Developing and Validating a Japanese English Medium of Instruction Attitude Scale (JEMIAS)

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Introduction

The growing trend of adopting EMI in higher education (HE) was noted twenty-one years ago by David Graddol (1997, p. 45). In 2014, Wächter and Maiworm found a 1115% increase of English-Taught Programmes (ETPs) in Europe. A recent global survey by Dearden (2015) showed that of 54 countries, 44 allowed and endorsed programmes to be taught through EMI. Students and lecturers’ attitudes towards EMI merits investigation as research has shown that attitudes, whether positive or negative, affect teaching and learning (see Borg, 2015; Kern, 1995; Spada & Gass, 1986). In this paper, I describe the process of developing and validating a questionnaire that measures Japanese university lecturers and students’ attitudes towards EMI, named the Japanese English Medium of Instruction Attitude Scale (JEMIAS). First, a definition of EMI is provided. Next, in order to contextualise this study, a brief overview of EMI in Japan is given. This is followed by a critique of questionnaires used in previous EMI attitudinal studies. Subsequently, how this study fills these gaps in the literature is explained. Then, the method and results of the JEMIAS validation process is given. Finally, ways in which the JEMIAS can be improved and applied in future research is elaborated.

Literature Review

Definitions of Constructs

EMI is defined here as: “the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English” (Macaro, 2018, p. 19). In addition, Attitudes is defined as “a summary evaluation of an object of thought” (Vogel and Wanke, 2016, p. 2). The JEMIAS attempts to tap into participants’ summary evaluations of thoughts in relation to EMI; i.e. how they feel towards using English to teach/learn in higher education.
EMI in Japan

Within the past 10 years, the Japanese Ministry of Education (MEXT) has invested heavily in the internationalisation of Japanese HE (Bradford, 2016). In 2008, the ‘Global 30 Project’ (G30) was launched to attract 300,000 international students to study in Japan. This inadvertently led to the growth and expansion of EMI in Japanese universities (Bradford & Brown, 2017). The most recent initiative (the ‘Top Global University Project’, TGUP) was launched in April 2014 with the aim of not only attracting international students, but also curating the next ‘global leaders’ and improving global competitiveness by raising university rankings (Brown, 2017a; Rose & McKinley, 2017; Toh, 2014). EMI programmes have therefore increased at a rapid rate in universities across Japan. The underlying assumption is that EMI inevitably leads to an improvement in English language proficiency (Brown, 2017b). Extensive exposure to the target language leads to “opportunities for meaningful use of it to negotiate the curricular content, thus leading to better acquisition” (Galloway et al., 2017, p. 6).

Studies of Attitudes towards EMI

In Macaro, Curle, Pun, An and Dearden's (2018) systematic review of empirical research on EMI in HE, over half (n=48) of the 83 studies identified, explored student and lecturer attitudes towards EMI. Of these attitudinal studies, only one (although not solely focused on attitudes) was conducted in Japan (see Chapple, 2015). More recently Galloway et al.'s (2017) study incorporated an aspect of attitudes in a Japan-China comparative study. This dearth of research in the Japanese context highlights the first gap in the literature. The second gap is the lack of the development of a valid, reliable instrument to specifically measure attitudes towards EMI. Although previous studies have used questionnaires (Belhiah & Elhami, 2015; Dearden, 2015; Doiz et al., 2013; Galloway et al., 2017; Jensen & Thøgersen, 2011; Khan, 2013; Werther et al., 2014), questionnaire validity has often not been checked via a pilot study (e.g. Byun et al., 2011; Chapple, 2015; Hengsadeekul et al., 2014; Kiliçkaya, 2006; Kim & Yoon, 2018; Tatzl, 2011; Wu, 2006).

Some authors (e.g. Kiliçkaya, 2006) have adopted and adapted the 21-year-old questionnaire created by Tung et al in 1997. Tung et al. (1997) conducted a large-scale survey study of attitudes towards the medium of instruction (MOI) in Hong Kong secondary schools (students n=5,000, parents n=4,600, teachers n=700). Not only was this questionnaire created for a different education level, but also no pilot study was reported. Issues of validity are evident in for example Factor 2 (English Is a Language for Careers): items in this factor were not related to jobs or how EMI might affect students’ career prospects. Previous studies therefore highlight the need to develop a valid and reliable instrument to measure attitudes towards EMI in HE.

Methodology

This section elaborates the process of developing the JEMIAS. This process took place in three phases. Phase 1 focused on questionnaire item development. Then the reliability and validity of the JEMIAS was checked in two phases; Phase 2 the pilot study, and Phase 3 the main study. Ethical guidelines for educational research as proposed by the British Educational Research Association (BERA) were strictly followed (BERA, 2011) for each phase. Before the commencement of any data collection, ethical approval was sought and approved, and written consent was obtained from every participant.

The Target Population

The target population of this study was all Japanese professors and students who were teaching/learning an academic subject through the medium of English, at a G30/TGUP participating
university. As questionnaire development was done in three phases, samples for each phase were drawn from this population. Every participant had taught/studied a course through EMI for at least one full semester, considered her/himself to be Japanese, and considered Japanese to be her/his first language.

**Phase 1: Questionnaire Item Development**

The aim of Phase 1 of questionnaire development was to discover aspects of focus with regards to attitudes towards EMI. Exploratory interviews were conducted with 24 students and 19 professors at six universities in Japan (five in Tokyo, one in Kyoto). Interview questions focused on: the advantages and disadvantages of using English to teach/learn academic content subjects, the difficulties (if any) experienced teaching/learning through English, the differences (if any) observed in pedagogy when teaching/learning through English, and participants’ general thoughts on the expansion of EMI in Japanese HE. These unstructured interviews were transcribed and analysed in NVivo (2014). Recurring notions in participant answers were coded and grouped into themes (Miles & Huberman, 2014).

These themes were considered to be attitude indicators capturing the dimensions of the construct ‘Attitude Towards EMI’ and are provided in Table 1.

**TABLE 1**

| The 19 Themes that Arose in Phase 1. |
|--------------------------------------|
| 1. Self-rated English Proficiency | 10. Access, quality, and difficulty of teaching/learning Materials |
| Participants felt that they (themselves) lack sufficient English vocabulary to teach/learn through English, they find it difficult to explain themselves clearly in English, and they have difficulties making/understanding jokes in EMI classes. |
| 2. Student-English Proficiency | 11. The effects of EMI on pedagogy |
| Participants felt that Japanese students (in general) struggle with EMI courses due to their lack of English proficiency, that students should achieve a certain TOEIC/IELTS score before allowing students to take EMI courses, and that mixed English ability EMI classes has a negative effect on learning. |
| 3. Professor-English Proficiency | 12. The effect of EMI on classroom dynamics |
| Similar to Theme 2, except in relation to professors and teaching. |
| 4. Students have varied English abilities | 13. EMI as a form of English Improvement |
| 5. EMI takes up more Time | 14. English as a necessity in Japan |
| 6. The effects of EMI on Assessment | 15. The nature of Japanese Students |
| 7. Mixing/Collaborating with foreigners | 16. The nature of International Students |
| 8. The positive effects of increased EMI courses | 17. English beyond Japan |
| 9. The negative effects of increased EMI courses | 18. English for Work |
| 19. How Japanese people are viewed by Others |

Several themes that arose in these interviews were consistent with previous literature, such as: the theme that EMI takes up more time also arose in studies such as Vinke et al. (1998), Byun et al. (2011), and Galloway et al. (2017). Themes 4, 6, 12, 14, 15, 16, 17, and 19 are novel, highlighting the uniqueness of this research instrument as capturing varied facets of attitudes towards EMI.

Each theme was then operationalised into items to form a draft version of the questionnaire. The draft JEMIAS contained 102 items adopting a nine-point Likert scale from 1 (strongly disagree) to 9 (strongly agree) to capture more nuanced strengths of attitude than a five-point Likert scale (de Vaus, 2013). The JEMIAS was then translated into Japanese by a professional translator and sent to an expert in Japanese higher education for review. Feedback on item wording and accuracy of translation from the expert was incorporated, ensuring content validity.
Phase 2: The Pilot Study Method

The aim of Phase 2 of questionnaire development was to pilot the JEMIAS. This was done both qualitatively (semi-structured interviews n=10, and pilot study feedback forms n=137) and quantitatively (Exploratory Factor Analysis [EFA] and Cronbach’s Alpha). 300 questionnaires were distributed to university professors and students at four G30/TGUP participating universities in Tokyo. 205 (students n=189, professors n=16) fulfilled the sampling criteria for analysis. Lawley and Maxwell (1971) suggest that a dataset should contain 51 observations more than variables in order to conduct EFA. This sample contained 189 observations and 102 variables (i.e., items), and therefore this dataset met the sampling criterion for EFA.

The student and professor versions of the JEMIAS were identical except for the words ‘learn’ and ‘teach’. The professor version of the JEMIAS was only piloted qualitatively due to the small sample size. This is recognised as a limitation of this validation process, and future statistical validation is needed on this version of the JEMIAS with a large sample of professors. Nevertheless, as professors played a key role throughout the development of this questionnaire (e.g., Phase 1 interviews, Phase 2 input to delete items), professor participation has been included in this article.

Items were evaluated by both professors and students on six points as suggested by de Vaus (2013, p. 115): item redundancy, offensiveness, scalability of an item, the number of non-responses, time taken to answer, and the acquiescent effect. 30% of all the qualitative pilot data (interviews n=3, forms n=41) were coded by a second Applied Linguistics researcher. Cohen’s Kappa (κ) was calculated as 0.90, highlighting coding as highly consistent between the two coders.

Phase 3: The Main Study Method

The main aim of Phase 3 was to evaluate the construct validity and internal consistency of the JEMIAS (see Hoyle, 2000), using a different sample. This was done using CFA, Cronbach’s Alpha, and Principal Component Analysis (PCA). 575 questionnaires were distributed to Japanese university professors and students at six universities (three in Tokyo, three in Kyoto). 542 questionnaires were returned complete (students n=485, professors n=57), making this a 94.2% response rate. Again, due to sample size, only the student dataset was validated statistically. 485 student participants filled out the 51 item JEMIAS; of these 24,735 responses, 101 were missing (0.4%). Multiple imputation (MI) was used to impute the missing data in order to reduce biases in variances and covariances (Schafer, 1997).

Results

Phase 2: Pilot Study Results

Qualitative pilot study results

Two forms of feedback on the JEMIAS emerged from the qualitative pilot study data (i.e. from the semi-structured interviews and the feedback forms). The first was feedback on the general wording and layout, the second was feedback on the Items themselves. An example of a change made to the layout includes the rearrangement of the Japanese translation for easier reading. Item feedback included that of item comprehensibility, difficulty, relevancy, repetitiveness, and offensiveness. All problematic items were added to a list for deletion (named List 1).
Quantitative pilot study results

The student version of the JEMIAS was also validated statistically. The Phase 2 student dataset was checked for divergent validity by using EFA, and convergent validity by calculating Cronbach’s Alpha (Cronbach, 1951). The statistical software R (R Core Team, 2017) was used for all quantitative analysis. As the rate of missingness in this pilot data dataset was low (less than 10%), the conservative data imputation method of Mean Substitution (Afifi & Elashoff, 1966) was used to estimate missing values. Limitations of this method is recognised, such as the reduction in variance per item (Ullman, 2013).

Exploratory factor analysis results. The application of EFA was deemed appropriate as the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) value was 0.66 (Kaiser, 1970), and the Bartlett’s test of sphericity (Bartlett, 1954) was significant ($X^2 (5151) = 10102.764, p < 0.00$). Maximum-likelihood EFA revealed the presence of nine factors with eigenvalues exceeding 1. This was confirmed by the scree plot (Figure 1). Using Cattell’s (1966) scree test, nine factors were therefore retained for further investigation.

![Figure 1. Pilot data scree plot (Phase 2).](image)

The factor correlation matrix showed that six factors were moderately positively correlated, warranting the use of Oblique Promax rotation (Tabachnick & Fidell, 2007, p. 646). After rotation, the Item-Factor loadings were examined. Based on the sample size ($n = 189$), items were retained in the factor onto which it loaded above the critical value of 0.3 (Stevens, 2009).

The 9 factors were therefore named as follows:

Factor 1 – The Consequences of EMI (Items 7, 21, 23, 68, 71, 73, 91, 92, 97)
Factor 2 – Effects of EMI on teaching and learning (Items 4, 17, 18, 19, 20, 28, 32, 41, 43, 49, 83, 88, 96)
Factor 3 – EMI and English Proficiency (Items 12, 16, 24, 40, 45, 58, 62, 75, 78)
Factor 4 – English in and beyond Japan (Items 14, 33, 34, 51, 52, 53, 55, 85)
Factor 5 – The Nature of Japanese Students (Items 5, 82)
Factor 6 – English as a necessity in Japan (Items 69, 76, 77)
Factor 7 – Effects of EMI on classroom behaviour (Items 50, 72)
Factor 8 – Effects of EMI on classroom interaction (Items 9, 22, 35, 64)
Factor 9 – The effects of an increase in EMI (Items 1, 67)

Items which did not load onto any factors with a value greater than 0.3 were added to a list for possible deletion (named List 2).

**Cronbach Alpha results.** First, the internal consistency of the JEMIAS as an entire scale was evaluated. The overall Cronbach α coefficient was 0.75, indicating a relatively high reliability (Cronbach, 1951). Next, the internal consistency of each factor was examined. Factor 1 (α=0.85), factor 2 (α=0.85), factor 3 (α=0.78) and factor 4 (α=0.80) indicated high reliabilities, factor 5 (α=0.64), factor 6 (α=0.68) and factor 8 (α=0.67) showed medium reliabilities, and factor 7 (α=0.55) and factor 9 (α=0.59) showed relatively low reliabilities. Kline (2013) notes that this variability is expected due to the diversity of the psychological construct of attitudes being measured. If it was found that the removal of an item increased its factor’s α value, that item was added to a list for possible deletion (named List 3).

**Item deletion**

Items that appeared on Lists 1, 2, and 3 of items for possible deletion were deleted from the pilot version of the JEMIAS. Appendix A lists the 51 deleted items. This meant that 51 items remained in the final version of the JEMIAS (see Appendix B). Item deletion led to factor restructuring. According to Marsh et al. (1998), each factor should contain no less than 2 indicators (i.e. items). Factors 5, 7 and 9 were therefore deleted, leaving a six-factor structure on which Confirmatory Factor Analysis (CFA) was conducted in Phase 3.

**Phase 3: Main Study Results**

**Confirmatory factor analysis results**

CFA was used to test the hypothesis that the underlying six-factor structure of the JEMIAS (as found in the pilot study), held true in the main study. Appendix C details the wording of the items that made up each factor. First, indicators with low factor loadings were deleted, then data was checked for factorability. Data was shown to be factorable: Henze-Zirkler’s multivariate test of normality showed data to be normally distributed (p=0.06); univariate statistics showed no outliers and ranges of skewness and kurtosis within an acceptable range of normality (skewness 0.57 and kurtosis 2.34). The KMO value was 0.75 (meeting Kaiser’s (1970) 0.6 threshold) and the correlation matrix revealed 215 instances of coefficients of 0.3 and above, indicating a degree of covariation (i.e. items were assumed to reflect underlying factors, see Hoyle, 2000:474). A six-factor CFA model (as well as a comparison one-factor model) was therefore run on the data.

All item loadings were statistically significant (p < 0.05). In order to discern whether this CFA model was a good fit, the fit indices of the six-factor model and a one-factor model were compared.

**TABLE 2**

| Fit Indices of the CFA model (Phase 3) |  
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| X² (Chi square) | Degrees of Freedom (DF) | Root Mean Square Error of Approximation (RMSEA) | Standardised Root Mean Square Residual (SRMR) | Comparative Fit Index (CFI) | Tucker-Lewis Index (TLI) |  
| 6-factor model | 1474.688 | 435 | 0.053 (good) – 90% [0.063 - 0.069] acceptable range | 0.062 (good fit) | 0.947 (acceptable) | 0.951 (acceptable) |  
| 1-factor model | 3480.782 | 560 | 0.104 (unacceptable) 90% [0.100 - 0.107] – unacceptable range | 0.121 (unacceptable) | 0.361 (unacceptable) | 0.321 (low) |  

Based on cut-off values as recommended by Hoyle (2000)
As Table 2 illustrates, the six-factor model used to evaluate the item-loadings had better fit indices than a one-factor model. The Chi Square almost doubled for the one-factor model. Based on cut-off values as recommended by Hoyle (2000), the RMSEA was ‘good’ for the six-factor model, and the confidence intervals fell within an acceptable range. Other indices (SRMR, CFI, and TLI) highlighted this same pattern. This six-factor model was therefore accepted as an average-to-good fit and this CFA further established construct validity of the JEMIAS.

**Cronbach alpha results**

In order to determine the reliability (in terms of the internal consistency) of the JEMIAS, the Cronbach α coefficient was calculated. The α for all 51 items of the main study student item response data indicated good scale reliability (α = 0.84, (Cronbach, 1951)).

**Principal component analysis results**

In order to validate the presumption that the 51 items of the final version of the JEMIAS measure different aspects of attitude towards EMI, a PCA was run on the Phase 3 dataset. All assumptions to run a PCA were met (refer back to Section 4.2.1; Bartlett’s: $\chi^2(88.16) = 772.76, p < 0.001$). A cumulative variance plot was inspected to determine how many components should be extracted (Figure 2).

![Figure 2. Cumulative variance plot of the student JEMIAS Item data (Phase 3).](image-url)

As Figure 2 illustrates, the first 4 principal components appeared to only explain approximately 30% of the variance, with 51 components explaining close to 100% of the variance. This highlighted the majority of components as having an eigenvalue of approximately 1, and no obvious cluster of components explaining 70% to 80% of the variance (Kaiser, 1960). The PCA therefore provided evidence of JEMIAS construct validity.
Jung and Seo (2013) note the arbitrariness of the interpretation of PCA/EFA. To combat such unstable interpretation, drawing on the original 19 themes that arose in Phase 1 and the items remaining in the final version of the JEMIAS in Phase 3, items were grouped qualitatively into 13 underlying themes/scales (see Appendix D).

Discussion

The JEMIAS Questionnaire Items

This study made an original contribution to knowledge by developing a questionnaire that measures the various dimensions of Japanese university professors and students’ attitudes towards EMI. Questionnaire items related to issues that have arisen in previous studies, such as the assumption that EMI increases English proficiency (Jensen & Thøgersen, 2011; Wu, 2006), EMI takes up more time (Cots, 2013; Kiliçkaya, 2006; Lei & Hu, 2014), and one’s own English proficiency is a hindrance to teaching and learning through English (Galloway et al., 2017; Werther et al., 2014). Items that might be considered to be more specific to the Japanese context include Item 19 (related to the 2020 Olympics), and Item 17 (related to explaining topics specific to Japan such as Japanese History). Other items that have not been reported in previous attitudinal studies and might be considered to be specific to the Japanese context are those of Items 20, 38 and 40. These items relate to the theme of the necessity/usefulness of English in Japan. As English is still considered to be a foreign language in Japan this questioning of its necessity is valid, highlighting a context-specific factor that no other studies have raised.

Comparing the JEMIAS to Other EMI Attitudinal Questionnaires

When this research instrument is compared to previous studies that have used questionnaires to measure attitudes towards EMI, key differences emerge. Firstly, in studies such as Wu (2006), Kiliçkaya (2006), Tatzl (2011), Byun et al (2011), Hengsadeekul et al (2014), Werther et al (2014), Chapple (2015), and Kim and Yoon (2018), if the questionnaires used were piloted, this piloting process was not reported. This study piloted this questionnaire both quantitatively and qualitatively, highlighting the uniqueness of using mixed methods for research instrument validation. Although the current study focused on the statistical piloting and validation process of the JEMIAS, the input from qualitative follow-up interviews proved invaluable to the development of the JEMIAS.

In addition, even if the questionnaire in previous studies was piloted, issues are still evident. Take for example Al-Mashikh et al.'s. (2014) three-part, 5-point Likert scale questionnaire, which was piloted on two linguistics professors, and then piloted on students at a College of Science (n=unknown); questionnaire items were found to be repetitive and redundant.

The authors state that there was a ‘lack of representation and concept coverage in certain categories’ (p. 106); what “the concept” was and how it was defined, and what “certain categories” were, was not elaborated, highlighting a lack of construct validity. This study aimed to mitigate such issues. It should be noted though that this questionnaire is not without limitations. Although this instrument was developed in the Japanese context, it could be adapted, translated, and deployed in any country in the world. However, it would then be necessary to conduct a follow-up Confirmatory Factor Analysis in order to further validate this instrument in a different geographical context. How the JEMIAS can be further improved and modified will now be elaborated.

Improvements of the JEMIAS

Although the JEMIAS demonstrated a high degree of internal consistency, recommendations for improving the JEMIAS include:
Tailoring the request of background information for the purposes of analysis. Depending on the nature and aims of future studies using the JEMIAS, not all background information items might be needed.

Researchers should ensure respondents understand all sections of the JEMIAS. Student respondents in this study tended to want an explanation of the purpose of each JEMIAS section.

Add open-ended questions at the end. If follow-up interviews are not part of future research designs when applying the JEMIAS, open-ended questions might be added at the end to gain further insight into attitudes towards EMI.

Words or phrases that might be interpreted indiscriminately should be highlighted and explained to participants in advance.

Impact of the JEMIAS

The JEMIAS could have an impact in terms of research, pedagogy, and policymaking. Firstly, the JEMIAS is an instrument through which the research community can gain insight into attitudes towards EMI. Greater refinement of the scale could further inform the academic community of the intricacies of measuring a psychological construct such as attitudes. Secondly, Japanese professors might use the JEMIAS to gauge students’ attitudes towards learning their subject through English and adapt their teaching accordingly. For example, if students felt that EMI has a negative effect on the classroom dynamics, professors could act to modify this. Finally, the JEMIAS highlights to policymakers the reality of and opinions towards EMI. If for example Social Science professors are more positive towards EMI, policymakers might further investigate why this is the case, and possibly adjust EMI policy according to different subject areas in order to enhance teaching and learning.

Conclusion

This article described the development and validation processes of a research instrument measuring Japanese professors and students’ attitudes towards EMI. Both qualitative and quantitative methods were used to develop and pilot this instrument. In order to accumulate additional evidence of validity, further research needs to be done. Firstly, the JEMIAS should be disseminated in different Japanese prefectures in order to compare and validate results. This study focused only on Tokyo and Kyoto. Additionally, comparative studies in different countries should be conducted. As this instrument was developed in the Japanese context, it is unknown whether the same or dissimilar themes might arise in different socio-cultural, geo-political contexts. The instrument can then be further developed and adapted to understand attitudes towards EMI in different educational contexts. Understanding attitudes towards EMI is vital in understanding challenges professors and students face in its implementation, the value placed on EMI, and the reasons behind EMI adoption. From this understanding, continuing professional development programmes for professors as well as support programmes for students may be developed.

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References

Afifi, A., & Elashoff, R. (1966). Missing observations in multivariate statistics. Part I. review of the literature. Journal of the American Statistical Association, 61, 595–604.

Al-Mashikhi, E., Al-Mahrooqi, R., & Denman, C. J. (2014). Investigating college of science student attitudes towards using English as a medium of Instruction. Presented at the The 2014 WEI international academic conference, New Orleans, USA. Retrieved from http://www.westeastinstitute.com/wp-content/uploads/2014/11/Eiman-Rahma-Christopher.pdf

Bartlett, M. S. (1954). A note on the multiplying factors for various $\chi^2$ approximations. Journal of the Royal Statistical Society. Series B (Methodological), 16(2), 296–298.

Belhiah, H., & Elhami, M. (2015). English as a medium of instruction in the Gulf: When students and teachers speak. Language Policy, 14(1), 3–23.

BERA. (2011). Ethical guidelines for educational research. Retrieved from http://bera.dialsolutions.net/system/files/3/BERA-Ethical- Guidelines-2011.pdf

Borg, S. (2015). Teacher cognition and language education: Research and practice. Bloomsbury Publishing.

Bradford, A. (2016). Toward a typology of implementation challenges facing English-medium instruction in higher education: Evidence from Japan. Journal of Studies in International Education, 20(4), 339–356. https://doi.org/10.1177/1028315316647165

Bradford, A., & Brown, H. (Eds.). (2017). English-medium instruction in Japanese higher education: Policy changes and outcomes. Multilingual Matters.

Brown, H. (2017a). Investigating the implementation and development of undergraduate English-medium instruction programs in Japan: Facilitating and hindering factors. Asian EFL Journal, 19(1), 99–135.

Brown, H. (2017b). Why and why now? Understanding the rapid rise of English-medium instruction in higher education in Japan. Journal of International Studies and Regional Development, 8, 1–16.

Byun, K., Chu, H., Kim, M., Park, I., Kim, S., Jung, J., & Kiyong Byun, H. C., Minjung Kim, Innowo Park, Suhong Kim and Juyoung Jung. (2011). English-medium teaching in Korean higher education: policy debates and reality. Higher Education, 62(4), 431–449.

Cattell, R. B. (1966). The scree test for the number of factors. Multivariate Behavioral Research, 1(2), 245–276. https://doi.org/10.1207/s15327906mbr0102_10

Chapple, J. (2015). Teaching in English is not necessarily the teaching of English. International Education Studies, 8(3), 1–13.

Cots, J. M. (2013). Introducing English-medium instruction at the University of Lleida, Spain: Intervention, beliefs, and perceptions. In A. Doiz, D. Lasagabaster, & J. M. Sierra (Eds.), English-medium instruction at Universities Global Challenges (pp. 106–128). Bristol, UK: Multilingual Matters.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297–334. https://doi.org/10.1007/BF02310555

Dearden, J. (2015). English as a medium of instruction—a growing global phenomenon. Retrieved from http://www.britishcouncil.es/sites/default/files/british_council_english_as_a_medium_of_instruction.pdf

de Vaus, D. (2013). Surveys in social research (6 edition). Abingdon, Oxon: Routledge.

Doiz, A., Lasagabaster, D., & Sierra, J. M. (2013). English-medium instruction at Universities: Global challenges. Multilingual Matters.

Galloway, N., Kriukow, J., & Numajiri, T. (2017). Internationalisation, higher education and the growing demand for English: an investigation into the English medium of instruction (EMI) movement in China and Japan. Retrieved 30 October 2017, from https://www.teachingenglish.org.uk/article/internationalisation-higher-education-growing-demand-english-investigation-english-medium

Graddol, D. (1997). The future of English?: A guide to forecasting the popularity of the English language
in the 21st century. British Council. Retrieved from https://books.google.co.uk/books?id=DRN_QgAACAAJ

Hengsadeekul, C., Koul, R., & Kaewkuekool, S. (2014). Motivational orientation and preference for English-medium programs in Thailand. International Journal of Educational Research, 66(Jan), 35–44.

Hoyle, R. H. (2000). Confirmatory Factor Analysis. In H. E. A. Tinsley & S. D. Brown (Eds.), Handbook of applied multivariate statistics and mathematical modeling (pp. 465–497). San Diego: Academic Press. Retrieved from http://www.sciencedirect.com/science/article/pii/B9780126913606500173

Jensen, C., & Thøgersen, J. (2011). Danish university lecturers’ attitudes towards English as the medium of instruction. Iberica, 22(fall), 13–34.

Jung, S., & Seo, S. (2013). A comparative study on factor recovery of principal component analysis and common factor analysis. Korean Journal of Applied Statistics, 26(6), 933–942. https://doi.org/10.5351/KJAS.2013.26.6.933

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. Educational and Psychological Measurement, 20, 141–151. https://doi.org/10.1177/001316446002000116

Kaiser, H. F. (1970). A second generation little jiffy. Psychometrika, 35(4), 401–415. https://doi.org/10.1007/BF02291817

Kern, R. G. (1995). Students’ and teachers’ beliefs about language learning. Foreign Language Annals, 28(1), 71–92. https://doi.org/10.1111/j.1944-9720.1995.tb00770.x

Khan, H. I. (2013). An investigation of two universities’ postgraduate students and their teachers’ perceptions of policy and practice of English Medium of Instruction (EMI) in Pakistani universities (Doctoral dissertation). University of Glasgow (United Kingdom), Ann Arbor. Retrieved from http://search.proquest.com/docview/1512386959?accountid=13042

Kılıçkaya, F. (2006). Instructors’ attitudes towards English-medium instruction in Turkey. Humanising Language Teaching, 8(6), 1–16.

Kim, E. G., & Yoon, J.-R. (2018). Korean science and engineering students’ perceptions of English-medium instruction and Korean-medium instruction. Journal of Language, Identity & Education, 17(3), 182–197. https://doi.org/10.1080/15348458.2018.1433539

Kline, P. (2013). Handbook of psychological Testing. Routledge.

Lawley, D. N., & Maxwell, A. E. (1971). Factor analysis as a statistical method. American Elsevier Pub. Co.

Lei, J., & Hu, G. (2014). Is English-medium instruction effective in improving Chinese undergraduate students’ English competence? IRAL: International Review of Applied Linguistics in Language Teaching, 52(2), 99–126.

Macaro, E., & Akincioglu, M. (2017). Turkish university students’ perceptions about English Medium Instruction: exploring year group, gender and university type as variables. Journal of Multilingual and Multicultural Development, 39, 256–270. https://doi.org/10.1080/01434632.2017.1367398

Macaro, E., Curle, S., Pun, J., An, J., & Dearden, J. (2018). A systematic review of English medium instruction in higher education. Language Teaching, 51(1), 36-76.

Marsh, H. W., Hau, K.-T., Balla, J. R., & Grayson, D. (1998). Is more ever too much? The number of indicators per factor in confirmatory factor analysis. Multivariate Behavioral Research, 33(2), 181–220. https://doi.org/10.1207/s15327906mbr3302_1

Miles, M., & Huberman, A. (2014). Qualitative data analysis: A methods source book. London: SAGE Publications.

NVivo, (For Mac) Computer Software. (2014). NVivo product range | QSR International. Retrieved 27 February 2017, from http://www.qsrinternational.com/nvivo-product

R Core Team. (2017). R: A language and environment for statistical computing. Vienna, Austria. Retrieved from https://www.R-project.org/

Rose, H., & McKinley, J. (2017). Japan’s English-medium instruction initiatives and the globalization of
higher education. *Higher Education*, 1–19. https://doi.org/10.1007/s10734-017-0125-1
Schafer, J. L. (1997). *Analysis of incomplete multivariate data*. London: Chapman & Hall.
Spada, N., & Gass, S. (1986). The role of learner opinions regarding classroom instruction: A review of research. *Applied Linguistics*, 1(2), 11–23.
Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences* (5th edition). New York: Routledge.
Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Pearson.
Tatzl, D. (2011). English-medium masters’ programmes at an Austrian university of applied sciences: Attitudes, experiences and challenges. *Journal of English for Academic Purposes*, 10(4), 252–270.
Toh, G. (2014). English for content instruction in a Japanese higher education setting: examining challenges, contradictions and anomalies. *Language and Education*, 28(4), 299–318.
Tung, P., Lam, R., & Tsang, W. K. (1997). English as a medium of instruction in post-1997 Hong Kong: What students, teachers, and parents think. *Journal of Pragmatics*, 28(4), 441–459.
Ullman, J. (2013). Structural equation modelling. In B. G. Tabachnick & L. S. Fidell (Eds.), *Using multivariate statistics* (6. ed., internat. ed). Boston, Mass. [u.a.]: Pearson.
Vinke, A. A., Snippe, J., & Jochems, W. (1998). English-medium content courses in non-English higher education: A study of lecturer experiences and teaching behaviours. *Teaching in Higher Education*, 3(3), 383–394.
Vogel, T., & Wanke, M. (2016). *Attitudes and attitude change*. Psychology Press.
Wächter, B., & Maiworm, F. (2014). *English-taught programmes in European higher education: The state of play in 2014*.
Werther, C., Denver, L., Jensen, C., & Mees, I. M. (2014). Using English as a medium of instruction at university level in Denmark: The lecturer’s perspective. *Journal of Multilingual & Multicultural Development*, 35(5), 443–462.
Wu, W. (2006). Students’ attitude toward EMI: Using Chung Hua University as an example. *Journal of English and Foreign Language and Literature*, 4(1), 67–84.
## Appendix A

### Items Deleted from the Pilot Version of the JEMIAS (Phase 2)

| Item Number | Item Wording                                                                                       |
|-------------|---------------------------------------------------------------------------------------------------|
| ITEM 2      | Counting attendance as part of the grade for courses taught in English positively affects teaching and learning. |
| ITEM 3      | Generally, Japanese professors’ low English ability negatively affects students’ learning through English. |
| ITEM 5      | Being shy and quiet negatively affects learning through English.                                  |
| ITEM 6      | It is not the language but rather the class size that affects how I learn.                         |
| ITEM 8      | Because participation is part of the grade for courses taught in English, international students get higher grades. |
| ITEM 11     | Exchange students (students in Japan for a short period of time) do not work hard.                 |
| ITEM 15     | Japanese students are used to expressing their opinion easily.                                     |
| ITEM 21     | In-class discussions in English do not run smoothly because Japanese and international students cannot understand each other. |
| ITEM 24     | I need less time to prepare for a lesson if the lesson is in Japanese.                            |
| ITEM 25     | Instead of increasing English courses in universities, the way English language is taught in Japanese high schools should be changed. |
| ITEM 27     | Japanese university students want to attain only the minimum grade because Japanese companies do not look at their final GPA. |
| ITEM 30     | Japanese students are quiet and shy by nature.                                                     |
| ITEM 31     | After taking these English courses students will be able to apply to work for English-medium companies such as Rakuten, Bridgestone, and UniQlo. |
| ITEM 35     | International students interact more with me in class than Japanese students.                     |
| ITEM 36     | Japanese students are not highly motivated to learn through English.                              |
| ITEM 37     | In general, international students get bored in class because they cannot understand Japanese professors’ English. |
| ITEM 38     | Japanese students take courses in English because they want to study abroad.                      |
| ITEM 42     | It is difficult for Japanese students to maintain spontaneous interaction in English.             |
| ITEM 44     | Japanese students choose easy English courses to get credit easily.                               |
| ITEM 45     | My English ability negatively affects my learning through English.                                |
| ITEM 46     | I am graded differently for the courses I learn in English and the courses I learn in Japanese.  |
| ITEM 47     | In courses taught in Japanese, students just sit, listen, and take notes in class.                |
| ITEM 50     | International students are more comfortable than Japanese students raising their hands in class.   |
| ITEM 54     | I don’t care if people around the world think that Japanese people have a low English speaking ability. |
| ITEM 57     | Similar to English language courses, students should be separated according to their English level for academic courses taught through English. |
| ITEM 59     | Japanese students are not used to raising their hand in class.                                    |
| ITEM 60     | The increase of English courses in Japanese universities has not been well planned.               |
| ITEM 66     | Japanese professors in general should achieve a certain TOEIC score before being allowed to teach courses through English. |
| ITEM 67     | The 2014 Super Global University policy has had a positive effect on Japanese universities.         |
| ITEM 68     | Students’ mixed English abilities negatively affects in-class discussion.                         |
| ITEM 70     | It is time consuming to find study materials in English.                                           |
| ITEM 72     | The professor assigns more homework in English courses compared to Japanese courses.             |
| ITEM 73     | Students’ low English ability negatively affects my learning through English.                     |
| ITEM 74     | There are not a lot of materials available in English to learn subjects related to Japan (e.g. Japanese politics). |
| ITEM 75     | There is no difference between the way I learn through English and the way I learn through Japanese. |
| ITEM 76     | I have observed that international students and Japanese students don’t mix during class time.   |
| ITEM 80     | Japanese students are ‘inward looking’.                                                            |
| ITEM 81     | No matter what language is used, Japanese university students do not work hard.                   |
| ITEM 82     | Japanese students do not speak up in class because they are afraid their answer will not be perfect. |
| ITEM 83     | Learning courses in English allows me to practice and improve my spoken English.                  |
| ITEM 84     | It is easier for me to understand Japanese professors’ English accents than international professors’ English accents. |
| ITEM 85     | Being fluent in English will help students find a better job abroad than in Japan.                 |
ITEM 87 International students are more willing to share how they are feeling compared to Japanese students.
ITEM 89 If Japanese students study through English it will expand their horizons beyond Japan.
ITEM 91 My learning is slowed down because students have varied English levels.
ITEM 93 Due to my English proficiency, I am not sure whether students and professors can fully understand everything I say.
ITEM 94 I am embarrassed that Japanese people can’t speak good English.
ITEM 95 The way I am graded for courses in English is easier than the way I am graded for courses in Japanese.
ITEM 98 Exchange students do not have high motivation to study.
ITEM 101 By learning through English I can learn more English vocabulary.

Note: Item numbers follow that as in the Pilot Version of the JEMIAS.

Appendix B

The Japanese English Medium of Instruction Attitude Scale (JEMIAS)

Student Questionnaire

Section 1 - Biographical Information (4 pages) セクション1 – 基本情報（4ページ分）

Please fill in the blanks, or circle the correct information.

Date 記入日の日付: ________________ Time 時刻: ________________

Type of Student 学生の種類: Undergraduate student (大学学部生) OR Masters student (修士課程学生)

University name 大学名: ________________________________

Academic subject area of study 専攻: ________________ 学部 ________________ 専攻

Gender 性別: ____________________ Age 年齢: ________________

Where did you live for the first 10 years of your life? 生後10年間、どこに住んでいましたか？

Learning through English Experience:

Number of years/months learning at this university: _______ year(s) ______ month(s)現在通う大学での在籍年数／月数

Number of years/months learning through English at this university: _______ year(s) ______ month(s)現在通う大学で英語を使って学んでいる年数／月数

Number of years/months learning through English at university level: _______ year(s) ______ month(s)大学レベルで英語を使って学んでいる年数／月数

Language Background:

What do you consider to be your first language? あなたにとって第一言語はなんですか？

Which language do you feel most comfortable using in your day-to-day life? 日常生活で使用するにあたって最も快適なのはどの言語ですか？
Which second language do you feel most comfortable using in your day-to-day life? ___________ / N/A
日常生活で使用するにあたって最も快適な第二言語はどれですか？

Which third language do you feel most comfortable using in your day-to-day life? ___________ / N/A
日常生活で使用するにあたり最も快適な第三言語はどれですか？

Living Abroad Experience:
海外滞在経験:

Have you ever lived/studied abroad?
海外に住んだり、留学した経験はありませんか？ Yesはい / Noいいえ

If yes, please elaborate below:
「はい」と答えた場合、以下について、詳細を聞かせてください:

1 - Place 場所:

| When いつ: Year 年 | Purpose 目的: Study 勉強 OR Work 仕事 OR Parent working Overseas 両親の仕事の都合 OR Tourism 観光 OR Other その他 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                   | Length of time 期间: ______ year(s)年 ______ month(s)ヶ月 |

2 - Place 場所:

| When いつ: Year 年 | Purpose 目的: Study 勉強 OR Work 仕事 OR Parent working Overseas 両親の仕事の都合 OR Tourism 観光 OR Other その他 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                   | Length of time 期间: ______ year(s)年 ______ month(s)ヶ月 |

3 - Place 場所:

| When いつ: Year 年 | Purpose 目的: Study 勉強 OR Work 仕事 OR Parent working Overseas 両親の仕事の都合 OR Tourism 観光 OR Other その他 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                   | Length of time 期間: ______ year(s)年 ______ month(s)ヶ月 |

4 - Place 場所:

| When いつ: Year 年 | Purpose 目的: Study 勉強 OR Work 仕事 OR Parent working Overseas 両親の仕事の都合 OR Tourism 観光 OR Other その他 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                   | Length of time 期間: ______ year(s)年 ______ month(s)ヶ月 |

5 - Place 場所:

| When いつ: Year 年 | Purpose 目的: Study 勉強 OR Work 仕事 OR Parent working Overseas 両親の仕事の都合 OR Tourism 観光 OR Other その他 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                   | Length of time 期間: ______ year(s)年 ______ month(s)ヶ月 |

For how many years have you studied the English language?
____ year(s)年____ month(s)ヶ月
あなたはこれまでに英語を約何年間学んできましたか？
Are you required to obtain credits through English?  
Yes はい / No いいえ

If yes, how many credits are you required to study through English?  
(If necessary, you can include credits from within the past 2 years.)  
「はい」と答えた場合、今年度に英語を使っていくつの単位履修が求められていますか？（必要であれば、過去2年間の履修単位例を記入してください）

How many hours per week do you learn through English at university?  
一週間に何時間程度、大学で英語を使って学んでいますか？
0 hours 時間 / 1-2 hours 時間 / 3-4 hours 時間 / 5-6 hours 時間 / 7-8 hours 時間 / 9-10 hours 時間 / More than 10 hours 10 時間以上

Do you attend a cram school now while you are studying at university?  
現在、大学と同時に、塾に通っていますか？  Yes はい / No いいえ

If yes, how many hours per week do you attend cram school?  
「はい」で答えた場合、週に何時間、塾に通っていますか？
1-2 hours 時間 / 3-4 hours 時間 / 5-6 hours 時間 / 7-8 hours 時間 / 9-10 hours 時間 / More than 10 hours 10 時間以上

Section 2 - Self-Rated English Language Proficiency (2 pages)  
セクション3- 英語力に対する自己評価 (2ページ分)

Please circle a number on a scale of 1 to 9 to rate your English language ability.  
自分自身の英語力について1から9まで該当する数字に丸をつけてください。

General English language skills 一般的な英語力

- How do you rate your English READING ability?  
英語の読解力はどれくらいだと思いますか？
- How do you rate your English WRITING ability?  
英語を書く力はどれくらいだと思いますか？
- How do you rate your English LISTENING ability?  
英語のリスニング力はどれくらいだと思いますか？
Specific English language skills 特定の英語力

- How do you rate your English SPEAKING ability?
英語のスピーキング力はどれくらいだと思いますか?

- How do you rate your English PRONUNCIATION?
発音の良さはどのくらいだと思いますか?

- How do you rate your English GRAMMAR?
文法力はどのくらいだと思いますか?

- How do you rate your English VOCABULARY?
語彙力はどのくらいだと思いますか?

Section 3 – Attitudinal Survey (19 pages)
セクション4 – 考え方に関するアンケート（19ページ分）

Please circle a number to indicate your level of agreement with the following statements.
以下1-9で該当する番号に丸をつけてください。

| Item 項目 | Strongly Disagree 完全に思わない | Disagree そうは思わない | Neutral どちらでもない | Agree そう思う | Strongly Agree 強くそう思う |
|----------|---------------------------------|-------------------------|-----------------------|----------------|--------------------------|
| 1) I think increasing the number of courses taught through English has made Japanese universities more international. 英語による授業が増えたことで、日本の大学がより国際的になった。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
2) I learn through English to improve my English.

私は英語力向上させるために、英語で授業を取っている。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

3) Because I learn courses in English, I have less time to do things I am interested in.

私が英語で授業履修をしているために、やりたいことをする時間が少なくなっている。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

4) I think a professor interacts less with students in courses taught through English compared to Japanese courses.

教授は、日本語による授業に比べて、英語による授業中のほうが、生徒との交流時間が少ない。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

5) I think it doesn’t make a difference what language professors use to teach in Japanese universities.

教授が日本の大学で教える場合、どの言語を使用しようと違いはない。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

6) I feel my English is not good enough to learn a course through English.

私の英語力は、英語で授業履修をするには十分ではない。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

7) I think Japanese students should be able to speak (should learn English) English because it is a global language.

日本人学生は世界言語である英語を話せるべきだ。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

8) Learning through English is more time consuming than learning through Japanese because I need to look up the correct translations of technical words (jargon).

英語で授業履修するのには、専門用語を調べる必要があるため、通常より準備に時間がかかる。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

9) I think courses taught through English expose Japanese students to people from all over the world with different opinions and beliefs.

英語による授業は、日本人学生にとって、違う意見や信仰をもった世界中の人々と触れ合う機会になっている。

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
10) I learn less actively in course taught through English compared to courses taught through Japanese.

11) I think offering more courses taught through English at Japanese universities has attracted top quality foreign university students to study in Japan.

12) I think providing more courses in English gives Japanese students the opportunity to discuss serious issues in English.

13) I think that in courses taught through English students speak a lot less than in courses taught through Japanese. 日本語による授業に比べて、英語による授業中のはが学生の発言数が大幅に少ないと思う。

14) I think that increasing English taught programmes in Japanese universities is not practical.

15) I think Japanese students struggle with courses taught through English because of their low English level. 日本人学生が英語力が低いので、授業についていくのが難しい。

16) Because I learn through English, I can remember and retain my English.

17) It is difficult for me to explain topics specifically related to Japan (e.g. Japanese History) in English.
| 関連した話題を英語で説明するのは難しい。 |
|----------------------------------------|
| 18) I think that students’ mixed English ability has a negative effect on my learning. |
| 学生間の英語力の違いは、私 の学習に悪影響を与えている と思う。 |
| 1 2 3 4 5 6 7 8 9 |
| 19) I think that Japanese people should improve their English so that they can make a good impression during the 2020 Olympics. |
| 2020年のオリンピック時に外国人に良い印象を与えるため、日本人は英語力を向上させる必要がある。 |
| 1 2 3 4 5 6 7 8 9 |
| 20) I think it is not necessary to learn English in Japan because many Japanese companies are not expanding abroad. |
| 多くの日本企業は海外進出をしていないため、日本で英語を勉強する必要はないと 思う。 |
| 1 2 3 4 5 6 7 8 9 |
| 21) When I learn through English I feel the formal relationship between the professor and I is lessened. |
| 私が英語で授業を取る時、教授との上下関係が緩くなる。 |
| 1 2 3 4 5 6 7 8 9 |
| 22) I feel I lack enough English vocabulary. |
| 私には英語の語彙力が足りない。 |
| 1 2 3 4 5 6 7 8 9 |
| 23) It is good to learn courses in English because then I can learn from subject-standardised English textbooks. |
| コースに特化した英語の標準 的教科書から学ぶことができ るので英語の授業を取ること は役にたつ。 |
| 1 2 3 4 5 6 7 8 9 |
| 24) I think courses in English provide Japanese students with the opportunity to talk and exchange ideas with international students. |
| 日本人学生にとって、英語で 授業を取ることは、留学生と 話をして、アイディアを交 換したりする機会になってい る。 |
| 1 2 3 4 5 6 7 8 9 |
| 25) I think that graduating students will not be paid a higher premium if they can do their job in English. |

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卒業後に英語で仕事ができたとしても、より良い給料は得られないと思う。

26) Learning courses through English means I have access to more learning resources compared to learning through Japanese.

27) I think that students will not need English to work for a local Japanese company.

28) I think that students should achieve a certain TOEIC/TOEFL/IELTS score before being allowed to take courses taught through English.

29) I think it is good for Japanese universities to teach more courses through English because the Japanese business world is starting to use more English.

30) I think that Japanese students need English if they want to do anything beyond Japan.

31) Professors teaching through Japanese are stricter than professors teaching through English.

32) When I learn through English, it is difficult for me to express myself and explain concepts clearly.

33) I think the reason that Japanese students can be taught by more
34) I think that it takes a lot more time to do assessment (e.g. write essays) in English than in Japanese.
以前に比べて英語によるコースが増えたため、日本人学生は優秀な外国人の教授に教えてももらえる。

35) In English courses the professor highlights important information more than in Japanese courses.
日本語のコースに比べて、英語によるコースのほうが、教授が重要な情報を強調してくれる。

36) I think that professors teaching through English in Japan teach exactly the same way as if they would teach in America.
日本で英語を使って授業を行う教授は、アメリカで教えるかのように、全く同じ方法で教えている。

37) The professor asks us to have more discussions in courses taught through English compared to courses taught through Japanese.
日本語によるコースに比べて、教授は英語によるコースのほうが学生にディスカッションを求めている。

38) I think that there are very few opportunities to speak English in Japan.
日本国内では英語を話す機会がほとんどない。

39) I think that the rate at which English courses are expanding is having a negative effect on teaching and learning.
英語によるコース増加のスピードが、教える側・学ぶ側両方に悪影響を与えている。
| 40) I think that there are very few opportunities to use English in everyday life in Japan. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 41) If the professor cracks a joke in English, I sometimes don’t understand it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 42) International students give me feedback on my English, which helps me improve my learning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 43) I think that one advantage of learning through English is learning the most up-to-date research from top ranking journals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 44) I think that one advantage of learning through English is that Japanese professors and students get the opportunity to collaborate with foreign researchers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 45) I think it is challenging for professors to find level-appropriate English materials for Japanese students. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 46) I think that an increase in courses taught through English in Japanese universities has had a negative impact on teaching and learning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 47) When a course is taught through English the professor explains things more directly than when he/she teaches through Japanese. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
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Time 時刻: ________________

------------------------------------------------------------------------------------------------------------------------------------ THE END 終わり------------------------------------------------------------------------------------------------------------------------------------

Thank you very much!! ありがとうございました。

Thank you very much for taking the time to complete this questionnaire.

アンケートにご協力いただき、ありがとうございました。
## Appendix C

### Confirmatory Factor Analysis: Items and Factors (Phase 3)

| Factor Number | Items making up Factor |
|---------------|------------------------|
| Factor 1      |                        |
| ITEM 3        | Because I learn courses in English, I have less time to do things I am interested in. |
| + ITEM 14     | I think that increasing English taught programmes in Japanese universities is not practical. |
| + ITEM 39     | I think that the rate at which English courses are expanding is having a negative effect on teaching and learning. |
| + ITEM 46     | I think that an increase in courses taught through English in Japanese universities has had a negative impact on teaching and learning. |
| + ITEM 48     | I think that increasing courses taught through English has a negative effect on teaching and learning because university students’ and professors’ English skills are inadequate. |
| Factor 2      |                        |
| ITEM 2        | I learn through English to improve my English. |
| + ITEM 9      | I think courses taught through English expose Japanese students to people from all over the world with different opinions and beliefs. |
| + ITEM 10     | I learn less actively in course taught through English compared to courses taught through Japanese. |
| + ITEM 11     | I think offering more courses taught through English at Japanese universities has attracted top quality foreign university students to study in Japan. |
| + ITEM 12     | I think providing more courses in English gives Japanese students the opportunity to discuss serious issues in English. |
| + ITEM 16     | Because I learn through English, I can remember and retain my English. |
| + ITEM 18     | I think that students’ mixed English ability has a negative effect on my learning. |
| + ITEM 23     | It is good to learn courses in English because then I can learn from subject-standardised English textbooks. |
| + ITEM 24     | I think courses in English provide Japanese students with the opportunity to talk and exchange ideas with international students. |
| + ITEM 26     | Learning courses through English means I have access to more learning resources compared to learning through Japanese. |
| + ITEM 44     | I think that one advantage of learning through English is that Japanese professors and students get the opportunity to collaborate with foreign researchers. |
| + ITEM 47     | When a course is taught through English the professor explains things more directly than when he/she teaches through Japanese. |
| Factor 3      |                        |
| ITEM 6        | I feel my English is not good enough to learn a course through English. |
| + ITEM 8      | Learning through English is more time consuming than learning through Japanese because I need to look up the correct translations of technical words (jargon). |
| + ITEM 22     | I feel I lack enough English vocabulary. |
| + ITEM 32     | When I learn through English, it is difficult for me to express myself and explain concepts clearly. |
| + ITEM 34     | I think that it takes a lot more time to do assessment (e.g. write essays) in English than in Japanese. |
| + ITEM 41     | If the professor cracks a joke in English, I sometimes don’t understand it. |
| Factor 4      | ITEM 7                 |
| Factor Number | Items making up Factor |
|---------------|------------------------|
|               | I think Japanese students should be able to speak (should learn English) English because it is a global language. |
|               | + ITEM 19 I think that Japanese people should improve their English so that they can make a good impression during the 2020 Olympics. |
|               | + ITEM 20 I think it is not necessary to learn English in Japan because many Japanese companies are not expanding abroad. |
|               | + ITEM 27 I think that students will not need English to work for a local Japanese company. |
|               | + ITEM 28 I think that students should achieve a certain TOEIC/TOEFL/IELTS score before being allowed to take courses taught through English. |
|               | + ITEM 29 I think it is good for Japanese universities to teach more courses through English because the Japanese business world is starting to use more English. |
|               | + ITEM 30 I think that Japanese students need English if they want to do anything beyond Japan. |
| Factor 5      | ITEM 38 I think that there are very few opportunities to speak English in Japan. |
|               | + ITEM 40 I think that there are very few opportunities to use English in everyday life in Japan. |
| Factor 6      | ITEM 4 I think a professor interacts less with students in courses taught through English compared to Japanese courses. |
|               | + ITEM 13 I think that in courses taught through English students speak a lot less than in courses taught through Japanese. |
|               | + ITEM 36 I think that professors teaching through English in Japan teach exactly the same way as if they would teach in America. |
Appendix D.

JEMIAS scale names and Items

| Scale Name                                      | Scale Items                                      |
|------------------------------------------------|--------------------------------------------------|
| Self-rated English Proficiency                  | ITEM6+ITEM17+ITEM22+ITEM32+ITEM41                |
| Student-English Proficiency                     | ITEM15+ITEM18+ITEM28+ITEM50                      |
| EMI as a form of English Improvement            | ITEM2+ITEM16+ITEM42                              |
| Mixing/Collaborating with Foreigners            | ITEM9+ITEM11+ITEM24+ITEM44                       |
| Access, quality, and difficulty of teaching/learning Materials | ITEM23+ITEM26+ITEM43+ITEM45                       |
| The effect of EMI on classroom dynamics         | ITEM21+ITEM31+ITEM35+ITEM36+ITEM47               |
| The effects of EMI on pedagogy                  | ITEM4+ITEM10+ITEM13+ITEM37                       |
| The positive effects of increased EMI courses   | ITEM1+ITEM12+ITEM33+ITEM51                       |
| The negative effects of increased EMI courses   | ITEM5+ITEM14+ITEM39+ITEM46+ITEM48                |
| EMI takes up more Time                          | ITEM3+ITEM8+ITEM34                               |
| English is (un?)necessary in Japan              | ITEM20+ITEM38+ITEM40                             |
| English beyond Japan                            | ITEM7+ITEM19+ITEM30                              |
| English for Work                                | ITEM25+ITEM27+ITEM29+ITEM49                      |