

A New Teaching Model of Selected Reading in Chinese Literature Reading and Paper Writing Course for Applied Chemistry Major

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Abstract

Literature Reading and Paper Writing is one of the most important specialized courses of Applied Chemistry specialty in colleges and universities in China. It was set up in the seventh semester in Zhejiang International Studies University (ZISU); and we have tried to implement bilingual teaching for the course since 2014. This course was taught right before graduation thesis; therefore the contents in class must be application-oriented and served for improvement of bachelor thesis (BA thesis). Students in applied chemistry major usually lag behind in their spoken English, especially in specialized English, as they rarely have chances to speak in the traditional-teacher-centered classroom. The application of selected reading in Literature Reading and Paper Writing course offered the potential solution to the problem. To achieve the objective of “combining professional knowledge and foreign languages together” for application-oriented undergraduate university of ZISU, syllabus and classroom teaching were conducted bilingually (both in Chinese and English). Presentation, group work (talking about the reference related to the BA thesis, find the research problem and figure out the creative point of the paper), and discussion are involved in the class procedure. Based on such a practice in class, the internationalized and inter-disciplinary talents were developed for undergraduates. Micro-videos were made to encourage the students to absorb the knowledge more efficiently before, during and after the class. The results showed that the students found the practice enable a most encouraging way to keep their speaking ability, meanwhile, academic databases such as “Web of Science” was recommended for retrieval of updated articles to ensure the students keep track of the dynamic of the industry, and the teacher gained a more active, informative, interesting and satisfactory class.

Keywords: Literature Reading and Paper Writing, bilingual teaching, a teaching model, curriculum reform.

1. Introduction

The long term goal of Zhejiang International Studies University (ZISU) was set up as “cultivating internationalized and inter-disciplinary talents for students”. Therefore, curriculum reform of bilingual teaching is necessary to conduct. The course of “Literature Reading and Paper Writing” aims at improving students’ ability in writing graduation thesis. Students were expected to clearly and

accurately express their personal opinions, and improve their ability in comprehensive analysis through reading literature materials. Reading was based on a consciousness built up through translation according to the sense placed little emphasis not the very words of a text [1]. Translation software (Google, Baidu, and Youdao and etc.) was frequently used by students in the process of bachelor thesis (BA thesis), for the translation part and the English abstract section. As any translator knows translation has to be dominated by the sense not the very words of a text. The ways of reading were greatly influenced by practices of translation of sacred texts [1,2]. It is necessary to teach student the rules of paper reading, the structure of the paper, and the skills of getting effective information from scientific paper. Meanwhile, students are required to understand the requirements of the academic and avoid intentional or unintentional plagiarism. By learning this course, students can understand the format from the topic, literature research, data analysis, thesis writing, modifications to the basic methods and basic skills of editing, master of literature retrieval method and literature references.

The Applied Chemistry major existed as a traditional specialty in ZISU, based on the development planning of the foreign languages university, it is urgent to seek for a suitable way to survive. An attempt on characteristic development of science specialty in foreign languages and foreign trade university was tried, to practice to cultivate students with both foreign languages skills and also professional knowledge in chemistry. Thus, the course of "Literature Reading and Paper Writing" has been planned as bilingual teaching course for the training program of students since 2015 for student majored in applied chemistry. For the past two years, a few achievements were observed on bilingual teaching, along with some difficulties during the curriculum reform. The application of selected reading in Literature Reading and Paper Writing course offered a more active class [3]. Therefore, the experience of curriculum reform of bilingual teaching on "Literature Reading and Paper Writing" were shared in this paper, including orientation of the class, selected reading in class, presentation in class, and the course assessment and etc.

2. Orientation and Contents of the Class

2.1 Orientation of the Class

This course was taught right before graduation thesis; therefore the contents in class must be application-oriented and served for improvement of BA thesis. In the "Literature reading" part, case study will be given to the students on the core components of the literature. IMRAD including Introduction, Materials and Methods, and Results and Discussion were the basic parts of a scientific paper. The paper "Determination of Essential & Toxic Metals and Its Transversal Pattern from Soil to Tea Brew" was taken as an example in class [4]. By reading the paper, you can learn more about your field and learn more about writing research papers from others. Usually, the contents of the abstract was composed of objectives, methods, results and conclusions, so quick reading on the abstract can give you a brief impression on the entire paper. In the paper for example, the concentration of essential metals (Fe, Mn, Zn and Cu) and majority elements (K, N and P) of the soil were revealed together with pH and organic contents. The concentration of toxic heavy metals Pb, Ni and Cu in tea leaves, made tea and its infusions were too low. The level of Fe and Cu was ranging from 0.068-0.073mg/kg and 0.007-0.04 mg/kg in tea infusion respectively. The contents of all metals were determined by Atomic Absorption Spectrophotometer (AAS) [4]. Such study helped to assess environmental impact for the purpose of maintenance of tea quality and sustainable development of tea production. If your thesis focused on the determination method of relevant heavy metals, then the method part should be checked out for details; if your thesis focused on the distribution of heavy metal pollution in tea garden or elsewhere, the result and

discussion part should be intensively read for details and referenced. The following procedure was recommended for effective reading and efficient writing (Fig.1).

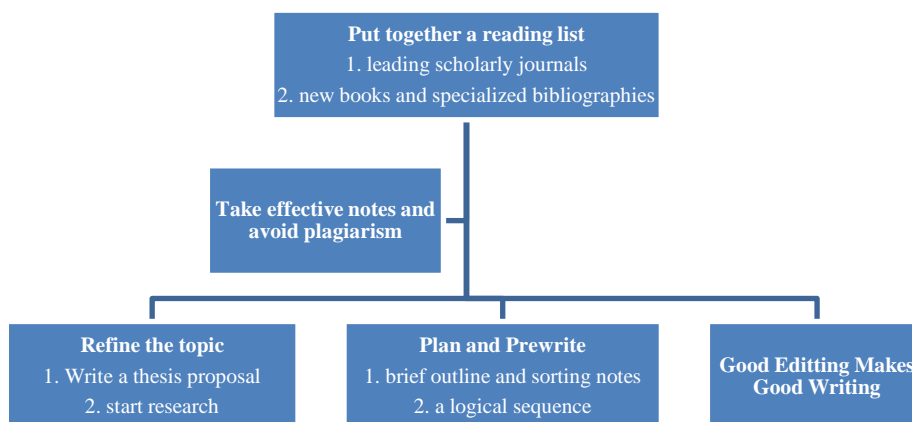


Fig. 1. Procedure for effective reading and efficient writing [5].

2.2 Contents of the Class

More than 20 references were required for the BA thesis, so putting together a reading list should be the first thesis task [5-7]. The reading list is essential for every thesis, and you can begin right away. The supervisor would suggest a few books and articles to get you started. Pursue them and follow their footnotes to other readings. First, identify the leading scholarly journals in your field and thumb through the past few years for article on your topic. Each field has its own top journals and impact factor (IF) can be a reference for its academic influence. Library's database (Web of Science, Springer, and CNKI and etc.) can be helpful, you will probably want to do a general search, too, but be careful about the quality of information. Check to see if the information has been published in a reputable place before referencing. Second, asking for help from the reference librarians, they are an excellent source of advice about readings. They knew about new books and journals, specialized bibliographies, and primary documents [5]. Third, look closely at the footnotes and bibliographies in everything you read. Some materials listed all the relevant literature; you can share the fruits of the author's hard work-but only if you look for it. If you are fortunate enough to find a major review article on your thesis topic, you have tremendous jump start on your reading and study. During the reading phase, you should combine the extensive reading and intensive reading together to be more efficient, don't read everything at the same pace. After intensive reading of a paper, collect the tiles in time, include all the information you will need to cite them later. Write it down the first time and put it in your computer file. Don't waste your time chasing down the articles a second time [5, 7].

Good notes will make the full use of the references. The students are not allowed to photocopy the contents directly from the references. Focus should be paid on important books and articles that really matter their research, the chief points, crucial data, and major ideas should be summarized in their own words for further citation. Taking effective notes help the students categorize and synthesize the work of others and stimulate their own well-informed ideas. Taking notes is mental work that will help your thesis with a broad learning, the specific sources, the synthesis of materials and your original ideas.

The following five aspects should be covered to form effective notes: 1) Main points of each article should be captured from each reading and expressed in your own words, critical comments or ideas

related to your topic can be added in this step [8, 9]. 2) Your attention should be focused on parts of the work most closely related to your topic. Read selectively and use the table of contents and the index, feel free to skip some paragraphs and skim others, remember the rule “you are reading to write”. Your goal for reading is to extract what you need for your thesis without getting blocked in the rest [5, 10]. 3) Use clear markings to distinguish your comments from the author’s language, preventing any kinds of accidental plagiarism [5, 11-12]. Students usually rush to finish the thesis, and forget to add the necessary citations. Others don’t understand the citation rules and create a cheat deliberately. The rules for different types of materials (journals, books, information on the internet, proceedings, and kinds of thesis and etc.) should be emphasized for each student before writing. Whatever the cause, plagiarism is a serious violation of academic rules for undergraduates, graduates, and faculty alike [5, 15-16]. Examples about recent reports on scientific fraud in specialized journals were given in class, to deepen the impression of the students (Fig. 2). Students didn’t pass the test of academic misconduct checking system, were disqualified to attend the thesis defense and may fail to graduate in time. Quotations, data, experiments, and the ideas of the authors should never be falsified or distorted. These are basic principles of academic honesty. 4) The bibliographic information should be recorded for citation [5, 13]. Since you will eventually want to cite many of the articles and books you read, you need to write down the full titles for further citation. The information need to be recorded differs slightly for journal articles, thesis, books and chapters in edited books, but the basic principle is the same. For an article, the names of authors, the title of the paper, the volume and publication year, plus page numbers for the entire article should be included: Piar Chand, Ruchi Sharma, Ramdeen Prasad, Rakesh Kumar Sud, Yogesh B. Pakade. “Determination of Essential & Toxic Metals and Its Transversal Pattern from Soil to Tea Brew.” *Food and Nutrition Science* 2 (2011): 1160. For a book, you only need three pieces of information besides the author and title: the publisher’s name, the position and the year it was published: David R. Olson. *The World on Paper-The Conceptual and Cognitive Implications of Writing and Reading*. London: Cambridge University Press, 1994. 5) Develop your own opinion from the reading, so you can draw on them later [5, 14]. The ultimate objective of reading was to write your BA thesis, so during the reading period, write down the genuinely new ideas sparked by the active reading process. Nothing is more important than your own ideas on the topic, particularly when they are closely related to your own thesis. Further notes can be made on the comments with highlights by color, boldface, or italics. Before intensive reading of a certain article, read the abstract, introduction, and conclusion and skim the rest carefully. That will help you stick to the main points of the paper, orient you to important materials, reinforce major points, and allow you to skip some minor sections entirely.

Based on the process of literature review and notes taking, you can arrange a meeting with your supervisor to refine the topic. Share the contents you want to finish for the thesis, personally and intellectually, especially the part that interesting to you. The supervisor will help you to make sure your plan for the topic is manageable and you can finish the project in the limited time. The following five aspects make a topic important and manageable to carry out [14, 15]: 1) relevant literature are available to get; 2) necessary data is able to access; 3) the key questions you want to address are important and meaningful; 4) you are able to finish in the required time, the skills and equipment for the experiments have been mastered; 5) the topic touches directly on major theoretical issues and urgent to be solved.



Fig. 2. Pictures for news of scientific fraud presented in class.

After refining the topic, the next step for the thesis should be writing a thesis proposal. The key points of the thesis proposal should include: 1) the background of the topic, list your main question based on the literature reading; 2) the significance of the topic, list the reason why it should be done; 3) plan for the topic, list the procedures in details how you will conduct the experiments, analyze the data and finish the project.

For the prewriting process, a brief outline covering a few main points will be helpful to organize the paper. Prewriting involves sorting through the book notes and comments, amplifying them with sentences and paragraphs, and then putting them in a logical sequence [5]. Four steps should be conducted for prewriting: 1) set up the main category, the main category are foundation for the paper, and are difficult to figure out; 2) line them up in a logical order, the order is important because it captures the logic of your argument, and form the basic architecture of the paper; 3) file individual items in the right category, sort from the notes, and fill the evidence to support your main points in the paper ; and 4) check for any holes missing in the sequence, double-check for gaps in your argument and supporting evidence.

A good editing job makes your thesis easier to understand and more persuasive. The only way to produce your best writing is editing your paper again and again. There are several ways to improve the paper effectively: 1) Tighten the paper by cutting excess words, sentences, and paragraphs; 2) Confirm the continuity between paragraphs and sections; 3) Add variety to your sentences, so they don't all have the same form and length; 4) Maintain a consistent tone in your writing; 5) Include examples, analogies, and compelling details to illustrate your points; 6) Reinforce your argument and add evidence at any weak points; 7) double-check the data in tables and figures, and make sure the format meet the requirements of the BA thesis.

3. Selected reading in class

The selected reading part in class was conducted along with the translation section of the BA thesis. Every student will be assigned by the supervisor to find a paper related to their topic in a specialized journal. Then they are required to translate the paper into Chinese version. Based on the translation work

of the thesis, students are asked to share the achievement of translation and present the main points in class. As applied chemistry is an integrated major, the topic students chose were in varieties. Students with similar topic were required to form a group and have a further discussion on the advantages and disadvantages of the translations.

Application-oriented topics include “Determination of Essential & Toxic Metals and Its Transversal Pattern from Soil to Tea Brew”, “Extraction and Fermentation-Based Purification of Saponins from *Sapindus mukorossi* Gaertn”, “Second Order Derivative Spectrophotometric Method for Determination of Vitamin C Content in Fruits, Vegetables and Fruit Juice”, “Microwave Maceration of Pinot Noir Grape Must: Sanitation and Extraction Effects and Wine Phenolics Outcomes”, and “An Improved Method for the Extraction and Thin-Layer Chromatography of Chlorophyll a and b from Spinach” and etc. Research-oriented topics include “Effects of Sm and Mg co-doping on the properties of ceria-base electrolyte materials for IT-SOFCs”, “Solvent effect on the conformation of Benzil”, “Insecticidal anthranilic diamides: A new class of potent ryanodine receptor activators”, “Discovery of cyantraniliprole, a potent and selective anthranilic diamide ryanodine receptor activator with cross-spectrum insecticidal activity”, “Zinc oxide as a solid acid catalyst for esterification reaction”, “The synthesis and study of fluorescent probe for sensing Cu²⁺ base on a novel coumatin Schiff-base”, and “Synthesis of Schiff Base Complexes of Mn (II) and Co (II) and their Catalytic Oxidation towards Olefins and Alcohols” and etc.

4. Presentation in class

In the case study part for literature reading, the teacher would introduce the author and the main points of the paper to the students. The structure and the main section of the paper were explained in details in class to the students, including abstract, keyword, introduction, materials and method, results and discussion, conclusions, acknowledgements and references. But in the new teaching model, the students are asked to read the selected piece of the paper for their translation assignment before class, and to consult the supervisor or the teacher to prepare for the presentation in class [3]. Several students can present their work both in spoken and written English. Each student can introduce the author and talk about the importance of their topic (As a rule, the students’ involvements are recorded as a part of their final score. So it is one way of assessment).

During their presentation, the teacher will record the mistakes presented in the PowerPoint documents, and give feedback to the students later in class. The teacher can also confirm something of question something if the student is expressing unclear. Additional information will be added if the students’ introduction is incomplete or anything important that was missed by the students. Other students in class are also encouraged to raise questions about the presentations. In a word, it turned out to be a more active, informative, interesting and satisfactory class based on the new teaching model.

5. Assessment of the course

Assessment of the course is composed of homework, attendance, in-class activity, presentation, and final exam (making a poster based on the translation material). The homework and exams for bilingual courses was required to finish in English. Part 1 (homework, attendance and in-class activity) accounted for 20% for the final score of the course, part 2 (presentation) and part 3 (final exam) accounted for 30% and 50% for the final score, respectively. The score for students enrolled in 2012 to 2013 was presented in Table 1. The pass rate for all students in the two years was both 100%, and the excellent rate for final exam and final account of the course were all above 40%, indicating the teaching efficiency is good.

Table 1. Scores for students enrolled from 2012 to 2013 (%)

The year for enrollment of the students	Passing rate for final account of the course	Excellent rate for final account of the course	Passing rate for final exam of the course	Excellent rate for final exam of the course
2012	100.0	45.6	100.0	40.2
2013	100.0	65.5	100.0	51.7

Note: Pass (score from 60 to 100), Excellent (score from 90 to 100).

Feedback collected from the students was analyzed and discussed each year, in order to improve this course accordingly. For students enrolled in 2013, the excellent rate for the final account and final exam have significantly improved compared to the past year. Students are encouraged to express the thesis in English, which help them build confidence in spoken specialty English. Several students went to post-graduate reexamination and won critical acclaim on specialty English skills, and they really appreciated the experience of selected reading practice and presentation in “Literature Reading and Paper Writing” class.

6. Conclusions

Bilingual teaching of “Literature Reading and Paper Writing” is a tentative practice and necessary way for science specialty in foreign language oriented university, to achieve the objective of “combining professional knowledge and foreign languages together” for application-oriented undergraduate university of ZISU. Selected reading and application-oriented presentation were used to conduct the curriculum reform. Students are encouraged to practice specialty English in class through presentation and discussion. Feedback collected from the students was analyzed and discussed, in order to improve this course accordingly. The results indicated that the effect of bilingual teaching reform increased the practical ability of students significantly. In the future, more effort is needed to strengthen the implementation of the new teaching model, to improve the teaching quality, and cultivate more students with high quality professional talents.

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