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專利英文和專利請求項寫作：對 ESP 課程的一些點子

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摘要

為鼓勵創新，可建立專利制度以授予發明人一種排他權，而讓發明人可以停止他人利用其發明。此制度要求發明人遞交申請書。此申請書具有請求項章節，而請求項是作為定義發明的保護範圍。在該保護範圍之外的產品可免受排他權的限制。因此，小心地撰寫請求項是非常重要的。近期，「專利英文」已成為專利師考試的科目。但是，專利請求項寫作卻不被認為是專利英文的範疇。事實上，專利請求項寫作應被納入，因為即使是台灣專利師也需要為客戶準備美國的專利申請文件。他需要使用英文來撰寫申請文件。為讓台灣學生學習請求項寫作技巧，本文提出一種特別的四階段課程。本文有三類內容。第一，討論與請求項和專利保護有關的法律理論。第二，分析與請求項寫作有關的法院判決，以提供文字選用的例子。第三，提出許多教學上的點子，而這些想法是根據案例研究方法。例如，可透過針對特定技術領域的法院判決進行研究，以瞭解與技術有關的用字重要性。另外的例子是要學生思考如果選用不同的語法，是否法院會有不同的看法。本文亦提出一個四階段的課程：(1) 法律原理階段；(2) 法律與法規階段；(3) 寫作技巧階段；(4) 技術導向階段。本文結論是以互動式的案例研究來學習專利請求項寫作是非常好的方式。

關鍵詞：請求項、請求項寫作、專利英文、專利法

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Patent English and Patent Claim Drafting: Some Tips for an ESP Curriculum

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Abstract

A patent has a section of claims which defines the protection scope of an invention. So, carefully drafting a claim is very important. A Taiwan patent attorney needs to prepare a document in English for patent filing in the United States. For a Taiwanese student to learn such a claim drafting skill, a special curriculum of four stages is discussed in this paper. This paper has three contents. First, the legal theories surrounding claims and patent protection are elaborated. Second, several court decisions regarding claim drafting are analyzed for purposes of giving examples of word choices. Thirdly, several teaching tips are suggested and based on an idea of case study methodology. For instance, use a court decision related to certain technical field to point out the importance of word choices in that field. For another example, make students think about whether the court decision would have gone differently if different wording was applied. This paper also proposes a four-stage program: (1) legal-doctrine stage; (2) statutes-and-regulations stage; (3) writing-skill stage; and (4) technology-focus stage. In conclusion, an interactive case study is the best way of teaching patent claim drafting.

Keywords: *Claim, Claim drafting, Patent English, Patent law*

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Introduction

To promote innovation and honor inventors, a country can have a patent system to grant to inventors an exclusive right to stop others from exploiting their inventions (Chisum, Nard, Schwartz, Newman, & Kieff, 2004). The patent system requires an inventor to submit an application including a document that describes the invention. Such the document has a section of claims. To acquire a patent, an invention must be industrially useful, novel, and non-obvious in views of one or more prior art documents. The pass of those requirements is determined by examining the claims.

A “claim” defines the protection scope of an invention (Faber, 1990). Products outside the scope might be free from such an exclusive right. So, carefully drafting a claim is very important. Otherwise, competitors might easily get away from the patent of a badly-drafted claim. Particularly, claim drafting in English is more important if an inventor wants to file applications in the United States.

The first application is usually an application filed in the Taiwan Intellectual Property Office and is written in Mandarin Chinese. On the other hand, the first application could be written in English if the client intends to file the first application in the United States or European Patent Office. For that purpose, a patent specialist is required to write an application document in English. So, claims have to be written in English.

How do we define the language skill required in such context? The question has to be answered in terms of English for Specific Purposes (“ESP”). ESP is a kind of English used in a professional setting (Chen, Y.-H., 2011). In a broad sense, business English is considered a type of ESP where business persons use a certain format of English language to conduct communications in writing or speaking. Or, academic English, as another example, is used in academic journals or conferences/seminars. In a narrow

sense, if we focus on a specific transaction, a form of English used in the context of patent prosecution can be treated as a type of ESP. That is a English language that a patent agent used to help her clients file a patent application in many countries. “Patent English” might be a term given to that ESP.

Recently, “Patent English” has been treated as a necessary skill of a patent attorney because it is one subject in the Taiwan patent bar exam (Chen, 2011). But, patent claim drafting is not considered part of Patent English. Indeed, patent claim drafting should be covered by Patent English because even a Taiwan patent attorney needs to prepare a document for patent filing in the States.

To draft a proper claim based on the American patent law, a drafter needs to acquire basic knowledge about the patent case law that was made by the United States Court of Appeals for the Federal Circuit (“Federal Circuit”). The Federal Circuit is a specialized court designated to appeals arising from district court decisions related to patent disputes. Usually, many patent law suits will end at this court. So, the legal doctrines developed by the Federal Circuit become ultimate rules governing the American patent law.

As mentioned above, claim drafting is very important. It is necessary to design a course to teach writing skills for claim drafting. For a Taiwanese student to learn such a claim drafting skill, a special curriculum is discussed in this paper. This paper is composed of three parts. First, the legal theories surrounding claims and patent protection are elaborated. Second, several court decisions regarding claim drafting are introduced for purposes of giving examples of word choices. Thirdly, several teaching tips are suggested, and they are based on an idea of case study methodology. For instance, use a court decision related to certain technical field to point out the importance of word choices in that field. For another example, make students think about whether the court decision would have gone differently

if different wording was applied. All ideas are combined into a four-stage program for teaching patent claim drafting.

Claims, Issues, and What to Teach

What is a Claim?

A patent document includes an abstract, a written description (also known as a specification), claims and drawings (United States Patent and Trademark Office [USPTO], 2010). An abstract provides a short explanation of the invention. A specification provides a comprehensive explanation of the invention. The specification has to enable a skillful person in the field of the invention to make and use the invention. The specification also needs to ensure that the inventor did possess the invention. Drawings show a visual aspect of the invention and to help readers understand the specification.

Claims are the most important part of a patent document because they define the scope of patent protection (Chen, 2011). A claim is a single sentence (Faber, 1990, p. 5). The beginning part is “I claim” or “What is claimed is.” A claimed subject matter follows that beginning part.

An example of a claim is as follows (HTC Corp., 2012):

A mobile station for use with a network including a first base station and a second base station that achieves a handover from the first base station to the second base station by:

storing link data for a link in a first base station,
holding in reserve for the link resources of the first base station, and
when the link is to be handed over to the second base station:
initially maintaining a storage of the link data in the first base station,

initially causing the resources of the first base station to remain held in reserve, and

at a later timepoint determined by a fixed period of time predefined at a beginning of the handover, deleting the link data from the first base station and freeing up the resources of the first base station, ***the mobile station comprising:***

an arrangement for reactivating the link with the first base station if the handover is unsuccessful.

A claim is composed of a “preamble,” “transitional word or phrase,” or “body” (Weng, 2005, p. 78). The subject matter of the claimed invention is “a mobile station.” The overall phrase appearing before “the mobile station comprising” is called a “preamble.” The phrase following “the mobile station comprising” is called a “body.” “Comprising” is a transitional word, while “the mobile station comprising” is a transitional phrase.

The above example claim is called an independent claim. In a group of claims, some claims will depend on one independent, and they are called dependent claims. A form of a dependent claim looks like: “A mobile station as claimed in claim 1, comprising”

A claim is composed of words (Osenga, 2011). Some words might be ambiguous in terms of two or more meanings of a single word, or some phrases result in uncertainty of a claim scope. So, the legal doctrines of claim interpretation or claim construction are so important that people can understand the scope of a patent right. The legal doctrines are also important for patent claim drafting learners because the drafting methodology is based on these doctrines.

Phillips v. AWH Corp., 415 F.3d 1303 (Fed. Cir. 2005), governs the rules of claim construction (Potashnik, 2006). *Phillips* is a complex decision, and it is good for training students to read a court decision comprehensively. A

learner of patent claim drafting needs to develop a reading skill for court decisions to constantly gain legal knowledge of claim construction.

Under *Phillips*, claims, specification (written description and drawings), and prosecution history are three main resources for claim construction. These three resources are also known as “intrinsic evidence” (Surden, 2011, p. 1807-1808). When claim construction is conducted, a term in a claim is given its “ordinary and customary meaning” (*Phillips*, p. 1312). A specification is used to help understand the meaning of a term but not to limit the term to a specific meaning (p. 1315). If a term is not understandable in a normal context, a specification is very useful to define the meaning of the term (pp. 1315-1316). If the inventor means to define a term in the specification, the term has to be interpreted at the inventor’s will. That is, “the inventor’s lexicography governs” (p. 1316).

The prosecution history of a patent is also very useful, but it is less weighing as claim terms because the claim terms are final products of the examination (P. 1317). The prosecution history includes an examiner’s official opinions and an applicant’s responses. The examiner and applicant might argue about a particular term during the prosecution. The conversation between both parties, therefore, provides good information for understanding disputed terms.

What matters in patent claim drafting is claims and specification. A drafter has to carefully write claims and specification such that the claim language can be clear enough to provide a definite scope of the patent right. Or, a claim term or specification has to be carefully drafted in a way that the result of the dispute will be in favor of the patentee.

In addition to intrinsic evidence, “extrinsic evidence” is an alternative tool to claim construction. “Extrinsic evidence” includes “expert and inventor testimony, dictionaries, and learned treatises” (p. 1317). “Extrinsic

evidence” is not a binding source, and a judge can decide whether to adopt the interpretation in extrinsic evidence (p. 1318). Besides, “dictionaries” and “learned treatises” are treated differently from “expert and inventor testimony” (*Ibid.*). The latter evidence is less credible because it is “generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence” (p. 1318). On the other hand, “dictionaries” and “learned treatises” are helpful for a judge to understand the technology (*Ibid.*).

The resources defined as extrinsic evidence is also important for patent claim drafting. A drafter needs to use those dictionaries, either general or technical, and treatises, such as encyclopedias, as a tool for selecting correct terms in the field.

In this paper, patent claim drafting is focused. The issues regarding drafting are arisen from the issues of claim construction. So, the discussion below will explore those issues.

Words in claims

Although a claim term is given its ordinary and customary meaning, some words have various ordinary and customary meanings. For instance, in *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573 (Fed. Cir. 1996), “between” was one disputed term. The Federal Circuit looked to a dictionary and found that “between” had two ordinary meanings: (1) “in the space that separates” or “in the midst of”; (2) “from one to the other of” (*Athletic Alternatives, Inc.*, 1996, p. 1579). One disputed phrase was “where said distance d_i **varies between minimum distances** for the first and last string ends in said sequence **and a maximum distance** for a string end between said first and last string ends in said sequence” (p. 1577). If the (1) meaning is adopted, the number of “said distance d_i ” is more than two and the value of “said distance d_i ” is set between at least three values: two

minimum distances and the maximum distance. On the other hand, if the (2) meaning is adopted, “said distance di” is a distance set between two values and each value is two minimum distances or maximum distance.

A word might mean far beyond its ordinary and customary meaning. For example, in *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351 (Fed. Cir. 2000), the dispute word was “a” used in the term “a lower, continuous, inflatable chamber.” The issue was whether “the number of chambers [is limited] to only one or [a … chamber covers] one or more chambers” (KCJ Corp., 2000, p. 1355). The Federal Circuit looked to claims, specification, and prosecution history, and concluded that “a” meant “one or more” (p. 1356-1357).

Claims themselves

“Claim differentiation” is one doctrine of claim construction (Lemley, 2007). When interpreting a claim, a court can look at its dependent claim to find a clue. For example, in *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335 (Fed. Cir. 2012), the disputed term was “magnetic member.” The defendant there argued that “magnetic member” meant “magnet” (Aspex Eyewear, Inc., 2012, p. 1347). That is, “magnetic member” means a material generating a magnetic field. The Federal Circuit looked to the dependent claim and found that the dependent claim further limited “magnetic member” to “magnet” (*Ibid.*). Therefore, the court concluded that “magnetic member” in the independent claim was not limited only to “magnet” and that “magnetic member” included either “magnet” or “ferromagnetic member” as the patentee suggested (*Ibid.*).

Preamble

“Preamble” might influence the scope of a claim, though the general

rule is that a preamble is not a limitation of a claim scope (Aspex Eyewear, Inc., 2012, p. 1347). The rule is that “[a] claim’s preamble may limit the claim when the claim drafter uses the preamble to define the subject matter of the claim” (August Tech. Corp., 2011, p. 1284). A preamble is a limitation if it is “‘necessary to give life, meaning and vitality’ to the claim based on the facts of the case at hand and in view of the claim as a whole” (*Ibid.*).

The abstract rule can be more operational. In *American Medical Systems, Inc. v. Biolitec, Inc.*, 618 F.3d 1354 (Fed. Cir. 2010), the Federal Circuit stated: “A preamble is not regarded as limiting, however, ‘when the claim body describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention’” (pp. 1358-1358). That is, if a term in the preamble does not interact with any element in the body, that term cannot be a limitation of the claim. The court also stated: “If the preamble ‘is reasonably susceptible to being construed to be merely duplicative of the limitations in the body of the claim (and was not clearly added to overcome a [prior art] rejection), we do not construe it to be a separate limitation’” (p. 1358). That is, reciting a term in the body does not let the same term in the preamble become one limitation. The exception is that if a preamble is phrased to distinguish the claim from prior art, the preamble is a limitation. Moreover, the court reaffirmed an idea that “the preamble has no separate limiting effect if, for example, ‘the preamble merely gives a descriptive name to the set of limitations in the body of the claim that completely set forth the invention’” (*Ibid.*). That is, the descriptive feature of a term in the preamble can make the term not become a limitation.

A drafter of a claim has to be careful not to let a term in the preamble limit the scope of the claim. In *On Demand Machine Corp. v. Ingram Indus., Inc.*, 442 F.3d 1331 (Fed. Cir. 2006), the disputed preamble was “[a] method of **high speed manufacture** of a single copy of a book.” The

Federal Circuit there concluded that “high speed manufacture” was a limitation which requires several steps in the body to be conducted rapidly (p. 1343). The reason was that the core idea of the invention was to provide a fast printing service (*Ibid.*).

Therefore, to prevent a term in a preamble from becoming a limitation, some unnecessary modifiers might be excluded from the preamble. When a teacher explains the issues related to “preamble,” she should emphasize on how to avoid such limiting result.

Transitional phrases

Three common used transitional phrases are “comprising,” “consisting of,” and “consisting essentially of” (Clark, 2007; Markman Subcommittee of the Patent Litigation Committee of the American Intellectual Property Law Association [Markman Subcommittee], 2004). For the differences among those three transitional phrases, Clark (2007) has summarized the following observations (p. 363):

- “Comprising” indicates that “the invention includes subsequently-described elements, but does not exclude any elements not subsequently listed.”
- “Consisting of” indicates that “the invention includes only the subsequently-described elements and nothing more.”
- “Consisting essentially of” is similar to “consisting of” except that “additional elements are permissible in the scope of the claim if they do not change the basic characteristics of the invention.”

“Comprising” is commonly used because a drafter does not want to limit a claim to what is said in the body. Using “consisting of” or “consisting

essentially of” in a chemical invention is a common practice (PPG Indus., 1998, p. 1354). For instance, one invented chemical composition is composed of A, B, and C and is considered to be new, while an existing chemical composition comprises A, B, C, and D. Because the chemical property of a chemical composition depends on the components of that composition, an invented chemical composition might be different from an existing chemical composition. However, in terms of patent prosecution, that happens only if the claim uses “consisting of” or “consisting essentially of.”

Using “consisting of” can cause a negative effect on the outcome of litigation. For example, in *Norian Corp. v. Stryker Corp.*, 432 F.3d 1356 (Fed. Cir. 2005), the disputed claim is:

A kit for preparing a calcium phosphate mineral, said kit **consisting of**:

at least one calcium source and at least one phosphoric acid source free of uncombined water as dry ingredients; and

a solution consisting of water and **a sodium phosphate**, where the concentration of said sodium phosphate in said water ranges from 0.01 to 2.0 M and said solution has a pH in the range of about 6 to 11.

In this case, the specification described different kinds of sodium phosphate: “**monobasic sodium phosphate**, which contains one sodium atom, two hydrogen atoms, and one phosphate group; **dibasic sodium phosphate**, which contains two sodium atoms, one hydrogen atom, and one phosphate group; and **trisodium phosphate**, which contains three sodium atoms and one phosphate group” (Norian Corp., 2005, p. 1358). Because of the use of “consisting of,” the Federal Circuit concluded that a solution included only one type of sodium phosphate (p. 1359). No infringement was found there (p. 1363).

When teaching students how to select transitional phrases in different contexts of technology, the instructor has to expose the students to various cases that lead to a negative result against the patentees.

Different types of claim

To protect an invention completely, a drafter needs to understand various claim formats, and she has to get an ability to select proper formats.

1. Product claims and process claims

35 U.S.C. § 101 is a statute defining patent-eligible subject matters, and states: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” So, claims are divided into two categories in general. One category is product claims, covering machines or compositions, and the other category is process claims, covering processes or manufactures. For example, a “mobile station” claim mentioned above is a product claim having many physical or functional elements. A process claim is also called a method claim and is composed of steps.

2. Jepson claims

While general claim drafting follows a pattern “a method for ..., comprising,” a drafter could use a Jepson claim to emphasize on the improvement achieved by an invention (Markman Subcommittee, 2004, pp. 23-24). An example of a Jepson claim is: “A method of unlocking a door by removing a key chain with one or more keys, selecting a key and unlocking a lock, **the improvement comprising** selecting the key based upon a color-coded system” (*Ibid.*). The most negative effect is that a phrase prior to “the improvement” is admitted as existing technology by the inventor (p.

24). The practice of Jepson claims is not recommended, though learners still need to know such practice.

3. Markush claims

For chemical compound claims, a Markush claim is a choice of drafting. A Markush claim identifies components that could be used for an element. The example is: A composition comprising A and B, wherein A **is selected from the group of** a₁, a₂, and a₃; B **is selected from the group of** b₁, b₂, and b₃ (Burk & Lemley, 2009, p. 1796). Such practice can extend to other genus-species relationships between claims and their dependent claims.

4. Product-by-process claims

A product claim could be drafted as a product subject matter that has several steps for teaching how to make the claimed product. This is called a “product-by-process claim” (Lane, 2012). For traditional Chinese medicine patents, the practice of product-by-process claims is useful because it is hard to analyze chemical compounds of therapeutic effects (Osborn, 2012, pp. 437-438).

Curriculum Design

Project-based learning

Liu (2011) has suggested a project-based learning program for ESP. Liu implemented the language program at National Taipei University. The program has three stages: (1) introducing materials related to the topic, including the use of language; (2) helping students choose the topic of the project, plan and do the research, and prepare and present the result; (3) assessing the project-based work and giving useful comments. Liu’s model is a project-based educational program. Each group of students in the class will be assigned to a project that emphasizes some domain knowledge. In each project, some teacher will give several lectures to help students establish

basic vocabulary and expression skills. Based on that knowledge, each group will continue develop their ESP skills through executing their project (Liu, 2010, pp. 164-165).

Here, a curriculum design for patent claim drafting is inspired by Liu's study program at National Taipei University. The proposal has four stages: (1) legal-doctrine stage; (2) statutes-and-regulations stage; (3) writing-skill stage; and (4) technology-focus stage. The first three stages collectively are equivalent to Liu's first stage, because students will focus on learning legal rules and practicing claim drafting. The details of the curriculum design are elaborated as follows, and the design is based on a course of three credit hours.

The legal-doctrine stage

Students have to be exposed to various legal doctrines regarding claim construction, so they could understand why claim drafting is practiced in a certain way. Due to the limited period of one semester, three classes will be offered. The first class introduces the history of claims. Claims were not required by the old American patent law, but under the trend of defining a clear scope of a patent, later Congress amended the law to add claims as part of the patent document. In the first class, students are required to read several cases related to the concept of claims, such as *Merrill v. Yeomans*, 94 U.S. 568 (1876); *White v. Dunbar*, 119 U.S. 47 (1886); *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405 (1908); *McCarty v. Lehigh Val R Co.*, 160 U.S. 110 (1895); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336 (1961).

The second and third classes introduce several legal issues related to claim drafting: claim construction, indefiniteness, written description, and enablement. “Claim construction” is a methodology used by courts to

define the scope of a patent. The legal doctrines behind claim construction indicate that a claim draft must be careful when selecting particular words or phrases to form a claim. Otherwise, the court might interpret a claim so that infringement has never existed.

A bad drafting may cause a patent to be held invalid by the court because it causes a claim term to be ambiguous under the legal doctrines of “indefiniteness.” The requirement comes from 35 U.S.C. § 112, ¶ 2, which states, “The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.” For example, “between” as a disputed term in *Athletic Alternatives, Inc.* can be ambiguous (p. 1581), though “between” is a very simple word in general English. So, it is necessary to understand the law of “indefiniteness” to avoid ambiguity in claim drafting.

“Written description” and “enablement” are two legal doctrines related to each other (Chisum et al., 2004, p. 156). Patent claim drafting must stick to the specification. First, a claim defines the invention. “Written description” requires the specification to show that the inventor possessed the invention at the time of the invention (p. 205). “Enablement” requires the specification to teach others how to use and make the invention defined by a claim (p. 156). So, a drafter has to make sure that a claim is fit to the specification under the laws of “written description” and “enablement.” Either, the drafter has to revise the specification to support the claim, or she has to revise the claim to comport with the specification.

The statutes-and-regulations stage

Statutes and regulations govern the behavior of a patent agency that manages the examination of a patent application. Statutes made by the legislation seem to be more binding than regulations. But, statutes somehow have no direct influence on the examination practice, because they

are abstract and lack of details. On the other hand, regulations made by the patent agency really control the practice, because they give more details of document formality, procedural rules, and schedules. So, it is necessary to read both statutes and regulations.

At the statutes-and-regulations stage, students are required to read the Manual of Patent Examining Procedure (“MPEP”) made by the United States Patent and Trademark Office (“USPTO”). The MPEP provides the information of both statutes and regulations related to claim drafting. Due to the convenience of Internet, we can find the MPEP at USPTO’s website. Students will easily get access to the MPEP through their mobile phones.

The writing-skill stage

After equipped with the knowledge of the legal aspect of patent claim drafting, students then move into the writing-skill stage. At this stage, the goal is to let students practice writing. Two approaches could be taken individually or simultaneously. The first approach is that students are required to correct a bad drafting in those court decisions selected in the legal-doctrine stage. The way to correct a disputed claim is to make the revised claim meet the court’s requirements. By doing the correction practice, students can review the cases again and think about the legal doctrines or courts’ reasoning more deeply as they are applying the doctrines.

The second approach is that students are required to revise claims selected from some patents to avoid the disputes seen in those cases. Several patents which involve in relatively simple are selected for students to revise claims. Students are required to analyze claims and then to comment on the drafting of each claim. After the issues of each claim are identified, students need to correct mistakes. In addition, students are required to draft different types of claim for different type of invention appropriately. Or,

students need to draft different types of claim for the same invention, so they can practice different drafting approaches to the same invention.

At the writing-skill stage, students are also expected to develop writing strategies. They have to consider consistency with the specification. They have to do document management of various versions of claims while revising claims.

The technology-focus stage

Because a patent contains technological information and claims represent the invention contains technological features, students are also required to choose a particular field and to conduct an in-depth study. This is called the technology-focus stage. For example, if a student is interested in chemical inventions, she can collect several court decisions related to chemical inventions. She can have a deep insight of claim-drafting issues associated with particular technology.

Students with a special technological interest could also seek for patents in that technological field to see how claims are drafted by professional patent attorneys. When selecting relevant patents, students are required to avoid choosing patents written not by American but by foreigners. The selection has to take into consideration several factors, such as law firms and companies which filed applications.

Conclusion

This paper introduces the concept of “Patent English” as an ESP and the most important part of this new ESP which is patent claim drafting. Claims are so important because they define the scope of patent protection. A claim is composed of words and has three parts: a preamble, transitional phrase,

and body. Words can cause a claim to be ambiguous, so it is important for a drafter to select proper words or terms.

To train future patent specialists to write a flawless claim, this paper provides a four-stage, educational program: (1) legal-doctrine stage; (2) statutes-and-regulations stage; (3) writing-skill stage; and (4) technology-focus stage. In each stage, students are expected to develop a certain skill associated with patent claim drafting. An interactive case study is the best way of teaching patent claim drafting. In the proposed program, students are required to read court decisions and have a chance to revise a trouble claim to meet the court's standard. Students also need to conduct a technology-focus study to have a deep look at claim drafting issues in a particular field of technology.

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