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研究課題名（和文）Tele-collaboration as Inquire-based learning for enhancing Intercultural communications skills of Japanese students

研究課題名（英文）Tele-collaboration as Inquire-based learning for enhancing Intercultural communications skills of Japanese students

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研究成果の概要（和文）：この結果から、学生にオンラインで自文化の探求をさせることは、学生の文化内知識を広げることで将来の異文化交流の質を向上させる可能性がある一方で、探究型のフレームワークを統合することで、学習者のエンゲージメント、深い学習、異文化コミュニケーションに対する自信にさらなるプラスの効果をもたらす可能性があることが示唆されました。

研究成果の学術的意義や社会的意義

本研究では、学生の異文化間コミュニケーションの質を高めるために、探究型ストラテジーを適用して学生の異文化間認識を高める可能性を探った。

研究成果の概要（英文）：This study explored inquiry-based strategies in developing students' intra-cultural awareness to enhance intercultural communication. A quasi-experimental design (n=112) was developed to assess the effectiveness of inquiry-based telecollaboration in two groups. Quantitative results indicated that while several outcomes on telecollaborative tasks and intra-cultural learning were not significantly different across conditions, students learning in an inquiry-based environment reported higher levels of engagement and confidence toward intercultural communication. Qualitative results showed deeper intra-cultural learning in experimental group. The findings suggest that the integration of an inquiry-based framework could have additional positive effects on learner engagement, deeper learning, and confidence toward intercultural communication.

研究分野：Educational technology

キーワード：telecollaboration intra-cultural learning inquiry-based learning intercultural communication undergraduate students Japan

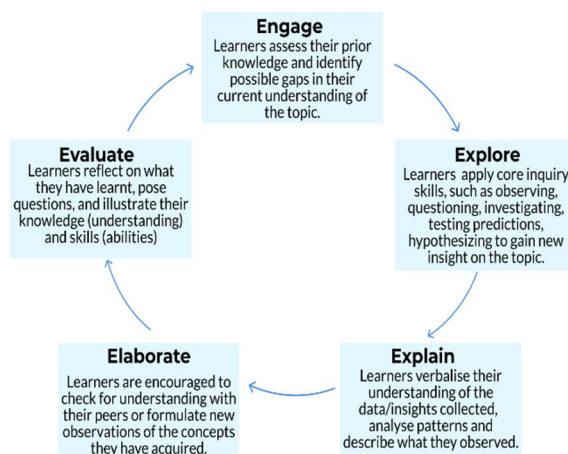
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1. 研究開始当初の背景 Research background

While many studies indicate that ‘virtual exchanges’ also known as telecollaboration are useful for developing intercultural communicative competence, there is a paucity of research on how learners acquire new knowledge related to their own culture and society before interacting with online foreign exchange partners. This study explores the potential of applying an inquiry-based strategy in developing students’ intra-cultural awareness to enhance the quality of their intercultural communication. Increase in Internet speed and the transition to Web 2.0 – which refers to websites that emphasise user-generated content, participatory culture, growth of social networks, multi-directional communication, and significant diversity in content types (Cormode & Krishnamurthy, 2008) – has popularised the use of telecollaboration to promote language learning among instructors and learners who use it as an economical and accessible means of contact and collaboration with speakers of other languages (Liaw & Master, 2010; Furstenberg & Levet, 2010; Dooly, 2017). Telecollaborative projects involving the use of interactive Internet technologies are being implemented to link foreign and second-language learners in institutionalised settings in different countries to engage in cost-effective exchanges for developing intercultural awareness and linguistic proficiency (Kern, 2006; Liaw & Master, 2010; O’Dowd, 2012).

An inquiry-based model of online intercultural exchange can promote active learning because participants are expected to collect authentic knowledge by engaging members of their own community and then share the findings with their online exchange partners. Inquiry-based activity creates authentic contexts, and research in cognitive science highlights its role in effective learning (Greeno, Collins, & Resnick, 1996). Edelson, Gordin, and Pea (1999) claim that authentic activities provide learners with the motivation to acquire new knowledge, an opportunity to incorporate it into their existing knowledge, and conditions in which to apply this knowledge in real life. While the transmission and reception of knowledge in conventional online intercultural exchange is passive, an inquiry-based model is active. To understand this connection, one should recognise that inquiry itself is a process containing smaller, logically connected units (phases) that guide learners and draw attention to important features of scientific thinking. This set of connections represents an inquiry cycle (Pedaste et al., 2015).

There are many variations proposed as a model for inquiry-based teaching. For the intervention this study is based on the 5E Inquiry Model (Bybee et al., 2006). The model has five phases which all begin with the letter ‘e’: engagement, exploration, explanation, elaboration, and evaluation (Figure 1). This approach is useful for inquiry-based telecollaborative design because it provides a format for online exchange that builds on what learners already know. Since intra-group members already possess some knowledge of their culture, the 5E Inquiry Model helps them revisit that knowledge from other angles and find new patterns and relationships.



2 . 研究の目的 Research objective

This study aims to explore the application of inquiry-based learning in nurturing learners' intra-cultural awareness to enhance the quality of future intercultural telecollaboration. The research was designed to provide insights into issues that have lacked attention in the literature on telecollaboration and intra-cultural learning. Namely, this study is guided by the following research questions:

RQ1. What factors, conditions and processes are essential to intra-cultural telecollaboration?

RQ2. Are there significant differences between control and experimental groups in terms of students' perceptions of most engaging and most difficult tasks during intra-cultural telecollaboration?

RQ3. Do students who complete conventional and inquiry-based telecollaborative tasks differ toward intra-cultural learning and is there a relationship between intra-cultural learning and the newly explored conditions (i.e. independent variables)?

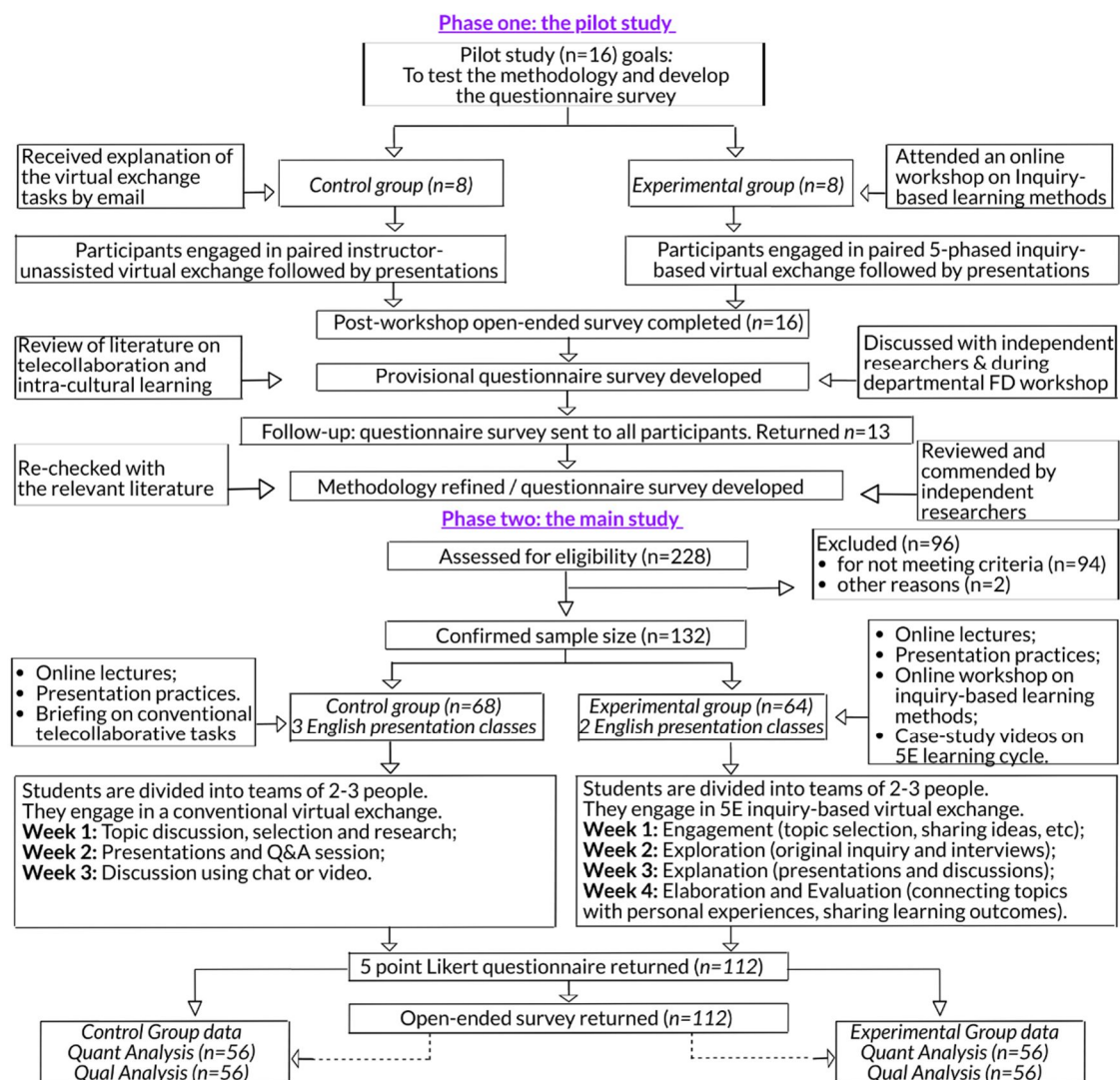
RQ4. When the explored correlations are taken into consideration, how well do they predict learners' intra-cultural learning in control and experimental groups?

RQ5. How well does intra-cultural learning predict learners' confidence toward intercultural exchange in control and experimental groups?

3 . 研究の方法 Methodology

A quasi-experimental design involving undergraduate students in Japan (n=112) was developed to assess the effectiveness of an inquiry-based telecollaboration using explicit instruction in experimental group compared with unassisted intra-cultural telecollaboration in control group.

This research employed a classroom-based quasi-experimental design using mixed methods. It involved five intact undergraduate online classes assigned to the experimental condition (participating in a five-phase inquiry-based telecollaboration) and the control condition (participating in a conventional telecollaboration). According to Sato & Loewen (2019) using a quasi-experimental design in a genuine classroom setting allows researchers to deploy interventions and observe participants without causing unnecessary disturbance. Prior to the experiment, the control group received a standard regimen of online lectures with presentation practice and partnered assignments. The experimental group received the same regimen as the control group in addition to receiving instructional videos and practice sessions using the 5E Inquiry model. Students in both groups were given the same reading material - a blogpost titled *13 Reasons Why Japan Is the World's Most Unique Country* - to help them explore, select, and research topics for their individual presentations. However, the students in the control group were not explicitly requested to conduct in-depth inquiries for their final presentations and telecollaborative discussions, whereas experimental group were required to carry out inquiries (such as surveys, interviews, fieldtrips, etc) in order to back their presentations with real-life data. In the latter's case, 5E model of inquiry-based learning was applied. Another difference between control and experimental conditions was that the students in the control setting had only three weeks to complete their projects and presentations because there was no formal requirement for them to conduct fieldwork, and their presentations were based on conventional research methods using Internet and other digital sources. Also, the control group required less teacher facilitation, especially in the preparation phase, whereas experimental condition necessitated more active teacher coordination for students seemed to have more questions about the objectives of each of the 5E phases. All activities in both control and experimental settings were conducted using the Microsoft Teams™ application. The research design is summarized in Figure 2.



4 . 研究成果 Findings

Quantitative results indicated that while several outcomes on telecollaborative tasks and intra-cultural learning were not significantly different across conditions, students learning in an inquiry-based environment reported higher levels of engagement as well as confidence toward potential intercultural communication. Qualitative results also showed deeper intra-cultural learning in the experimental group. The findings suggest that while allowing students to engage in an online exploration of their culture could improve the quality of future intercultural exchanges by expanding students' intra-cultural knowledge, the integration of an inquiry-based framework could have additional positive effects on learner engagement, deeper learning, and confidence toward intercultural communication.

For example, a linear regression analysis was conducted to assess whether intra-cultural learning significantly predicted confidence toward intercultural communication (CTIC) in control and experimental groups. The results of the linear regression model for the control group were not significant, $F(1,54) = 1.78$, $p = .188$, $R^2 = 0.03$, indicating that intra-cultural learning did not explain a significant proportion of variation in CTIC in control group. Since the overall model was not significant, the individual predictors were not examined further. On the other hand, the results of the linear regression model for experimental group were significant, $F(1,54) = 7.90$, $p = .007$, $R^2 = 0.13$, indicating that approximately 13% of the variance in CTIC is explainable by intra-cultural learning. The latter significantly predicted CTIC, $B = 0.55$, $t(54) = 2.81$, $p = .007$. This indicates that on average, a one-unit increase of intra-cultural learning will increase the value of CTIC by 0.55 units. These results suggest that the quality of intra-cultural learning gained during the inquiry-based telecollaboration could predict students' confidence toward

potential intercultural exchange, whereas conventional telecollaboration failed to predict the latter. This further indicates that there must have been a qualitatively different factor during inquiry-based online exchanges (such as enhanced learner engagement, peer-collaboration and/or unique knowledge accumulation during 5E Inquiry phases) that positively affected students' confidence toward potential intercultural exchange. Table 8 summarizes the results of the regression model.

Partly in response to Lewis and O'Dowd (2016), and partly in attempt to explore the notion of *savoir apprendre/faire* used by Byram (1997) to designate the skills of discovery and interaction, including 'an ability to acquire and operationalise new knowledge of cultural practices', this study was designed to empirically test the use of inquiry-based learning during an intra-group telecollaboration and assess its effect on students' intra-cultural awareness as well as impact on enhancing the quality of future intercultural communication.

Intra-cultural learning is an important prerequisite for implementing effective online exchanges to enhance learners' intercultural communicative competence. Both quantitative and qualitative results of this study indicated that telecollaboration among the members of the same group had a positive impact on their intra-cultural learning. Intra-cultural learning appears to be a factor in both unassisted as well as instructed inquiry-based online exchanges. The examples of such learning are vividly described by students themselves.

Quantitative results have vividly suggested that despite similar levels of reported intra-cultural learning, students who engaged in a more reflective and explorative research of their culture, have also reported stronger confidence in engaging in intercultural communication.

These findings vividly illustrate the importance of intra-cultural knowledge construction, which is consistent with previous scholarship viewing intercultural competence as a by-product of knowledge, skills, and attitudes at the interface between several cultural areas, including the students' own culture and a target culture (Byram, 1997; Risager, 2007). It is therefore important for teachers of online intercultural communication to explicitly use strategies aimed at fostering critical cultural awareness, in other words, help their students develop skills of critical evaluation of perspectives, practices, and products in one's own and other cultures (Byram, 1997:53).

This study concedes that the integration of inquiry-based learning framework into online intercultural exchanges, though previously lacked attention, is a promising field of research with its own unique pedagogic challenges.

The study's protocol allowed students in the experimental group not only to engage in intra-cultural telecollaboration (such as in control group), but also attempt to discover new intra-cultural knowledge through their original inquiry, with the learners formulating hypotheses and testing them by conducting ethnographic experiments and/or making observations (Keselman, 2003; Pedaste et al., 2012).

One can observe that inquiry-based environment created authentic contexts and improves learning, which is consistent with research in cognitive psychology (Greeno, Collins, & Resnick, 1996). Authentic activities undertaken by students in experimental group provided them with the motivation to acquire new knowledge, an opportunity to incorporate it into their existing knowledge, and conditions in which to apply this knowledge in real life (Edelson, Gordin, & Pea, 1999). Such illustrations were not present in the control groups' reflections. It is also fair to mention that according to the statistical analysis not many students in the experimental group had a positive attitude toward conducting their original inquiries.

5. 主な発表論文等

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〔図書〕 計0件

〔産業財産権〕

〔その他〕

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6. 研究組織

氏名 (ローマ字氏名) (研究者番号)	所属研究機関・部局・職 (機関番号)	備考

7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計0件

8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関