令和元年度研究ステーション研究成果報告書

１．研究ステーション名　　　　　　イノベー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。）

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電気通信大学　非常勤講師　Adam Dabrowski

３．　令和元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 Research Station for Innovative and Global Tertiary English Education (IGTEE)　made great efforts to realize the research and educational goals. Main research results were achieved both in and outside of the country by the members of the IGTEE.

The main achievement of the research station this year revolved around the following: consolidating the results of the educational program of the Undergraduate Technical English (UTE) as an excellent ESP program, curriculum improvement of the Graduate Technical English (GTE) course, Cognitive studies on translation and education, and CALL (Computer-Assisted Language Learning). Among the above aspects, the first half of the academic year focused very much on the GTE surveys that were created to investigate on graduate students' needs and expectation of the course before the start of the course, their feedback on the course in the middle of the semester and their holistic evaluation of the course at the end of the course. In addition, a survey on the teachers' feedback on the GTE course was carried out in order to find out the general evaluation of the course that they taught, their role as a teacher and participation in the course and what they felt that the course could be improved by. The surveys on students showed relatively positive feedback toward the course, while the teachers' survey showed the mixed feelings toward the course though most teachers presented supportive thoughts on the course and their participation and showed positive motivation to improve the course in future. These results were presented at international conferences by some members of the IGTEE Research Station as well as the former Vice-President for Academic Affairs of UEC, Professor Koji Abe.

The research on Cognitive Studies by the main researcher, Jie Shi, was divided into two areas, Cognitive Learning and Education and Cognitive Translation. The former has to do with learning strategies, mental process of linguistic acquisition, and educational methods that can incorporate cognitive studies such as psychology and neuro-sciences. Adult language education which depends on imitating first-language acquisition is not entirely suitable for second language or foreign language context in which learners face disadvantages such as early stage of learning, time constraints, poor communication environment, and lack of motivation in knowledge-based learning. Hence, this area of study is extremely crucial for the learners of English in Japan at university level and above. Efficiency, effectiveness and autonomy are three of the many goals of learning that depend on methodology for self-study as well as teacher-assisted study. Cognitive Translation is a very important area of research for both human translation and machine translation. The latter imitates the process of the former and shows both advantages and disadvantages as compared with the former. The research conducted in this area by Shi tries to decode the process of the AI-Assisted Translation (AIAT) and Computer-Assisted Translation (CAT). The former holds 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 welcome to 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.

The research on ESP and global English education trends continue 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 Associate Professor of the English group and Technical English Section, Suwako Uehara, conducted research on students' survey with a part-time teacher of the GTE team of the Department of Engineering Science, Alexandra Terashima, and has made tremendous contribution to not only the departmental course but also the entire university. Their research was published in the invited Japan Panel at the　3rd Annual Conference of Asia ESP & the 8th Chinese National Conference on ESP along with the papers presented by Yan YU, Shin'ichi Hashimoto, SHI Jie and Robert Gommerman. This panel was the highlight of the conference and was highly evaluated.

４．令和元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.　　**IGTEE 研究会(co-organized with JACET ESP KANTO) No. 1**
Date:　Jul 20, 2019 (Sat)　15:00 〜17:00
Venue:　Room 15501 (5th Floor), Gaucher Building No. 15, Aoyama-Gakuin University

Presentation:
Utilization of AI and ICT in Teaching Worldviews for Effective 21st Century Learning
Professor Hiroyuki Obari, Aoyama-Gakuen University

Abstract:
A constructivist approach to flipped learning inspires students to activate their brains to create new knowledge and to reflect more deeply and consistently on their learning activities where twenty-first century skills with the 8Cs of effective communication are emphasized in the learning process. One of the critical 8Cs is to learn how to coexist with AI. In the present study, two case studies were carried out for the purpose of enabling students to experience weak AI using smart speakers in the L2 learning process. The focus was on evaluating the use of AI speakers such as Google home mini and Amazon echo dot to determine their effectiveness in improving the English skills of native Japanese undergraduate students. The technologies used included Google Home mini, ATR CALL Brix, Facebook, Line, and online materials related to worldview studies. The first empirical study was conducted with a goal of examining the overall effectiveness of the program in improving the

TOEIC test scores of a target group of Japanese students. The investigation was carried out from September 2018 to January 2019, targeting 24 third-year undergraduates who were divided into eight groups, four using Google home mini and four using Amazon echo dot. The participants were required to study their favourite English language programs for four months using AI speakers and to conduct a diary study, sometimes while shooting their studies with a smartphone. Finally, at the end of the training program, students of all eight groups delivered presentations about their research activities using AI speakers with flipped lessons, as well as provided feedback on the study, including its limitations. TOEIC pre- and post-training results (n=24) indicated the training program had assisted the students in improving their overall English proficiency with the help of the AI speakers during the four-month training period, especially their listening comprehension. Additionally, a post-course survey revealed a majority of the participants responded favourably toward the use of AI speakers as a part of their daily life in studying English, and 88% felt its effectiveness had revolutionized their way of learning English. In this presentation, the future use of AI in 21st century learning will be discussed through the results of the target case study.

Keywords: AI, EFL, 21st century skills, Google home mini, Echo dot, TOEIC

2. IGTEE 研究会(co-organized with JACET ESP KANTO) No. 2
Date: Oct 19, 2019 (Sat)   15:00 ～17:00
Venue: University of Electro-Communications (UEC Tokyo), Building East 1, Room 602 (UEC Tokyo, 1-5-1 Chofugaoka, Chofu, Tokyo, 182-8585)

Presentation1:
ESP for Engineering Graduate Students at Tokai University
Rich Bailey, Tokai University (Shonan Campus)

Abstract:
In response to the Tokai University Engineering department's concerns regarding the English levels of their graduate students, two semester-long (14 weeks, once-a-week) ESP courses were created: Technical English for Engineers (TEfE) [required] and English Presentation for Engineers (EPfE) [elective]. While the original unified TEfE syllabus has been phased out in favor of teacher-selected textbooks and a new TOEIC focus, EPfE has evolved over time, especially to meet the needs of different student levels and an increase in international students. The presenter will explain the various curricular aspects of TEfE/EPfE courses including syllabus design, the use of supplemental materials, pedagogical activities, and successes and challenges of the implementation of the courses.

Presentation2:
An analysis of preliminary student performance data in an EMI program for economics and business management majors: Are we overstating the importance of prior English proficiency?

Robert Gommerman, Chuo University

Abstract:

In the last few years, several universities in Japan have opened departments with courses and entire programs instructed exclusively in English. As these programs become more popular, it is important to understand the extent to which English proficiency at the onset of studies can predict performance in content classes where instruction, course materials, and support are delivered entirely in English. Data from a newly created business department at a respected Japanese university suggest that prior English ability could not predict performance in two core subjects (Introductory Economics and Business Management). Despite having low English proficiency scores, many students were able to achieve high grades in both subjects, while some students with high proficiency scores did not perform well. While this analysis is still in the exploratory phase, the findings so far could have significant implications for the viability of EMI programs in Japan, and criteria for admission to such programs.

3. IGTEE 研究会(co-organized with JACET ESP KANTO) No. 3
Date: Jan 11, 2020 (Sat) 15:00 〜17:00
Venue: Room 15501 (5th Floor), Gaucher Building No. 15, Aoyama-Gakuin University

Presentation:

Program Innovations: International Communication for Scientists and Engineers

Associate Professor Charles E. Robertson and Professor David W. Reedy, Aoyama Gakuin University

Abstract:

This presentation details how a college of science and engineering of a major private university in Tokyo attempted to incorporate major changes to its English curriculum that had been in place for over 20 years. Six years into the reformed program, the presenters will illustrate an array of improvements in a department not well-known for its commitment to English education, specifically: implementation of a comprehensive freshmen orientation, integration of a department-wide e-learning system, class streaming based on a standardized test, administration of pre-tests and post-tests, operation of credit-bearing study abroad programs, application of a strict EMI policy, and a CEFR-based curriculum utilizing an EGP to EAP to ESP strategy. The increased promotion of English education has contributed to changes in student attitudes and performance as well as the calibre of incoming freshmen. Students are now aware that English is a crucial element of their tertiary education and that resources are available to assist them to improve their English language skills, including English for science and engineering. The presenters believe that these students now strive for an identity as global scientists and engineers and that the new curriculum, which promotes ESP, has increased learner motivation and autonomy.

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）

1. 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
   代表者：名古屋工業大学 石川優香教授

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 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 colloquium or a panel on remote teaching along with the JACET ESP Kanto for which Shi Jie is serving as the chair for. Training for teachers who are not familiar with remote teaching as part of the CALL (Computer-Assisted Language Learning) methodology is also an important part of the first half of the academic year. Research presentations on members' individual research areas will be supported continuously. In the second half of the academic year and depending on the travel situation around the world, presentations at international conferences will be scheduled bringing the research results of the research station on English education to the international English education and professional education communities.

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
「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 Jie, "The advancement of AI-Assisted Translation: Is it overtaking human translation?", The International Symposium on Translation, Interpreting and Cognition in the Context of Innovation in a Global Vision & the 6th CATIC Conference, 2019 年 4 月, Keynote Speech, Fudan University, Shanghai, China.

SHI Jie, "Cognitive learning construction in EFL curriculum design", The First International Conference on Embodied Cognitive Linguistics, 2019 年 11 月, Keynote Speech, Sichuan International Studies University, Chongqing University, Chongqing, China.

「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

Hashimoto, Shin'ichi, "Student attitudes toward gamification as an approach to vocabulary learning", The 3rd Annual Conference of Asia ESP & the 8th Chinese National Conference on ESP, 2019 年 11 月, Chongqing University, Chongqing, China.

Gommerman, Robert, "An analysis of the relationship between English proficiency and final scores in an international business EMI program: to what extent does English proficiency predict performance in content classes?", The Chinese Association for English for Academic Purposes, 2019 年 4 月, Fudan University, Shanghai, China.

SHI Jie, "Curricular Challenges in ESP Presentation Program for Graduate School Students of EST in Japan", The 3rd Annual Conference of Asia ESP & the 8th Chinese National Conference on ESP, 2019 年 11 月, Chongqing University, Chongqing, China.

Uehara, Suwako, Alexandra Terashima, Jie Shi, "Needs Analysis for Graduate School Technical English Course Design and Materials Development", The 3rd Annual Conference of Asia ESP & the 8th Chinese National Conference on ESP, 2019 年 11 月, Chongqing University, Chongqing, China.

YU Yan, "Instructional Design and Implementation of Academic Writing Tasks for Undergraduate Students of Science and Engineering", The 3rd Annual Conference of Asia ESP & the 8th Chinese National Conference on ESP, 2019 年 11 月, Chongqing University, Chongqing, China.

Yue Zhang, Jie Shi, Shuhua Xu, Jürgen Kurths, Zhoumi Li, Po Hu, Ling Fu, "Bridging EAP Curriculum and EMI Needs of EST Undergraduates of an International Education Program in China", The 3rd Annual Conference of Asia ESP & the 8th Chinese National Conference on ESP, 2019 年 11 月, Chongqing University, Chongqing, China.

「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 Jie, CAI Jigang, DU Jianying, LI Liwen, "ESP/EAP Development and Practices at Chinese Universities: Growing amid challenges (Chapter 10, pp 106-114) in Towards a New Paradigm for English Language Teaching". 2019 年 11 月, Routledge.

「受賞」：授与団体・受賞者（代表者）名・受賞標題・受賞年月日
「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