

Centers

Center for Language Research



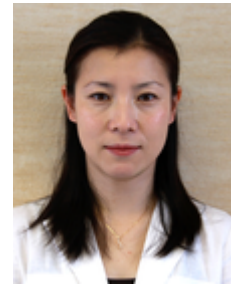
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The Center for Language Research (CLR), in the School of Computer Science and Engineering, was established the same year as the University of Aizu (1993) to contribute to the development of professionals in computer science, computer

engineering, and related fields. CLR professors carry out research and teaching of successful language use in academic and workplace contexts – in particular, the use of English for academic and professional purposes. Our research focuses on language theory, use, pedagogy, and acquisition, as well as on supporting educational technologies. Grounded in this research, we provide innovative English language training to University of Aizu students primarily at the undergraduate, but also at the graduate level. All students at the university, both undergraduate and graduate, are computer science majors, but they must write and present their theses in English, so CLR professors teach students the skills that are necessary for writing a research paper and presenting it in English.

At the undergraduate level, along with 1st- and 2nd-year core courses in the 4 skills (reading, writing, speaking, and listening), the CLR provides a variety of interesting elective courses for 3rd- and 4th-year students; offerings in AY2016 included Design of Human Languages, Pronunciation: Comparing English & Japanese Sound Systems, Analysis of English Sentence Structure, Language and Linguistics, Music and Language, English Grammar for Test Preparation, Computer Assisted Ethnomusicology, Advanced English Grammar, Reading Fluency, Writing & Design for E-learning, Presentation Skills, Writing in the Workplace, Language in Manga, Japanese Pop Culture through English, Writing and Design with Lego, Digital Storytelling for Engineering Narratives, Experimental Methods and Statistics for Linguistics, Pronunciation: Acoustic Analysis Using Software, and English through Communicative Media.

At the graduate level, courses offered include Computer-Assisted Language Learning, Technical Writing in Software Engineering, Information Technology Society & Values, Multinational Business Communication, and Speech Articulation & Acoustics.

CLR faculty members are also extremely active in research, as is attested by our high success rate in obtaining national, prefectural, and internal research grants. For details, please see individual professors' websites linked to the University of Aizu homepage. We welcome inquiries from researchers in Japan and overseas regarding opportunities to collaborate with us. Our homepage can be found at <http://www.u-aizu.ac.jp/labs/clr/>

Refereed academic journal

[brine-402-073-01:2016] Brine J. Roy, D. and F. Murasawa. Usability of English note-taking applications in a foreign language learning context. *Computer Assisted Language Learning*, 29(1):61–87, March 2016.

The act of note-taking offloads cognitive pressure and note-taking applications could be used as an important tool for foreign language acquisition. Its use, importance, and efficacy in a foreign language learning context could be justifiably debated. However, existing computer-assisted language learning literature is almost silent on the topic. This article reports on a controlled experiment introducing usability of note-taking applications (namely, Evernote, Memonic, SpringPad, Ubernote, and Keeppy) in English as foreign language (EFL) learning context. For pilot testing, 25 students had to complete five scenarios (text editing, entering persuasive content, sharing content, searching, and organizing) using Twitter as a tool similar to note-taking applications. Results suggest that the majority were comfortable with the tasks, although they could not complete all the tasks in the stipulated time, and certain tasks and features in Twitter caused difficulty for some students. The actual testing involved the 10 best candidates (based on their performance, when using Twitter) completing tasks (five scenarios similar to pilot analysis) with any two assigned note-taking applications, from a set of five. Participants were observed, video-recorded, and interviewed concurrently and retrospectively. They also completed perception-based questionnaires on the usability of the software. Data suggested that participants were comfortable opening accounts, typing in text, with general navigation, choosing photos, etc. A few features, such as web clipping and file uploading, caused problems for some participants. Most participants reported having no prior experience with any note-taking applications and that resulted in longer task completion time and errors. This study examines how technically oriented students reflect on using note-taking applications in an EFL learning context.

[dovchin-402-073-01:2016] Sender Dovchin. The ordinariness of youth linguascapes in Mongolia. *International Journal of Multilingualism*, 2017.

Drawing on varied offline and online contexts, this article indicates that youth linguistic diversity in contemporary Mongolia is better understood from the perspective of 'the ordinariness of linguascapes'. The notion of 'linguascapes' is important in capturing the rising complexity of youth mixed language prac-

tices fundamentally produced by the amalgamation of transnational linguistic resources that are intersecting with other social landscapes.

- [dovchin-402-073-02:2016] Sender Dovchin. The role of English in the language practices of Mongolian Facebook users: English meets Mongolian on social media. *English Today*, 2017.

Drawing on the linguistic practices of Facebook (FB) users in Mongolia, this article illustrates how multiple local meanings are produced in the local context of Mongolia, while English oriented linguistic resources are assimilated and injected into the local language, Mongolian.

- [dovchin-402-073-03:2016] Sender Dovchin. Uneven distribution of resources in the youth linguascapes of Mongolia. *Multilingua*, 2017.

Drawing on offline and online casual interactions in the context of youth in Mongolia, on the Asian periphery, this article looks at youth mixed language practices from the perspective of linguascapes in order to capture the current flows of transnational linguistic resources in relation to other social landscapes

- [dovchin-402-073-04:2016] Sender Dovchin. Translocal English in the linguascope of Mongolian popular music. *World Englishes*, 2017.

This paper seeks to contribute to the current discussion of world Englishes by revealing the seamless English language incorporation in the linguascope of the popular music scene of post-socialist Mongolia, a context that has been rarely addressed in previous research.

- [dovchin-402-073-05:2016] Sender Dovchin and Shaila Sultana. Popular Culture in Transglossic Language Practices of Young Adults. *International Journal of Multilingual Research*, 2017.

Based on virtual conversations drawn from two separate intensive ethnographic studies in Bangladesh and Mongolia, we show that popular cultural texts play a significant role in young adults' heteroglossic language practices.

- [droy-402-073-01:2016] Debopriyo Roy. Understanding Visual Systems and Patterns in Technical Illustrations. *Canadian International Journal of Social Science and Education*, 6(177-186), NA 2016.

A unique study on understanding visual systems and patterns in technical illustrations

Summary of Achievement

[droy-402-073-02:2016] Debopriyo Roy. Task-based EFL Language Teaching with Procedural Information Design in a Technical Writing Context. *Cogent Education / Taylor and Francis Online*, 4(1), January January 2017.

Task-based language learning (TBLL) has heavily influenced syllabus design, classroom teaching, and learner assessment in a foreign or second language teaching context. In this English as foreign language (EFL) learning environment, the paper discussed an innovative language learning pedagogy based on design education and technical writing. In this TBLL course, the language learning based assignments centered on designing and analyzing objects using various computer-aided design software and physical LEGO toolkit. The design software was used collaboratively and the design analysis was done mostly as group activities. The language production activities centered on technical document authoring, using collaborative online authoring tools for website hosting and note-taking for design projects, besides oral in-class presentations, and online posting in English. Language reception activities such as readings related to the course lectures, videos, assignment, and assessment instructions were hosted and linked from Moodle-the learning management system. This paper critically analyzed student performance with physical LEGO design and CAD software, including how student groups authored websites detailing the structural and functional specifications related to the product assembly procedure. This paper outlined how design pedagogy could be included in the curriculum while teaching English as a foreign language. In the process, students not only learnt about design fundamentals, but how to author complex technical documents in English. Findings based on course data and class interactions have adequately demonstrated that students were capable of handling the task-based language projects with reasonable efficiency and confidence.

[droy-402-073-03:2016] Debopriyo Roy and Stephen Crabbe. An investigation into the efficacy of technical illustrations depicting physical orientation in sports procedures. *Cogent Social Sciences*, 2017.

Taylor and Francis <https://www.cogentoa.com/article/10.1080/23311886.2017.1375591.pdf>
Scopus Indexed

[droy-402-073-04:2016] Debopriyo Roy. Developing a Project-Based CALL Environment with Technical Communication in an Exploratory 3D Printing Context. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)*, 7(2), 2017.

<https://www.igi-global.com/article/developing-a-project-based-call->

environment-with-technical-communication-in-an-exploratory-3d-printing-context/188772 Scopus Indexed

[jblake-402-073-01:2016] J. Blake. Hidden conversation killers. *English Language Teaching Ideas Journal*, 1:19–24, 2016.

[jblake-402-073-02:2016] J. Blake. Harnessing keyness: A corpus-based approach to ESP material development. *OnCue*, 92(102-110):102–110, 2016.

[kaneko-402-073-01:2016] Kaneko E. Rozycki, W. and Danielewicz-Betz. Presentation of STEM research at international conferences. *Language and Cross-Cultural Communication Studies*, 1(1):51–80, 2016.

What exactly are the practices of presenters at international conferences in science, technology, engineering and mathematics (STEM)? This paper reports on observations at ten such conferences, held in Asia, Europe, and the US. A subset of four of the conferences was selected for measurement of body orientation to audience and for determining the ratio of spoken words to slide text words; questions arising from this data were then tested by using proxy audiences. Results indicate that the average word count per slide for all ten conferences is 55.2 words. Presenters at the subset of four conferences had an average body orientation of 129.5 degrees in relation to the audience, which means that, on average, presenters oriented slightly more to the screen than to the audience. Proxy testing of two contrastive styles of presentation in a controlled setting showed no difference in audience comprehension, regardless of whether the presenter read the text directly from the screen, or faced the audience and spoke more naturally. However, proxy audience members reported more interest and enjoyment when the presenter faced them and spoke without reading the slide text.

[kimusik-402-073-01:2016] Kim Rockell. Incorporating Music in CALL: An exploratory study establishing a protocol for Computer Assisted Language Learning Incorporating Music (CALLiM). *AsiaCALL Journal*, 11(A):18–42, 2016.

Research in fields such as cognitive science, anthropology and sociolinguistics strongly support the importance of the music/language nexus, while in the language classroom, music is increasingly recognized as a valuable education tool. Interesting studies, such as Franzblau’s computer-aided learning system employing a pitch tracking line, and Lenz’s system for learning music using a computer game, have potential application to music in CALL. However, very

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few studies have addressed the combination of music, language and computers directly. This paper reports on a recent, Japan-based, exploratory study, which probes the affordances and constraints of incorporating music in a CALL environment, establishing a protocol for computer assisted language learning incorporating music (CALLiM). Approaches used previously without a computer are applied to CALL, to help discover the key functionalities and sustainable approaches that assist in learning a language through music in a digital age. Reflective practice, auditor intervention and diary work inform data collection and analysis. The study reveals a number of interesting contradictions that arise when moving from a pre-CALL to CALL environment. It also sheds light on issues that impact on searching and sampling, vocabulary learning strategies, and developing comprehension skills and cultural competence when incorporating musical strategies. With Ilocano song lyric texts as a point of departure, the importance of employing varied rhythmic drills and featuring music as a component of rich input (RI) is also highlighted by the study. Keywords: CALL, music, reflective practice, self-directed learning, Ilocano.

Refereed proceedings of an academic conference

[brine-402-073-02:2016] D. Roy and J. Brine. Using design pedagogy with Lego and CAD software in a task-based English-as-foreign-language teaching context. In *Proceedings of the INTED 2017 International Conference*, volume 1, pages 1042–1050. International Academy of Technology, Education and Development, IATED, March 2017.

Task-based language teaching (TBLT) has heavily influenced syllabus design, classroom teaching and learner assessment in foreign language teaching contexts (Nunan, 2004; Skehan, 2009). This paper discusses an innovative English as Foreign Language (EFL) undergraduate course, which incorporated task-based assignments, design education, project management and technology-enhanced language learning. In this course, the language learning assignments centered on designing and analyzing objects using CAD software such as Autodesk 123D Design, BuildwithChrome and the Tinkercad. Following real in-class physical LEGO assembly, design software was used collaboratively to develop further design analysis and procedural understanding. Students met both individually and as group activities centered on technical document authoring. Google Drive, and Schoology (learning management system) were used extensively during the course. This paper outlines a task-based technical commu-

nication course and explains how students worked on real LEGO design, and then co-authored engineering reports detailing the structural and functional specifications documenting the assembly procedure. The paper also considers how LEGO-based 3D design principles can be taught in an EFL classroom. Students were not only taught design, but also how to author complex technical documents in English. This innovative approach with TBLT involves learner-driven active learning so that hands-on interaction with physical objects takes place before theoretical instructions are provided (Blikstein, 2013). Incorporating collaborative design pedagogies using real (physical) and virtual (online) LEGO design, and DV (digital video) to develop language learning coursework that promotes active learning.

- [brine-402-073-03:2016] D. Roy and J. Brine. 3D printing for multidisciplinary education: a technology with diverse potential. In *Proceedings of the INTED 2017 International Conference*, volume 1, pages 1000–1010. International Academy of Technology, Education and Development, IATED, March 2017.

The invention of 3D printing is giving rise to a new era of innovation and creativity in manufacturing. The widespread integration of 3D printing into myriad processes and industries is taken as an indication this is the beginning of a new industrial revolution. Reminiscent of the first industrial revolution, educational changes are likely to accompany this vast transformation of work and society. New educational needs for succeeding generations are becoming apparent. For example, the specialization of industrial production into separate processes which is made possible through 3D printing, will require educational changes that prepare future generations for inclusive manufacturing and bringing marginalized society into the mainstream. In this new society, 3D printing should be understood not only as a technology, but also as a social instrument that will require new ways of thinking and co-operating.

- [brine-402-073-04:2016] Vazhenin A. Bateson, G. and J. Brine. A graphical interface for awarding incremental points for digital badges in an English village reward system. In *Proceedings of the INTED 2017 International Conference*, volume 1, pages 2060–2067. International Academy of Technology, Education and Development, IATED, March 2017.

This paper describes the design and implementation of a graphical interface for awarding small numbers of points to students rapidly and repeatedly. The points accumulate and contribute toward digital badges which are used as the mechanism for recording and recognizing achievements in an English village

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project at a university in Japan. Hitherto, standard grading interfaces in leading open-source Learning Management Systems (LMSs), such as Moodle, have not been suitable for awarding incremental points for two main reasons. First, there is the difficulty of locating a student in a vertical list of names that is ordered alphabetically and potentially spans several pages. Second, in order to award incremental points in systems that only store a total number of points, it is necessary for the teacher to perform some mental arithmetic when awarding points and increase the current total by the incremental amount. To address these two issues, the new interface represents students graphically, as icons that are arranged on the computer screen to correspond to the physical location of the students in the classroom. The teacher simply taps or clicks the student icons to award points, which are then added to any points awarded previously. Thus, points can be awarded quickly and with minimal interruption to communication. In order to support these features, while at the same time adhering to Moodle's standard internal programming protocols, an innovative scheme of data passing was developed. When the page first loads, information from each student's profile is combined with the details of the icon locations and number of points awarded so far and is sent to the browser as a standard Moodle HTML form. Once in the browser, JavaScript is used to rearrange the form elements and present them as a graphical interface. This interface was developed as the first stage of a project to nurture an English village community in Japan, in which an entire university campus is transformed into an English-speaking community. It was trialled in two main teaching environments. These were: (1) small-groups of up to 8 students attending voluntary, out-of-hours English conversation classes in a seminar room, and (2) medium-sized groups of up to 40 students attending compulsory general English classes in a university classroom. During the trials, it became apparent that the interface could be used not only for awarding incremental points but also for awarding scores for non-incremental tasks such as exams or reports. Furthermore, in response to teacher feedback, the interface was modified so that it could be used with Moodle's Advanced Grading methods, including Rubrics and Marking Guides. Overall, the points interface proved to be a useful, reliable and popular method for awarding points within Moodle because it simplifies the task of locating students, reduces typing, and reduces the number of page loads. Thus, it can be said to have achieved the objectives of awarding points quickly and unobtrusively and it can now become a central technology in the larger goal of building an English Village based on digital badges.

[dovchin-402-073-06:2016] Sender Dovchin. Linguistic racism amongst youth gen-

eration. In *InASA Conference 2016*, 2016.

InASA Conference, Curtin University, Perth, Australia, December 7-9.

[dovchin-402-073-07:2016] Sender Dovchin. Uneven resources in the linguascape of young Mongolians. In *American Association of Applied Linguistics 2017*, 2017.

American Association of Applied Linguistics 2017, Portland, Oregon, USA

[droy-402-073-05:2016] Stephen Crabbe Debopriyo Roy and Ihor Lubashevsky. Importance of the Situational Context and Response in Memory Retention and Recall: Reader Performance in an English as a Foreign Language Learning Context Chapter 16. In *Language in Focus: Exploring the challenges and opportunities in Linguistics and English Language Teaching (ELT)*, number 255-274. Cambridge Scholars Press, UK, 2016.

Importance of the Situational Context and Response in Memory Retention and Recall: Reader Performance in an English as a Foreign Language Learning Context

[droy-402-073-06:2016] Debopriyo Roy and Stephen Crabbe. Devices and Techniques for Memory Retention in a Foreign Language Learning Context. In *Language in Focus: Exploring the challenges and opportunities in Linguistics and English Language Teaching (ELT)*, number 275-289. Cambridge Scholars Press, UK, 2016.

Devices and Techniques for Memory Retention in a Foreign Language Learning Context

[droy-402-073-07:2016] Debopriyo Roy. Using iPad for 3D Scanning, Design and Technical Documentation: A Perspective in Task-based Language Teaching. In *Proceedings of the ACM SIGDOC Conference, Washington DC*. ACM, ACM PRESS, 2016.

Roy, D. (2016). Using iPad for 3D Scanning, Design and Technical Documentation: A Perspective in Task-based Language Teaching. Proceedings of the ACM SIGDOC Conference, Washington DC. September 21-23. The primary research question in this paper revolved around the logistics and feasibility of using iPad to perform the processes related to 3D scanning, design and technical documentation for task-based English language learning in a non-native classroom environment. The project discussed the use of iPads to scan a physical object using iSense scanners, use CAD software apps to innovate on the

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design, upload it in Cubify design feed repository, perform rapid prototyping, and then send it off to the Cubify 3D printer. During this entire process, students are expected to use Google Drive app to write design specifications and short technical reports, use concept-mapping app to draw product design blueprints, and illustrate idea sketches for usability studies using the iPad. We used a pilot study and experiment to analyze the feasibility and logistics of the proposed course design. Preliminary observations from this pilot study suggested that iPads could be used effectively and seamlessly to integrate the technology and the technical documentation processes. This pedagogical model is likely to help us teach innovative technical communication courses.

[droy-402-073-08:2016] Debopriyo Roy. 3D Printing-based Initiatives in a Developing Economy Context: A Holistic Approach. In *Proceedings of the IEEE-ACM Chapter ICIIT Conference, Colombo, Sri Lanka*. IEEE Student Chapter and ACM Chapter on Elearning and Technical Communication, ICIIT, 2016.

ICIIT 2016 is not only an opportunity to academically explore new frontiers in technological applications in a developing economy context, but should help us realistically reflect, foster and better analyze issues on e-management, e-governance and implementation of tech ideas, and in the process, innovative entrepreneurship and leadership could be expected to flourish. Such efforts can be a starting point towards building a smart digital community with optimal intellectual and financial investment. This paper discussed 3D printing as the next industrial revolution and a platform that provides us with numerous opportunities to explore, invent and implement business ideas with a modest approach and maximum potential in a low-cost environment for local manufacturing to take off. In this context, the paper discussed an academic research proposal that was funded to support the revitalization of the Fukushima economy in the aftermath of the 2011 natural disaster in Japan. The proposal discussed an approach in 3D printing that could be largely adapted in a South Asia context to develop knowledge capital with task-based language teaching and project management skills.

[droy-402-073-09:2016] Debopriyo Roy. Task-based Technical Communication with 3D Printing-based Initiatives in a Foreign Language Teaching Context. In *Proceedings of the Annual Technical Communication Symposium, Kyoto, Japan*. JTCA, JTCA, 2016.

Roy, D. (2016). Task-based Technical Communication with 3D Printing-based

Initiatives in a Foreign Language Teaching Context. Proceedings of the Annual Technical Communication Symposium, Kyoto, Japan, October 8-10.

[droy-402-073-10:2016] Debopriyo Roy and Takako Yasuta. 3D Printing in Technical Communication. In *Proceedings of the Annual Technical Communication Symposium, Kyoto, Japan. Frontier Technical Communication Symposium*. JTCA, JTCA, 2016.

Roy, D. and Yasuta, T. (2016). 3D Printing in Technical Communication. Proceedings of the Annual Technical Communication Symposium, Kyoto, Japan, October 8-10.

[droy-402-073-11:2016] Debopriyo Roy and John Brine. USING DESIGN PEDAGOGY WITH LEGO AND CAD SOFTWARE IN A TASK-BASED ENGLISH AS FOREIGN LANGUAGE TEACHING CONTEXT. In *INTED2017 PROCEEDINGS*, pages 1042–1050. INTED, March 2017.

In many countries around the world such as New Zealand and Vietnam, task-based language teaching has been propagated by national governments as a major pedagogical tool and a favored approach for second and foreign language teaching (Branden, 2016). Long (1985) argued that in many second and foreign language contexts, language was taught in a piecemeal and decontextualized fashion. This approach was argued to be superficial and not reflective of how individuals learn language. A possible solution lies in not only focusing on meaning alone when teaching a foreign language, but by focusing on language as object. Students should learn while experiencing problems as they work on communicative tasks that are driven by their own internal syllabus, current processing ability and ability to learn. Such an idea leads to task-based language teaching. Some East Asian education systems such as Japan are gradually adjusting to student populations who can communicate adequately in English, and the syllabi are incorporating principles of communicative language teaching (CLT) and task-based language teaching (TBLT) (Littlewood, 2007). Task-based language teaching (TBLT) has heavily influenced syllabus design, classroom teaching and learner assessment in foreign language teaching contexts (Nunan, 2004; Skehan, 2009). This paper discusses an innovative English as Foreign Language (EFL) undergraduate course, which incorporated task-based assignments, design education, project management and technology-enhanced language learning. In this course, the language learning assignments centered on designing and analyzing objects using CAD software such as Autodesk 123D Design, BuildwithChrome and the Tinkercad. Following real in-class physical LEGO assembly, design software was used collaboratively to develop further

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design analysis and procedural understanding. Students met both individually and as group activities centered on technical document authoring. Google Drive, and Schoology (learning management system) were used extensively during the course. This paper outlines a task-based technical communication course and explains how students worked on real LEGO design, and then co-authored engineering reports detailing the structural and functional specifications documenting the assembly procedure. The paper also considers how LEGO-based 3D design principles can be taught in an EFL classroom. Students were not only taught design, but also how to author complex technical documents in English. This article considers an innovative task-based language teaching approach where a context is built around active learning such that hands-on interaction with physical objects in a classroom is encouraged before theoretical instructions are incorporated. This project is an innovative attempt to incorporate collaborative design pedagogies using real and virtual LEGO design so that language learning coursework is developed that includes active learning (Blikstein, 2013). Data about individual and group assignment scores in the course will provide a summarized understanding of student performance. Incorporating collaborative design pedagogies using real (physical) and virtual (online) LEGO design, and DV (digital video) to develop language learning coursework that promotes active learning.

[droy-402-073-12:2016] Debopriyo Roy and John Brine. 3D PRINTING FOR MULTIDISCIPLINARY EDUCATION: A TECHNOLOGY WITH DIVERSE POTENTIAL. In *INTED2017 Proceedings*, pages 1000–1010. INTED, INTED, March March 2017.

The invention of 3D printing is giving rise to a new era of innovation and creativity in manufacturing. The widespread integration of 3D printing into myriad processes and industries is taken as an indication this is the beginning of a new industrial revolution. Reminiscent of the first industrial revolution, educational changes are likely to accompany this vast transformation of work and society. New educational needs for succeeding generations are becoming apparent. For example, the specialization of industrial production into separate processes which is made possible through 3D printing, will require educational changes that prepare future generations for inclusive manufacturing and bringing marginalized society into the mainstream. In this new society, 3D printing should be understood not only as a technology, but also as a social instrument that will require new ways of thinking and co-operating. This article presented a summarized idea of how 3D printing could be successfully integrated as part

of coursework in different disciplines such as math, science, history, geography etc. But just as it is important for engineers, historians, geologists, scientists, mathematicians, architects, technologists and other specialists to further develop 3D printing technology and its application, it will be important for social scientists such as economists, business managers and language teachers to explore how this new industrial revolution will usher in a new social environment. Economists should investigate how 3D-printed related new business ideas and models could be explored, invented and implemented. Management coursework could explore how additive manufacturing-related processes might diversify and simplify group collaboration and coordination, production schedule, process and information management. Language teachers should research how procedural information about 3D printing-related processes could be executed and documented seamlessly following the technical writing principles. Academic departments can make use of 3D printing to initiate multidisciplinary approaches to teaching technology, social sciences, and human communication. Such a holistic approach to education will be the basis for reconceptualizing education for business process management and teamwork, and instigate new approaches to promote innovation, marketing and leadership. In the globalized context of international trade and business, language teaching in real-life scenarios will help to prepare students for language use in multi-cultural business and industrial contexts. Such a multidisciplinary approach will help students critically analyze both the opportunities and pitfalls that are integral to the 3D printing revolution aimed at international development and humanitarian response. This article made an attempt to address the following two fundamental questions related to 3D printing: (1) How could 3D printing-based processes, technology and socio-economic implications be taught as part of a wide range of university coursework? and (2) specifically, how could 3D printing be taught as a focused topic in disciplines such as economics, language studies and management?

[droy-402-073-13:2016] Debopriyo Roy and Stephen Crabbe. 3D printing with critical thinking and systems design: an innovative approach to task-based language teaching in technical communication. In J. Colpaert, editor, *CALL 2017 Proceedings (pp. 650-657)*, University of California, Berkeley, San Francisco, USA., pages 650–657. CALL, CALL, 2017.

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[droy-402-073-14:2016] Debopriyo Roy. 3D Printing for Task-based Language Teaching in an EFL Context. An Innovative Pedagogical Approach to

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the Teaching of Technical Communication. In *Abstract Proceedings of the CALICO 2017 International Conference, Flagstaff, Arizona*. CALICO, CALICO, 2017.

Abstract Proceedings of the CALICO 2017 International Conference, Flagstaff, Arizona.

[jperkins-402-073-01:2016] C. Shu, I. Wilson, and J. Perkins. Revisiting the interlanguage speech intelligibility benefit. In C. Carignan and Editors M. D. Tyler, editors, *Proceedings of the 16th Speech Science and Technology Conference*, pages 157–160. 2016 ASSTA, 2016.

Bent and Bradlow (2003) first discovered evidence for an interlanguage speech intelligibility benefit, essentially non-native listeners finding similar-L1 non-native speech equally or more intelligible than native speech. We have refined their method by using 14 speakers from 7 languages (English, Chinese, Hindi, Japanese, Korean, Russian, and Vietnamese) and using reaction time (RT) to accented speech as a more sensitive measure of intelligibility than transcription tasks. Non-native participants (15 Japanese, 9 Chinese, and 6 Vietnamese) had significantly faster RTs to same-accent speakers than to other L2 speakers. L1 English participants had faster RTs to L1 English speakers than to L2 speakers.

[jperkins-402-073-02:2016] J. Perkins, S. J. Lee, and J. Villegas. An interplay between F0 and phonation in Du'an Zhuang Tone. In C. DiCanio, J. Malins, J. Good, K. Michelson, J. Jaeger, and Editors H. Keily, editors, *Proceedings of the 5th International Symposium on Tonal Aspects of Languages*, pages 56–59, 2016.

This paper undertook an acoustic study of the tone system of one speaker of Du'an Zhuang, finding that his tone system involved phonation contrasts in addition to F0 contrasts. It was found that two of the six tones in unchecked syllables involved significant creakiness near the midpoint of the vowel. These results suggest a phonological tone contrast that involves both F0 and creakiness. Among pairs of tones that differed in their phonation, significant differences in the timing of F0 fall were discovered. Additionally, the two creaky tones differed in the timing of the maximum creakiness. Future research could establish whether and to what extent Du'an Zhuang speakers utilize creakiness and F0, and their relative timing, in discerning between tonal categories. Production studies are needed with larger samples of speakers and perception studies are needed to confirm the contrastive roles of phonation and F0 in the Du'an Zhuang tone system.

- [kaneko-402-073-02:2016] E. Kaneko and A Hirai. Elicited imitation as oral practice in relative clause production. In *Proceedings of the Pacific Second Language Research Forum 2016*, pages 99–104, 2016.

This study reports the effectiveness of elicited imitation (EI) as L2 oral practice. The participants were Japanese learners of English from novice to intermediate low levels, and the target structure was the subject-type relative clause. The EI practice was provided over 11 weeks, and their accuracy, fluency and latency were compared between pre- and post-tests. The results indicate that the EI practice contributed to their faster and more accurate creation of relative clauses, presumably due to more rapid retrieval of their explicit knowledge, suggesting that EI can be effective oral practice for lower level EFL learners.

- [kaneko-402-073-03:2016] Hirokawa S. Kaneko E. Flanagan, B. and E. Izumi. Classification of Speaking Proficiency Level by Machine Learning and Feature Selection. In *Proceedings of the 22nd Annual Conference of Association for Natural Language Processing*, pages 785–788, 2016.

At present there are numerous publicly available language learning corpora. This analysis of these corpora can be useful for automatically extracting the characteristic features of learners from different proficiency level to support language learning research and the creation of educational resources. In this paper, we classify the transcripts of different levels of speaking proficiency found in the NICT-JLE (Japanese Learner English) corpus. In addition to the words of the transcript, the parts of speech were also analyzed. The characteristic features of learners who have the equivalent spoken proficiency of CEFR levels A1 through to B2 were extracted by analyzing the data with SVM (support vector machine). In particular, we apply feature selection to find a set of characteristic features that achieve optimal classification performance, which can be used to predict spoken learner proficiency.

- [wilson-402-073-01:2016] C. Shu, I. Wilson, and J. Perkins. Revisiting the interlanguage speech intelligibility benefit. In C. Carignan and Editors M.D. Tyler, editors, *Proceedings of the 16th Australasian International Conference on Speech Science and Technology*, pages 157–160. ASSTA, 2016.

Bent and Bradlow (2003) first discovered evidence for an interlanguage speech intelligibility benefit, essentially non-native listeners finding similar-L1 non-native speech equally or more intelligible than native speech. We have refined their method by using 14 speakers from 7 languages (English, Chinese, Hindi,

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Japanese, Korean, Russian, and Vietnamese) and using reaction time (RT) to accented speech as a more sensitive measure of intelligibility than transcription tasks. Non-native participants (15 Japanese, 9 Chinese, and 6 Vietnamese) had significantly faster RTs to same-accent speakers than to other L2 speakers. L1 English participants had faster RTs to L1 English speakers than to L2 speakers.

[wilson-402-073-02:2016] M. Gunji, I. Wilson, and J. Perkins. Reaction time of Japanese listeners to retroflex and bunched /r/ pronunciation by native English speakers. In *Journal of the Acoustical Society of America*, volume 140, page 3334, 2016.

In this study, we focus on Japanese learners' reaction time (RT) to retroflex and bunched pronunciation of /r/ in English words spoken by native English speakers. In junior high school, Japanese students generally learn only retroflex pronunciation of /r/. If there is a strong link between production and perception, we would expect those students to be able to perceive retroflex /r/ faster than bunched /r/. We carried out a forced-choice RT experiment for 30 native Japanese listeners and 4 native English controls. This experiment used 2 speakers' voices (both Canadian English) and 9 minimal pairs of /r/ and /l/ words. Stimuli were spoken words and picture-pairs (2 simultaneously-presented in each trial). Listeners had to identify the spoken word by choosing the left or right picture. As a result, we could measure whether it is easier to perceive sounds pronounced the same way you speak or not. From the results, we found that the RTs for retroflex and bunched pronunciation of English words spoken by native speakers were not significantly different, even for native listeners. In addition, overall accuracy rates were very low among the Japanese speaking participants (66.3%, compared to 99.7% for the English speaking participants).

[wilson-402-073-03:2016] S. Nemoto, I. Wilson, and J. Perkins. Analysis of the effects on pronunciation of training by using song or native speech. In *Journal of the Acoustical Society of America*, volume 140, page 3343, 2016.

This research is an investigation of whether Japanese speakers' English pronunciation improves more after training on sung or spoken speech. The stimulus was a 14-word sentence taken from one English song's lyrics, and it had some words that are difficult to pronounce for most Japanese English learners. Thirty Japanese learners of English were recorded before training. Then, half of them trained by listening to the English song and singing it, and the other half trained by listening to a native speaker speaking the lyrics. Each group was allowed to train individually for 10 minutes, and then were recorded

again. Then, 15 native or near-native English speakers at an American university and 100 native English speakers from Amazon Mechanical Turk evaluated those randomly-presented recordings. Listeners gave points for various phrases' pronunciation, the overall accent and the overall intonation. As a result, we found out that training by using the music condition resulted in generally worse results than the regular speech training. In addition, perhaps surprisingly, intonation of the whole sentence had an additional significant negative effect following music training. These results seem to show that training by using regular speech is more effective for English learners than training by using songs.

[wilson-402-073-04:2016] K. Suzuki and I. Wilson. Development of a visual app for improving learner's pronunciation with ultrasound and the Speech Accent Archive. In *Journal of the Acoustical Society of America*, volume 140, page 3343, 2016.

Although many language learners desire to improve their pronunciation of a foreign language, there are not many apps to help them do so. Most commercial apps for pronunciation evaluation and training focus on only the acoustic signal. However, few systems give visual movements of native speakers' lips, tongue, and jaw. In this paper, we describe the ongoing development of an app that is programmed in Swift for iPhone. The app incorporates and links together different kinds of phonetic data for the pronunciation learner – for example, recorded frontal and side videos of a native speaker's face during pronunciation with an ultrasound movie of the tongue moving in the mouth overlaid. The training text is a paragraph from the Speech Accent Archive. The initial version of this app has two systems. First, listening to English sentences by a native speaker and checking tongue movement with ultrasound. Second, this app has buttons that play from user-chosen words and it also plays in slow motion. The method of these systems may help people to learn a second language more easily and accurately by letting them shadow the audiovisual speech of a native speaker. This app will be demonstrated in front of the poster.

[wilson-402-073-05:2016] Y. Iguro, I. Wilson, and J. Villegas. Articulatory settings of English-French bilinguals reanalyzed by SS-ANOVA. In *Journal of the Acoustical Society of America*, volume 140, page 3222, 2016.

To improve the skill of speaking a second language (L2), one good way may be to be aware of the underlying tongue position for a language. We focused on such underlying position differences between English and French, particularly when pausing for a short time between speaking; something called inter-speech

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posture (ISP). In past research, Wilson and Gick investigated ISP between English and French spoken by bilinguals. In that research, bilinguals had distinct articulatory settings for each language, mostly in the lips. However, their tongue data was for only 4 points of articulatory settings: distance from the ultrasound probe to tongue root, tongue dorsum, tongue body, and tongue tip, but not overall shape. Furthermore, to measure tongue tip position, past research relied on the alveolar ridge, which is unclear to see: possibly making the results inaccurate for tongue tip. In this study, we analyzed the whole shape of the tongue and made models of them using SS-ANOVA in R so that we could compare the difference from past research using a different measurement method. Our results showed that bilinguals who are perceived as native in both languages have a different ISP in the posterior half of the tongue.

[wilson-402-073-06:2016] D. Erickson, J. Villegas, I. Wilson, Y. Iguro, J. Moore, and D. Erker. Some acoustic and articulatory correlates of phrasal stress in Spanish. In J. Barnes, A. Brugos, S. Shattuck-Hufnagel, and N. Veilleux, editors, *Proceedings of Speech Prosody 8*, pages 450–454, 2016.

All spoken languages show rhythmic patterns. Recent work with a number of different languages (English, Japanese, Mandarin Chinese, and French) suggests that metrically (hierarchically) assigned stress levels of the utterance show strong correlations with the amount of jaw displacement, and corresponding F1 values. This paper examines some articulatory and acoustic correlates of Spanish rhythm; specifically, we ask if there is a correlation between phrasal stress values metrically assigned to each syllable and acoustic/articulatory values. We used video recordings of three Salvadoran Spanish speakers to measure maximum jaw displacement, mean F0, mean intensity, mean duration, and mid-vowel F1 for each vowel in two Spanish sentences. The results show strong correlations between stress and duration, and between stress and F1, but weak correlations between stress and both mean vowel intensity and maximum jaw displacement. We also found weak correlations between jaw displacement and both mean vowel intensity and F1.

[yasuta-402-073-01:2016] Takako Yasuta. Introducing role language analysis to English writing. In Satoshi Kinsui, editor, *Papers from the International Workshop on Role Language and Character Language in 2015*, volume 1, pages 186–198. Osaka University, February 2016.

This poster session introduces how the language in Manga called role language can help unmotivated EFL learners to be motivated and successful students.

- [yasuta-402-073-02:2016] Debopriyo Roy and Takako Yasuta. Task-based Technical Communication with 3D-Printing-based Initiatives in a Foreign Language Teaching Context. In *Proceedings of the JTCA annual conference, Kyoto, October 7-9, 2016*. JTCA, October 2016.

Proceedings of the JTCA annual conference

- [youngheo-402-073-01:2016] Younghyon Heo. Developing L2 Prosodic Awareness: Shadowing with Visuals by Japanese Learners of English. In *Text and Language*, pages 271–278, 2017.

In this study, we developed a particular type of shadowing technique what we call PIST (Pause Intonation Stress pattern Training). It is an intensive and repeated shadowing training using both learners' phonological and visuo-spatial working memory. It is designed to develop the L2 prosodic awareness in production (short-term goal) and eventually help learners build up prosodic competence in English (long-term goal). It is similar to the traditional English shadowing in that learners orally reproduce target sentences after listening to model L2 sentence production but different in that prosodic components of target sentences are visibly marked/highlighted and presented to learners.

Writing a textbook or technical book

- [dovchin-402-073-08:2016] Shaila Sultana Sender Dovchin, Alastair Pennycook. *Popular Culture, Voice and Linguistic Diversity: Young Adults On- and Offline*. Palgrave: Macmillan, 2017.

Writing a part of textbook or technical book

- [droy-402-073-15:2016] Debopriyo Roy and Stephen Crabbe. *Importance of the Situational Context and Response in Memory Retention and Recall: Reader Performance in an English as a Foreign Language Learning Context*, volume NA, chapter 16, pages 225–274. Cambridge Scholars Press, UK, NA 2016.

Roy, D., and Crabbe, S. (2016). Importance of the Situational Context and Response in Memory Retention and Recall: Reader Performance in an English as a Foreign Language Learning Context. *Language in Focus*. Papaja. K and Can. C. (Eds.) Cambridge Scholars Press, UK.

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[droy-402-073-16:2016] Stephen Crabbe Debopriyo Roy and Ihor Lubashevsky. *Importance of teh Situational Context and Response in Memory Retention and Recall: Reader Performance in an English as a Foreign Language Learning Context*, volume NA, chapter 16, pages 225–274. Cambridge Scholars Press, UK, NA 2016.

Importance of teh Situational Context and Response in Memory Retention and Recall: Reader Performance in an English as a Foreign Language Learning Context

[kaneko-402-073-04:2016] Emiko Kaneko. *Gengo kenkyu to ryoteki approach [Linguistic research and quantitative approach]*, chapter Non-communicative na eigokotorensyu saiko [Revisiting non-communicative English oral practice], pages 19–31. Kinseido, 2016.

[wilson-402-073-07:2016] M. Miyashita, M. Irwin, I. Wilson, and T.J. Vance. *Rendaku in Tohoku Japanese: The Kahoku-cho survey*, chapter 11, pages 173–193. Sequential Voicing in Japanese: Papers from the NINJAL Rendaku Project (ISBN: 9789027259417). John Benjamins Publishing Co., Amsterdam, 2016.

Rendaku in many Tohoku dialects is manifested in the form of prenasalized voicing, and this paper provides a case study of rendaku in the dialect of Kahoku-cho, Yamagata Prefecture. After describing prenasalized voicing and its relationship to rendaku, the paper reports the results of a study conducted in 2012 on speakers of the Kahoku dialect. Prenasalization did not occur at all uniformly in the productions of the survey participants; there was considerable variation, both between speakers and between target words. Also, while sex and socio-economic group were not predictors, age was, with the oldest participant having the highest prenasalization rate. Given the complex social and historical situation regarding dialect use in Japan, the Kahoku dialect has undoubtedly been altered lexically, morphologically, and phonologically.

Research grants from scientific research funds and public organizations

[brine-402-073-05:2016] J. Brine. Digital Storytelling for Computer Science Team Project Documentaries, 2014-2016.

[jperkins-402-073-03:2016] J. Perkins. Kakenhi Grant-in-Aid for Young Scientists (Cat. B) - An Acoustic Typology of Creaky Voice, 2015-2017.

- [kaneko-402-073-05:2016] Emiko Kaneko. Development of sequenced picture prompts and the effects of their attributes on L2 speaking, 2016-2020.
- [wilson-402-073-08:2016] I. Wilson. University of Aizu Competitive Research Funding, 2016-2017.
- [yasuta-402-073-03:2016] Takako Yasuta. Kakenhi: Introducing role language analysis in teaching English academic writing, 2016.
- [yasuta-402-073-04:2016] Co-investigator: Takako Yasuta Principal investigator: Debopriyo Roy. Kakenhi: 3D Printing in Creative Factory Contexts for English Language Learning, 2016.

Academic society activities

- [kaneko-402-073-06:2016] Emiko Kaneko, 2016.
Chair of the Research Meeting Organization Committee
- [wilson-402-073-09:2016] I. Wilson, November 2016.
Invited Lecture, Articulatory settings of high- and low-proficiency second-language speakers. At the 5th Joint Meeting of the Acoustical Society of America and the Acoustical Society of Japan, Honolulu, USA.
- [wilson-402-073-10:2016] D. Erickson and I. Wilson, September 2016.
Refereed Presentation, The Acquisition of L2 rhythm: It's all in the jaw. At Pacific Second Language Research Forum (PacSLRF), Chuo University, Tokyo.

Advisor for undergraduate research and graduate research

- [jperkins-402-073-04:2016] Yuka Sato. Timing of the Lombard effect in the speech of Japanese learners of English in varying communicative tasks, University of Aizu, 2016.
Thesis Advisor: J. Perkins
- [wilson-402-073-11:2016] Akitsugu Nogita. PhD Dissertation: L2 letter-sound correspondence: Mapping between English vowel graphemes and phonemes by Japanese EAL learners, University of Victoria, Department of Linguistics, August 2016.

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External Examiner: I. Wilson

[wilson-402-073-12:2016] Shusuke Moriya. MSc Thesis: Ultrasound tongue image feature extraction for phoneme recognition, Graduate School of Computer Science and Engineering, March 2017.

Thesis Advisor: Prof. Y. Yaguchi, Referees: I. Wilson and Prof. K. Naruse

[wilson-402-073-13:2016] Kyori Suzuki. Graduation Thesis: A visual app for improving learners' pronunciation with ultrasound and the Speech Accent Archive, School of Computer Science and Engineering, March 2017.

Thesis Advisor: I. Wilson, Referee: Prof. M. Hamada

[wilson-402-073-14:2016] Saori Nemoto. Graduation Thesis: Analysis of the effects on pronunciation of training by using song or native speech, School of Computer Science and Engineering, March 2017.

Thesis Advisor: I. Wilson, Referee: Prof. M. Cohen

[wilson-402-073-15:2016] Mai Gunji. Graduation Thesis: Reaction time of Japanese listeners to retroflex and bunched /r/ pronunciation by native English speakers, School of Computer Science and Engineering, March 2017.

Thesis Advisor: I. Wilson, Referee: Prof. J. Villegas

Contributions related to syllabus preparation

[kaneko-402-073-07:2016] Reading and Writing 1 Reading and Writing 2 Reading Fluency Analysis of English Sentence Structure

[yasuta-402-073-05:2016] Created syllabi for Language in Manga, and Japanese pop culture through English.

[youngheo-402-073-02:2016] I created the syllbus for the following courses: Listening and Speaking 1, Listening and Speaking 2, Design of Human Languages and Presentation Skills.

Preparation of course examination to measure comprehension

[kaneko-402-073-08:2016] English speaking test for Chinese special admission

Contribution related to the creation of the annual schedule

[kaneko-402-073-09:2016] Chair of the CLR Curriculum Working Group

Contribution related to the selection of library or textbook materials

[kaneko-402-073-10:2016] Selection of graded readers for the extensive reading activities

Advisor of a student club or circle

[kaneko-402-073-11:2016] Badminton circle

Contribution related to on-campus/off-campus publicity work

[kimusik-402-073-02:2016] Contributed Japanese article to Fukushima no Shinro Kim Rockell Watashi no Kenyuu: Music as a tool for Language Education

Contribution related to educational planning management

[kaneko-402-073-12:2016] Academic affairs committee

Contributions related to regional education

[kimusik-402-073-03:2016] Gave a lecture to students at Aizu High School about my home country, New Zealand

[wilson-402-073-16:2016] Taught 'Culture Shock!' lecture for Aizu Senior High School students, part of the Project for Development of Future Global Leaders Who can Contribute to the Revitalization of Fukushima, September 2016.

[yasuta-402-073-06:2016] March 2017 Globalization of Japan: The importance of English, Spot lecture series at Aizu Gakuho Junior High School, Aizuwakamatsu-shi, Japan

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[yasuta-402-073-07:2016] December 2016. Are you learning English correctly? Spot lecture series at Aizu Gakuho High School, Aizuwakamatsu-shi, Japan

[yasuta-402-073-08:2016] December 2016. Presentation skills in English, Super Science High School Project at Aizu Gakuho High School, Aizuwakamatsu-shi, Japan

[yasuta-402-073-09:2016] July 2016. Globalization and cross-cultural understanding, Lecture for Fukushima Global Leader Project at Aizu High School, Aizuwakamatsu-shi, Japan

Did you participate in students recruitment, support the alumni, and/or contact with student's parent? (Yes or No) If yes, please describe what you did.

[wilson-402-073-17:2016] Gave a lecture at "Yumenavi Live" Tokyo on using cutting-edge technology for improving English pronunciation, July 2016.

[wilson-402-073-18:2016] Gave a lecture at "Yumenavi Live" Sendai on using cutting-edge technology for improving English pronunciation, October 2016.

Did you participate in Faculty Development? (Yes or No) If yes, please describe what you did.

[kaneko-402-073-13:2016] FD committee

Did you participate in Public Lectures, and/or Open Campus? (Yes or No) If yes, please describe what you did.

[wilson-402-073-19:2016] Participated in Open Labs in 2016.

[yasuta-402-073-10:2016] Let's try Korean! U of Aizu lecture series

Centers