Making a Reading Passage Just That in an EMP Lesson

Mark Rebuck
Meijo University

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This paper illustrates how a substantive content-based lesson, on the topic of diabetes, can emerge from a short reading passage. The pedagogical approach of the English for Medical Purposes (EMP) lesson described here was informed partly by a study into pharmacy students' engagement in an EMP course. The study, briefly described in the opening, found that to engage students, lessons should be practical, relevant, and motivational and should incorporate authentic resources. The rational for teaching EMP is followed by a step-by-step description of the lesson, which serves to illustrate how students can be taken beyond working on the language in a text to exploring what a text is about. Finally, some of the issues raised by this approach are examined, including the question of the degree to which subject-specific knowledge is required to teach EMP.

本論は、糖尿病についての短い読み物を、中身の濃い内容重視のEMP（医療のための英語）の授業に発展させる方法について論じる。ここで紹介する授業の教授法を方向づけたのは、あるEMP授業に対する薬学部生の取り組み態度についての研究であった。この研究では、学生を授業に積極的に取り組ませるためには、授業が実践的で、学生のニーズに関連のあるものであることが必要で、生の教材を取り入れることも有効であることが示されている。実践報告は薬学部2年生を対象に糖尿病をトピックとして扱う授業の展開を段階的に記す。授業は教科書の文章に関する言語学習（文法、単語などの勉強）を超えて、その文章の中身を探求するものである。最後に、この授業方法を実行するにあたってどのような問題が起きるかについて論じる。特に英語の講師が医療の専門的な知識をどの程度持つべきかについて論じる。

In 2013, when I took up a position in the faculty of pharmacy of a private university, I was assigned to teach a 2nd-year course entitled *kiso yakugaku eigo* (Fundamentals of Pharmacy English). Instruction of this course was to be shared with a Japanese member of the faculty, Professor T (PT), with the first seven classes taught by PT and the final seven by me. Before my turn came to teach the course, I observed one of PT's lessons. It was this observation, along with the students' apparent lack of motivation in my class, that led me to conduct a study into the factors leading to off-task behaviour in an English for Medical Purposes (EMP) course and how this type of behaviour can be reduced.

In that study (Rebuck, 2015a), I surveyed over 250 students using a questionnaire. An analysis of the students' comments and other data from the study indicated that students desired an approach to EMP teaching that could be encapsulated by the acronym PHARM:

Practical: Is the lesson of immediate or future use?

Homed in: Do the lessons dovetail with the wider culture of the institution?

Authentic: Are authentic materials incorporated in the lesson?

Relevant: Is the lesson's content perceived as being pertinent to students' needs and goals?

Motivational: Does the lesson content and teaching style stimulate and engage the students?

These results have, in turn, informed my classroom practice. In the lesson of PT that I observed, most of the class time was used for analysing and translating a reading passage from the course textbook (Yamaguchi et al., 2013). In contrast, in my lessons the focus is not primarily on analysis of the language in the reading passage, but on exploring and learning more about the topic being conveyed by the text. Many of the textbooks available in Japan for pharmacy English classes are built around reading passages. A methodology based mainly on a focus on the language of such passages, as was used in PT's lesson, would be unlikely to constitute a learning experience that was practical, authentic, relevant, and motivational (the *H* element concerns classroom management and is not relevant here).

Rather than viewing a reading passage as something to be linguistically analysed, Rebuck (2015a) suggested that it should be considered more as a springboard—or as a *passage*way (hence the title of this paper)—that can be used to explore the subject introduced in the text. Using an actual classroom lesson, this paper illustrates how a content-based lesson can emerge from a reading passage. The lesson was built around a text entitled "The Worldwide Increase in Type 1 Diabetes" in the Fundamentals of Pharmacy English course textbook (Yamaguchi et al., 2013, p. 2). The reading passage can be found in Appendix A. Three of the lesson activities incorporate authentic videos, and readers are encouraged to follow the links to these online resources as they progress through the article.

What Is EMP and Why Teach It?

According to Belcher (2009), what distinguishes English for Specific Purposes (ESP) from general English is its "commitment to the goal of providing language instruction that addresses students' own specific language learning purposes" (p. 1). Under the canopy of ESP are various branches, one of which is EMP, a pedagogical approach meant to meet the needs of healthcare professionals. Fundamentals of Pharmacy English is one of several EMP courses in my faculty that are aimed at equipping students with the English they are likely to need in both their academic and professional careers.

The majority of pharmacy students gain employment as pharmacists in community pharmacies or hospitals. An important role of such a pharmacist, as pointed out by Osawa, Yamashita, and Laforge (2014), is to provide information on medications to both patients and other healthcare professionals. English is the source of much of this information. Pharmacy students are also required to use English-language journal articles for their research. Thus, being able to read with some accuracy and understand a wide range of specialist vocabulary is important. In this respect, lessons that place an emphasis on textual analysis are of value.

Pharmacists may also need to communicate with English-speaking patients and there are several books (see, e.g., Komiyama, 2010) designed to prepare students for this possibility (one that seems likely to increase in the future, especially in the run-up to the 2020 Tokyo Olympics.). A 5th-year EMP course in my faculty addresses the English-language communicative events students may encounter. They practice, for example, pharmacy–patient role-plays and learn strategies to facilitate communication with other healthcare professionals such as the Situation, Background, Assessment, and Recommendation (SBAR) method of communicating (see Berger, 2015, for a discussion of this method). Most pharmacy students recognize the importance of English for their future careers (Rebuck, 2015a), even those who dislike it as a subject (Yamashita, 2012).

As suggested by the discussion so far, an important part of the EMP practitioner's role is increasing students' familiarity and understanding of the English language in a medical context, both written and spoken. What is sometimes overlooked, however, is the pharmacists' role as "content-orientated language educators" (Shi, 2009, p. 221). The lesson on diabetes described in this paper is essentially a content-based one. When I taught general English, a lesson on, for instance, what the (university) students did in their elementary school days was primarily a way to elicit expressions of past habit (*used to*, *would*, and past simple). However, content in my EMP classes is generally not employed primarily as a vehicle for language practice. Although some explicit language focus emerges from the content, the content itself is of equal importance to the language, if not of greater importance. The fact that the emphasis is on content does not mean that students are not learning language. On the contrary, as Richards and Rodgers (2001) pointed out, students "learn a second language more successfully when they use the language as a means of acquiring information, rather than as an end in itself" (p. 209).

Rebuck (2016) found a strong preference among pharmacy students for medical-related content, even in English classes that were not part of the EMP curriculum. The study surveyed approximately 500 first-year pharmacy students over 3 years to ascertain the extent to which they desired specialist content in their liberal education (*kyouyou kyouiku*) reading classes. The vast majority of students desired some specialist content to be incorporated and almost 60% considered that reading classes should focus solely on such content.

An analysis of students' comments revealed why many valued EMP-orientated classes over those in which general topics predominated. The main reason related to necessity and usefulness: Specifically, students considered specialist content to be of value in other discipline-related classes and for their future professional lives. Many students also indicated that specialist content was somehow commensurate with their status as future pharmacists. A typical comment included: "We have entered pharmacy school, so we should be doing pharmacy-related content." Others considered that specialist content increased motivation to study, partly because covering disciplinary-specific topics made students feel as if they were really on the path to becoming healthcare professionals.

To engage and motivate students, lessons need to be made relevant (the *R* of PHARM). Studies have shown that students will not be motivated to engage in class "unless they regard the material they are taught as worth learning" (Dörnyei & Ushioda, 2011, p. 116). A lesson built around a topic such as diabetes has the potential to be highly relevant to pharmacy students because it relates to the content of core courses and is a major health issue, which students will likely encounter in their professional lives.

EMP and Authentic Resources

A vital component of my EMP lesson is authentic resources (the *A* of PHARM), particularly audio-visual resources (YouTube videos and audio clips from medical podcasts on the BBC and other radio stations). I have described elsewhere the beneficial effects of authentic audio for improving listening skills and raising motivation (Rebuck, 2006, 2008). Authentic material is also valuable for communicating knowledge and for bringing it to life. In Step 11 of the lesson described in this paper, the symptoms of hyperglycaemia (high blood sugar) are made real through a video of a young woman describing what would happen if she did not administer insulin.

Incorporating video and radio clips on, for instance, the mechanisms of a drug's action, adds the voices of experts to the lesson. Such media can also be used to provide support and confirmation for the information conveyed by the EMP practitioner and serve to imbue the lesson with extra authority.

The Lesson

The reading passage in Yamaguchi et al. (2013), entitled "The Worldwide Increase in Type 1 Diabetes" (see Appendix A), provides a brief introduction to the condition, yet the text alone is clearly insufficient to do the topic of diabetes mellitus justice. The progression of the lesson built around this text is shown below.

Step 1

To set the scene, students are asked, "What's the fastest growing chronic disease in the world?" A short class discussion elicits that it is type 2 diabetes.

Step 2

This activity serves to provide background information on diabetes. Students are shown a slide of a boy, Ken, talking to his mother and are told that Ken has bought a cake for his father's birthday. His mother is explaining why his father cannot have too much of it. Another slide is shown of a middle-aged man (Ken's father) with the title "Pre-Diabetic." Students then practice the dialogue (see Appendix B), filling in the gaps with the words on their handout.

A video, "Diabetes Made Simple," (https://www.youtube.com/watch?v=MGL6km1N-BWE) is then shown. Many of the phrases that were incorporated into the previous dialogue are from the video's narration. Practicing the dialogue first thus serves to prime students for the authentic listening that follows.

Step 3

An overview of the functions of insulin then follows. Slides explaining the location of the pancreas and its structure are shown and the etymology of some of the key terminology is highlighted. One slide, for example, explains that insulin means "protein produced by little islands," and words containing this root (*peninsular* and *insular*, as in *insular mindset*) are shown.

Step 4

Students are asked, "What are the differences between type 1 and type 2 diabetes?" Their suggestions are written on the board, and a slide summarizing the main differences is shown.

Step 5

The lesson then moves on to the dangers of diabetes. Students discuss in pairs the following question: "For people with diabetes, controlling high blood sugar can help prevent or decrease many long-term complications. What are some of the main complications?"

Slides follow explaining these complications, one of which is Figure 1. (All the figures in this paper are taken from the actual slides used in the lesson).

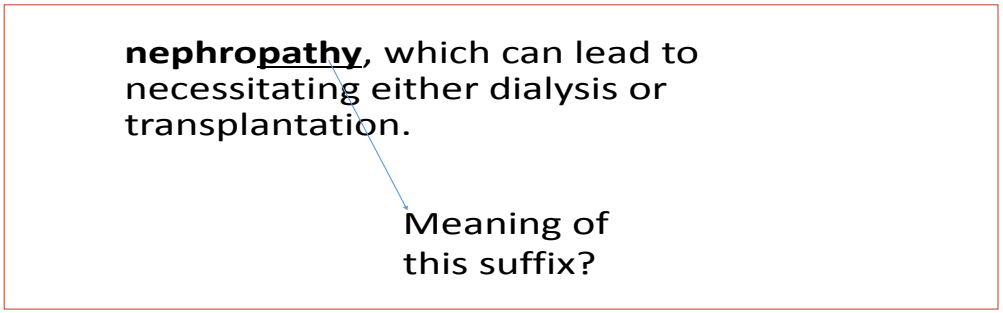

Figure 1. Complication of diabetes.

A focus on the common suffix *~pathy* follows, with examples given such as *myopathy* (muscle disease) and *neuropathy* (nerve disease). Linking medical terms to more general vocabulary items aids students' understanding, hence a slide pointing out the same suffix in words such as *sympathy* (*sym* = with) and *empathy* (*em*, *en* = in).

Step 6

In pairs, students respond to Figure 2.

It is interesting that

there are at least **5** hormones to raise blood sugar (*cortisol, epinepherine, norepinephrine, glucagon,* and *growth hormone*)

But insulin is the **only** hormone that lowers blood sugar.

What could be the reason for this situation?

Figure 2. Discussion on blood sugar regulation.

Students' suggestions are taken and noted on the board. A slide with the following text is then shown and the difficult vocabulary is explained.

> For most of human evolution people have lived in situations where food was scarce. Starvation was never far away. For this reason, raising blood sugar (getting energy for fighting or running away) was much more important than lowering blood sugar. But now we live in a society in which we have more than enough food, and lowering blood sugar has become the priority. Unfortunately, we only have one way to do that, and if that goes wrong we are in trouble.

Students are then shown a slide with images of fast-food restaurants and asked to fill in the gap in this sentence: "We now live in an *obeso* _____ environment." They are given the hint that the suffix means to "create" or "produce" (the answer is *obesogenic*; students are then reminded of other terms they have learned with this suffix such as *carcinogenic* and *teratogenic*).

Step 7

The lesson goes off on an apparent tangent with students asked: "When you think of America, what comes to mind?" After students' suggestions are taken, Figure 3 is put on the screen.

Judging from the hair styles and fashion, what decade is this? Can you guess the year?

Figure 3. Screenshot from "I'd Like to Buy the World a Coke" ad.

Students are told it is a scene from the "I'd Like to Buy the World a Coke" advert, first shown on TV in 1971. The commercial is then played (https://www.youtube.com/watch?v=ib-Qiyklq-Q). The class is then asked, "What were your parents doing then?" A question that encourages students to use various grammar constructions (*My father was working*; *They were still at school*; *My mother was just about to enter high school—They hadn't been born yet* is one that will soon need to be taught!). This interlude of general English provides a short break for students from the specialist content.

The lyrics of the song on the 1971 commercial are then shown and vocabulary is explained. Next, the following text is shown to the students.

> In 1971 Coca Cola had a hit advert. It showed young people from all around the world singing from a hilltop in Italy. But in 2015, the world was singing a different tune about sugary drinks. The video you will see was made by an American NPO. Its aim is to raise people's awareness of the damage to health from sugary drinks.

The advert includes the following facts: Firstly, beverage companies spend about $1 billion per year advertising sugary drinks; Secondly, sugary drinks are the single largest source of calories in the American diet. The lyrics of the song in this video have been changed from the original Coca Cola advert. Coca-Cola called the video "irresponsible."

I go through the text and explain key vocabulary. The slide is then blanked, and the same text is given as a dictation (see Rebuck, 2015b, for more on this *divulged dictation* method). The video, "Change the Tune," (https://www.youtube.com/watch?v=3F1U-95v0JPs) is then screened. Prior to viewing, the main lyrics to the song are shown. Much of the dictation text is adapted from captions on the "Change the Tune" video, which facilitates students' understanding as they watch it. This activity is closed with a slide of newspaper headlines illustrating the moves around the world that are being taken to reduce sugar consumption.

Step 8

The students are told that there are four common signs of type 1 diabetes, all of which begin with the letter T. They are then put into pairs and asked to discuss what they can be. The answers are then given (see Figure 4).

Toilet
Going to the toilet a lot; bed wetting by a previously dry child, or heavier nappies in babies

Thirsty
Being really thirsty and not being able to quench the thirst

Tired
Feeling more tired than usual

Thinner
Losing weight or looking thinner than usual

Figure 4. The four Ts of type 1 diabetes.

Students then learn the medical terms for three of the signs of type 1 diabetes and infer the meaning of the prefix *poly* (see Figure 5).

This high blood sugar produces the **classical** symptoms of
polyuria (frequent urination)
polydipsia (increased thirst)
polyphagia (increased hunger)
Poly=

Figure 5. Medical terms for key symptoms of diabetes.

Step 9

An important topic for pharmacy students is the route of administration of medications. Students are asked, "How is insulin administered?" and "By injection" is elicited from the students. The various types of injection are reviewed. Students are then asked why insulin cannot be taken orally.

A picture of a person being administered a drug (see Figure 6) is shown and students ask each other what adverb they think is correct.

This person is being administered a drug

a)topically
b)enterally
c)rectally
d)parenterally

Figure 6. Slide quizzing students on drug administration.

Parenteral is a key term in relation to drug administration. I go through the options and explain the answer (see Figure 7).

d) parenterally

Enteral: from the Greek *enteron*→*intestine*.

enter**ic formulation; dys**entery

Enteral administration means that the drug reaches its target via the gut (intestine).

Parenteral administration means that the drug is administered in a way that avoids the gut (direct→systemic circulation).

*PARA 'beside'+enteral (**Para**phrase: **avoid** saying directly)*

Figure 7. Explanation of the term *Parenteral.*

Step 10

One role of the EMP teacher is to inform students of new developments related to the topic of study. An example of this is given in Figure 8. At the time of this lesson, inhaled insulin (which at present is indicated only for type 2 diabetes) had recently become available in the U.S.

Inhaled insulin

June 2014

Approved by FDA.

afrezza

(insulin human) Inhalation Powder

Figure 8. A recent development in insulin administration.

Step 11

The next activity introduces the patient's voice. The class hears a young woman with type 1 diabetes talk about her medication. Students are given a choice of listening tasks (Figure 9).

1:09 Voice of the patient

Listen to this young woman who has type 1 diabetes.

Easier task: write down 5 words that you hear.

Difficult task: What 3 things would happen to her if she didn't take her medication?

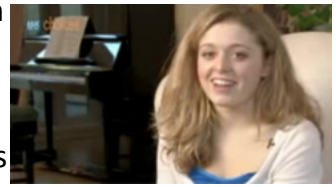

Figure 9. Listening tasks for the video "Teenage Diabetes: Chandler's Story."

The video is then played (https://www.youtube.com/watch?v=l3E7asicKXc; 69 seconds to 91 seconds). The duration of the clip is only 31 seconds, making it short enough to be shown several times in the class. After students compare their answers, the following transcript of the extract is shown, and the key vocabulary is reviewed.

> If I didn't medicate that would be a very, very bad thing. Not a wise idea. Basically, my blood sugars would go really, really high. And I would start to feel dizzy. If I then continued to not take insulin, I would get ill, probably throw up, and then eventually die. (NHS Choices, n.d.)

Although insulin must be used by people with type 1 diabetes (and by some patients with type 2), there are various oral medications available for the treatment of type 2 diabetes. I do not cover these in this lesson, but tell students in which course they will learn about such oral antidiabetic medications. This is one way in which connections are made between the EMP class and core specialist courses.

Step 12

Several slides are shown on the possible causes for the increase in the rise of type 1 diabetes. One of these includes a screenshot from a newspaper headline (Figure 10). The journalistic version of research articles in newspapers is often an effective way to alert students to recent research findings.

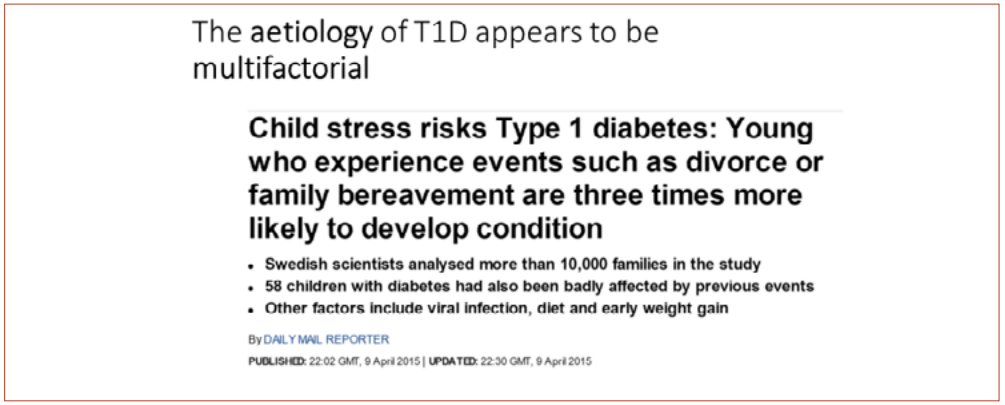

Figure 10. Newspaper headline reporting a new study.

Step 13

It is only in the final 20 minutes of the lesson that the textbook's reading passage (Appendix A) is used in class (although students will have read it in preparation for the lesson). Rather than intensive reading of the text, the focus is more pinpoint, aiming to raise students' awareness of salient language features. In the actual lesson this text was copied onto slides to enable it to be introduced in short sections and to allow questions related to the text to be easily added.

Step 14

This lesson provides only a partial introduction to the complex condition that is diabetes. Yet the very incompleteness of the lesson should leave the students' heads buzzing with unanswered questions. A final slide is aimed at encouraging students to articulate one or two of these by having a short discussion (if necessary, in Japanese) with a classmate. The slide asks, "What other things would you like to find out about diabetes?" Students are then shown two of the questions that lingered in my own mind after preparing for this lesson (*Why do high levels of blood sugar harm the blood vessels and nerves?* and *By what mechanism does obesity increase the risk of type 2 diabetes?*).

Discussion

I have described a lesson that developed from a topic contained in a reading passage. Although the text itself deserves attention, in the context of EMP, understanding the grammar and vocabulary of what is on the page should not be the lesson's sole objective. Leaving the content of a text unexplored can result in a lost learning opportunity for the students (as well as the teacher). Moreover, if texts are only used as a substrate for grammatical analysis or translation, students may never move beyond seeing English principally as a subject of study.

The lesson illustrated in this paper should appeal to, and meet the needs of, pharmacy (and other healthcare) students. Yet, there are potential problems with lessons covering specialist content. Rebuck (2016) indicated that some students were apprehensive about covering topics in English that they had not yet studied in Japanese. This is a valid concern and one pointed out by Yamada (2013), who considered that a lack of scientific background knowledge is as likely to lead to confusion amongst 1st-year students in ESP classes as is a lack of English.

Confusion may well result if students are expected to understand specialist content just by reading a text, guided by a teacher who can explain the language but knows little more about the topic other than what is on the pages of the textbook. However, there is no rule stipulating that a student's entrée into a subject must be through the L1. If the teacher understands the topic and uses a variety of pedagogical skills and techniques to make the content understandable and interesting, then specialist content that is new can effectively be introduced through the L2.

Preparing for an EMP lesson takes me many hours. Just the background research for a 3rd-year lesson on palliative care spanned over a month. Such preparation could be considered excessive, and there are, as Belcher (2009) explained, researchers who suggest that ESP practitioners do not really require much specialist knowledge to do their job. For me, however, it would be inconceivable to enter a classroom to teach a subject of such importance knowing little more than a layperson. Although it may not be necessary for ESP teachers to be experts, they do, as Harding (2007) asserted, "need to have some understanding of the subject area" (p. 8).

Lansford (2011) considered that the need to teach specialist content often leaves ESP teachers with "a nagging sense of self-doubt." Rebuck (2016) conducted interviews with five part-time reading instructors who had been requested to teach using EMP textbooks. He found that all the teachers felt either "unqualified" to teach specialist content or were afraid to give students the "wrong information." However, there are ways to compensate for this lack of content knowledge. Shi (2009), for example, pointed out that some teachers choose medical topics such as "diet, the elderly, and the disabled that are closely related to the world of everyday experience" (p. 222). I am a tenured member of the pharmacy faculty and recognise that it would be unfair to expect part-time teachers to conduct extensive background research in preparation for each textbook topic. But few could argue that, for a teacher to be able to really explore content with students, linguistic knowledge alone is adequate.

In 2006, the pharmacy degree changed from a 4- to a 6-year program. This change has seen, as Osawa et al. (2014) pointed out, a growth in the number of pharmacy faculties and a greater diversity in the English level of students, including more students entering university for whom English is a subject they dislike or in which they lack confidence. Moreover, the national examination for pharmacists in Japan at present includes no questions in English, which is another reason why some students may not be motivated in their EMP classes. (Incidentally, 2015 saw English language questions being included for the first time in the Japanese national exam to qualify as a doctor.)

Against this background, it is necessary to emphasise to students the value of English by pointing out, for example, its importance in obtaining up-to-date drug information. In this respect, I show my class an extract from a Japanese webpage on pharmacy that claims drug information in Japanese appears, on average, 3 years after the English version (*Yakunitatsu kusuri no jouhou*, n.d.). As well as selling the EMP course, it is important to aim to create lessons that compel students to engage. Of course, there may be students for whom content-based lessons such as the one in this article will be too demanding, and efforts should be made to accommodate them. However, as Hill, Guest, and Skier (2010) warned, teachers need to be careful of "setting the bar too low" because "it defeats the whole point of academia and cheapens the value of a university education" (p. 164).

Conclusion

There is lively debate on the role of the ESP teacher (see, for example, the discussion in Hill, Guest, & Skier, 2010), and how English teachers perceive their role will likely influence to a great degree how they teach. Three years after entering the world of EMP, I am still evolving as a teacher of pharmacy English. Perhaps I will start to move back along what can be considered a cline, with teaching *the* L2 at one end of the scale to teaching *through* the L2 at the other. The most appropriate balance between language and content will depend on numerous context-specific factors, and the approach outlined here will not suit all teachers nor meet the needs of all students. It is hoped, however, that this paper will provide one point of reference for those involved in educating future pharmacists and other healthcare professionals.

Bio Data

Mark Rebuck has taught English in London (the city of his birth), Korea, and Japan. He holds an MA in Japanese Studies from Sheffield University and an MA in TEFL from Birmingham University. His areas of interest include materials development using authentic resources, particularly in the field of medical English.

References

Belcher, D. (2009). What ESP is and can be: An introduction. In D. Belcher (Ed.), *English for specific purposes in theory and practice* (pp. 1-20). Ann Arbor: University of Michigan Press.

Berger, M. (2015, September 3). To communicate concerns, use the SBAR method. *Pharmacy Times*. Retrieved from <http://www.pharmacytimes.com/contributor/michael-berger-pharmd-bcps/2015/09/to-communicate-concerns-use-the-sbar-method>

Dörnyei, Z., & Ushioda, E. (2011). *Teaching and researching motivation* (2nd ed.). Harlow, UK: Longman.

Harding, K. (2007). *English for specific purposes.* Oxford, UK: Oxford University Press.

Hill, G., Guest, M., & Skier, E. (2010). Panel discussion redux: What are the roles of teachers in ESP/EAP courses? *OnCue Journal, 4*(2), 154-165. Retrieved from <http://jaltcue.org/journal_4.2>

Komiyama, T. (2010). *Yakuzaishi no tame no jisseneikaiwa* [Practical English conversation for pharmacists] (2nd ed.). Tokyo: Jiho.

Lansford, L. (2011, April 13). English for specific purposes—getting the balance right [Blog post]. *Oxford University Press English Language Teaching Global Blog*. Retrieved from <http://oupeltglobalblog.com/tag/lewis-lansford/>

Osawa, S., Yamashita, M., & Laforge, M. (2014). *Yakugaku kyouiku ni okeru dounyuuki ESP: ippaneigo kara yakugakueigo enohashiwatashi* [Introductory ESP in pharmaceutical education: Transition from general English to English for pharmaceutical sciences]. *Journal of the Chubu English Language Education Society, 43,* 259-266. Retrieved from <http://ci.nii.ac.jp/naid/110009841179>

Rebuck, M. (2006). Authentic-language tasks. The potential of Internet radio. In K. Bradford-Watts, C. Ikeguchi, & M. Swanson (Eds.). *JALT2005 Conference Proceedings* (pp. 735-748). Tokyo: JALT.

Rebuck, M. (2008). The effect of excessively difficult listening lessons on motivation and the influence of authentic listening as a "lesson selling tag." *JALT Journal, 30,* 197-223.

Rebuck, M. (2015a). Why's the wrong textbook open? Exploring and reducing off-task behavior in an English for pharmacy class. *Meijo Daigaku Jinbun Kiyo* [Meijo University Bulletin of Humanities], *51*(1), 15-35.

Rebuck, M. (2015b). Mixing ancient and modern: Dictation and Internet media combinations. In P. Clements, A. Krause, & H. Brown (Eds.), *JALT2014 Conference Proceedings*, 587-595. Tokyo: JALT.

Rebuck, M. (2016, February). *Does English for liberal education have to mean general education?* Paper presented at JACET Chubu Research Presentation, Nagoya, Japan.

Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching*. Cambridge, UK: Cambridge University Press.

Shi, L. (2009). English for medical purposes. In Belcher, D. (Ed.), *English for specific purposes in theory and practice* (pp. 205-228). Ann Arbor: University of Michigan Press.

Yakunitatsu kusuri no jouhou—senmonyakugaku [From useful drug information to specialist pharmacy]. (n.d.). Retrieved from <http://kusuri-jouhou.com/omake/doitu.html>

Yamada, M. (2013). *Chiiki iryou wo ninau yakuzaishiyousei no tame no ESP puroguramu saikou* [Revising syllabus for pharmacy students based on ESP methods]. *ESP Hokkaido Journal, 2,* 40-45. Retrieved from <http://www.esp-hokkaido.org/journal/vol_2/paper_5.pdf>

Yamaguchi, H. (Ed.), Imai, C., Ouno, M., Kamie, K., Sasaki, K., Suzuki, E., & Morimoto, N. (2013). *Iryou, seimei, yakugaku eigo* [English for medicine, the life sciences, and pharmacy]. Tokyo: Muisuri Publishing.

Yamashita, S. T. (2012). *Yakugaku daigakusei nitaisuru ishiki: Gakubusei wo taishou tosuru ankeito-chousa kara* [Japanese pharmaceutical students' attitudes toward English learning: Survey results from one university]. *Bulletin of Osaka University of Pharmaceutical Sciences, 6,* 41-47. Retrieved from <http://www.oups.ac.jp/gakujutsu/kiyo/vol6/web/web_06_Smith.pdf>

Appendix A
Reading Passage From Chapter 1 of Yamaguchi et al. (2013)

The Worldwide Increase in Type 1 Diabetes

When public health officials worry about the soaring incidence of diabetes in the U.S. and worldwide, they are generally referring to type 2 diabetes. About 90 percent of the nearly 350 million people around the world who have diabetes suffer from the type 2 form of the illness. Type 2 diabetes mostly starts causing problems in the 40s and 50s and is tied to the stress that extra pounds place on the body's ability to regulate blood glucose. About 25 million people in the U.S. have type 2 diabetes, and another million have type 1 diabetes, which typically strikes in childhood and can be controlled only with daily doses of insulin.

For reasons that are completely mysterious, however, the incidence of type 1 diabetes has been increasing throughout the globe at rates that range from 3 to 5 percent a year. Although the second trend is less well publicized, it is still deeply troubling, because this form of the illness has the potential to disable or kill people so much earlier in their lives.

No one knows exactly why type 1 diabetes is rising. Solving that mystery—and, if possible, reducing or reversing the trend—has become an urgent problem for public health researchers everywhere.

Appendix B
Dialogue on Class Handout for the "Diabetes Lesson"

Fill in the blanks with the following words

a) key b) YouTube c) weight d) off e) energy f) respond g) glucose

Ken: Mum, I bought a cake for dad's birthday with the money I saved up.

Mother: I'm sure he'll be really happy, but he can only have a little bit. Yesterday his doctor said if he didn't lose[1] _____ and take more exercise, he was in danger of getting diabetes.

Ken: In last week's biology lesson we learnt about different hormones. I remember the teacher talking about diabetes when he was explaining about the hormone insulin, but I didn't really follow what she said. I was feeling really sleepy that day and dozed[2] _____ in class. Sorry, mum.

Mother: That's OK. But do your best not to fall asleep in class again. Anyway, my mother had diabetes, so I know quite a lot about it. I'll try to explain about it to you in a simple way. Perhaps later we can look for a video about diabetes on[3] _____.

Ken: Thanks mum. So, what is diabetes?

Mother: Well, first of all think about what happens when you eat something, like a piece of cake. The cake is made up of fat, protein and carbohydrates. During digestion in the stomach the carbohydrates are broken down into sugar. Do you know another name for this sugar?

Ken: Yes, it's[4] _____ .

Mother: That's right. Normally, the sugar travels through the bloodstream to your body's muscle and fat cells. But—and this is really important, so listen carefully—sugar cannot enter these cells without the help of insulin. Insulin is a hormone which is made in the pancreas.

Ken: Where's the pancreas?

Mother: It's hidden away behind the stomach. Anyway, insulin acts like a[5] _____ and it unlocks the doors to the muscle and fat cells and allows the sugar to enter. The cells then use the sugar as fuel to provide[6] _____ for the body. When this process is working normally, sugar that enters the bloodstream from the stomach is able to exit the bloodstream at the muscle and fat cells.

Ken: So, what happens in diabetes?

Mother: Well, in diabetes sugar enters the bloodstream from the stomach, but the doors on the muscle and fat cells don't open. They don't open for one of two reasons. Either the pancreas is not producing enough insulin to match the sugar entering the bloodstream, or the body cells do not[7] _____ to the insulin that the body is producing.

Ken: And if the cell doors stay closed, the sugar will get backed up in the blood.

Mother: That's right. Diabetes is a disease of hyperglycaemia, or in everyday English "high blood sugar."

Ken: What's so bad about having lots of sugar in your blood? Won't it just make your blood taste sweeter?

Mother: No, high blood sugar can cause lots of serious problems.

Ken: Such as?

Mother: Well . . .

With your partner write down at least three complications of diabetes.