

CHAPTER 2

LITERATURE REVIEW

This chapter presents the literature review conducted for the study. The purpose of the literature review is to provide an organized summary and critique of the existing literature in the study area. This helps to identify gaps in the literature and sets out the terms of the research for the reader. The chapter is arranged as follows. First, English for specific purposes (ESP) is discussed. Second, the issue of needs assessment is examined, including identification of types of needs assessment, methodologies and instruments. Third, the professional role of the medical technologist, including qualifications and duties, and trends in medical technology in Thailand are discussed. Fourth, previous research on ESP in the medical field in Thailand and elsewhere is examined. This review will provide vital background information to the reader of the study. The final section provide a summary of the chapter.

2.1 English for Specific Purposes (ESP)

The first topic for discussion is English for specific purposes (ESP). Relevant issues in this case include a definition of ESP, types of ESP, and development of ESP courses.

2.1.1 Definition of ESP

ESP refers to an approach to English teaching where content and teaching methods are selected based on their relevance to a particular area of application or interest (Barnard & Zemach. 2003 : 311). This is a general group or category of applications, which can include business English, English for medicine, scientific English, English for the arts, or English for academic purposes (EAP), in addition to more specialist areas like aviation English. The goal of ESP techniques is to enable learners to operate within a particular field of English, often (though not always) through building on conversational or everyday English skills already acquired. This approach is particularly useful when teaching professionals and others to communicate across international borders, or when professional knowledge is often transmitted in English as a trade language. Figure 2.1 shows the relationship between ESP and other forms of English language teaching. Different levels of interest and professional requirements drive differences in teaching approach and materials within the field (Laborda. 2011 : 108).

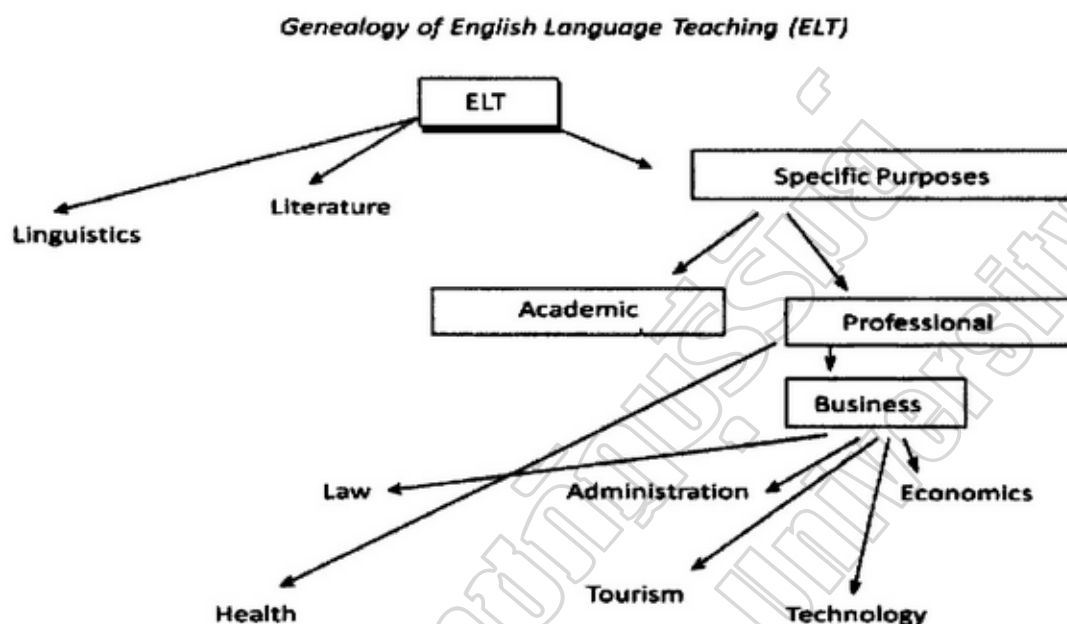


Figure 2.1A Genealogy of English Language Teaching Approaches

Source: Laborda (2011 : 112)

2.1.2 Types of ESP

As shown in Figure 2.1, there are a range of different areas of ESP, which have very different interests and represent different approaches (Laborda. 2011 : 107). Some of these include business areas (such as administration, tourism, technology, and economics), as well as law and health or medicine (Laborda. 2011 : 108). Academic English and the arts also fall into this category (Barnard & Zemach. 2003 : 315). Each of these types of ESP has a different emphasis (such as on spoken and written communications), different levels of complexity (such as different vocabulary requirements), and different approaches to learning (Barnard & Zemach. 2003 : 316).

In this research, the particular area of interest is Health and Medicine, which are the areas that medical technologists will be particularly required to learn. This field is termed English for Medical Purposes (EMP) (Ferguson. 2013 : 247). EMP must deal with a number of distinct issues in teaching, including a highly specialized vocabulary and the use of metaphors as well as the need for communication between specialists and laypeople. Although Ferguson (2013 : 247) specifies that this involves doctor-patient communication, the present researcher posits that the problem of lay communication will also extend to communications between the medical technologist and others. One of the main reasons English is required in the medical field, even in areas where different languages are used in care provider-patient communication, is because the bulk of modern medical research is published in English (Lu & Corbett. 2012 : 2). This means that EMP is required for medical professionals to access the academic research in their disciplines, as well as potentially publish within it. Given the relevance of academic publications to informing continuing education and advanced knowledge in the medical fields, it is clear that EMP is required as a tool regardless of the L1 (native) language (Ferguson. 2013 : 255). Some areas where English skills may be challenged for the non-native medical professional include: rapid or detailed reading of medical information (including journal articles, books, treatment guidelines, etc.); writing papers and reports for publication; participating in conferences and other forums (including both speaking and understanding); and studying at international institutions (Ferguson. 2013 : 246; Lu & Corbett. 2012 : 1-3).

2.1.3 Development of ESP Courses

Development of ESP courses depends on the type of materials required for the area of interest, and there is no specific curriculum approach or method that will work for every ESP domain (Barnard & Zemach. 2003 : 318). However, there are some general guidelines regarding the selection of materials and approaches that can be isolated from the literature. According to one author, the main criteria for selection or design of materials include “the criteria for implementing or modifying materials, the subjective criteria on what teachers and students want from that material, and the objective criteria which is what the material really offers (Hutchinson & Waters. 2009; cited in Laborda. 2011 : 111). Teaching revolves around the four skills of language (listening, speaking, writing, and understanding), but equal emphasis may not be placed on all areas (Laborda. 2011 : 110). Emphasis is primarily placed on vocabulary and grammar, situated within conversational or situational contexts appropriate to the specific area of language study (Laborda. 2011 : 106). English for occupational purposes (EOP) courses, such as EMP, require extensive knowledge of both English and the subject area, and vocabulary, language forms, and conversational contexts are drawn from the appropriate occupational subject area (Barnard & Zemach. 2003 : 320). However, there is no need to maintain a strict focus on the subject area, as contextualization and speaking around the area is also important both to improve fluency and maintain interest(Barnard & Zemach. 2003 : 318). For example, EMP courses may include material on social context, as well as medical terms (Ferguson. 2013 : 247). Course development also depends on the intended target audience and their existing fluency in general English (Barnard & Zemach. 2003 : 318).

Courses designed for lower-level learners may focus more on basic grammar, while specialist vocabulary will become more important for advanced learners.

2.2 Needs Assessment

The third area of interest in this study is needs assessment. Topics include a brief definition of needs assessment, different types of needs assessment, and approaches, methodologies, and instrumentation for needs assessment.

2.2.1 Definition of Needs Assessment

Needs assessment can be briefly defined as “a process that attempts to estimate deficiencies (Royse, Staton-Tindall, & Webster. 2009 : 3).” However, this rather simple definition does not provide a full understanding of what needs assessment is meant to do. First, needs assessment works within a specific domain or context, focused on a specific population (Royse. et al., 2009 : 11). The process uses a defined method in order to examine conditions within that context and population. Deficiencies can be understood as gaps between the ideal situation for the context and the actual situation for the context (Royse. et al., 2009 : 15). Needs assessment is an approach that can be used to determine where improvement efforts can be best directed and what the specific requirements of a given population or group of individuals are (Peile, Buckle, & Gallen. 2003 : 63). The concept of needs assessment is relevant to this research since it can be used to understand gaps between existing and ideal performance in areas such as training.

2.2.2 Types of Needs Assessment

There are a number of different approaches to identifying different types of needs assessments. One author identifies seven such types, which are more or less formal and are based on different methods and approaches (Grant. 2002 : 156). These seven types include:

1. Gap analysis (discrepancy analysis): identifying the actual performance with the ideal or specified performance and determining where there are gaps;
2. Reflection: critically reflecting on actions taken to identify where there are performance gaps;
3. Self-assessment: using journals or other methods to identify gaps;
4. Peer review: analysis of needs by peer observers;
5. Observation: formal observation and gap analysis by experts;
6. Critical incident review: Gap analysis following critical incidents (such as quality failures); and
7. Practice review: Review of routine performance in order to identify gap.

Formal methods include gap analysis, observation, critical incident review, and practice review, while reflection, self-assessment, and peer review are informal methods (Grant. 2002 : 156). There are also different types of needs assessments that can be used. For example, organizational needs assessments use a holistic approach throughout a group, rather than focusing on a specific area (Royse. et al. 2009 : 19). These techniques are useful for understanding the process of learning needs assessment in this case because they are specifically drawn from a medical context. These types of needs assessments

have different advantages and disadvantages (Royse. et al. 2009 : 85). For example, formal approaches like gap analysis are more comprehensive and can be used more easily for official purposes, but they also require more resources and may provide an illusion of false precision. Less formal approaches may not cover as much of the area of interest and may miss important elements. The type of needs assessment chosen is dependent on the position of the assessor vis-à-vis the population, the purpose of assessment, and the resources available (Royse. et al. 2009 : 89).

2.2.3 Approaches to Needs Assessment.

Different approaches to needs assessment depend on philosophical and pragmatic differences in the goal of the assessment (Gupta, Sleezer, & Russ-Eft. 2007 : 18). In addition to the population (whose needs the assessment will focus on), there is also the question of what kinds of needs will be the focus. Gupta. et al. (2007 : 21) identified several different types of needs that could be addressed, including strategic needs, organizational needs, individual needs, and learning needs. However, this is not a comprehensive list of the types of needs that may be assessed by the needs assessment. One fundamental difference in approaches is whether it focuses on the individual or the institution as a source of deficiencies (Gupta. et al. 2007 : 23). For example, in a learning context, an individual needs assessment might identify the qualifications of the individual and identify specific skills they are lacking, but a holistic or organizational needs assessment may focus on how individuals interact with the organization through issues

such as curriculum and program design (Peile. et al. 2003 : 62). These differences in approach to the needs assessment are indicative of different underlying philosophies and beliefs about the source of deficiencies, as well as the nature of needs (Gupta. et al. 2007 : 25). They can make a significant difference in the outcomes of the needs assessment, which may be more or less effective at remedying issues. Thus, whether an individual or organizational approach for needs assessment is chosen determines the methods used as well as the assessment's effectiveness (Gupta. et al. 2007 : 26).

2.2.4 Methodologies of Needs Assessment

There are different methodologies of needs assessment, though typically the process must involve identifying ideal performance, observing current performance, and describing the gap between them (Grant. 2002 : 156). One common needs assessment approach includes eight steps (McDavid & Hawthorn. 2006 : 206). These steps include:

1. Familiarization with the context of the assessment;
2. Identifying users and the types of needs to be assessed;
3. Identify target population;
4. Identify existing services;
5. Identify gaps by comparing existing state to the ideal state;
6. Document the needs assessment (including evidence and benchmarks, recommendations, and conclusions);
7. Communicate the needs assessment to decision-makers, as well as other interested parties and stakeholders; and
8. Implement recommendations of the needs assessment.

This is one of the most commonly used methodologies for needs assessment, as it provides a clear and relatively simple approach to assessment planning (McDavid & Hawthorn. 2006 : 211). This process can be applied to an informal or formal type of needs assessment, although the scope of the application is likely to be different depending on the approach and type of assessment used. It is possible to combine different types of needs assessment into a single holistic assessment; for example, using personal critical reflection or journals in the context of a holistic organizational assessment (Grant. 2002 : 156; McDavid & Hawthorn. 2006 : 227). This means that the methodology will need to be clearly outlined in order to be effective, and the methodology will need to be explained during the communication process.

2.2.5 Instruments Types for Needs Assessment

There are different instruments that can be used for needs assessment, which serve different purposes. Key informant interviews are used to collect information from specific individuals within the organization or population that may have special insight into the issues the population faces (McDavid & Hawthorn. 2006 : 118). For example, in a teaching context key informants often include classroom teachers and administrators, who have different levels of understanding of the issues of the school. Key informant interviews are typically semi-structured interviews that address the concerns of the data collector, but also allow the informant to open up new issues that might not have been considered. The key informant interview provides expert knowledge and contextual

views on not just the current performance, but also the reasons behind gaps. This can be used to improve knowledge regarding the population and its context.

A second type of instrument that may be used is the survey, which allows quantitative assessment of performance and formal benchmarking (Gupta. et al., 2007 : 121). Surveys are commonly deployed as tests used in standardized testing, because this approach helps identify the expected performance of the population compared to its actual performance. This approach is commonly used in educational needs assessment, though it may also be used in other contexts like organizational satisfaction surveys. Observation may also be used as a data collection technique (Royse. et al. 2009 : 36). However, this approach depends on expert knowledge of the field by the assessor, and is more resource-intensive than either key informant interviews or surveys.

2.3 The Profession of Medical Technology

2.3.1 Definition of Medical Technologist

The population of interest in this research is medical technologists. The medical technologist is an allied health professional role within the hospital or professional laboratory, whose main focus is on using scientific technologies in order to assist in the diagnosis and treatment of disease (AMT. 2013). According to the American Medical Technologist (2013), Medical Technologists perform complex chemical, biological, hematological, immunologic, microscopic, and bacteriological analyses, including analysis of blood and other biological samples, culturing bacteria, fungi, and other infectious agents, typing blood, and evaluation of test results. The distinguishing feature

of medical technologists is the use of scientific and laboratory equipment to perform their roles (AMT. 2013). Medical technologists may be generalists (working in all areas of the laboratory), or they may specialize in a specific area of analysis (Florida Health Careers. 2009). Some areas of specialization include clinical chemistry, blood banks, hematology, microbiology, and toxicology. Most medical technologists work in hospitals, although others may work in commercial laboratories, public health agencies, or other locations (Florida Health Careers. 2009). The medical technologist role is associated with other allied health roles, such as phlebotomy (blood drawing specialists), radiology, and medical imaging.

2.3.2 Qualification Requirements

The qualification requirements for medical technologists vary by jurisdiction, though they are generally similar. According to the AMT (2013), medical technology requires a minimum of a Bachelor degree, which can be either in a component science (chemistry or biology), or a degree in Medical Technology itself. A medical technology degree includes courses in biology (including microbiology), chemistry, mathematics, statistics, and related areas such as ethics and laboratory management practice. Typically, the medical technology degree will also have an internship component, which will ensure that the graduate has experience in the laboratory setting prior to entering the workplace formally. Some jurisdictions require licensing (achieved through an examination process). Certification by professional bodies is also desirable, especially for specialists, though not generally required to practice (Santiago. 2014). Further education, including

continuing and professional education (CPE) and advanced degrees in management or further sciences, may be required for career advancement (AMT. 2013; Santiago. 2014).

In addition to technical and laboratory skills and knowledge, traits and skills that are desirable for medical technologists include: good judgment and analysis skills, ability to cope with pressure, attention to detail, good dexterity and vision, and computer and technology skills (AMT. 2013; Santiago. 2014). These skills are required because of the laboratory environment and equipment used, as well as the need to exercise critical judgment for laboratory tests (Santiago. 2014).

2.3.3 Duties and Job Description

The main duty of the medical technologist is to assist in the diagnosis and treatment of the disease within the clinical environment through use of a number of laboratory and scientific analysis tools (AMT. 2013). A sample job description yields some important insights into the specific duties that generalist medical technologists may face (though these may vary depending on the work environment and specialization) (Monster. 2013). Some of the duties listed in this job description include: chemical analysis of bodily fluids; specific techniques for analysis of blood and preparation of blood; the use and maintenance of specific laboratory machines (such as analyzers, colorimeters, and others); laboratory inventory management; conservation of resources; communications and reporting; teamwork with others in the treatment team; safety management and hygiene; and continuing and professional education (Monster. 2013). This is consistent with live job descriptions, which contain similar duties and

requirements (SapMeds. n.d.). However, this live description offers an additional requirement of excellent written and oral English (SapMeds. n.d.), which is particularly relevant for this research. This requirement includes written and verbal communication skills, required to engage in multiple forms with team members, patients, and family members (SapMeds. n.d.).

2.3.4 Medical Technologists in Thailand

While the discussion above was mostly focused on the Western field of medical technology, the situation is similar in Thailand. In this section, the current situation and trend of medical technology in Thailand is summarized, and qualifications and duties are discussed.

2.3.4.1 Current Situation and Trend

Medical technologists in Thailand are in high demand, driven both by the general requirements of the country and by the country's strong medical tourism industry (Wilson. 2010: 120). The Thai government has made a deliberate policy choice to encourage and develop the medical tourism sector, which has resulted in a strong demand for medical technologists to operate the advanced equipment required. Statistics suggest there were 11,751 medical technologists working in Thailand as of 2010 (WHO. 2010). There has been a slow increase in the number of medical technologists year-on-year, though it is not a rapidly growing field (WHO. 2010). One source of growth is hospitals such as Baunrungrad Hospital (Bangkok), as well as outpatient clinics, which maintain laboratories with extensive suites of advanced diagnostic equipment operated by

medical technologists (Wilson. 2010 : 121). The Thai professional association for the field is the Association of Medical Technologists in Thailand (AMTT). The AMTT was founded in 1961 (AMTT. 2011). The association encourages ASCPi (American Society of Clinical Pathology (international)) accreditation for members, and maintains a journal of clinical practice as well as holding a yearly conference (AMTT. 2011). An interview with the current president of the AMTT shows that there are a number of potential issues in the field at the present time (AMTT. 2005). This interview suggests that communication and quality practices are of particular concern in the medical technology profession in Thailand.

2.3.4.2 Qualifications and Duties

Educational levels for Thai medical technicians vary. Although traditional medical technologists still require four years of education, many subfields (such as imaging technicians) only require two years of education (WHO. 2010). Licensing is required as well. Licensing is performed by the AMTT, who also set out requirements for training curriculum and designate the particular areas of specialty (AMTT. 2011). The medical technology professional license requires appropriate training in one of 13 approved universities (ten of which are public universities), as well as excellent written and spoken Thai skills (WHO. 2010). For this reason, most medical technologists in Thailand are Thai, and there is little immigration in the field.

As in other countries, medical technologists may be general laboratory scientists or they may specialize in fields including imaging technicians, biomedical technicians, medical technology sub-specialties, and assistants (WHO. 2010). This is a broader definition than is used in the US(Santiago. 2014), which means that the potential job requirements and duties for a medical technologist in Thailand will vary much more. The general duties are also split between different people; for example, a medical technologist is not required for maintenance of laboratory equipment, which is a role assigned to the biomedical technologist sub-field (WHO. 2010). However, this is a potential responsibility of a US-based medical technologist (Monster. 2013). Overall, however, the duties of medical technologists are very similar to the duties generally found in the profession in other countries.

While in theory the medical technologist must be licensed, in practice there may be problems ensuring that appropriate education in an accredited program has been achieved (Wattanasri, Manoroma, & Viriyayudhagorn. 2010: 538). This is because of the low rate of international accreditation of laboratories, particularly in rural areas, and lack of a national laboratory accreditation program. This is an issue that is being worked on, but in the meantime it has led to medical technologists working outside the scope of their training and competence (AMTT. 2005). This is a particular problem with the profession that needs to be dealt with.

2.3.4.3 English Background of Thai Medical Technologists

There have been no previous studies of English backgrounds in Thai medical technologists, but some shared characteristics can be inferred from the general state of Thai education as well as licensing requirements. Medical technologists are likely to have some knowledge of English, because English is a required subject in lower and upper secondary school (along with Thai, mathematics, science, and prescribed and free electives) (ICDE. 2014). Thus, like others who chose an academic track, newly trained Thai medical technologists will have studied English for at least six years. However, this may not be the case for older medical technologists. This is because of the dramatic change that has taken place in the Thai education system in the past decades, particularly following the Education Act (1999), which dramatically increased the emphasis on second language learning (usually English) in preparation for a newly globalized economy (Darasawang. 2007 : 190). Students would also have learned English at the tertiary level, since students in most programs are required to continue to learn English for a further 12 credits (including two foundation subjects and two advanced subjects) (Darasawang. 2007 : 192-193). However, there is no specific requirement from AMTT that medical technologists have a particular level of English attainment in order to become certified. Thus, while most medical technologists will have studied English to the tertiary level, there is no guarantee of fluency or technical performance. There have been no studies on medical technologist performance in English speaking conducted previously.

2.4 Previous Studies Related to the Present Investigation

The final topic for discussion in this chapter is past research into medical ESP (EMP), both in Thailand and around the world.

There has been surprisingly little research in EMP in Thailand, which is one of the gaps that the present research hopes to fill. One study examined differences in writing scientific articles between Thai and English, demonstrating some of the challenges that EMP learners in Thailand will face when they use their skills (Kanoksilapatham. 2007 : 183). The author focused on biochemistry articles, using previous research into writing in English articles in order to compare to a novel analysis of Thai articles. The analysis revealed 14 movements in the Thai articles, along with specific shared steps. These movements set out the analytical structure of the argument in Thai. It also revealed that there was a generic structure of the article. The comparison to the English article found that there were key differences between English and Thai writing in the genre. These differences were attributed to the small size and familiarity of authors with others in the field, as well as linguistic conventions that do not exist in English. Thus, there are some substantial differences in writing professionally in the field, which would be important for EMP learners in Thailand to understand. This could be problematic given a general emphasis in EMP courses on vocabulary and basic reading comprehension, rather than writing (Lu & Corbett. 2012 : 2-3).

A study in a related field of EOP addressed the English communication needs of Thai engineering students (Kaewpet. 2009 : 268). This study used key informant interviews with 25 representatives of stakeholder groups, including employers, professors

and lecturers, and practicing civil engineers as well as previous students and ESP teachers. They found that there were a number of specific recommendations that could be made about the curriculum requirements. One finding was that there must be a four-skill approach, and focusing only on reading and writing English is not sufficient for meeting the professional requirements for English. This is problematic given the emphasis in most EMP curricula on reading only (Lu & Corbett. 2012 : 3). Another finding was that the curriculum should include textbook reading, reporting writing, and talking about engineering problems, since these were areas where students tended to be weakest based on their general knowledge of English. They also suggested that engineering courses should include English training specifically. This study's particulars do not apply to the medical context, but can be used to understand the general conditions of EOP training in Thailand. It is also useful for understanding the approach to needs assessment based on key informant interviews.

One study points out the problem of selecting an EMP teacher (Ahmadi & Sajjadi. 2009 : 136). This is a problem because in addition to intensive knowledge about English language teaching, EOP (especially branches with extensive vocabulary or sensitive conversational forms, such as EMP) also requires extensive knowledge of the subject matter being taught. At the university level studied by Ahmadi and Sajjadi (2009 : 137) there is conflict in assessment of who is the best teacher of these courses; while university administrators preferred language teachers for the programs, medical program administrators preferred subject specialists with training in language learning. This is an

issue that remains contentious, but it is obviously one of the most important aspects of designing the program curriculum for an EMP program.

There is also the question of what should be encouraged in the EMP course. A study in Arab Gulf medical students points out the importance of motivation in achieving autonomous learning of English (Malcolm. 2011 : 198). This study showed that students were sensitive to their performance, and in some cases became more motivated to improve if they perceived themselves as having failed initially. These students were more likely to become autonomous and take responsibility for their own language learning. This is not consistent, and there were different levels of motivation reported by the author. However, it is suggestive that programs may not be most effective when designed to promote high initial performance. Instead, encouragement of improvement and achievement of autonomy in language learning should be a focus of the curriculum design, because of performance gains through initial failure. Conversely, lack of autonomy achievement should be considered as one of the potential gaps in a needs assessment.

A study on English needs analysis in the tourism industry shows the utility of the approach for identifying learning gaps. This study examined a sample of 40 employees working in the tourism industry in Thailand (Prachanant. 2012 : 119). The responses showed that all four skills (speaking, listening, reading, and writing, respectively) were viewed as important (Prachanant. 2012 : 120). Problems included understanding foreign accents, using inappropriate words, inadequate vocabular, and lack of grammar knowledge (Prachanant. 2012 : 121-122). These specific problems may or may not be

reproduced in the medical technologist field. For example, EMP has more emphasis on specialist vocabular development (Lu & Corbett. 2012 : 2-3), which could reduce vocabular problems. However, Prachanant's (2012) paper does show that the needs assessment approach is highly effective at identifying language needs in a population. Implementing a similar approach to needs assessment could provide good information about general EMP requirements for medical technologists and understanding of existing gaps.

There are also methodological concerns regarding the teaching of EMP, including appropriate tools and the use of different classroom and online styles (Iwata, Tamaki, Wang, & Clayton. 2013 : 118). One approach is using Moodle, an online content management system and course development system, to organize materials and distribute them. Iwata. et al. (2013 : 117) pointed out that this was a successful compromise to enable EMP teaching even in situations where resources and time were limited. By using blended learning, or a combination of online materials and assessment with a small number of in-person classes, the authors were successful at distributing ample materials and encouraging learning even though students were already overwhelmed with the existing curriculum. This study shows that there are ways to overcome structural barriers, such as lack of classroom time, through use of information technology. However, it does not resolve the problem of focus on reading and writing, rather than speaking and listening (Lu & Corbett. 2012 : 3).

The evidence for what to expect from medical technologists is relatively slim, but there are some potential outcomes. First, Based on Kanooksilapatham's (2007 : 172-203)

study, there may be some difficulties experienced in writing tasks, although as Lu and Corbett (2012) have suggested, vocabulary and basic reading comprehension may be at acceptable levels. Studies from other fields with specialized vocabularies also offer some information. For example, findings from Kaewpet's (2009 : 266-278) study of English teaching for engineering students suggests that medical technologists may also benefit from a four-skills approach, rather than a focus on reading only. This would be a broader curriculum than is currently in place. It is also possible that English for medical technologists may suffer from lack of a qualified teacher (because of the specialist vocabulary required) (Ahmadi & Sajjadi. 2009 : 135-140) and that students may suffer from motivational problems (Malcolm. 2011 : 195-211). However, since none of these areas focus specifically in medical technology it is difficult to determine exactly how these findings will apply.

2.5 Summary of the Chapter

This chapter has discussed four key areas of background research and information that are necessary for understanding the present study. The chapter opened with a discussion of the profession of medical technology. The trends of medical technology in Thailand are particularly important, since this is where the present research will be located. This information is useful for understanding the population of interest in the study. Second, ESP was examined. ESP is commonly used for professional fields that have specific requirements and specialized vocabularies, such as the medical field. ESP courses often accompany professional training, and course design is of interest since this

influences how well professionals learn their required language skills. Third, the technique of needs assessment was discussed. Needs assessment, whether performed in a more or less informal fashion, is a vital technique for understanding the needs of specific populations in specific contexts. The final topic discussed was previous research on ESP in the medical field, both in Thailand and elsewhere. This discussion highlighted many of the challenges that ESP faces and how they may be overcome. In the next chapter, the methodology for the present research is presented, which draws on the literature review.