

令和5年度研究ステーション研究成果報告書

※学科・専攻を超えた、或いは研究室の枠を超えた複数のメンバーによる組織的な研究活動について記載してください

1. 研究ステーション名 イノベティブ理工系英語教育研究ステーション
研究代表者名（所属部局・職・氏名） 共通教育部・教授 Shi Jie（史傑）

2. 研究組織(今年度関わった全ての構成員を記してください。)

<学内構成員>

電気通信大学	大学院情報理工学研究科	共通教育部	准教授	上原寿和子
電気通信大学	大学院情報理工学研究科	共通教育部	教授	鈴木勝
電気通信大学	大学院情報理工学研究科	情報・ネットワーク工学専攻	教授	村松正和
電気通信大学	大学院情報理工学研究科	情報・ネットワーク工学専攻	教授	植野真臣
電気通信大学	大学院情報理工学研究科	情報・ネットワーク工学専攻	教授	芳原容英
電気通信大学	大学院情報理工学研究科	情報・ネットワーク工学専攻	教授	肖鳳超
電気通信大学	大学院情報理工学研究科	基盤理工学専攻	准教授	清水亮介
電気通信大学	大学院情報理工学研究科	情報学専攻	准教授	金路

<学外構成員>

国際基督教大学・Temple University, Japa John Maher
青山学院大学 Charlie Robertson
成蹊大学 藤田玲子
多摩大学・電気通信大学 YU Yan
東洋大学 Uma Maheswari Rajagopalan
筑波大学 Sonia Sharmin
東海大学・電気通信大学 橋本信一
慈恵医科大学 中村直子
創価大学 Forrest Nelson
東京大学 Tito Akintele
University of Sussex, UK Nobuyuki Oishi
Fudan University, China CAI Jigang
Beijing Foreign Studies University SUN Youzhong
Beijing Foreign Studies University LI Liwen
Huazhong University of Science and Technology DU Jianying
Hubei University of Technology GAO Xiao
Sichuan International Studies University WANG Yin

3. 令和5年度の研究の特筆すべき成果

(研究の主な成果、得られた成果の国内外における位置づけとインパクトなどの点から記述すること)

The main achievement of the research station this year revolved around the following: organized two research seminars inviting international famous researchers and educators to UEC, supporting curriculum merging of general education English courses and Undergraduate Technical English, research on machine translation, and survey with department teachers. Among the above aspects, the survey on the teachers' feedback on the English education at UEC was carried out last November, the result of which has been given back to the department teachers and will be reported to the whole university at an FD event next year. The responses from 61 professors were extremely valuable due to the large population and will be published internationally at academic conferences.

The research on Cognitive Studies including machine translation and ChatGPT is an advanced one among English professionals gaining more recognition from translation studies professionals globally. In 2024, Shi has been invited to give several talks on AI-assisted machine translation at several international conferences held at University of California in San Diego, USA, University of Inner Mongolia, China, Oxford University, UK, Kuala Lumpur, Malaysia (AILA), Shanghai Maritime University, China and Xi'an International Studies University, China, among others. Cognitive Translation is also an important area of research for both machine translation and ESP education. The former imitates the process of the former and shows both advantages and disadvantages. The research conducted in this area by Shi tries to decode the process of the AI-Assisted Translation (AIAT), Simultaneous Speech Translation (SimulST), Computer-Assisted Translation (CAT). The former two areas hold novelty as it is a combination of human translation process and the teaching of it to machines, or AI, at a deep level. The research on AIAT is hugely recognized by the human translation researchers and practitioners in and outside of Japan. Being the first researcher of this area from the language education and translation fields, Shi's research is considered to be a pioneer one and is expected to be developed further. ChatGPT poses a serious challenge to English education at large due to its intelligence, usefulness, and availability. To embrace or reject this new technology divides English educators globally. Hence, the novelty of this topic and its gravity attracts researchers of English greatly.

The research on ESP and global English education trends is diversified but continues to be the main areas of IGTEE Research Station. Serving the education of the English language at UEC and beyond remains to be the main purpose of the research station. The involvement of full-time and part-time faculty of UEC and the researchers of other universities is of great importance to educational programs and research activities. The research achievements listed below demonstrate the academic activities conducted by other members of the research station. The research conducted by other members of the research station will be reported duly.

4. 令和5年度の研究成果の公表実績

(主催した研究会・シンポジウム、研究成果の発信状況等)

① **The 27th Research Seminar of the Research Station for Innovative & Global Tertiary English Education (IGTEE), UEC Tokyo**

Date: Jul. 15, 2023, Saturday 15:00 - 16:30

Venue: East 1-705, Meeting Room

Presentation 1:

Title: Exploring the impact of AI-integrated tools on EFL teaching and learning: a case study of incorporating ChatGPT and DeepL in an ESP/EAP course

Presenter: SHI Jie, TEO Wen Shen, the National University of Electro-Communications

Abstract:

In the past year, the rapid advancement of AI technology has generated significant attention in society. Its implications in tertiary education have triggered debates due to the powerful capabilities it possesses and the absence of well-established social and academic regulations. Consequently, the integration of AI-integrated tools into classroom instruction has also become a topic of controversy. These tools, such as ChatGPT and DeepL, offer technological strengths but also raise social, ethical, and security concerns, which has contributed to many teachers' reservations. However, the critical stance towards AI integration in teaching may impede students' learning process by intentionally avoiding the tools useful for academic improvement. The objective of this study is to investigate students' experiences using ChatGPT and DeepL in an ESP/EAP course at a Japanese university of science and engineering. Specifically, it focuses on how these tools are used to enhance students' reading and writing skills. The study reports various strategies employed by the teacher, including vocabulary expansion, language enrichment, and genre recognition and analysis. In addition, the study examines both the advantages and limitations of utilizing AI-integrated tools to support the teaching of research-based reading and writing. Moreover, the study highlights the potential drawbacks associated with students' excessive reliance on AI technology and underscores the need for a responsible and integrated approach leveraging the expertise of English teachers. With a carefully designed pedagogy, teachers can unlock the full potential of AI-integrated tools, thereby fostering students' effective and sustainable learning experiences.

Presentation 2:

Title: Explorations in the use of ChatGPT for brainstorming and topic refinement in the prewriting process of an English for Specific Academic Purposes writing class

Presenter: Robert Gommerman, Chuo University

Abstract:

In an English for Specific Academic Purposes (ESAP) writing class, students produce written work on topics focused on their field of study, using language in a way that is specifically oriented to the language commonly used in their discipline. However, this can be a challenge for students in the early stages of their studies, as they have not completely

internalized the important concepts within their chosen area. This can be a significant obstacle for some students, especially during the brainstorming and topic selection stage of the writing process. This presentation explores the use of generative artificial intelligence as a tool for brainstorming ideas and facilitating topic development in an ESAP writing class. By leveraging large language models, such as ChatGPT, students can generate a wide range of creative ideas and potential research topics within a specific field of study. This information can then be used as a basis for further reading and research, helping students overcome a difficult step in the writing process. This presentation also examines the limitations and ethical considerations associated with the use of generative AI in this way, emphasizing the importance of critical thinking, human judgment, and responsible use of the technology. While generative AI shows promise in facilitating brainstorming and topic development, it should be used as a complementary tool alongside traditional research methodologies, fostering a collaborative approach that combines the strengths of human creativity and AI capabilities to enhance academic writing processes.

Presentation 3:

Title: Exploratory use of ChatGPT as an aid to understanding answers to standardized English test questions in a graduate level ESP course

Presenter: Shin'ichi Hashimoto, Tokai University

Abstract:

Guidelines for the use of generative AI tools are taking shape in various forms across many aspects of our lives. In order to familiarize students with the beneficial aspects as well as the limitations of such tools, hands-on experience with specific learning content is one of the fastest ways to achieve this. The presenter will outline ways in which ChatGPT is used in graduate school Engineering English classes and report student feedback gathered through an in-class survey on their thoughts about the experience.

② 科研費(基盤研究 (B)) : 工学系の大学院生のためのライティングについての研究

工学系 4 大学における英語教育の現状と課題 (グローバルに活躍する工学技術者の育成に必要な英語教育とは)

Date: Nov. 29, 2023, Wednesday 13:00 - 15:00

Venue: University of Electro-Communications (UEC)

③ **The 28th Research Seminar of the Research Station for Innovative & Global Tertiary English Education (IGTEE), UEC Tokyo**

Date: Jan. 27, 2024, Saturday 15:00 - 16:30

Venue: East 1-705, Meeting Room

Presentation 1:**Title:** Beyond Grammar-translation: Nursing Students as Communicative Readers and Writers**Presenter:** Peter Collins, Tokai University**Abstract:**

ESP students at Japan's colleges and universities are expected to interact with academic content by drawing on both their linguistic knowledge and their communication skills. Many of them, however, are hindered by the wide gap between their traditional grammar-translation backgrounds and their potential as ESP users (Collins & Suzuki, 2018). This presentation will outline a three-phase reading-writing component created to help bridge that gap for students in a required Nursing Academic English course. Over the course of a semester, the students individually read a series of 450-word essays on engaging topics not covered in the textbook. These include types of problem patients and cross-cultural issues nurses may face in their interactions with patients. Phase 1 sees students individually identifying key content and target language with scaffolding provided by graphic organizers (Parrish, 2018). In Phase 2, they confirm what they have learned, first with a group and then with the whole class. Finally, in Phase 3, students draw on their own experiences, opinions, and ideas to respond in writing to the content of the essays. One reading-writing sequence will be shared, along with sample student writing outcomes. Predictably, results were mixed, but the sample outcomes show how the sequence enabled some to think critically about content, willingly communicate their own perspectives, and autonomously recycle vocabulary and expressions from the readings.

Presentation 2:**Title:** Optimizing Learning Outcomes: Student Research Projects with Graded Readers**Presenter:** Catherine Cheetham, Tokyo University**Abstract:**

Content-based learning can be an enriching and enjoyable experience for learners. However, for those learners with limited language skills, the prospect of academic content in a foreign language can be intimidating to say the least. The question, therefore, should not be whether content-based learning is possible, but rather how to best utilize materials to increase analytic thinking, cross-cultural understanding, and motivation. This presentation will draw upon a case study that examined student's reading and research practices using both simplified and unsimplified content-based texts. The findings suggest that content-based graded readers in comparison to unsimplified texts provided the learner not only with comprehensible vocabulary, sentence structures, and key ideas, but also a framework that they could relate to and adapt to their learning outcomes. In addition, using content-based graded readers significantly lessened the learner's reliance on translation software and allowed them to increase their overall research practices in the target language.

This presentation will outline the various steps of a collaborative research project that uses content-based graded readers. In step one, students share resources and compare notes with a universal note-taking template. In step two, students summarize their findings using a summary

template. Lastly, in small interactive groups, students present their findings. The project outcomes show how the stages assist students to research in the target language without relying heavily on translation software. Tips will be offered for replicating this kind of research project in an ESP classroom.

5. 外部資金の獲得状況

(種別・種目・相手機関(企業)・研究題目・代表者名・直接経費額・間接経費額)
なし。

6. 今後の研究発展

(外部への発信、外部資金獲得計画を含む)

IGTEE Research Station support the new English Minor system of UEC and provide academic backup to increase theoretical validity. IGTEE Research Station will continue to build strong cooperation among members and collaboration with other research organizations and communities in Japan as well as overseas. We will carry on with the research and educational activities on innovative English education especially for students of science and engineering. The core group of the English teachers will first work on the teaching methodology for remote teaching focusing on the curricular goals realization, collaborative education, student achievement evaluation, and teaching materials development for tele-lecturing. The research station is planning on organizing a symposium or a panel with the JACET ESP Kanto for which Shi Jie is serving as the advisor. Research presentations on members' individual research areas will be supported continuously. Depending on the pandemic situation around the world, more participation in international presentations is expected.

7. 発表論文等 (各項目ごとに記載してください。)

「雑誌論文」：著者名・論文標題・雑誌名・査読の有無・巻・発行年(西暦)及びページ
(研究ステーション長の業績のみ)

「学会発表」：発表者(代表)名・発表標題・学会等名・発表年月日・発表場所

Shi, J., Needs Analysis in EAP Contexts: Universities in the Panel of the Role of Needs Analysis in English for Specific Purposes. TESOL Convention. 2023. Portland, USA (virtual attendance).

Shi, J., Syllabus Design for Teaching Research English Writing and Presentation in Students' Disciplinary Domains of Science and Engineering at the Postgraduate Level in Japan. 57th RELC International Conference: Rethinking English Language Teaching and Learning for a COVID-19 Endemic World: Global, Glocal and Local Perspectives. 2023. Singapore (virtual attendance).

「招待講演発表」：発表者(代表)名・発表標題・学会等名・発表年月日・発表場所

- Shi, J., Disciplinary Specialists' Perspectives on the Problems and Needs of the English Abilities of Japanese Students of Science and Engineering. The Fifth Conference of JAAL in JACET. 2022. Osaka, Japan.
- Shi, J., Machine Translation Advancement and Symbiosis between Humans and Machines in Machine Translation Post-Editing. International Symposium on Translation Communication and Intercultural Studies. July 27, 2023. Nanyang Technological University, Singapore.
- Shi, J., Progress in AI-Assisted Translation Technology and the Synergy of Human-Machine Collaboration in Machine Translation Post-Editing. China Association for Comparative Studies of English and Chinese (CACSEC). October 15, 2023. Dalian University of Technology, China.
- Shi, J., Progress in AI-Assisted Translation Technology and the Synergy of Human-Machine Collaboration in Machine Translation Post-Editing. 2023 International Symposium on Building and Integration of a Foreign Discourse System: Translation and Interpretation in New Contexts, New Meanings, and New Prospects. November 15th, 2023.
- Shi, J., Embodied Cognitive Education: Theories and Practice in Tertiary Education. The 5th Symposia on Embodied Linguistics and the 4th Forum on Embodied Translatology. November 26, 2023. Chengdu, China.
- Shi, J., Recent Advances in Human-Machine Interaction Technology and Its Integration into Machine Translation Post-Editing. 2023 High-Level Forum on Translation Technology and Language Service Professional Development. December 2nd, 2023.
- Shi, J., Examining the Technological Underpinnings of Machine Translation: Universal Applicability across Textual Genres. The 4th Cross-Cultural and Interdisciplinary Postgraduate Innovation Forum and the Annual Conference on Language, Literature, and Translation. December 10th, 2023.

「図書」：著者名・出版社名・書名・発行年(西暦)及び総ページ数(共著の場合、最初と最後のページを記載)

- Shi, J. (2023). Pedagogical Design to Enhance Research Writing Competencies in Japanese Graduate Students of Science and Engineering in Collaboration with Disciplinary Faculty. *ESP 工学英語研究の展開*. 金星堂. pp. 216-235.

「受賞」：授与団体・受賞者(代表者)名・受賞標題・受賞年月日

- Best Paper Award from the Chinese Association for Comparative Studies of English and Chinese for the paper: "Machine Translation Advancement and Symbiosis between Humans and Machines in Machine Translation Post-Editing." July 31, 2023. Singapore.

「特許出願」：出願した特許の名称・発明者・権利者・種類・番号・出願年月日・国内

外別

「その他」：ホームページ等