analysis of articles and the implementation of interviews. In the results section, we will look at the genre structure of the analyzed articles, and compare abstracts by Iranian scientists with those of their native English-speaking counterparts. Finally, speculations as to the source of the differences between the two groups will be presented in the results section of this article.

Genre Analysis

As a form of text analysis, which is of particular interest to applied linguists, genre analysis can be described as the "study of situated linguistic behavior in institutionalized academic or professional settings" (Bhatia, 1997, p.181). Texts belonging to the same genre share common features, such as goals, rhetorical action, communicative purpose, and/or context of use. Genres can be distinguished from one another by their unique communicative functions, which are reflected in their distinctive structural patterns (Holmes, 1997). Each genre consists of a number of rules and regulations. These conventions are often better known by the members of a discourse community, who regularly make use of that genre.

The reason why genre analysis has so greatly appealed to specialists in the field of applied linguistics can be attributed to its readiness in lending itself to the pedagogic concerns of those active in the communicative ESP and EAP classroom (Brett, 1994). Teachers can use the findings of studies investigating genre to tailor tasks and materials aimed at teaching linguistic aspects of communicative functions. Such tasks offer learners the chance to work with materials reflecting texts, which they are required to comprehend and produce in their academic and professional careers. One particular genre which has received a noticeable amount of attention and has borne fruitful pedagogical findings is the research article.

Genre Analysis and the Research Article

In recent years, a great amount of interest has been directed towards the analysis of research articles. In the 1980s there was an increasing interest in the analysis of research articles beginning with West's (1980) study of *that*-nominals in biology papers. The studies in this period became more homogeneous. Instead of analyzing texts from a variety of sources and subject areas and generalizing the findings, researchers had their focus on texts from specifically targeted sources of the same subject, and attempted to find common features among them. Another aim of the new trend of studies in this area was to point out the differences between texts from different sources or different subject areas.

Crookes (1986) was the first to label the research article as a 'genre.' Earlier studies had mostly confused genre with register. A few prior studies had in fact referred to genre, but failed to distinguish between genre and text type (e.g., Wood, 1982). Over the years, great variation has also been observed in the focus of research article genre descriptors. While some have had their focus on selected sections, such as the Introduction, or Results sections, others have emphasized the whole article.

Research articles are commonly regarded as the most ubiquitous form of scientific text (Yearley, 1981). This has caused the research article to become the particular domain of ESP. Research articles are often used to put forward a claim as an explicit, logical argument. In order to do so, they do not introduce their claims and research findings in a random fashion; on the contrary, the findings are constrained in a well-defined form of conventional style and format (Gilbert, 1976). Research papers have been shown to display recurrent, stylistic, grammatical, and lexical features which appear to be coherently related (Gilbert & Mulkay, 1984). Briefly put, the standard format of a research article, especially one which is an experimental report, follows an established method, in which a hypothesis is presented in the introductory section, followed by a description of procedures and data and findings in the materials/methods and results sections, respectively, and finally concluded by a statement of whether or not the hypothesis was in fact proven in the discussion section. This sequence corresponds to the same order in which the research itself develops. Scholars, however, tend to disagree on whether such a course of development should be used or if such constrained correspondence should not exist.

Cross-cultural Variation in Genre Analysis

Different cultures are said to organize and develop ideas differently in their written discourse. In other words, the approach to the arrangement and organization of ideas and information will differ based on the culture and origin of the language user. Variations among cultures in their writing habits can be

attributed to the fact that writing is a product of social activities and that it is shaped by the educational systems of the writers' native cultures (Mauranen, 1993).

Although investigating the cultural differences in spoken genres has been quite popular over the years, fewer studies have been carried out into the cultural variations of written discourse. Hinds (1990, cited in Bhatia 1994), for instance, studied expository writing in Japanese, Korean, Chinese and Thai, and discovered a common style characterized by a "delayed introduction of purpose" (Hinds, 1990, cited in Bhatia, 1994, p. 37). Following this landmark study, other scholars have also made attempts to pinpoint the characteristics of the genres employed in their own culture. Most cross-cultural studies of academic rhetoric have been preoccupied with comparing English with East Asian, Arabic, Scandinavian, and occasionally Western European languages (Connor, 1996). Cross-cultural studies on Iranian academic discourse have also been of interest to researchers. Amirian, Kassaian, and Tavakolie (2008) compared Persian and English differences at the level of move schemata by analyzing the discussion sections of applied linguistics research articles.

Bhatia (1994) believes that a higher degree of cultural unity in genre can be observed in research articles, mainly due to the fact that writers of this area seek to have their work published by journals, most of which belong to the English-speaking world, and hence, abide by their established norms and conventions. Despite this, differences are still evident among the scientific, written discourses produced by writers of different cultures.

Model of research article abstracts

Bhatia (1994) provides a comprehensive explanation on research article abstracts as a genre. He recognizes article abstracts as a genre, which he claims to have emerged as a result of "a well-defined and mutually understood communicative purpose that most abstracts fulfill, irrespective of the subject discipline they serve" (p. 77-78).

An abstract is actually a summarized report of a whole investigation and is written with the intent of providing the reader with a preview of what the article is about. In other words, the research article abstract is a minimal manifestation of the article itself, including a curtailed version of all its parts and features. According to Bhatia (1994), an abstract gives information on the following aspects of the research article it is describing:

1. *what the author did;*

2. *how the author did it;*

3. *what the author found;*

4. *what the author concluded;*

Just like other sections of the research article, the abstract consists of a number of steps and moves. Bhatia (1994) believes the research article abstract to be comprised of the following moves:

1. *Introducing the purpose;*

2. *Describing the methodology;*

3. *Summarizing the results;*

4. *Presenting the conclusions;*

The correspondence between the moves described above and the parts building the actual formation of the research article reinforce the previously-stated idea that the research article abstract is an abridged representation, reduced in scope, while retaining the essential elements and features of the article.

Method

For the present study, a total of sixty research article abstracts from the Biological Sciences were selected from well-known, established journals in the field. Thirty of the chosen abstracts belonged to articles written by Iranian scholars and the other thirty were written by native English-speaking scholars of different nationalities (e.g., American, British, and Canadian). The former were mostly taken from *Pakistan's Journal of Biological Sciences* and the latter appeared in the *Biological Journal of the Linnean Society*, both of which are internationally accredited journals. All articles from which the abstracts were selected were published between 1997 and 2007. Articles appearing before or after this time period were not chosen for this investigation, so as to keep the diachronically affected differences to a minimum. The abstracts were randomly selected, disregarding any criteria of selection other than the nationality and native language of the authors.

All abstracts were analyzed by the researcher as well as a second rater, who was a specialist in applied linguistics and was thoroughly briefed on the outline and purpose of the study. The second rater also underwent a tutorial on how to distinguish the moves and steps employed by the writers of the abstracts.

Having identified the moves and steps in each abstract, the raters would then reach a final, compromised description of the genre structure through discussing and comparing their notes. Bhatia's (1994) model provided a guideline for the analysis of the abstracts.

A series of structured interviews were later carried out with writers of Biological Science research articles (not necessarily those whose work had been analyzed in this study). The interviewees consisted of twenty-five researchers, all of whom held at least a master's degree in a field of Biological Science. These interviews followed the analysis of the abstracts, and had the aim of discovering the reasons behind the differences in genre structure between the Iranian abstracts and native-English speaker abstracts. The interviews were conducted in Farsi (the interviewees' first language), and were designed to discover the motivations underlying their use of moves and steps. Most interviews were oral, face-to-face discourses, while a few were in the form of open-ended questions e-mailed to the authors and scholars. In the case of oral interviews, each session was audio recorded with the permission of the interviewee for later examination.

Results and Discussion

The analyzed abstracts exhibited a degree of conformity, regardless of their date of publication and the writer's first language. The moves described by Bhatia (1994) can more or less be traced in all abstracts analyzed in this study; however, a great deal of diversity was discovered among the steps forming each move. For instance, almost all abstracts consisted of an opening move, described as the introduction (*introducing the purpose*). But different articles opted for different ways of achieving this aim. Variety was also observed in the length and detail of the moves and steps. For instance, while some writers began their abstracts with a single-sentence introduction, others used as many as five sentences for achieving the same purpose.

Before attending to the differences between the two groups of research article abstracts, a description of their common features (moves and steps), regardless of author L1 background, will be given in this section.

Introducing the purpose

The first move in research article abstracts is *introducing the purpose of the study*. This was mostly achieved through a number of steps. Some authors began by making a statement of previous research, reviewing what had been done and accomplished by other scientists, while others discussed known, factual information at the outset of their abstracts.

Among the abstracts beginning with the description of previous research, there were those which discussed what was generally done before and those which focused on an individual study. In other words, some abstract introductions followed up a particular study, hoping to improve or add to what had been done previously. Others reported on what was done previously in the area, without alluding to one specific study.

A third group combined the two approaches. They used strategies employed by both groups for introducing their study. In other words, they described what was generally investigated by other researchers as well as referring to a single research within the same introductory move. Examples of both instances have been provided below. It should be noted here that the length of this step varied greatly, and was not present in all abstracts.

Statement of fact:

The morphology of the Tasmanian yellow gum eucalyptus varies clinically over less than 1.5 km on Mt Arrowsmith, from small shrubs on the mountaintops (Eucalyptus vernicosa), through small trees (E. subcrenulata) in sub-alpine woodland, to tall forest trees near the base of the mountain (classified as E. johnstonii or E. subcrenulata).

Statement of previous research:

Astragalus gossypinus Fischer, with a wide distribution in Iran, belongs to the genus Astragalus (Fabaceae). According to existing references and information, individuals of this species are present in many stations with different ecological conditions.

Statement of single previous study:

A previous study examined a model of SSD in fishes as it relates to three mating system variables: probability of sperm competition, male territorial guarding, and male-male contest.

Another step, aimed at introducing the purpose of the study, was direct statements of what was sought and investigated through the study. An example of such a statement is provided below:

In this study the effect of two plant growth regulators (indolacetic acid, IAA and gibberellic acid, GA3) and also Trichoderma harzianum (T8) on the phytopathogen fungus Fusarium oxysporium (F15) was investigated.

One final group of abstracts points out a gap in what is already known, whether it be an unaccounted niche in the present body of knowledge, or a problem in the outside world, as a way of introducing and justifying the research. An example is presented below:

Gap in the present body of knowledge

However, many studies that have utilized this technique, have focused on the post-hatching organism only and ignored potential effects of environmental influences acting during embryonic development.

Describing the methodology

The second move in the development of article abstracts was *describing the methodology*. Once again, different steps were employed for achieving this purpose. A number of abstracts started off by describing the specimen and/or participants in a freestanding step. Others incorporated this into the general procedures step, which was found in almost every analyzed abstract. An instance where the description of specimen appeared independently is provided below.

Free-standing step, describing the specimen

A total of 400 Single Comb White Leghorn hens at 80 weeks of age were used in the present study.

Occasionally, when the research design of the study was descriptive in nature, this move included a step, in which there was a delineation of the observed situation. Such studies were often devoid of any procedures to be described.

Description of the situation

A 38 year old woman, gravida 3 para 2, was admitted to the hospital for suspected ectopic pregnancy, with vaginal bleeding at 12 weeks after her last menstural period, associated with pelvic pain. An ultra-sonography led to the diagnosis of ovarian right ectopic pregnancy with a dead fetus associated with a compartmentalized hemoperitoneum.

The summarization of results

The third move involves the *summarization of results*. In this move, the main source of variety lies in the degree of specificity employed by the writer. While some articles delineate the list of findings in detail, others consider it sufficient to go through the main findings in a few lines. The highest degree of

conformity was observed in this third move. Variety in this single-step move was only seen in its length. It should be mentioned, however, that this move only describes the results and does not speculate as to the reasons underlying the findings, nor does it elaborate on the implications of the results. These aspects were left for the fourth and final move of research article abstracts.

Presenting the conclusions

The final move in research article abstracts deals with authors' *conclusions*. The conclusions are expressed through a multitude of steps, including a general statement of the findings, application of the results, and suggestions for further investigations. The general statement of findings consists of a concise, one-sentence summarization of what was discovered throughout the course of the study. It differs from the third move in that this summarization is somewhat more generalized and includes a degree of speculation by the writer. The application of the results involved the creation of a link between the findings of the study and a change to be implemented in the outside world. This change could range from an alteration in an established procedure in research to an improvement in the production line of a company. The third step of the final move (suggestions for further investigation) is quite self-explanatory and does not require much elaboration. For further clarification of each one of these steps, examples have been provided below.

General statement of findings

This pattern of genetic differentiation suggests that E. vernicosa evolved in allopatry and the cline on Mt Arrowsmith arose from two gene pools converging in morphology from opposite directions.

Application of the results

Based on these results it is recommend that the N splitting method be applied mainly as an Equal form in Trigin amaranth cultivar, to enhance crop forage yield and reduce weed infestation.

Suggestions for further studies

We suggest that future studies using the reciprocal transplant design should consider environmental influences on all stages of the life-history, including embryonic development as well as post-hatching life.

A summary of the moves and steps, discovered from the analysis of research article abstracts in biological sciences has been provided in chart 1.

Chart 1. A summary of moves and steps in research article abstracts in biological science

1. Introducing the Purpose	Statement of previous research
	Statement of facts
	Direct Statement of Purpose
	Gap in previous research
2. Describing the methodology	Description of Specimen/ participants
	Description of procedure
	Description of the situation
3. Summarizing the results	Description of findings
4. Presenting the conclusions	General Statement of findings
	Application of the findings
	Suggestions for further studies

Comparison of genre between the two groups

Certain differences between the two groups of abstracts (those written by Iranian and native English-speaking scholars) were evident. First of all, most of the abstracts by English-speaking writers began their first move with a statement of previous research (22/30). From these, 4 described a fact, 25 explained what previous research had been carried out and one combined the two. Iranian scholars, on the other hand, used the statement of previous research step a total of 13 times. In only one case was factual information used. Describing previous research was generally used much less frequently by Iranians than by English-speaking writers. Even in cases where this step was employed, Iranian writers were more succinct in their accounts of previous research. The first abstract move appeared to be playing a larger role in abstracts written by native English-speaking writers.

In the second move, the introduction of the specimen as a free-standing step was used 6 times by Iranian writers, whereas their native English-speaking counterparts did not use this step at all. Iranian

writers were generally more interested in details when explaining the procedures and methods employed by their research. They tended to explain the intricacies and nuances of their studies in a more lengthy fashion. Generally speaking, in the abstracts written by Iranians, the second move appeared to take up more space than their native English-speaking counterparts and was likely the longest part of the abstract.

In stating the findings of their studies (Move 3), there were few differences between the two groups of abstracts. As previously mentioned, this move consists of one unitary step, which is extant in almost all research abstracts, and hence is rarely different.

Finally, in the fourth move, the most recurrent step used by native speakers was to provide a general statement of findings (11 times). The same step was used by Iranian writers only 6 times. Iranian writers in this study exhibited a general tendency to provide their findings in a simple and matter-of-fact style, while the application of findings and suggestions for further research were much more frequently provided by native English-speaking scholars. The most interesting finding was that in most article abstracts written by Iranian scholars, this final move regarding broader implications was either missing or very brief. English-speaking authors were far more detailed in their accounts of their conclusions and discussion of the implications of their work.

From the comparison of the abstracts it appears Iranian scholars in the field of Biological Science have mostly been engaged in conducting theoretical research, often failing to connect their work to the world outside the laboratory. This is evident from their elongated description of procedures and curtailed elaboration of results. A possible explanation for this could be the absence of a genuinely felt question in the mind of the researcher prior to conducting the experiment. This assumption was confirmed through responses in interviews with Iranian researchers. From a total of twenty-five interviewees, sixteen scholars claimed they initiated their studies based on questions and topics imposed by their supervisors and colleagues, and were often denied the freedom of choosing research topics of their own. They reported that it had become a trend for students to receive research topics from their appointed supervisors. They said that although this may have seemed like a favor to them in the beginning, it caused them great trouble in later stages of their research. These problems, they claimed, stemmed from their lack of interest and/or incomplete understanding of the assigned topics.

Eight of the interviewees believed the lack of grants and funds to be the reason underlying their frequently theoretical studies. They stated that doing research without any financial support will naturally limit ones choices since logistics is a crucial factor in deciding on what experiment to carry out. Many

experiments, especially in a field such as Biological Sciences, require elaborate machinery and instruments, which are not made available to every university and institution. They stated that, had their projects been backed by sponsors, they would have had the opportunity to choose topics of interest from a wider array of possibilities.

Iranian writers also could not apparently link their studies to a perceptible problem, to which an answer or explanation was deemed necessary. This is once again understood from the infrequent description of a gap in the present body of knowledge in the first move, as well as the apparent inability to relate the findings to the world outside the laboratory. When asked about the reasons behind this phenomenon, seventeen interviewees claimed that their motivation for doing research was chiefly getting their work published. Despite bringing about an increase in the quantity of generated research, such incentives would undoubtedly cause researchers to work without a pressing question in mind and conduct research for its own sake, not for the sake of answering critical questions. Such attitudes cause researchers to select a particular research question as long as it has the potential for being published in journals of the field. In other words, as reported in the interviews, in many cases, interest and zeal for academic discovery came second to having the resulting study published.

Conclusion

From what has been said and discussed in this study, it can be seen how socio-political and policy matters can be reflected in the genres employed by researchers in the reporting of their studies. Funding, for instance, can play a significant role in determining the research questions scholars choose to investigate. Financially sponsored studies were reported to be more genuine in terms of the questions they answer and the problems they solve. This was due to the options financial aid and grants opened up for researchers in choosing their topics of interest. This additional choice was reflected in the genre scholars employ to report their findings. The more authentic the question in the mind of the investigator, the more tangible the findings, as projected in the research report. Studies in which the author feels a personal inclination to answer a question, for the purpose of solving a tangible problem or filling an existing gap in the body of knowledge, are likely apt to emphasize their results, link them to the problems they may solve and explain how they may be put to use.

Allowing students to pick their own topics of research can also help them carry out their studies at a more personal level. Providing them with readily-available topics may seem like a favor at the beginning, but ultimately takes away the spirit of the project, degrading it to a number of mechanically-driven

procedures. The implications findings of such a study may not be fully understood by the researcher, who did not feel the urgency to discover them in the first place.

Despite being of great importance to all scientists, regardless of their academic field, publication should not be seen as an end in itself. Publishing the findings of a study should serve the primary purpose of informing other scientists of what has been discovered through the course of the research. Academic institutions should view the merit of a study by its impact factor, and not only in its being published in journals. As Iranian researchers in this study pointed out, initiating research with the sole purpose of publishing it can result in articles that pay little attention to highlighting the significance of the study and relating its findings to the real world.

Future studies could further investigate the underlying reasons for cultural differences in genre by looking into the ideas, opinions, and motivations of scholars in conducting research and engaging in academic investigation.

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