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# Journal of Medical English Education

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## From the editor

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### Thoughts on the Journal of Medical English Education

As a member of the JMEE editorial board for some years now, it has been my task to review manuscripts submitted to the journal. From this, I had gotten the impression that the overall academic quality of submissions had improved since I first became involved in JASMEE. With this idea in mind, I had planned for my first editorial to be a commentary on this improvement and what it meant for the future of the journal. So, I pulled out my journal copies going back to 2011 for review, and what I discovered was that my impression was mistaken. The articles in the earlier editions of the journal were just as strong academically, showing rigorous research and in-depth analysis. What had changed, though, was the style of papers that were being submitted. Those past articles were, in general, longer than the articles being submitted today, many of them being more than 20 pages long, and more focused on linguistic theory and research. A few of them were dense with academic jargon and statistical analysis and took an effort to read, at least for a non-academic such as myself. The more recent trend in manuscript submissions seems to be a shift towards shorter papers focused on more practical topics. I have been seeing more papers that discuss what the authors actually did in the classroom and how successful (or not) their classes were. I, personally, like this shift because I am always looking for new ideas that I can use in my own classes. Another trend that I have liked in recent submissions has been a shift towards greater readability. Thus, while I can no longer claim that the quality of papers submitted to the journal has improved in the last 15 years, I can at least argue that my enjoyment of those papers has increased.

Unfortunately, one issue that the journal had in the past has continued into the present, and that is the number of submissions. The October issue usually receives a sufficient number of manuscripts as authors write summaries of their conference presentations, but the January/February issues are sometimes a bit thin. Thus, I would like to encourage our readers to consider submitting manuscripts for future January editions, and submitting papers that are not necessarily connected to presentations. I would even be happy to see more papers discussing research on linguistic or education theory.

**Alan Hauk**

Associate Editor

*Journal of Medical English Education*

# Factors affecting altruism and public service nature of healthcare interpreters: a cross-sectional study

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## Abstract

**Background:** Healthcare interpreters are required to show “altruism,” putting patients’ needs first, and a “public service nature,” being rigorously neutral and impartial, a shared resource for patients and medical professionals, and nonjudgmental.

**Objective:** To explore the factors affecting “altruism” and “public service nature” of healthcare interpreters.

**Method:** An online questionnaire survey was conducted February–May 2023, among 2,696 healthcare interpreters affiliated with organizations dispatching healthcare interpreters in Japan (109 valid responses [response rate: 4.04%], total analyzed n=108, 93 women, 15 men). Scores on questions related to “altruism” and “public service nature” were assessed for their correlation with independent variables using Spearman’s rank correlation coefficients. “Altruism” and “public service nature” scores were divided by median values for inter-group comparison using the Mann–Whitney U test.

**Results and discussion:** A significant association was seen between higher average monthly remuneration and altruism among healthcare interpreters (odds ratio [OR] 4.38, 95% confidence interval [CI] 1.29–16.27,  $p = 0.02$ ). This suggests that providing more opportunities for healthcare interpreting may increase altruism among healthcare interpreters. A significant association was also seen between lower average monthly remuneration and healthcare interpreters having a stronger public service nature (OR 0.24, 95% CI 0.09–0.63,  $p = 0.004$ ). This suggests there may be a group of healthcare interpreters who choose to engage more in volunteer-oriented interpreting work. As interpreters carry out more work, they may see more challenging cases, and may therefore need to deviate from the code of conduct to manage issues that emerge in those cases.

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**Keywords** healthcare interpreting, medical interpreting, altruism, public service nature, own judgment, healthcare interpreting opportunities

## 1. Introduction

Healthcare interpreting is considered a specialized occupation in many countries.<sup>1</sup> The National Board of Certification for Medical Interpreters (NBCMI), one of the certification bodies for healthcare interpreters in the United States, states that approximately 7,000 healthcare

interpreters were employed there in 2014, of whom 5,100 worked in hospitals and nursing care facilities, and 1,900 worked in outpatient healthcare services.<sup>2</sup> In the United States, access to medical services for patients with limited English proficiency is ensured by the Civil Rights Act of 1964 and Executive Order 13166 of 2000.<sup>3</sup> These have promoted employment of skilled healthcare interpreters and the formation of professional organizations.<sup>1</sup> In Japan, there is growing demand for trained healthcare interpreters to respond to the increasing number of international patients who seek medical consultations.<sup>4</sup> Healthcare interpreting has a mission of facilitating “access to public services” but the fees paid by public sector institutions often do not compensate fully for the services offered by healthcare interpreters, which makes it difficult to incentivize them to

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engage or invest in higher level training.<sup>1</sup>

In 2013, the Ministry of Health, Labour and Welfare in Japan set out the “Healthcare Interpreter Training Curriculum Standard” as part of the “Project for improving the environment for accepting international patients at medical institutions”. A Healthcare Interpreting Textbook and Training Guideline were developed to ensure that specialized healthcare interpreters had particular competencies.<sup>5,6</sup> These set out a code of conduct for healthcare interpreters covering professional ethics, to establish healthcare interpreting as a profession.<sup>7</sup> These ethics were in addition to distinct theories and techniques that specialized interpreters were expected to master.

The code of conduct sets out that healthcare interpreters are required to adhere to the principles of “neutrality and impartiality” and “clearly identify the role boundary”.<sup>7</sup> This allows them to respect patients’ subjective thoughts and decisions. Supporting patient-centered decision-making corresponds to “Respect for autonomy” in the Four Principles of Bioethics.<sup>8</sup> A principle to prioritize and commit to working for the benefit of patients is altruistic. In this study, this characteristic of healthcare interpreters is defined as “Altruism of healthcare interpreters”.

There are 12 items set out in the code of conduct. “Fidelity and accuracy” is described by the curriculum standard as “accurately understanding the linguistic content of the original speech to reflect it in interpretation”<sup>5</sup> and “providing interpretation by accurately capturing intentions and cultural context”.<sup>5</sup> This means that healthcare interpreters are taught not to omit anything or impute additional meaning to content in interpretation, and not to provide their own supplementary explanations to support patients’ understanding.<sup>5</sup>

Healthcare interpreters are also specifically required not to make their own judgments beyond their choice of interpreting strategies. In communication, healthcare interpreters are caught between two people, who “share” their services.<sup>5</sup> This puts them under pressure to be rigorously “neutral and impartial” without aiming to perform for the benefit of their employers. This is a stricter requirement than that placed on business interpreters. Healthcare interpreters cannot stand on either side, or advocate or speak for one party, and they do not pursue any commercial interest. They can therefore be considered to be a public good, shared by patients and medical professionals. This characteristic of healthcare interpreters is defined as “public service nature of healthcare interpreters” in this study.

Information about the current state of altruism and the public service nature of healthcare interpreters, and the factors associated with these two characteristics, may provide ideas for strategies to increase these qualities. It may also have implications for the code of conduct and the current status of healthcare interpreters. However,

few studies have examined these two qualities, although there are studies on factors that are associated with the occupational standards of healthcare interpreting. This study therefore explores the factors affecting the altruism and public service nature of active healthcare interpreters, using a questionnaire survey.

## 2. Methods

### 2.1 Survey participants and period

#### 2.1.1 Survey participants

An online questionnaire survey was conducted among 2,696 current healthcare interpreters and people with interpreting experiences in the healthcare field who were registered to or affiliated with healthcare interpreting societies, companies or non-governmental and non-profit organizations dispatching healthcare interpreters, hospitals, and medical institutions. Valid responses were collected from 109 participants. Importantly, the response rate was only 4.04%, and the representativeness of the respondents in relation to healthcare interpreters as a whole is not clear. Of the responses, 108 (93 women, 15 men) were included in the analysis; one response was excluded from a respondent whose native language was not Chinese or Japanese.

#### 2.1.2 Survey period

The survey period was from February to May 2023.

### 2.2 Survey method

#### 2.2.1 Survey request method

After providing sufficient explanations to responsible people in the target organizations, we requested responses from those who agreed to participate in the study, by sending the URL of a Google Forms questionnaire.

#### 2.2.2 Ethical considerations

Before participating in the study, the participants received sufficient explanations to understand the study, and provided written consent. We also included a consent form in the questionnaire, allowing participants to express their consent using a check box. Only responses with this consent box ticked were considered valid. The consent form described the purpose of the study, and explained that participants’ anonymity would be secured and personally identifiable information protected. It also explained that responses would be used solely for study purposes. It clarified that the participants could discontinue but not withdraw their responses from the study because the questionnaire was anonymous. The survey was approved by the Juntendo University Research Ethics Review Board (Approval No. E21-0235-M04, approval date: November 29, 2023).

## 2.3 Survey questions

### 2.3.1 Question on altruism among healthcare interpreters

The questionnaire items included the question “Healthcare interpreting is an occupation that allows me to work for others” (six-point scale) to examine altruism under the code of conduct for interpreters.

### 2.3.2 Question on public service nature of healthcare interpreters

The questionnaire also included a question “Healthcare interpreting entails exercising my own judgment” (six-point scale) to examine “public service nature”. This item was considered to ask about healthcare interpreters’ perceptions of their autonomy. We used reverse coding for this item to indicate “public service nature” as the opposite of autonomy. The highest score of 6 was therefore given to the response “Strongly disagree” (my judgment is not used at all).

### 2.3.3 Independent variables

The questionnaire asked about gender, age, highest level of education, and average monthly remuneration as basic participant characteristics. The questionnaire also asked about the respondents’ healthcare interpreting experience, healthcare interpreting training hours, whether their expertise is useful in their interpreting work, and their satisfaction with employment status and remuneration.

## 2.4 Statistical analysis

Spearman’s rank correlation coefficients were used to analyze correlations between the response scores to the questions on “altruism” and “public service nature” (the score for “healthcare interpreting is an occupation that allows me to work for others” and “healthcare interpreting entails exercising my own judgment”, the latter being reverse coded). The participants were divided by median values for each of “altruism” and “public service nature” scores into high- and low-scoring groups for inter-group comparison using the Mann–Whitney U test. Odds ratios were calculated for significant independent variables using binary logistic regression analysis, adding gender, native language, and highest level of education as adjustment variables. The statistical analysis used IBM SPSS Statistics 29 (IBM Corp, Armonk, NY, USA) with a statistical significance of 5%.

## 3. Results

### 3.1 Participant characteristics and responses to questions on healthcare interpreting

Cross-tabulation was conducted for participant characteristics and responses to the questions about healthcare interpreting (Appendix, Table 1).

### 3.2 Statistical analysis

Scores for the questions on “altruism” and “public

service nature” were assessed for their correlation with each independent variable using Spearman’s rank correlation coefficients. The “altruism” score had a weak positive correlation with usefulness of expertise ( $r = 0.21$ ,  $p = 0.03$ ), and average monthly remuneration ( $r = 0.20$ ,  $p = 0.04$ ). The “public service nature” score had a weak positive correlation with healthcare interpreting training hours ( $r = 0.28$ ,  $p = 0.004$ ), and a negative correlation with average monthly remuneration ( $r = -0.41$ ,  $p < 0.001$ ).

An inter-group comparison was conducted using the Mann–Whitney U test to compare the high- and low-scoring groups for each of “altruism” and “public service nature”. For the altruism score, there were significant differences in answers to “expertise is useful in interpreting” (low-scoring group: mean rank = 40.6, high-scoring group: mean rank = 58.5,  $U = 675.0$ ,  $p = 0.01$ ) and “average monthly remuneration” (low-scoring group: mean rank = 42.8, high-scoring group: mean rank = 57.9,  $U = 726.5$ ,  $p = 0.03$ ). For the public service nature score, there were significant differences in answers to “training hours” (low-scoring group: mean rank = 45.3, high-scoring group: mean rank = 63.7,  $U = 961.0$ ,  $p = 0.002$ ) and “average monthly remuneration” (low-scoring group: mean rank = 67.8, high-scoring group: mean rank = 41.2,  $U = 378.0$ ,  $p < 0.001$ ).

Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated for the significant independent variables using binary logistic regression analysis, adding gender, native language, and highest level of education as adjustment variables (Appendix, Tables 2-1 and 2-2). After multivariate adjustment, there were still significant associations between altruism and public service nature scores and “professional vs. volunteer (professional)” status (OR 4.58, 95% CI 1.29–16.27,  $p = 0.02$ , OR 0.24, 95% CI 0.09–0.63,  $p = 0.004$ ).

Furthermore, an additional contingency table analysis of respondents’ main source of income (including healthcare interpreting) was conducted by professional vs. volunteer status. The result of Fisher’s exact test was  $p = 0.004$ , and a statistically significant difference was observed between these two groups. The ratio of participants who reported their main source of income as “Healthcare interpreting/translation” was significantly lower in the volunteer group than in the professional group (12.1% vs. 45.2%). In addition, the ratio of respondents who reported their source of income as “Unearned income” was significantly higher in the volunteer group than in the professional group (13.6% vs. 2.4%), and “Other” responses tended to be higher in the volunteer group than in the professional group (6.1% vs. 2.4%).

## 4. Discussion

This study aimed to explore the factors that affect altruism and public service nature of healthcare interpreters. The results suggested that higher levels of altruism are

**Table 1. Demographic characteristics of survey participants**

| Characteristics                                             | Total          | Altruism score:<br>Healthcare interpreting is<br>an occupation that allows<br>me to work for others |                             | Public service nature score:<br>Healthcare interpreting<br>entails exercising my own<br>judgment (R) <sup>b</sup> |                             |
|-------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------|
|                                                             | <i>n</i> = 108 | Low group<br><i>n</i> = 24                                                                          | High group<br><i>n</i> = 84 | Low group<br><i>n</i> = 54                                                                                        | High group<br><i>n</i> = 54 |
| Gender, <i>n</i> (%)                                        |                |                                                                                                     |                             |                                                                                                                   |                             |
| Female                                                      | 93 (86.1)      | 22 (91.7)                                                                                           | 71 (84.5)                   | 43 (79.6)                                                                                                         | 50 (92.6)                   |
| Male                                                        | 15 (13.9)      | 2 (8.3)                                                                                             | 13 (15.5)                   | 11 (20.4)                                                                                                         | 4 (7.4)                     |
| Age, <i>n</i> (%)                                           |                |                                                                                                     |                             |                                                                                                                   |                             |
| < 45 years                                                  | 56 (51.9)      | 14 (58.3)                                                                                           | 42 (50.0)                   | 31 (57.4)                                                                                                         | 25 (46.3)                   |
| ≥ 45 years                                                  | 52 (48.1)      | 10 (41.7)                                                                                           | 42 (50.0)                   | 23 (42.6)                                                                                                         | 29 (53.7)                   |
| Area, <i>n</i> (%)                                          |                |                                                                                                     |                             |                                                                                                                   |                             |
| Tokyo                                                       | 78 (72.2)      | 14 (58.3)                                                                                           | 64 (76.2)                   | 44 (81.5)                                                                                                         | 34 (63.7)                   |
| Other                                                       | 30 (27.8)      | 10 (41.7)                                                                                           | 20 (23.8)                   | 10 (18.5)                                                                                                         | 20 (37.0)                   |
| Healthcare interpreting experience, <i>n</i> (%)            |                |                                                                                                     |                             |                                                                                                                   |                             |
| < 5 years                                                   | 55 (50.9)      | 13 (54.2)                                                                                           | 42 (50.0)                   | 26 (48.1)                                                                                                         | 29 (53.7)                   |
| ≥ 5 years                                                   | 53 (49.1)      | 11 (45.8)                                                                                           | 42 (50.0)                   | 28 (51.9)                                                                                                         | 25 (46.3)                   |
| Native language, <i>n</i> (%)                               |                |                                                                                                     |                             |                                                                                                                   |                             |
| Chinese                                                     | 67 (62.0)      | 13 (54.2)                                                                                           | 54 (65.3)                   | 40 (74.1)                                                                                                         | 27 (50.0)                   |
| Japanese                                                    | 41 (38.0)      | 11 (45.8)                                                                                           | 30 (35.7)                   | 14 (25.9)                                                                                                         | 27 (50.0)                   |
| Highest level of education, <i>n</i> (%)                    |                |                                                                                                     |                             |                                                                                                                   |                             |
| Undergraduate, junior college, vocational school            | 84 (77.8)      | 15 (62.5)                                                                                           | 69 (82.1)                   | 46 (85.2)                                                                                                         | 38 (70.4)                   |
| Master, Doctor                                              | 24 (22.2)      | 9 (37.5)                                                                                            | 15 (17.9)                   | 8 (14.8)                                                                                                          | 16 (29.6)                   |
| Healthcare interpreting training hours, <i>n</i> (%)        |                |                                                                                                     |                             |                                                                                                                   |                             |
| < 75 hours                                                  | 53 (49.1)      | 11 (45.8)                                                                                           | 42 (50.0)                   | 32 (59.3)                                                                                                         | 21 (39.8)                   |
| ≥ 75 hours                                                  | 55 (50.9)      | 13 (54.2)                                                                                           | 42 (50.0)                   | 22 (40.7)                                                                                                         | 33 (61.1)                   |
| Does expertise help in interpreting? <i>n</i> (%)           |                |                                                                                                     |                             |                                                                                                                   |                             |
| Undecided, disagree                                         | 19 (17.6)      | 7 (29.2)                                                                                            | 12 (14.3)                   | 11 (20.4)                                                                                                         | 8 (14.8)                    |
| Agree, strongly agree                                       | 89 (82.4)      | 17 (70.8)                                                                                           | 72 (85.7)                   | 43 (79.6)                                                                                                         | 46 (85.2)                   |
| Is remuneration for medical interpreting fair? <i>n</i> (%) |                |                                                                                                     |                             |                                                                                                                   |                             |
| Too little, slightly too little                             | 57 (52.8)      | 14 (58.3)                                                                                           | 43 (51.2)                   | 23 (42.6)                                                                                                         | 34 (63.0)                   |
| Too much, slightly too much, fair                           | 51 (47.2)      | 10 (41.7)                                                                                           | 41 (48.8)                   | 31 (57.4)                                                                                                         | 20 (37.0)                   |
| Are you satisfied with your employment status? <i>n</i> (%) |                |                                                                                                     |                             |                                                                                                                   |                             |
| Dissatisfied, slightly dissatisfied                         | 40 (37.0)      | 10 (41.7)                                                                                           | 30 (35.7)                   | 18 (33.3)                                                                                                         | 22 (40.7)                   |
| Satisfied, slightly satisfied                               | 68 (63.0)      | 14 (58.3)                                                                                           | 54 (64.3)                   | 36 (66.7)                                                                                                         | 32 (59.3)                   |
| Professional vs. volunteer, <i>n</i> , (%) <sup>a</sup>     |                |                                                                                                     |                             |                                                                                                                   |                             |
| Volunteer                                                   | 66 (61.1)      | 19 (79.2)                                                                                           | 47 (56.0)                   | 25 (46.3)                                                                                                         | 41 (75.9)                   |
| Professional                                                | 42 (38.9)      | 5 (20.8)                                                                                            | 37 (44.0)                   | 29 (53.8)                                                                                                         | 13 (24.1)                   |

<sup>a</sup>Average monthly remuneration of 100,000 yen or above was considered to be professional, and less than 100,000 yen was considered to be voluntary. Remuneration included in monthly salary of full-time hospital staff or employees of interpreting companies was considered to be professional (judged by freely written comments in the questionnaire). For average monthly remuneration, response indicating “prefer not to answer” or “do not know” was imputed from the value of the data closest in propensity score (hot deck imputation).

<sup>b</sup>(R): Reverse-coded item

associated with higher average monthly remuneration. Typically, healthcare interpreting remuneration is proportional to the number of opportunities. The availability of healthcare interpreting opportunities may therefore affect the development of altruism in healthcare interpreters. Attema et al. carried out an experimental study among medical students. They found that altruism declined among medical students during medical school, but increased again in the last year, when clinical training was held. This did not occur in a control group of students from other faculties. This suggests that experience facing patients routinely in clinical settings affects the development of altruism among medical students.<sup>9</sup> Another observational study by Çiftçi et al. among nursing students showed that fourth-year

students, who have more clinical training opportunities, exhibited significantly higher levels of altruism than students in other school years.<sup>10</sup> These findings are consistent with the association seen in our study between the number of healthcare interpreting opportunities and higher altruism among healthcare interpreters. It may be possible to increase altruism among healthcare interpreters by establishing an environment that provides a constant supply of work in clinical settings.

Participants with higher “public service nature” scores tended to have low average monthly remuneration. It is conceivable that there is a group of healthcare interpreters with low remuneration, possibly from having fewer opportunities to interpret, who may be more likely to see

**Table 2-1. Odds ratio of factors affecting “altruism” score vs. reference**

| Independent variables                                        | Reference                                        | Odds ratio                                                                         | OR [95% CI]       | p value |
|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------|-------------------|---------|
| Gender (male)                                                | Female                                           |  | 2.83 [0.54-14.78] | 0.22    |
| Native language (Japanese)                                   | Chinese                                          |  | 0.65 [0.23-1.84]  | 0.41    |
| Highest level of education (master, doctor)                  | Undergraduate, junior college, vocational school |  | 0.38 [0.13-1.13]  | 0.08    |
| Healthcare interpreting training hours (≥ 75 hours)          | < 75 hours                                       |  | 0.51 [0.17-1.47]  | 0.23    |
| Does expertise help in interpreting? (Agree, strongly agree) | Neutral, disagree                                |  | 6.23 [1.52-25.61] | *0.01   |
| Professional vs. volunteer (professional)                    | Volunteer                                        |  | 4.58 [1.29-16.27] | *0.02   |

\**p* < 0.05**Table 2-2. Odds ratio of factors affecting “public service nature” score vs. reference**

| Independent variables                                        | Reference                                        | Odds ratio                                                                         | OR [95% CI]      | p value |
|--------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------|------------------|---------|
| Gender (male)                                                | Female                                           |  | 0.17 [0.04-0.70] | *0.01   |
| Native language (Japanese)                                   | Chinese                                          |  | 2.72 [1.07-6.91] | *0.04   |
| Highest level of education (master, doctor)                  | Undergraduate, junior college, vocational school |  | 2.85 [0.96-8.52] | 0.06    |
| Healthcare interpreting training hours (≥ 75 hours)          | < 75 hours                                       |  | 3.13 [1.22-8.08] | *0.02   |
| Does expertise help in interpreting? (Agree, strongly agree) | Neutral, disagree                                |  | 0.57 [0.16-1.99] | 0.37    |
| Professional vs. volunteer (professional)                    | Volunteer                                        |  | 0.24 [0.09-0.63] | *0.004  |

\**p* < 0.05

R: Reverse-coded item

themselves as providing a public service and who therefore choose to engage more in volunteer-oriented interpreting work. Xu et al. found two categories of healthcare interpreting in Japan: volunteer-oriented and medical tourism-oriented healthcare interpreting. If interpreters choose volunteer-oriented healthcare interpreting, their patients often include older people with limited proficiency in Japanese or economically disadvantaged individuals. The remuneration for these healthcare interpreters when provided by agencies may be limited to transportation allowances. The authors suggest that this situation “falls within the realm of social service work”.<sup>11</sup> Additionally, a study by Nadamitsu found that these volunteer healthcare interpreters experienced struggles and complex emotions related to a sense of responsibility that did not allow them to refuse the work, and professional ethics that required them to perform to a high standard despite not being remunerated for doing so.<sup>12</sup>

It is also conceivable that those in the group with more healthcare interpreting opportunities see more challenging cases. This would lead them to make reasonable deviations from the code of conduct, and in turn may have resulted in an inverse correlation between availability of interpreting opportunities and interpreters’ public service nature. Hamai’s study highlighted that healthcare interpreters respected the healthcare interpreting standard, but deviations occurred when “clarifying ambiguous and unfamiliar medical terms”, “patients show signs of

non-understanding” or there is a need to “maintain the relationship between patients and medical professionals”. These deviations were considered to be “necessary interventions” and the author suggested that they should be actively tolerated in healthcare interpreting settings. Discussions are therefore needed about the allowable extent of and rationales for permitted deviations.<sup>13</sup> Ida’s study suggested that interpreters making these deviations were not freely making interventions but instead doing so because they were afraid of deviating from the original purpose of interpersonal assistance.<sup>14</sup> In our study, participants with more healthcare interpreting opportunities may have expressed these deviations from the code of conduct as “My own judgments are used in healthcare interpreting settings”. It may be helpful to provide case studies to clarify the extent of reasonable deviations, and develop a renewable certification program to maintain expertise and knowledge. This may increase control over deviations resulting from increased opportunities, and sustain the public service nature of healthcare interpreters. Establishing a mechanism that simultaneously enhances altruism, through ongoing provision of healthcare interpreting opportunities, and maintains the public service nature of interpreters by controlling deviations, may be associated with an increase in the level of both characteristics in healthcare interpreters.

## 5. Limitations

This study has several limitations. First, it was cross-sectional, and therefore cannot infer any causal relationships between altruism and public service nature of healthcare interpreters and different independent variables. The response rate of 4.04% was low. The survey was conducted before COVID-19 was downgraded from a disease classification of 2 to a classification of 5 according to the Infectious Disease Control Law in Japan. Prior to this, there were limitations to establishing direct contact with respondents to encourage participation in the study. Responses were also not balanced in gender, place of activity, and native language. The constraints of the questionnaire design meant that we could only choose one question for each of altruism and public service nature. It may therefore be difficult to generalize the findings to the wider situation regarding healthcare interpreting in Japan. The study assumed that average monthly remuneration increases proportionally to healthcare interpreting opportunities, but the participants included a small number of interpreters who carry out healthcare interpreting as part of their other duties, i.e., they are employed by hospitals or interpreting companies. Their salaries therefore remain constant regardless of frequency of healthcare interpreting opportunities. Even after considering these limitations, however, our study may still be relevant in suggesting factors that affect altruism and public service nature of healthcare interpreters. More precise research, such as a longitudinal study, is needed to provide more information about how to increase these characteristics in healthcare interpreters.

## 6. Conclusion

The aim of this study was to explore the factors that affect altruism and public service nature of healthcare interpreters. We found a significant association between higher average monthly remuneration and higher levels of altruism among healthcare interpreters. This suggested that more healthcare interpreting opportunities may increase altruism among healthcare interpreters. We also found a significant association between lower average monthly remuneration and healthcare interpreters having a stronger public service nature. This suggests that there may be a group of healthcare interpreters who may choose to engage more in volunteer-oriented interpreting work. It is also conceivable that, with more healthcare interpreting opportunities, reasonable

deviations from the code of conduct may arise as more challenging cases are encountered in healthcare interpreting settings.

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# Assessing the effect of a medical English course on the International Posture of third-year medical students

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## Abstract

International Posture (IP) is a concept introduced by Tomoko Yashima to capture favorable attitudes among English as a foreign language (EFL) learners towards an abstract international community in which English is spoken as a global language. The IP survey consists of 20 Likert-scale items comprised of four motivational dimensions: *intergroup approach-avoidance tendency*; *interest in international vocation or activities*; *interest in foreign affairs*; and *having something to communicate*. IP is likely a malleable trait rather than a fixed one; study abroad experiences as well as content-based English education have been found to significantly increase IP in EFL learners. This study sought to examine the effect of one semester of a content-based Medical English course on the IP of third-year medical students ( $N=72$ ) at one university in Japan. The study also sought to clarify which of the four motivational dimensions of IP were strongest and weakest among students, and the relationship between IP and English proficiency, gender, extroversion, and other variables. Data were analyzed using ANOVA, correlational analysis, regression analyses, and paired t-tests. Significant increases in IP were identified after one semester of content-based instruction. Also, *intergroup approach-avoidance tendencies* was found to be the strongest motivational dimension, while *having something to communicate* was the weakest, confirming previous findings. Extroversion and high course grades significantly correlated with IP, though gender and English proficiency did not. These findings support the assertion that content-based English instruction related to learners' future occupations will promote IP in EFL learners.

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**Keywords** International Posture, medical English, medical humanities, questionnaire, willingness to communicate

## 1. Background

### 1.1 The development of the International Posture scale

Gardner, in advancing a sociocultural model of second language acquisition in English as a second language (ESL) settings, presented the *integrative motive* as an essential component of the language learning process.<sup>1</sup> This motive is sustained by a desire to communicate with speakers of a target language and later became encapsulated in early models of second language willingness to communicate (L2WTC).<sup>2</sup> It has been argued that the development of L2WTC in learners should be the central goal of the language learning endeavor.<sup>3</sup> Yashima, however, contended that the integrative aspect of L2WTC was salient in ESL contexts but not in English as a foreign language (EFL) contexts such

as Japan, where English learners do not necessarily seek to integrate with native speakers of the target language.<sup>4</sup> Yashima proposed a construct called International Posture (IP), which she defined as a language learner's interest in and positive attitudes towards an imagined international community in which English is spoken as a global language.

To assess this construct, Yashima devised the IP scale, which underwent several iterations before Yashima settled on a 20-item version with questions organized around four motivational dimensions: *intergroup approach-avoidance tendency*; *interest in international vocation or activities*; *interest in foreign affairs*; and *having something to communicate*.<sup>5</sup> Since the concept of IP was introduced, numerous studies have assessed the IP levels of learners—of English, other languages, and other subjects entirely—at the primary, secondary, and tertiary levels. Most have been conducted in Asian contexts such as Japan, Korea, and Malaysia,<sup>6-8</sup> though studies have been conducted in diverse countries including Poland, Pakistan, and Iran.<sup>9-11</sup>

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## 1.2 International Posture trends among English learners

Research focusing on the International Posture of English learners, conducted both in Japan and abroad, has identified significant correlations between IP and several variables. Studies have identified a predictive relationship between IP and language learning motivation; as motivation increases, IP tends to increase as well.<sup>4,12</sup> This is not surprising, as IP has its origins in the integrative motive of second language learners. A similar predictive relationship has been identified between IP and language proficiency,<sup>13</sup> though this relationship appears to be weaker than that between IP and motivation.<sup>14</sup> In addition, extroversion and openness to new experiences appear to strongly correlate with IP.<sup>15</sup> Gender may also correlate with IP, though the relationship may depend on the cultural context in which the study is conducted. In Asian countries such as Japan and China, female learners have been reported to have higher IP,<sup>6,16</sup> while male learners in Pakistan were found to have higher IP than female learners.<sup>17</sup>

Several studies have also reported on the *malleability* of IP, that is, that learners' IP can increase or decrease depending on learning conditions. Increases in IP were reported in cohorts of students who experienced study-abroad programs,<sup>13</sup> including one virtual study-abroad program using Skype.<sup>18</sup> Japanese high school students who experienced one year of theme-based English instruction also experienced gains in IP.<sup>13</sup> On the other hand, students who experienced one year of traditional grammar-based English instruction experienced either no significant increases in IP or—more alarmingly—significant decreases.<sup>13,16</sup> For this reason, Yashima recommended content and language integrated learning (CLIL) methodology in English education to raise the IP and L2WTC of English learners. Moreover, course content and teaching materials relevant to students' future occupations, such as those offered in English for specific purposes (ESP) courses, may lead to a higher motivation to learn among students than would be found in General English courses.<sup>19</sup>

Last, a few studies have sought to identify which of the four motivational dimensions of IP, mentioned above, were strongest and weakest among learners.<sup>8,14</sup> Such information would aid instructors in designing courses that help students overcome specific weaknesses in terms of IP. However, reviewing what different studies found regarding these four motivational dimensions is far from simple. As mentioned above, Yashima's IP survey went through at least two major adjustments, in 2002 and 2009<sup>4,5</sup>; some studies make use of items from the 2002 survey,<sup>7</sup> while others use 2009 survey items,<sup>9</sup> and others use only a few items from these surveys,<sup>20</sup> or the researchers composed their own IP items.<sup>21</sup> However, at least three studies, each using variations of Yashima's (2009) survey, can be briefly reviewed here to examine differences between IP levels of learners in different

contexts, namely Poland, Malaysia, and Japan.<sup>8,9,14</sup>

First, in Mystkowska-Wiertelak and Pietrzykowska's survey of 111 Polish university students (majors were not given), *interest in foreign affairs* was found to have the lowest mean, while *having something to communicate* had the highest, though a statistical comparison of these differences was not undertaken.<sup>9</sup> Next, in a robust sample of 540 undergraduates at a Malaysian university (majors were not mentioned), it was found that *intergroup approach-avoidance tendency* had the highest mean, followed by *interest in international vocation or activities* and *interest in foreign affairs*, which had identical means. Unfortunately, *having something to communicate* items were not included in the survey as the researchers felt that Malaysian students tended to be communicative. In our previous survey of first-year Japanese university students in diverse majors, we found that *intergroup approach-avoidance tendency* had the highest mean while *having something to communicate* had the lowest mean.<sup>14</sup>

Findings from these three surveys are shown in **Table 1**. Although a statistical comparison of these findings was not undertaken, differences between the three groups are apparent. The Malaysian students had the highest IP means overall (3.8), while the Polish students had the lowest (3.0), with Japanese students in the middle (3.5). The Japanese students' IP scores were strikingly higher than the Polish students' scores in all categories except for *having something to communicate*, the only category where any group dipped below 3 (2.8). Formulating opinions in English about international topics is difficult for Japanese students in general, who are notoriously reticent to express ideas in English and engage in class discussion.<sup>22</sup>

It should be noted that the different numbers of students in each group, as well as the uncertainty regarding student majors in the studies from Poland and Malaysia, render a comparison between the groups problematic. Moreover, in our own cohort, the Medical and Nursing students tended to have higher IP scores than those of Economics majors, though for the sake of comparison these scores have been grouped together here. **Table 2** shows the differences in IP scores between students of different majors in our previous

**Table 1. IP means of learners in Poland, Malaysia, and Japan**

|            | Poland (N=111)<br>Mystkowska-Wiertelak<br>and Pietrzykowska<br>(2011) | Malaysia<br>(N=540)<br>Razak et al.<br>(2022) | Japan (N=69)<br>Willey & Suzuki<br>(2023) |
|------------|-----------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------|
| Overall IP | 3.0                                                                   | 3.8                                           | 3.5                                       |
| IAAT       | 3.0                                                                   | 3.9                                           | 4.0                                       |
| IIVA       | 3.0                                                                   | 3.8                                           | 3.5                                       |
| IFA        | 2.8                                                                   | 3.8                                           | 3.3                                       |
| HSC        | 3.1                                                                   | N/A                                           | 2.8                                       |

Notes. IAAT: *intergroup approach-avoidance tendency*; IIVA: *interest in international vocation or activities*; IFA: *interest in foreign affairs*; HSC: *having something to communicate*; N/A: data not available

**Table 2. IP means of different faculties in Willey and Suzuki (2023)**

| N=69<br>total | Nursing/<br>Psychology<br>(N=21) | Medicine<br>(N=11) | Economics/<br>Design<br>(N=15) | Economics/<br>Law<br>(N=22) |
|---------------|----------------------------------|--------------------|--------------------------------|-----------------------------|
| Overall IP    | 3.7                              | 3.8                | 3.3                            | 3.3                         |
| IAAT          | 4.3*                             | 4.2*               | 3.7*                           | 3.7*                        |
| IIVA          | 3.7                              | 4.0                | 3.3                            | 3.3                         |
| IFA           | 3.7                              | 3.6                | 3.3                            | 3.1                         |
| HSC           | 3.1                              | 2.9                | 2.6                            | 2.8                         |

Notes. IAAT: intergroup approach-avoidance tendency; IIVA: interest in international vocation or activities; IFA: interest in foreign affairs; HSC: having something to communicate

study, though these scores should be viewed with caution due to the low number of participants. Both the Nursing/Psychology group and the Medicine group had significantly higher scores than the Economics/Design and Economics/Law groups in the dimension of *intergroup approach-avoidance tendency* ( $p < 0.03$ ).

At present, the effect of discipline-specific CLIL instruction, such as in ESP or English for medical purposes (EMP) courses, on Japanese university students' IP levels, has not been substantially examined. The present study thus sought to examine the IP levels of third-year medical students enrolled in a semester-long Medical English course at one national university in western Japan. This course utilized a textbook grounded in CLIL teaching methodology: *English Communication Competency for Future Healthcare Professionals*.<sup>23</sup> Communication techniques and useful expressions, and the rationale behind using them in various situations, are introduced in each chapter. We posited that the content of this course would positively impact students' IP and learning motivation, due to its relevance to students' medical majors and its filling of a gap in the Japanese medical curriculum, which gives little attention to medical communication skills. We also wanted to know how these students' IP levels would compare to the IP levels identified in our previous survey, and if trends in the strengths and weaknesses of the four IP dimensions would hold for this group of learners.

Three research questions guided this study:

1. What effect does one semester of medically relevant, CLIL-based instruction have on students' IP?
2. Which of the four motivational dimensions of IP are strongest and weakest in this group of students?
3. What relationship can be found between IP and English proficiency, gender, extroversion, and other relevant variables?

## 2. Method

Participants were third-year medical students enrolled in the Medical English course in the spring semester of 2023. Participant ages were not recorded. Students who were absent from the course four or more times were

excluded, as well as those who gave incomplete responses or failed to respond to one of the two surveys. The Medical English course met once per week over the 15-week semester; classes were 90 minutes long. Our university is a national university in western Japan with an enrollment of approximately 6,000 students. All third-year students are required to take this course.

The survey instrument used was the IP scale in Yashima (2009).<sup>5</sup> This scale includes 20 Japanese statements, seven of which require reverse coding. Participants indicate the extent to which they agree or disagree with these statements on a 6-point Likert scale. Items are grouped under the aforementioned motivational dimensions of IP: 1) *intergroup approach-avoidance tendency* (6 items); 2) *interest in international vocation or activities* (6 items); 3) *interest in foreign affairs* (4 items); and 4) *having something to communicate* (4 items). The items were randomized to remove ordering biases.<sup>24</sup> A sample of items from this survey is shown in the Appendix. The first several questions on the survey collected background information (gender; self-reported English proficiency; experience abroad; number of times abroad; out-of-school English education and activities; and course grades). In addition, three extroversion items from the Shyness and Sociability Scales for Adults (authorized English version) were translated into Japanese and then adapted to gauge students' tendencies toward introversion or extroversion.<sup>25</sup> One extroversion item is included in the Appendix.

Participants completed the survey as an online Google Form in the first and last classes of the semester. Survey responses were input into Microsoft Excel, and analyses were performed using JMP Pro 15.1 for Windows (SAS Institute, Cary, NC, USA). The statistical significance of the calculated coefficients was determined at  $p < 0.05$ . The research instrument and procedures were approved by the Institutional Review Board of our university (#002).

## 3. Results and discussion

Of the 105 students enrolled in the course, 72 students were able to participate. Characteristics of participants (gender; self-reported English proficiency; experience abroad; number of times abroad; time spent abroad; number of countries visited; out-of-school English education; English clubs and activities; and course grades) are shown in **Table 3**. Out-of-school English education refers to formal English classes that students took outside of regular schools, such as at a *juku* or "cram school," or a language school. English clubs or activities refer to informal groups where people gather, either periodically or for one time only, and where English is used. Participation in English Speaking Society (ESS) clubs or English camp activities fell within this category.

First, to assess the effect of CLIL-based instructional methods on students' IP levels, mean IP scores from the pre-

course survey and post-course survey were compared using paired t-tests. Increases in IP were observed in overall IP scores as well as in all four of the motivational dimensions of IP. These increases were statistically significant for overall IP and the dimensions of *interest in international vocation or activity*, and *interest in foreign affairs*. **Table 4** shows findings from these tests and accompanying means, standard deviations, t values, degree of freedom (df) values, and p values (significance at  $p < 0.05$ ). **Figure 1** shows findings from the Bland-Altman analysis of IP means at the two collection points (the X-axis shows the mean of the sum of pre-course and post-course means; the Y-axis shows the difference between the two collection means). The more positive the difference, the better the outcome of the CLIL intervention. These findings suggest that CLIL-based materials relevant to learners' future occupations will lead to gains in IP, as previous research has suggested.<sup>5,19</sup>

When the four motivational dimension means are ranked from highest to lowest, using data from the second collection, *intergroup approach-avoidance tendency* had the

highest mean (3.85) and *having something to communicate* had the lowest (3.32). This ordering was consistent for both pre-course and post-course surveys and identical to findings in our earlier survey.<sup>14</sup> *Interest in international vocation or activities* and *interest in foreign affairs* had the second and third highest means in the first survey (3.54 and 3.47, respectively); this ordering was switched in the second survey (3.66 and 3.68, respectively).

These findings confirm our earlier finding that Japanese students have difficulty formulating opinions in English. However, it should be mentioned that respondents in at least one other IP survey found the *having something to communicate* items to be ambiguous and confusing.<sup>9</sup> Whether respondents to our survey had similar reactions when reading the *having something to communicate* items is unclear. Further studies, perhaps involving qualitative measures such as interviews or think-aloud responses to the IP survey, are necessary to shed light on how respondents interpret these items.

Returning to the studies discussed in the literature review, we can now include IP means identified in the present study in a **Table 5** featuring similar data from studies conducted in Poland, Malaysia, and Japan.<sup>8,9,14</sup> Overall, the IP means (from the second collection) are similar to findings from our previous study,<sup>14</sup> though notable increases can be observed in the dimensions of *interest in foreign affairs* and *having something to communicate*. The increase in *having something to communicate* is particularly interesting. As third-year students, these students were older than students in our previous study, and more deeply engaged in their majors. Did their maturity, and deeper knowledge of their fields and perhaps life in general, help

**Table 3. Characteristics of participants**

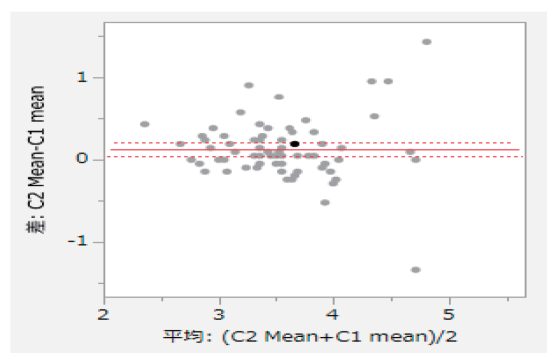
| N = 72                               | Number (%) |
|--------------------------------------|------------|
| Gender (Female)                      | 29 (40.3)  |
| Self-reported TOEIC score > 540      | 41 (56.9)  |
| Experience abroad                    | 38 (52.8)  |
| Number of times abroad $\geq 3$      | 21 (30.0)  |
| Number of countries visited $\geq 3$ | 17 (23.9)  |
| Time spent abroad > 2 weeks          | 15 (21.1)  |
| Out-of-school English education      | 23 (31.9)  |
| English club or other activities     | 7 (9.7)    |
| Course grade $\geq 3$                | 29 (40.3)  |

Note.  $\geq$  Greater than or equal to; Course grade: 5=S, 4=A, 3=C, 2=D, 1=X

**Table 4. IP Differences from pre-course to post-course surveys: Paired t-tests**

| N = 72     | Mean (C1) | Mean (C2) | Difference in means | T    | df | p value |
|------------|-----------|-----------|---------------------|------|----|---------|
| Overall IP | 3.47      | 3.60      | +0.12               | 2.83 | 71 | 0.0061* |
| IAAT       | 3.80      | 3.85      | +0.05               | 0.97 | 71 | 0.97    |
| IIVA       | 3.54      | 3.66      | +0.13               | 2.22 | 71 | 0.03*   |
| IFA        | 3.47      | 3.68      | +0.21               | 2.72 | 71 | 0.0083* |
| HSC        | 3.12      | 3.32      | +0.21               | 1.93 | 71 | 0.058   |

Notes. C1=Collection 1 (pre-term); C2=Collection 2 (post-term); IAAT: *intergroup approach-avoidance tendencies*; IIVA: *interest in international vocation or activity*; IFA: *interest in foreign affairs*; HSC: *having something to communicate*.



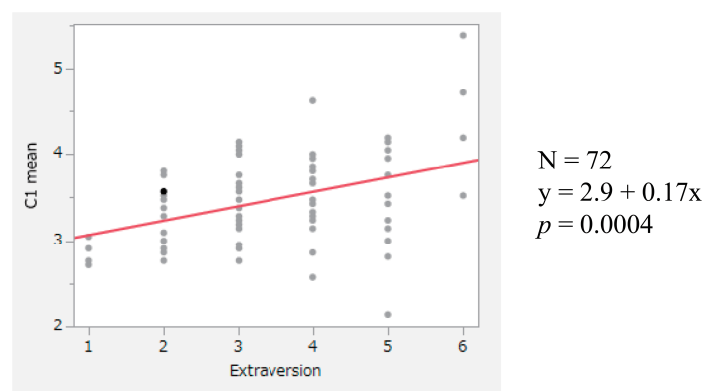
N = 72  
 After (C2) Mean 3.60  
 Before (C1) Mean 3.47  
 Difference in Means +0.12  
 p value 0.0061\*

**Figure 1. IP differences from pre-course to post-course surveys: Bland-Altman analysis**

**Table 5. A comparison between IP means of previous studies and the present study**

|            | Poland (N=111)<br>Mystkowska-Wiertelak<br>and Pietrzykowska (2011) | Malaysia (N=540)<br>Razak et al. (2022) | Japan (N=69)<br>Wiley & Suzuki (2023) | Japan (N=72)<br>The present study |
|------------|--------------------------------------------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------|
| Overall IP | 3.0                                                                | 3.8                                     | 3.5                                   | 3.6                               |
| IAAT       | 3.0                                                                | 3.9                                     | 4.0                                   | 3.9                               |
| IIVA       | 3.0                                                                | 3.8                                     | 3.5                                   | 3.7                               |
| IFA        | 2.8                                                                | 3.8                                     | 3.3                                   | 3.7                               |
| HSC        | 3.1                                                                | N/A                                     | 2.8                                   | 3.3                               |

Notes. IAAT: intergroup approach-avoidance tendency; IIVA: interest in international vocation or activities; IFA: interest in foreign affairs; HSC: having something to communicate; N/A: data not available

**Figure 2. IP and extroversion: Simple regression analysis scatterplot**

shape their perception that they possessed opinions about international topics? Without qualitative data, such as from interviews, to probe students' thoughts about this issue, it is difficult to do more than speculate about the possible causes. However, this finding does suggest that upper-grade students may possess a greater ability to share their opinions in English, and that English curricula designers would be wise to take advantage of this opportunity through courses intended to promote discussion or debate in English.

It is possible, however, that the IP levels of students in our previous study, with data collected in 2021, may have been affected by the Covid-19 pandemic, when these students were unable to travel freely to other countries and even within Japan; thus, they may have had less interest in international issues. The students in our current study experienced the restrictions of the pandemic at a younger age, and their IP levels may have been less affected. Future studies should perhaps track the IP levels of a cohort of medical students from their first year through upper grades, to observe whether there are any changes in IP.

Next, correlation and regression analyses were performed to clarify the relationship between IP (both overall IP means and the four motivational dimensions of IP) and several key variables that have been associated with IP in previous research. These variables include extroversion, course grades, English proficiency, experience abroad, and gender. In the correlational analysis, we identified significant associations between extroversion and IP, and between extroversion and three of the four motivational dimensions of IP: *interest in international vocation or*

*activities; interest in foreign affairs; and having something to communicate* (Table 6). The regression analyses also identified a strong significant association between overall IP means and extroversion (Figure 2). These findings reinforce the association between IP and extroversion identified in previous studies, including our own.<sup>14,15</sup> The more extroverted the student, the higher the student's IP. IP, like extroversion, may thus possess strong trait-like qualities, suggesting it does not easily change over time. We also found students' mean extroversion scores to be surprisingly high: 4.3 on a 6-point scale, indicating moderate levels of extroversion. This finding suggests that these students are more outgoing than their typically silent in-class presence may indicate.

In addition, in the correlation analysis, a significant correlation was found between the number of countries visited and the motivational dimension of *having something to communicate*. Students who have visited more countries tend to have more things to say about international issues. Well-traveled students may thus have higher levels of IP than students who have been abroad only once or twice. Exposure to different countries or cultures may be integral to the development of IP (Table 5). On the other hand, students who like to travel may naturally possess higher levels of IP; there may be a reciprocal relationship between these two variables.

A significant correlation was not identified between IP and course grades, which could be considered a measurement of students' diligence toward their studies; this finding was the same as in our previous study. Moreover,

**Table 6. Correlation analysis findings**

| N = 72                 | 1      | 2     | 3      | 4      | 5      | 6      | 7      |
|------------------------|--------|-------|--------|--------|--------|--------|--------|
| 1. Extroversion        |        |       |        |        |        |        |        |
| 2. Course grade        | 0.04   |       |        |        |        |        |        |
| 3. # Countries visited | 0.10   | -0.06 |        |        |        |        |        |
| 4. Overall IP          | 0.41** | 0.03  | -0.18  |        |        |        |        |
| 5. IAAT                | 0.18   | 0.08  | -0.08  | 0.78** |        |        |        |
| 6. IIVA                | 0.37** | -0.02 | 0.01   | 0.78** | 0.51** |        |        |
| 7. IFA                 | 0.28*  | 0.10  | -0.19  | 0.77** | 0.49** | 0.41** |        |
| 8. HSC                 | 0.38** | 0.01  | -0.27* | 0.76** | 0.37** | 0.39** | 0.64** |

\* $p < 0.05$ , \*\* $p < 0.01$ . Notes. # Countries visited: The number of countries visited; IAAT: *intergroup approach-avoidance tendency*; IIVA: *interest in international vocation or activities*; IFA: *interest in foreign affairs*; HSC: *having something to communicate*.

this study did not identify a significant correlation between self-reported English proficiency and IP, which was found in our previous study.<sup>14</sup> Unlike our previous study, however, in this study we were unable to obtain students' TOEIC scores—taken during their first year—and had to rely on a self-reported assessment of English proficiency. Students likely gave a modest assessment of their own English skills, following their cultural tendency to select the midpoint when responding to items on surveys.<sup>26</sup> Based on these findings, we believe that more diligent, proficient, and motivated students will tend to have higher levels of IP. Students that teachers perceive as “good students” are those who most likely possess higher levels of IP. As medical students are typically high academic achievers, it should not be surprising, then, that these students would have higher levels of IP than students in other majors, as we found in our previous study.<sup>14</sup>

Regarding additional variables, a significant association was not identified for gender, experience abroad, and use of English outside of the classroom (either in a language school, etc., or through a club or other activity); the latter was found to be significantly associated with IP in our previous study.<sup>14</sup> The small number of participants involved in this study may have influenced this lack of significance. Further research involving a greater number of student participants will be needed to explore the relationship between gender and the use of English outside of the classroom. As mentioned above, adding a qualitative dimension, such as focus-group or one-on-one interviews, would enrich findings by revealing how students reacted to the IP survey and how they view their strengths and weaknesses in terms of intercultural communication. We have launched an interview phase that focuses on how students develop IP and L2WTC; however, as this study has just begun, we are unable to include any findings here. We intend to report those findings separately at a later date.

## 4. Conclusions

This study, though small in scale, may reveal the value of career-relevant, content-based English courses, such

as Medical English, in promoting International Posture in Japanese university students. Gains in IP may lead to gains in English proficiency and, consequently, willingness to communicate in English, which the authors agree should be the central goal of any language learning curriculum. The question may thus be how to expand courses like Medical English so that students learn something relevant to their futures while studying English. These courses also need to be integrated with existing medical curricula so that students feel assured that the content of these courses is relevant to their future careers.

Our research suggests that Japanese students' IP levels may not be so low compared to those of learners in other countries, such as Malaysia and Poland, and the IP levels of learners in healthcare-related majors seem to be higher than those of learners in other majors.<sup>21</sup> In addition, medical students may be more outgoing than their teachers—or even they—believe themselves to be, as their responses to the extroversion items revealed; they prefer to be with other people. However, in terms of IP, the greatest weakness of Japanese learners may lie in their perceived inability to express opinions in English. As has been suggested elsewhere, they may need a small push to get them to express themselves in English.<sup>22</sup> Perhaps content-based English courses such as Medical English can help to remedy this problem. EMP instructors should seek out new and creative ways to help medical students reflect on medical topics, and to express their opinions with confidence.

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## Appendix: Sample questionnaire items

### Intergroup approach-avoidance tendency (IAAT)

I want to make friends with international students studying in Japan.

日本に来ている留学生など外国人と（もっと）友達になりたい。

\* I would feel somewhat uncomfortable if a foreigner moved in next door.

\* もし、日本で隣に外国の人が越してきたら 困ったなと思う。

### Interest in international vocation or activities (IIVA)

I'm interested in an international career.

国際的な仕事に興味がある。

\* I'd rather avoid the kind of work that sends me overseas frequently.

\* 海外出張の多い仕事は避けたい。

### Interest in foreign affairs (IFA)

I often talk about situations and events in foreign countries with my family and/or friends.

外国の情勢や出来事について家族や友人とよく話あうほうだ。

\* I'm not much interested in overseas news.

\* 海外のニュースにあまり興味がない。

### Having something to communicate (HSC)

I have thoughts that I want to share with people from other parts of the world.

世界の人々と話したいトピックがある。

- \* I have no clear opinions about international issues.
- \* 国際的な諸問題について特に意見はもっていない。

### Extroversion

- \* I feel stress when I talk to someone for the first time.
- \* 初対面の人と会話してもストレスを感じない。

\* = Reverse-coded item

In filling in the questionnaire, students read the instructions below and then selected a number to indicate their agreement. The original Japanese instructions and an English translation are shown below.

判断の際は、以下の表に示した基準を参考にしてください。それぞれの項目を読んで「強くそう思う場合は6」と、「決してそう思わない場合は1」と括弧内に書いてください。

| 6      | 5    | 4      | 3         | 2          | 1         |
|--------|------|--------|-----------|------------|-----------|
| 強くそう思う | そう思う | ややそう思う | あまりそう思わない | めったにそう思わない | 決してそう思わない |

Please indicate the extent to which you agree or disagree with the statements below.

| 6                | 5       | 4                | 3                   | 2          | 1                   |
|------------------|---------|------------------|---------------------|------------|---------------------|
| I strongly agree | I agree | I somewhat agree | I somewhat disagree | I disagree | I strongly disagree |

# Introducing a vocabulary web application into a medical English course

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## Abstract

In this paper, we investigate the use of new vocabulary software, Hi-Lex, in a medical English course. We begin by examining the effects of guided usage, followed by an analysis of the decision-making processes of students using the software during their studies. Hi-Lex, designed by one of the authors for use at Hiroshima University, incorporates a medical English word list (MEWL) embedded in course materials, enabling students to analyze discourse and store the vocabulary items they wish to learn. The software also offers researchers, with the permission of students, the opportunity to examine the stored items.

The software was tested with two groups of second-year medical English students. Both groups were taught the same material, which included essays and dialogues, using a flipped learning approach, with units of material placed on Moodle for completion outside the class. However, there was a key difference: the first group was introduced to the software and left to use it independently, while the second group received guidance on how to use the software and was given class time to store vocabulary from the units.

The results highlight the importance of guidance for effective software use. In addition, an analysis of students' personalized word lists shows that, alongside the predominantly technical items from the MEWL, students also selected non-technical words they deemed important. The advantage of the Hi-Lex software is that it allows students to autonomously explore vocabulary while simultaneously learning from a word list embedded in the course materials.

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**Keywords** ICT, vocabulary learning application, medical English course, word lists, pedagogical materials

## 1. Introduction

### 1.1 Background

There are 82 medical schools in Japan, and with English education lying outside the “core” curriculum,<sup>1</sup> medical English education is full of variation, innovation, and challenge. Courses can take place in various locations, including on-campus classrooms for early years of study, in-hospital courses,<sup>2</sup> and study-abroad programs. Instructors may address a variety of needs, including history-taking,<sup>3</sup> case presentations, and case reports.<sup>4</sup> In addition, they may focus on key medical vocabulary, emphasizing the construction of technical terms through word parts,<sup>5</sup> as well as the features of horizontal and vertical medical discourse.<sup>6</sup>

To address the complexity, JASMEE has developed guidelines to aid teachers and curriculum developers.<sup>7</sup> The course in this study, described below, is a transitional flipped learning<sup>8</sup> one, involving Moodle and classroom instruction, that aids students in moving from general English studies to medical English. Its materials and integrated word list were developed by members of Hiroshima University's Institute for Foreign Language Research and Education (FLaRE) with help and advice from medical doctors.

Word lists have become a major feature of applied linguistics. For learners of general English, several such lists have been created, including West's General Service List (GSL)<sup>9</sup> and Coxhead's Academic Word List (AWL).<sup>10</sup> More recent lists include the New General Service List (NGSL)<sup>11</sup> and the New Academic Word List (NAWL).<sup>12</sup> In medically related fields, there are lists such as Wang et al.'s Medical Academic Word List (MAWL),<sup>10</sup> Lei and Liu's Medical Academic Vocabulary List (MAVL),<sup>11</sup> and Fraser's Essential Pharmacology Word List (EPWL).<sup>12</sup> There are also customized word lists, such as the Medical English Word List (MEWL)<sup>5</sup> used in this study, developed by members of FLaRE. The creation of vocabulary lists is typically achieved through the use of text analysis tools like *AntConc* or custom

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software with programming scripts. These tools can also be applied to data-driven learning.<sup>13</sup> A key consideration is the role of teacher mediation in modeling strategies that maximize the effectiveness of the software, especially in an era where students are often more adept with technology than their teachers. Two main concerns in our study are: (1) the effect of teacher guidance on how students interact with new software, and (2) the decisions that students make regarding the vocabulary they wish to learn from course materials with reference to the MEWL.

## 1.2 EMP courses, the MEWL, and Hi-Lex

At Hiroshima University, medical English study includes two interlinked courses designed to help students transition from general English to medical English. We describe our syllabus as quasi-parallel,<sup>14</sup> because it not only covers the more technical horizontal discourse used in doctor–doctor interaction that is studied in students' second and third years, but it also covers the vertical discourse of doctor–patient interaction, such as taking histories and discussing the results of medical tests. Although this aspect of their medical studies takes place after their third year at Hiroshima University, the English involved is less complicated and students can handle some straightforward dialogues and role plays. The essays in the materials can be categorized as simple accounts,<sup>15</sup> information abstracted and re-written from sources specifically for students.

The two courses are offered in the latter half of the second year and during the third year. After completing their core dissection and anatomy studies, students can either take one medical English course in the second year and the other in the third, or they can complete both courses in their third year. The two courses cover an integrated syllabus of 14 units<sup>16</sup> created by members of FLARE, with the material being primarily organized around body systems, covering anatomy, physiology, several diseases relating to the body system, doctor–patient interaction, and treatments. The syllabus has a strong vocabulary strand within it, and vocabulary tests at the end of each course are an important component of student evaluation.

A major feature of the materials is that the units of study and the MEWL are strongly connected. The FLARE research team enriched the materials through corpus analysis of two well-known medical reference books<sup>17, 18</sup> in order to add high-value medical terms, and the MEWL was created from key vocabulary items identified in the units, ensuring the word list directly reflects the materials.<sup>19</sup>

The MEWL was constructed by identifying and listing key terms on a set of spreadsheets, combining the terms, and removing duplications. This resulted in a list of about 1,750 terms, including both single-word vocabulary items, such as *aneurysm*, and -wordword terms, such as *lateral sulcus* and *posterior cerebral artery*. It should be noted that terms in the MEWL overlap. For example, in relation to the

multiword examples in the previous sentence, the terms *lateral*, *posterior*, *sulcus*, and *artery* all appear as single items in the MEWL. However, the *lateral sulcus* is a specific anatomical feature in the cerebrum and the *posterior cerebral artery* is a specific artery. As key terms within the unit on the central nervous system, the two multiword items are listed. The MEWL is not designed as a comprehensive word list, but rather as a pedagogic tool, providing students with a sufficient number of items to start developing their medical English lexicon through discourse, diagrams, and definitions in the units of material. The MEWL also provides a set of terms that can be used to illustrate word parts, as in *meningi/oma*, *sub/dural hemat/oma*, and *hemi/paresis*. However, it has primarily served as a planning and analysis tool for teachers, who know that the words are included in the study materials, with the expectation that students will acquire most of them through their Moodle-based and classroom studies.

Our new software, Hi-Lex, offers students more autonomy in the way they learn vocabulary by allowing them to create personalized word lists. For those studying medical English, it enables them to store the vocabulary items from the MEWL and other general word lists, while providing them with a spaced-repetition learning tool<sup>20</sup> for periodic review of stored items. The spaced-repetition style of vocabulary review is found in other vocabulary learning applications, such as Quizlet, Anki and Duolingo. However, Hi-Lex has a unique process for retrieving information about a word, and then storing them for future review. Learners copy and paste language from a text (browser text, PDF, word document, etc) into a window and Hi-Lex will then display a list of words and confirm whether they appear on the word lists contained in the system. Using this information, students can then store the words that they wish to learn for future review. It is believed that this feature will increase learner efficiency as it was not previously possible to process these tasks in a single application. Furthermore, the in-house application allows researchers to retrieve user data such as the word lists, time spent using the software, and materials used to generate the word lists. Obtaining this data from a commercially available software would not likely be possible (Figure 1).

Regarding the preparation of the MEWL for Hi-Lex, in addition to a translation of each term, the FLARE research team provided sentences for each item by using ChatGPT, then carefully reviewed and edited the sentences it provided. Once this process was complete, the word list was input into the Hi-Lex system. However, it is important to note that at the time of this study, the Hi-Lex system could only deal with single items of vocabulary and not multiword terms. Consequently, only 1,100 single-word items in the MEWL were included in the system.

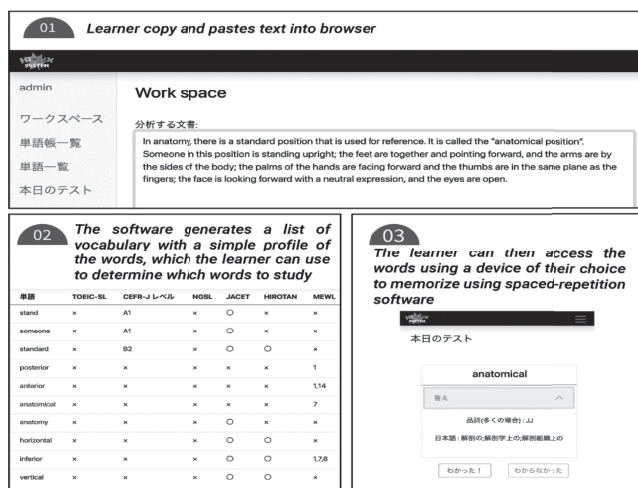


Figure 1. Steps in creating a personalized word list

## 2. Methods

### 2.1 Groups and materials

This small-scale study took place with two groups of students (October/November, Term 3; and December/January, Term 4). Each group took a course that covered seven units of material in the following order:

1. Anatomy: planes, terms of location, and views
2. Central nervous system (brain)
3. Circulatory system (heart)
4. Pulmonary system (respiratory tract)
5. Skeletal system (knee joint)
6. Digestive system (alimentary canal)
7. Endocrine system (pancreas and thyroid)

Except for the approach to the Hi-Lex system, both groups were taught similarly, using the same pre-prepared PowerPoint slides and materials. Unit PDFs, along with accompanying multiple-choice and matching tasks, were provided on Moodle for both groups, and students were expected to complete the tasks during the course. Moodle scores for each student could be downloaded after the final class.

### 2.2 Participants

For both groups, the students were introduced to and registered on the Hi-Lex system in the initial fifteen minutes of the first class. Forty students were registered on the system at the beginning of Term 3 and 28 students were registered for Term 4. As students choose when to take the course, there was a disparity in the numbers of students attending in Term 3 and Term 4. The most important difference between the two groups was in relation to the Hi-Lex system.

### 2.3 Approach to the Hi-Lex system

In Term 3, the Hi-Lex system was introduced at the beginning of the first class, and students were left to use it as they pleased. For the Term 4 group, Hi-Lex was introduced

at the start, and students were guided on how to use it at the end of the first few classes. They were instructed to copy and paste essays and dialogues from a unit into the system for analysis and select words to learn. They were given 10 to 15 minutes at the end of each class to store words on the system.

The reason for the difference in the two approaches was mainly due to the learning needed by the instructor. The uploading of the MEWL items was finished very close to the start of Term 3, and although the instructor knew the basic principles of Hi-Lex, he had no experience of using it. Various discussions took place in Term 3 between the instructor and the developer on how to use the system effectively and give guidance in class.

### 2.4 Research questions

Given the different approaches to the Hi-Lex system for the two groups, the research focuses on two main questions:

1. What impact does guidance have on recording words in Hi-Lex?
2. What words do students select when reviewing the taught materials on Hi-Lex, and which frequently selected words are included in the MEWL?

### 2.5 Data collection

Data for the study were collected by downloading the stored lists into Excel files for the Term 3 and Term 4 groups. From these spreadsheets, it was possible to see how many students had used the system in each group. For students who had stored only one or two items, these were considered to be cases of non-use. For the stored lists in the two courses, maximum and minimum values were noted, and means and standard deviations were calculated. For each group, all the items were collated onto a single spreadsheet and sorted alphabetically. Given the small amount of data, frequency counts for each item were recorded manually, and the items were then sorted by frequency, from the highest to the lowest. High-frequency items were then reviewed.

## 3. Results and analysis

### 3.1 What impact does guidance have on recording words in Hi-Lex?

Unsurprisingly, the results between the unguided use of Hi-Lex in Term 3 and the guided use of Hi-Lex in Term 4 show a marked difference. Although 40 students were registered on the system in Term 3, only six students (15 percent) actually used it. In contrast, out of 28 students in Term 4 who were registered, 18 students (64 percent) used it (Table 1).

While it is a much better uptake, this is still low, given that 10 to 15 minutes of class time were allocated to Hi-Lex use. One possible interpretation of this result is that the 10 students who did not use Hi-Lex opted to spend the

**Table 1. Percentage of registered students who used Hi-Lex**

|        | Registered no. of students | Students that used Hi-Lex |
|--------|----------------------------|---------------------------|
| Term 3 | 40                         | 6 (15%)                   |
| Term 4 | 28                         | 18 (64%)                  |

**Table 2. Data of word lists stored by students**

|        | Average number of stored words | Max. number of stored words |
|--------|--------------------------------|-----------------------------|
| Term 3 | 741                            | 1058                        |
| Term 4 | 115                            | 498                         |

time focusing on Moodle tasks set up for the course, some of which were vocabulary based.

Another difference between the two groups concerns the selection of items. For the unsupervised group (Term 3), the average number of words recorded by the six users was 741, and the maximum number of words recorded by a single student was 1,058 (Table 2).

As a comparison, it is worth noting that in preparing the MEWL, the research team recorded 914 items for the seven units without removing duplications. For the Term 4 group of 18 students, the average number of stored words was 115 with the maximum number of words recorded being 498.

The frequency counts of words also indicate that students in Term 3 were not being selective, with 417 vocabulary items having the maximum frequency of six. Two of the terms with maximum frequency were *answer* and *box*, indicating that the students had copied and pasted parts of the PDF that were not relevant to medical English. These included the regular rubrics, examples being *Write the correct numbers next to the medical terms in the box*, *Read and listen to the essay*, and *Answer the questions*. It was easy to select all the items that Hi-Lex listed through clicking a button, and this appeared to be what students were doing. Consequently, with the small number of users and the large number of high-frequency terms, the data from Term 3 were judged to be unsuitable for analysing the words that students selected, and the second research question addresses the Term 4 data.

### 3.2 What words do students select when reviewing the taught materials on Hi-Lex, and which frequently selected words are included in the MEWL?

In Term 4, the instructor advised students to copy and paste essays and dialogues in the units into Hi-Lex, then to quickly scan the listed words and store those that they wanted to learn. He illustrated this on screen in the classroom several times during the course.

As noted above, the participation rate of the students was much higher (64 percent) than in Term 3 (15%), and the words stored were much more oriented towards medical English. The highest frequency count for an item (*fuse*) was 12, and for analysis, all words with a frequency of five and over have been included. These provide a reasonable

number of items (105). Also, the frequencies are likely to be affected by the sequence of units taught. High-frequency items tend to come from the earliest units covered, and a different sequence of taught units might affect the frequencies. However, in our analysis, we are mainly looking for categories of terms that interest students but are not in the MEWL, although in some cases the analysis may provide us with a particular item that should be added.

Of the 105 words, 85 were identified by Hi-Lex as belonging to the MEWL, leaving 20 items for investigation:

*cerebral, reference, refer, resonance, anchor, consequently, vertical, dementia, ridge, canal, lace, groove, pylorus, range, sulcus, residual, beneath, tuberculosis, upright, within*

As we have noted, there were problems with the inputting of multiword terms at the current stage of development of Hi-Lex. Five terms, *cerebral, resonance, vertical, canal, and residual* appear in the 1,750-item MEWL in multiword terms such as *cerebral infarction, magnetic resonance imaging, vertical plane, alimentary canal, and residual air*. Four items, *ridge, groove, sulcus, and tuberculosis*, are single-word items that did not upload into Hi-Lex during its first use for medical English. Two technical terms, *dementia* and *pylorus*, do not appear in the MEWL. While *dementia* was mentioned in the CNS unit but not elaborated on, interestingly, *pylorus* – although it was stored by five students – does not appear in the unit materials at all.

The remaining 13 items give an indication of a category of terms that students wish to learn, but that are not listed in the MEWL: *reference, refer, anchor, consequently, lace, range, beneath, upright, within*. These nine non-technical words, which make up 8.6 percent of the 105 words analyzed, appear in the following sentences:

- In anatomy, there is a standard position that is used for *reference*.
- The cardiovascular system is *referred* to as a closed double system.
- The tough fibrous outer layer is the dura mater. It is fused to the skull at various points, and so *anchors* the brain. Below this is the arachnoid (spider-like) membrane, which is *laced* with blood vessels and is in contact with the dura mater.
- Modern scanners can take up to 320 simultaneous cross-sectional images. *Consequently*, they are used to obtain axial sections of the body.
- Doctors can use a *range* of imaging techniques.
- *Beneath* the cranium there are three layers of tissue, called the meninges.
- Someone in this position is standing *upright*; the feet are together and pointing forward, and the arms are by the sides of the body.
- The adult human brain weighs about 1.5 kg and sits *within* the cranial cavity.

## 4. Discussion

### 4.1 Integrating Hi-Lex into taught classes and Moodle

The trial of Hi-Lex shows the importance of teacher guidance in relation to introducing new software. The software is designed for students to make their own judgments on what they know and do not know, and to focus on the terms they really want to learn. Hi-Lex has tasks that recycle terms to the students to help with learning. However, if a stored list consists of terms that a student already knows, then the student is initially faced with checking many familiar terms, which is likely to reduce motivation. This is a problem in relation to the spaced-repetition function of the software, which has not been a focus of this study. With teacher guidance, the students produced much more targeted lists. A problem, however, remains with the relatively low participation rate of 64 percent for a system that was used in class. One reason for this may be that there is no link between the Moodle system and the Hi-Lex system, with the Moodle system containing the main materials and tasks. Linking the Hi-Lex system to Moodle would make it much easier to access.

### 4.2 Single-word terms and multiword terms

In this small study, it has only been possible to load single-word items onto Hi-Lex. A positive result has been that 85 out of the 105 high-frequency terms (81 percent) were identified as being MEWL items, and once checked against the full MEWL that includes multiword terms, the list of items rises to 90 (86 percent). It seems likely that students looked to see if an item was in the MEWL on Hi-Lex and then decided if they knew it or not.

Currently, the research team is working on how the system can be adapted to recognizing multiword terms from the MEWL. The alternative is, where possible, to break down the multiword terms. For example, in the trial, it was surprising that *cerebral* was not identified as part of the MEWL by Hi-Lex, although it occurs in seven multiword items in the list. Breaking down these items would aid students in understanding many multiword terms. However, this might not be effective for items such as *round window*, *tibial plateau*, or *Adam's apple*. Also, the multiword terms may be conceptually easier to learn, as many help with the mapping of the body, examples being *inferior vena cava*, *dura mater*, and *hepatic portal vein*.

### 4.3 Technical and non-technical terms

Students are clearly interested in some non-technical terms. In this study, 8.6 percent of the analyzed words were non-technical, which raises the question of whether there are key non-technical items that should be added to the MEWL, or whether they are part of the natural process of learning English. For example, an item that students stored was *anchor*. Although it is useful for them to investigate it,

it may not be particularly important to learn in comparison to technical words, and students using Hi-Lex can make their own decisions about it. Similarly, *lace* may not be so important to learn. In contrast, technical terms are very important for directing focus on precise medical concepts. For example, if a doctor uses the term *aortic arch*, then medical interlocutors immediately know which part of the body is under discussion. The use of Hi-Lex itself allows students to explore non-technical language that they think is important.

## 5. Conclusion

In this paper, we have reported on a small study involving two groups of medical students storing words on a software system that incorporates a medical English word list. The importance of guiding the students in how to use the software can clearly be seen between the results from the two groups. Additionally, a provisional result from an analysis of the most frequent terms stored on Hi-Lex indicates that students tend to record terms that the software lists as being on the MEWL, but that they also like to record non-technical terms with which they are not so familiar. Although these non-technical terms do not need to be added to the MEWL, the Hi-Lex software gives the students the opportunity to store and learn those items that they find difficult on their Hi-Lex word lists.

The study has also provided insight into some of the challenges of using a medical English word list for software that processes text to create a list of words from which students can select those they want to learn. At this stage in the development of Hi-Lex, it has not been possible to incorporate multiword terms. The software design is being reviewed to see whether multiword terms can be included.

The results of our small-scale study indicate that, while vocabulary lists are useful for medical students, it is also important for them to make their own decisions on the terms that they learn. In some cases, these are not necessarily the ones that a materials designer would choose. In the next stage of the research, the improved version of Hi-Lex will be linked to Moodle, used with an entire cohort of medical students, and incorporated into classroom teaching. In that study, data on the extent to which students use spaced-repetition software to reinforce their learning will also be investigated.

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# Medical Terminology: A Short Course

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When I first started working for a medical university many years ago, I knew nothing about medicine, and by nothing, I mean zero, nada, nichts, nani mo nai. I had been hired by a medical university to teach general English, particularly writing, to first-year students. So, naturally, when the university administration approached me a few years later to ask if I could create a medical English program for them, I said, "Of course, I can." Armed with totally unproven confidence, I set out to learn something about medical English. The university had already picked a standard English-language medical textbook for the program, I just had to study it and I'd be all set. But, one problem quickly became apparent. The textbook was full of difficult words, almost as if it had been written in a foreign language. I tried looking up the words in a dictionary as I encountered them, but that soon became tedious. What was a lazy person like me to do? Learning medical terminology was the answer. I went on Amazon and searched for books on medical vocabulary and discovered *Medical Terminology: A Short Course* by Davi-Ellen Chabner. It had good reviews, so I ordered a used, written-in copy for ¥300, including shipping, and it was the best ¥300 yen I've ever spent.

This book is the short version of *The Language of Medicine* by the same author, and the two books have some chapters in common. It is written so that even beginners can understand it, and it teaches the reader, in gradual and logical steps, how to learn medical vocabulary. The first chapter shows the reader how to analyze medical terms and break them down into their separate word parts. It also presents several dozen commonly-used roots and a few suffixes and prefixes to give the reader practice in

understanding words by their parts. Later chapters add more word parts and cover more specific topics such as terms pertaining to the body as a whole, how suffixes and prefixes are used, terms for medical specialties, and terms for body systems. However, it is the appendices that I find the most useful. At the back of the book is a mini-dictionary, a glossary of the meaning of word parts, and a glossary of the word parts that go with different meanings. Whenever I see a medical term that I know as a whole but do not know the specific meanings of its word parts, I check the glossary.

The book does have one flaw, which is that it is not complete. Being a "short course" based on a much thicker book, it had to omit a lot of medical terms. I sometimes find that this book does not have a term or word part that I want to look up. The tradeoff is that this book is also much thinner and lighter than other medical terminology books, which are mostly too heavy to carry around regularly.

The biggest strength of this book is that it is full of exercises that help the reader practice and learn. While the book works well for self-study, it works equally well as a classroom text. I used it very successfully as a first- and second-year text at my university, and even a teacher without much prior knowledge of medical terms can use this book and learn along with the students without the students realizing that the teacher is also a novice.

I generally do not like to use published texts, preferring to write my own teaching materials, however, *Medical Terminology: A Short Course* is an exception. I am sure that many of the readers of this journal are already familiar with this book and may even use it in their own programs. If you are not aware of this book, though, please give it a look.