

問題発見型／解決型学習(FBL/PBL)
 テーマ提案（学生募集内容） / Project Proposal

テーマ名称 Project name	Foreign Language Education++ 3
実施責任者 Instructors	Design Unit Specific Assistant Professor NITSCHKE, CHRISTIAN Design Unit Specific Associate Professor MURAMAKI, YOHEI Informatics Postdoctoral Researcher LALA, DIVESH KANU
実施協力者 Collaborators	ILAS Associate Professor KANAMARU, TOSHIYUKI
テーマの背景 Background	<p>With ongoing globalization, English language skills become more and more important. While Japan is a leading economy and global exporter, Japanese professionals are known for surprisingly low English ability even though at least five years of compulsory study. A more detailed investigation reveals that Japanese are not poor in English per se, but rather lack real-time oral communication skills. The previous courses in the FBL/PBL 「Foreign Language Education++」 series (https://foreignlanguagepp.wordpress.com) identified several major reasons, including cultural context, personal motivation, educational method, learning environment and lack of practice.</p> <p>The common practice in foreign language education (especially in Japan) follows the word-paired associate learning paradigm, memorizing associations between linguistic expressions and translations. However, as the philosopher Wittgenstein suggests, the meaning of language is defined by its use. Regarding the foreign language learning environment, it implies that the learner instead needs to learn a language as an association between the linguistic expressions and the situations in which they are used. A survey in cognitive psychology revealed that the paradigm of situation-based learning (SBL) is very similar to the way infants acquire their native language, and may also benefit situational communication in acquiring a foreign language.</p> <p>In 「Foreign Language Education++」, we designed the “English Karuta” game concept as an instance of this paradigm, with the design requirements of easy understanding, supporting different levels of difficulty, sustaining motivation and enabling communication. An evaluation showed that the concept is promising and fulfilling all design requirements, if realized with an automated technology-based approach.</p> <p>Along with the requirement for a technical realization of an SBL concept, we experience a rapid enabling development in computing technology, leading to a paradigm change towards ubiquitous computing, ambient intelligence and immersive environments. With the VR (virtual reality) booth at KRP we have an ideal environment to study, design and experiment with new technology and interaction concepts to create an immersive simulated reality.</p>

	<p>In 「Foreign Language Education++ 2」, we designed the concept of “Virtual Role-play in Immersive Interactive Environments”, with the design requirements of providing a secure learning environment without anxiety, and technology-supported multimodal communication, immediate feedback and situation adaption. Multimodal interaction is especially important, as it relates to the concept of Grounded Cognition in cognitive psychology. The concept proposes, that, as an experience occurs, the brain captures states across the modalities and integrates them in a multimodal representation in memory that is activated when the knowledge needs is accessed. Therefore, multimodal interaction could be important to facilitate a more effective, precise and fast-access memory representation that benefits situational communication.</p>
<p>実習の概要 Overview</p>	<p>The previous courses of this series, have mainly coped with the analysis of the problems and the identification of solution requirements.</p> <p>In this course, we want to build on the achievements and continue the necessary efforts to design a solution strategy to the specific problem of adult English communication and foreign culture education in Japan. The solution should be technical, inspired by the potential and challenges of technological progress. Specifically, we want to exploit the merits of immersive environments, non-intrusive multimodal human-computer interaction and artificial intelligence. We follow a structured approach to analyzing the current situation, comprising identification of problems and assessment of potential for situation-based learning and immersive technologies, and designing and realizing a solution concept. Regarding solution design, we may build on the previously proposed concepts of “English Karuta” and “Virtual Role-play”, or go into a different direction with novel ideas.</p> <p>The course will cover the following four phases:</p> <p>1. Introduction (1-2):</p> <p>We will provide a general overview of the topic, including previous problem investigations, discoveries and outcomes. In order to design something new, it is important to understand the potential and challenges of available resources. Therefore, we will explain the concepts behind immersive and interactive technology in mini-lectures and demonstrations.</p> <p>2. Investigation (3-6):</p> <p>We will take a structured approach to develop a foundation, comprising the study of previous materials, an interview with a native English teacher or an expert in foreign language education, and seminar presentations on fundamental topics related to everyone’s expertise and interest.</p> <p>3. Problem definition and solution approach (7-8):</p> <p>Building on the foundations, expectations, and outcomes of individual and group work, we will define a problem setting and solution approach. The premises are that the problem is relevant, and the solution is feasible and integrates the contribution of all participants to achieve different aspects.</p>

	<p>4. Solution design and implementation (9-14):</p> <p>After intermediate presentation, we will define a realization plan and implement the solution. While the focus of previous courses was on problem finding, the scope of this course will be on solution design. Depending on the participants' backgrounds and aims, this should cover a broad range of different aspects.</p>
実施計画、実施場所 Schedule, location	KRP Building #9, Room 506, Flexible Space / Virtual Reality System Booth Yoshida Fab (Final Presentation)
履修条件 Conditions for participation	<p>Nothing in particular.</p> <p>Remarks:</p> <p>1. Background and skills</p> <p>The aim of this PBL to solve a “real-world” problem in education and identify questions and design solutions related to technology. The focus lies on problem solving in an interdisciplinary environment.</p> <p>2. English ability</p> <p>The course will be held in English. However, interested participants are especially encouraged to <u>not reject this course because of English skills</u>. The level and usage of English will be flexibly adjusted based on the level of the participants, and will not count for grading the course. The aim is to create a comfortable atmosphere for the use of English, to enable the access of globally available resources.</p>
募集人数 / Number of participants	Min: 4 Max: 6
次募集締切 Application deadline	10月7日(水)
応募資格 Intended participants	<p>Anyone motivated and interested in the topic, especially</p> <ul style="list-style-type: none"> • undergraduate, graduate students, members of Kyoto University; • undergraduate, graduate students, members of other universities and institutes; • engineers, researchers, general members of companies. <p>However, if the number of applicants exceeds the maximum, priority will be given to Design School students.</p>
応募方法 How to apply	<p>デザイン学公式 Web の FBL/PBL のページ (下記) から参加申込を行うこと。</p> <p>Fill the FBL/PBL application form on the Design School web page (below).</p> <p>http://www.design.kyoto-u.ac.jp/activities/fbl_pbl/</p>
参加者の決定 Decision of participants	<p>10月13日(火)までにメールで参加の可否を通知。</p> <p>※1次募集で参加不可となった者を主な対象として2次募集を行う(10月14日～16日)。参加者枠に余裕のあるテーマに応募可能。(原則として先着順)</p> <p>Notification by e-mail until October 13 (Tuesday).</p>

<p>問題発見や解決に用いるデザイン理論やデザイン手法 Design theories and methods for framing and solving problems</p>	<p>Hard skills:</p> <ul style="list-style-type: none"> • Understanding potential, limitations and usage of computation technology • Design, implementation and evaluation of complex hardware systems • Prototype implementation
<p>理論や手法の学習方法 How to study theories and methods</p>	<p>Hard skills:</p> <ul style="list-style-type: none"> • Understanding potential, limitations and usage of computation technology • Design, implementation and evaluation of complex hardware systems • Prototype implementation <p>Soft skills:</p> <ul style="list-style-type: none"> • Brainstorming • Presentation and discussion • Interdisciplinary collaboration <p>English language and inter-cultural ability (see “Conditions for participation”)</p>
<p>成果の公開方法 Publication of the results</p>	<p>The course will comprise:</p> <ul style="list-style-type: none"> • Mini-lectures on technologies, Mixed and Virtual Reality (MR/VR) design • Survey, seminar presentation and discussion • Design and implementation of a prototype or a subproblem • Combined final report <p>The participants will work together and contribute different aspects of a common project.</p>
<p>成績評価方法 Evaluation</p>	<ul style="list-style-type: none"> • Intermediate/final presentation, final report, poster, website: 50% (observation and material) • Quality of problem finding and solution design: 20% (observation and material) • Comprehension of topic, theories and methods: 20% (observation and material) • Class activity: 10% (observation) <p>Attendance requirement: 100% of class time. For missed classes, you need to get information about the class content from teachers and other members, and compensate the work through a document uploaded to the shared folder.</p>

特記事項 Special remarks	<p>Project outcome:</p> <ul style="list-style-type: none"> To ensure the preservation of the knowledge and continuity of the course, participants will upload all materials to a cloud storage shared folder that we extensively use in the course. All participants together as a team will create a combined final report, poster and webpage (provided) that summarizes the course, including solved problems, progress and results. <p>Regarding the report, every participant contributes ~3 pages written text (partly general, partly specific topic), with unlimited space for pictures, figures, tables and references.</p> <p>We offer the option to guide and financially support the participants, who wish to further shape the results into an academic publication at an international conference. We encourage such effort, because academic work and publishing is important to the graduate program and doctors course study.</p>
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実施計画 / Schedule

コマ Unit	日程 Date	場所 Location	実施内容 Content
1	End October	KRP	Introduction lecture <ul style="list-style-type: none"> Motivation and aim of the project Outline and organization of the course
2			Technology mini-lectures, tutorials <ul style="list-style-type: none"> Demonstration of virtual reality system at KRP Multi-display visualization, interactive (game) programming Kinect, pressure-pad, faceLAB, Polymate sensors for non-intrusive interaction and data acquisition
3-4	Beginning November		Interview and discussion with native English teacher / expert <ul style="list-style-type: none"> Problems in English education, skills, future needs, etc. Best practices, ideas for improvement, etc.
5-6	Mid November		Seminar presentations and discussion of self-chosen topics, relating <ul style="list-style-type: none"> own field and interest with general information, problem analysis, solution ideas, etc.
7	End November		Definition of problem and solution approach <ul style="list-style-type: none"> Idea proposal, brainstorming, discussion, negotiation
8-9			Solution design <ul style="list-style-type: none"> Propose solution concept as a team with individual aspects Plan of when, who will do what until final presentation
10			Intermediate presentation preparation
	December 5		Intermediate presentation
11-12	Beginning December		Solution implementation 1 <ul style="list-style-type: none"> Differs based on the scope of contribution (survey, study, mock-up, prototype, experiment, media, etc.)
13-14	Mid		Solution implementation 2

	December		<ul style="list-style-type: none">• Differs based on the scope of contribution• Creation of documentation material (videos, screenshots, usage documentation, etc.)
15		Yoshida Fab	Final presentation
	Beginning January		Final report, poster, webpage, material consolidation