

## First-Time Oral Presentation in Pharmaceutical Science English: Questionnaire Feedback from Pharmacy Students in a Japanese University

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### Abstract

**Purpose:** We investigated the perceptions of oral presentations (OPs) given by 168 pharmacy students. **Methods:** Year-2 university students of either gender were divided into teams of 3-5 each, and 3 teams (or 1 group) per chapter presented their respectively allocated topics in biology, chemistry, and physics (total: 9 groups). Each class was asked to fill out a questionnaire at the end of each 3-chapter session. Students prepared and conducted OP sessions in a 'rotation' system (each had a chance to serially do English OP => Japanese summary => illustration guide) as a team. Apart from evaluation by marking one or more items from the OP program (subject specialty, useful, meaningful, not meaningful, ordinary, and/or not useful) and presentation content (excellent, interesting/stimulating, good, not good, hopeless, and/or boring), students were also asked to appropriate feedback items in the questionnaire after OP sessions. **Results:** The effective response rates for OP program/content and perception feedback were 98.2 and 90.0% respectively. For OP program, the cumulative rate was 66.4% (90.3% including item 'ordinary'). As for content ranking (excellent, interesting/stimulating and/or good), the cumulative rate for positive items was 81.5%. The most frequently stated feedback item was that students had learned to do OP in English, followed by their ability to use/understand SE better than before the OP program. **Discussion:** A majority of students found the OP program offered subject specialty, useful and/or meaningful, and the contents were excellent, interesting/stimulating and/or good. Together, post-OP feedback items demonstrated that the students had acquired OP skills and improved SE ability.

**Keywords:** Pharmaceutical science English, oral presentation, affirmative feedback

### 1. Introduction

Learning a second-language is tasking for non-native learners, and when it comes to learning science English (SE), time and effort spent with well-trained teaching staff, and access to proper learning tools and teaching materials are essential for acquiring productive SE skills by students learning English as a foreign language (EFL),<sup>1,2,3</sup> especially Japanese students, who are not usually taught SE basics at pre-university levels. SE-learning resembles, in certain manners, learning a new version of the English language and it involves language development and conceptual development in sciences.<sup>4</sup>

Various approaches exist for teaching SE; however, we have recently designed a stepwise-stepup tertiary

science English education (SSTSEE) system<sup>5</sup> for EFL students learning pharmaceutical SE (PSE) at the university level for the first time. The present study was conducted to assess if oral presentation (OP) of sciences using English, or PSE, would improve acquisition of SE and influence character building in human relationships.

Based on a survey perception, students (66.4%) found the OP sessions offered subject specialty, useful and/or meaningful, while 24.9% described the session as 'challenging but ordinary'. As for the presentation content, 81.5% perceived the presented facts and phenomena affirmatively. Additionally, responses from the post-presentation feedback items indicated that the students had not only learned certain aspects of OP and

language use (presentation skills, word/numeral enunciation, SE comprehension, summarizing presentation), but also improved character building in human relationships (confidence, teamwork).

## 2. Methods and Subjects

### 2.1 Subjects

Second year (Yr-2) university students (n=168) of either gender were divided into teams of 3-5 each, and they were asked to orally present their respectively allocated portions of a certain topic (chapter) from the textbook in class. Students had never done oral PSE presentation before.

### 2.2 Methods

Each chapter was presented by 3 teams (or 1 group) per lecture day. The whole textbook comprised 9 chapters (presentation content) on the following topics in biology, chemistry and physics: (i) photosynthesis and respiration (included carbohydrates, fats and proteins); (ii) nucleic acids and the genetic code; (iii) cell structure and function, bacteria, viruses; (iv) IUPAC system and nomenclature for compounds; (v) reactions in the laboratory; (vi) basic concept of chirality; (vii) power of hydrogen and acid dissociation; (viii) radioactive decay; and (ix) radioisotopes. All in all, the 9 topics were completed by the 9 teams (or 3 groups) in all. Students were required to submit a summary of each presented chapter in the lecture following the presentation (i.e. at 1-week intervals). Moreover, students were required to enhance their allocated portions of a chapter by referring to journals/literature, books and online publications. They spent 1 week preparing the relevant materials/work for

their presentations as a team: translating the English contents to Japanese or vice versa, practicing pronunciations of words/numerals, checking relevant grammars, and making illustrations, etc. Presentations were conducted in a 'rotation' system (i.e. OP => Japanese summary => synchronizing with OP by pointing at relevant illustrations), whereby each member in a team took turns to perform each of the 3 roles with all his/her team members. Each team practiced their allocated portions of the chapter before presentation. Preparation and delivery of the OPs by students were guided and scored by three different subject-specific lecturers for the relevant chapters in that session, respectively. Lecturers scored the performance of students based on pronunciation, language flow, volume, grammar use, contents, Japanese translation, provision and indication/pointing of illustrations during their presentations (Fig. 1).

### 2.3 Post-OP questionnaire

After completion of the OP of each 3-chapter session, each student was asked to fill a questionnaire distributed by the lecturer. The questionnaire required students to choose one or more given items from the OP program (left hand side of Table 1) and presentation content (right hand side of Table 1). In the OP program, students circled the corresponding items if they perceived the presentation: 'offered subject specialty', was 'useful', 'meaningful', 'not meaningful', 'challenging but ordinary', and/or 'not useful'. To evaluate the presented content (with extra information added to book content), students were asked to circle the following: 'excellent', 'interesting/stimulating', 'good', 'not good', 'hopeless',



Fig. 1: Students take turns to present their allocated portions in a chapter on biology, chemistry or physics.

and ‘boring’. Furthermore, the 151 students were asked to give their opinion/perception of the OP program after undergoing the OP sessions (Table 2).

### 3. Results

#### 3.1 Program and Content Perceptions

Of the 168 questionnaire response-sheets, only 3 students did not respond to questions on the OP program/content category (effective response rate: 98.2%), while 17 did not respond to items on perception feedback (effective response rate: 90.0%) after OP sessions. The counts were expressed as a percentage of the total count for each item, and the results of the program-related items are shown in Table 1. As a measure of positive perception of the program-related items (i.e. ‘subject specialty’, ‘useful’, ‘meaningful’), the cumulative value was 66.4%, and ‘challenging but ordinary’ perception accounted for 24.9% (91.3%; together with ‘specialty, useful, meaningful’) of the responses, while the negative items (not meaningful, not useful) accounted for 8.8%. For positive content-related items (i.e. excellent, interesting/stimulating, good), the cumulative preference

rate was 81.5%, while negative perceptions (i.e. hopeless, boring) accounted for 5.9%.

#### 3.2 Post-OP perception Feedback

In the perception feedback after PO sessions (Table 2), students gave answers to 7 affirmative post-presentation feedback items. Those stated having learned to do oral presentation (item 1) scored the highest percentage (86%), followed by 41% stating having learned certain skills in English presentation (item 2). More than one-thirds (39%) stated having understood SE better (item 6), while 38% stated having learned to pronounce English words/terms and enunciate numerals better (item 5) than before presentation. They had also stated having learned to summarize materials presented by others (item 7: 18%). As for psychological and interpersonal aspects, 16% felt they had gained more confidence speaking SE (item 3), and 14% thought they had become a better person via group work (item 4). However, in response to the single negative question, 4.6% stated that they had learned nothing (item 8).

Table 1: OP program- and Content-related Items after Completion of Presentation Sessions

<u>About the OP program</u>	<u>Count (%)</u>	<u>About presentation content</u>	<u>Count (%)</u>
Subject specialty	53 (27.5)	Excellent	24 (14.4)
Useful	54 (28.0)	Interesting/stimulating	24 (14.4)
Meaningful	21 (10.9)	Good	88 (52.7)
Ordinary/challenging	48 (24.9)	Not good	10 (5.9)
Not meaningful	10 (5.2)	Hopeless	0 (0)
Not useful	7 (3.6)	Boring	21 (12.6)

Table 2: Perception feedback after presentation

<u>Post-presentation feedback items</u>	<u>Counts (%)</u>
1. I have learned to do oral presentation in English	86 (57.0)
2. I have learned certain skills in English presentation	41 (27.2)
3. I now have more confidence in speaking science English	16 (10.6)
4. Y have become a better person via group work	14 (9.3)
5. I have learned to pronounce English words/numerals better	38 (25.2)
6. I can understand science English better now (via presentation)	39 (25.8)
7. I have learned to summarize presentations by others in English	18 (11.9)
8. I have learned nothing	7 (4.6)

#### 4. Discussion:

Apart from its use to name, describe, record, compare, explain, analyze, design, evaluate, and theorize how the natural world appears to us,<sup>6</sup> SE is a form of English required for expressing observation, reasoning, valuation, data analysis, and common communication in science-orientated disciplines, with functional use of technical terms and typical expressions relevant to transmitting scientific concepts and discoveries.<sup>1-4,7</sup>

As this was the first attempt at OP in PSE for the students in the present study, it is rational they would feel uneasy at the beginning of the session. As students have previously learned the important SE basics in Yr-1 for step up PSE development,<sup>8,9</sup> they were in many ways prepared for the present OP session. With proper guidance on presentation and material preparation from sources other than the textbook, students began to adapt to the challenge over time using compact disk (CD attached to the textbook) and what they had learned in their Yr-1 curricula<sup>1,2</sup> of the SSTSEE system.<sup>5</sup> The first group to do the OP was exemplary, and comments on the appropriate and inappropriate points in each OP by the respective students in the group were given by the assessment lecturer. Students in groups doing the subsequent OPs adjusted well and improved over time.

In addition to information given in their textbook, students had to find supporting material using other sources relevant to their respective OP topics: e.g. books, the library, and online publications. Students found the presentation sessions offered 'subject specialty', and demanded special effort from them. They also leaned to express their views in the course of preparation and presentation in a manner that their classmates could understand the OP content: this provided a feeling of accomplishment. In completing their OPs, both presenting and listening students realized that OP tasking was 'useful' and 'meaningful'. As some could have done OP in Japanese, the present OP sessions were not therefore something novel to them. However, as they were doing OP using SE (especially PSE), these previously OP-exposed students felt the session was challenging, accounting for 24.9% of respondents, who described the OP session as 'challenging but ordinary'. If all these affirmative answers were summated, 91.3% respondents described the OP sessions as offering/demanding 'subject specialty', 'useful', and/or 'meaningful' as well as 'ordinary but challenging'. The

use of PSE as a medium of instruction with enunciations of science-orientated technical terms and numerals, etc.<sup>1</sup> was especially challenging for them.

Where English is not the medium of instruction in the secondary level, EFL university students encounter problems coping with scientific terminology<sup>10</sup> and PSE per se.<sup>1-5,7</sup> As for the presentation content, 81.5% perceived the facts and phenomena of the OPs affirmatively, and described the contents as 'excellent', 'interesting/stimulating', and/or 'good', as opposed to those complaining that the contents being not good (5.9%) and/or boring (12.6%). An in-depth study would have to be conducted to find out why the content were 'not good' and/or 'boring' for these students. The former could have understood the content well, but thought the OP contents were not good enough. This is unlikely as some of the topics are taught only at Yr-3 level at Japanese universities with pharmacy courses. As for the latter, the students could feel so, if the topics have been repeatedly taught to them, or they thought they have learned/know the content thoroughly enough in previous exposures in Japanese (very unlikely, as some of the topics are normally taught at Yr-3 level in Japanese universities). As for a further affirmative aspect of OP, 86 of 151 students stated that they had learned to do oral presentation of scientific content in English, or PSE (57%). Furthermore, students thought they had acquired communication skills (i.e. OP skills, research skills, confidence speaking in front of others), and learned enunciation of words/numerals through their own effort in PSE. They further managed to enhance their PSE use/comprehension besides nurturing the ability to summarize facts/phenomena when listening to someone presents data and findings – all done in SE.

Cognitive<sup>11</sup> and affective<sup>12</sup> variables influence confidence development in SE learning. In the present study, useful psychological outcomes were reported by students: viz., developing teamwork/cooperative skills and the confidence to speak PSE in front of others, which they would not dare to (or would not usually be given such an opportunity to) under normal classroom conditions. In looking through their comments in the questionnaire, students seemed to have gained much more than they would have followed the conventional form of unilateral lecturing by the lecturer/professor and unilateral listening by students. As for the 7 students (4.6%) who complained that they had learned nothing; the inadequacy they felt warrants further in-depth study

and attention to possibly rectify the shortcomings (if any) that yielded such a negative and unhealthy outcome. It is possible that they were just not interested enough to participate in such a tedious and demanding session, and the contents might have proven too tough for them to follow in PSE, although if they had tried hard enough like their peers, they might have responded differently.

All in all, teaching on the part of lecturers and learning on the part of students in order to transmit knowledge - speaking, writing and summarizing orally delivered content in PSE - may be facilitated and subsequently established via OP.

In conclusion, our findings demonstrate that a majority of students found the OP program offered subject specialty, useful and/or meaningful tasking, and the contents were excellent, interesting/stimulating and/or good. Furthermore, post-OP feedback items demonstrated that the students could deliver OP in PSE, and had acquired improved SE ability. Students appeared to have gained more than they would have followed the conventional form of unilateral lecturing by the lecturer/professor and passive listening by students with regard to confidence building, understanding and use of PSE. Useful psychological outcomes, such as improved teamwork, interpersonal communication and personality development, were developed in some via OP.

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