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Using a Principled Approach to Developing a Personality Questionnaire

Rick Romanko, ***Wayo Women's University, Chiba, Japan*****.**

Miyuki Nakatsugawa, ***Keio University, Tokyo, Japan*****.**

Bio Data

Rick Romanko is an associate professor at Wayo Women's University in Chiba, Japan. He holds an M. Ed. in TESOL from Temple University. His research interests include corpora-informed vocabulary and language learning and developing extensive reading programmes.

Miyuki Nakatsugawa is a lecturer at Keio University in Tokyo, Japan. She holds an M. Ed. in TESOL from Temple University. Her research interests focus on developing theoretically and empirically sound language teaching practices.

Abstract

Dörnyei (2010) suggests that careful and creative questionnaire construction informed by the principles of survey research can result in an instrument that cultivates reliable and valid data, which in turn can be processed in a scientifically sound manner. On a more practical note, questionnaires are familiar to most people and are efficient in terms of researcher time, effort and financial resources. Despite these potential strengths and practicalities, questionnaires are also known to be notoriously difficult to design well. Designing effective questionnaires involves the consideration of a number of issues during different stages of the design process. This paper describes the first seven major steps to constructing a questionnaire and then, it reports on how the seven steps were implemented to develop a bank of question items to measure five different aspects of learner personality of Japanese university students. Practical suggestions for developing questionnaires based on survey research and functional instructions for data analysis using SPSS are provided.

Key Words

Questionnaire design, item analysis, SPSS, learner personality

Introduction

"This survey is completely anonymous and your information will not be shared with anyone." "Please take a few minutes to fill out the questionnaire as completely as possible." "We appreciate you taking the time to complete our survey." We all know what questionnaires[i] are and phrases like the ones above have become a familiar part

of our day-to-day lives. Customer satisfaction, job satisfaction, online product feedback, performance reviews, public opinion polls and even RSVP and feedback surveys are just a few examples of how questionnaires are used in our everyday lives. They are a popular and frequent source of data collection in marketing research for companies trying to better understand consumer preferences and interests. They are also prevalent in social research and regularly used by teachers and researchers in various educational settings.

Dörnyei (2010) states that in the field of second language research, questionnaires are one of the most common methods of data collection. He remarks that as a research tool, only language proficiency tests are used more frequently than questionnaires. Their popularity stems from being relatively easy to construct, versatile, and capable of collecting large amounts of data quickly (p. xiii). However, "questionnaires are often completed hastily and carelessly" (Gillham, 2008, p. 9) and as Gillham and others (see for example, Brown, 2001; Dörnyei, 2010; Nation & Macalister, 2010) caution, "developing a questionnaire that will yield worthwhile data is difficult" (p. 1). Dörnyei (2010) suggests that careful and creative questionnaire construction informed by the principles of survey research can result in an instrument that cultivates reliable and valid data, which in turn can be processed in a scientifically sound manner.

Questionnaire Design

Designing effective questionnaires involves the consideration of a number of issues during different stages of the design process, which can be broken down into three main parts: (1) constructing the questionnaire, (2) administering the questionnaire, and (3) processing and analysing the questionnaire data. The different steps in the three phases are outlined in Figure 1, the first phase represented by the first seven boxes, the second phase represented by the eighth box, and the third phase represented by the last three boxes.

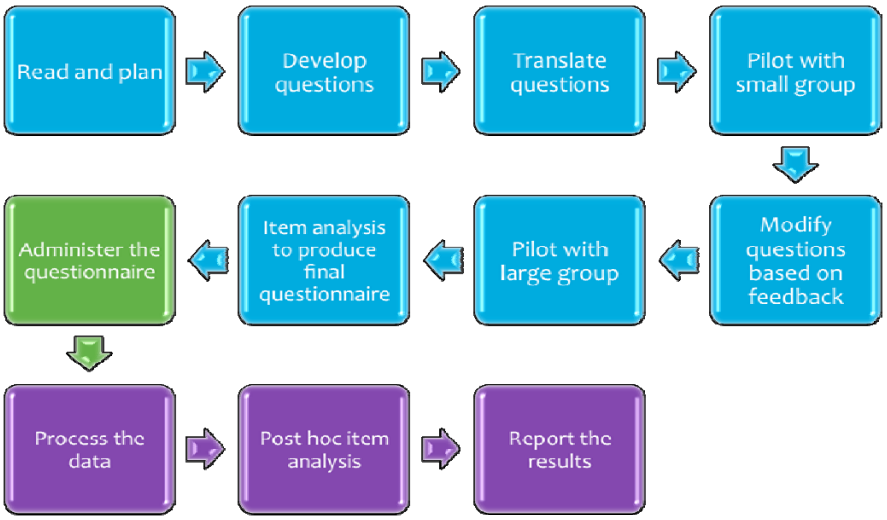

Figure 1. The questionnaire design process

This paper is part of a larger study that aimed to investigate how learners' pragmatic appropriateness in English is influenced by their personality and their willingness to communicate (WTC) in English. An instrument was developed to measure each construct: a pragmatic appropriateness test, a WTC questionnaire, and a personality questionnaire. The personality questionnaire will be discussed in this paper. We will begin with a brief overview of the first seven steps in the constructing the questionnaire phase of the questionnaire design process. Then, we will report on how the seven steps were implemented to develop a bank of question items to measure five different aspects of learner personality of Japanese university students (for comprehensive instructions and suggestions on the whole questionnaire design process related to second language research see Brown, 2001; Dörnyei, 2010; and for social research, see Fowler, 2009; Gillham, 2008).

Constructing a Questionnaire

Step 1. Read and Plan

The first step in questionnaire development is determining what exactly it is you want to find out. And in order to do this you have to read and plan before you start to write questions. Once you have "maximized your knowledge of those areas of inquiry that bear on your research by having comprehensively surveyed the relevant literature"

(Murray & Beglar, 2009, p. 54), you can then process the information and begin to focus on your detailed research questions. Your research questions can then be used as a tentative starting point for generating a pool of specific questions for your questionnaire (Brown, 2001; Gillham, 2008).

Step 2. Develop Questions

The questionnaire items you use will become "the principal means for the researcher to communicate with the respondents" (Dörnyei, 2010, p. 40), and since "good research cannot be built on poorly collected data" (Gilliam, 2008, p. 1), the need to produce high quality items is indispensable. In order to produce high quality items, it is important to use question writing strategies informed by survey research such as: (a) writing twice as many items as you hope to have in the end, (b) using respondent friendly wording, (c) borrowing or adapting questions from established research instruments, (d) asking one question per question, and (e) using multiple items to measure each construct you are investigating (for comprehensive lists of question writing strategies see for example Brown, 2001; Dörnyei, 2010; Fowler, 2009; Gillham, 2008).

Step 3. Translate Questions

The underlying assumption behind translation is that the quality of the data increases if the questionnaire is given in the respondents' mother tongue (Dörnyei, 2010, p. 49). Since most published and well-established second language research questionnaires are written in English (for a selected list see Dörnyei, 2010, pp. 173-178), borrowed or adapted items from those questionnaires will need to be translated into the first language of your respondents. The aim is to produce as close a translation to the original using target language similar to what respondents would naturally say or use. After translation is complete, it is necessary to ensure equivalence between the original questions and the translated questions using external evaluations and/or back

translation (for detailed instructions and suggestions on translating questionnaires see Dörnyei, 2010, pp. 48-51).

Step 4. Pilot the Questionnaire with a Small Group

In order to make the best use of one's time and produce valid results, it is important to make sure an experiment will run well before you do the actual experiment (Nation & Webb, 2010). When using a questionnaire to collect data for an experiment:

> so much depends on the actual wording of the items (even minor differences can change the response pattern), an integral part of questionnaire construction is… *piloting* the questionnaire at various stages of its development on a sample of people who are similar to the target sample the instrument has been designed for. (Dörnyei, 2010, p. 53)

For small group piloting, select two or three students of differing proficiency levels that are similar to the intended sample population and one or two trusted colleagues and individuals who are not specialists in your field to "go through it [your questionnaire] while you watch and are there to deal with queries" (Gillham, 2008, p. 42). The aim of the first small group pilot test is to see what problems arise and yield feedback on things such as: wording, comprehension of questions, clarity of instructions, completion time needed, and layout.

Step 5. Modify Questions Based on Feedback

"You should analyse the pilot results very carefully" (Brown, 2001, p. 62) and based on this feedback you can put together a "near-final version of the questionnaire" (Dörnyei, 2010, p. 55). Up to this point you will have put a lot of time and effort into your questionnaire so it is important to remember "the creator should never take the criticisms personally" (Brown, 2001, p. 62). Instead, look for feedback "that can help to reword and refine directions, questions, [and] response categories…" (p. 63) while keeping in mind the strategies and guidelines you used to develop high quality items.

Step 6. Pilot the Questionnaire with a Large Group

As Gillham (2008) points out, “what you find in the sort of trials when the expert is there to supervise what is going on is different from what happens in real-world conditions” (p. 42). You need to simulate the main study and administer the near-final version of your questionnaire “to a group of respondents who are in every way similar to the target population the instrument is designed for” (Dörnyei, 2010, p. 56). This “dress rehearsal” (p. 55) needs to be conducted with a pilot sample of around 100 (± 20), but not smaller than 50 so you can do meaningful item analysis (p. 56), which is the last step in the constructing the questionnaire phase of the overall design process. The final piloting should of course be conducted under the same conditions as the main administration of the questionnaire.

Step 7. Analyse the Items and Produce a Final Questionnaire

Questionnaires are “designed to provide statistical descriptions of people” (Fowler, 2009, p. 1) and in order to report those descriptions, you need to carefully analyse the data collected with your instrument. Item analysis comes at two stages in the questionnaire design process: first, after the “dress rehearsal” in the final piloting stage, and again after the final version of the questionnaire is administered (see Figure 1). In the first case, the results are used to fine tune items and scales and produce the final version of the questionnaire. In the second case, the “post hoc analysis” is used to flag any items that have not worked well and as a result may be candidates for discarding from the study (Dörnyei, 2010, p. 56). In both cases, the use of statistical software packages will help questionnaire developers process both their quantitative and qualitative data (see for example the database of the Association for Survey Computing [http://www.asc.org.uk/resources/software-register] which has a comprehensive and up to date list of over 210 software packages, and their detailed attributes, for statistical and social survey analysis). During this step of the process questionnaire developers need to keep in mind that “before we discard an item on the basis of the item analysis, we should first consider how the particular item fits in with

the overall content area of the whole scale" (Dörnyei, 2010, p. 57) (for comprehensive suggestions and instructions on statistical analysis of data from closed-ended questions and qualitative analysis of data from open-ended questions, see Brown, 2001; Dörnyei, 2010; Gillham, 2008).

Applying the Steps to Develop a Personality Questionnaire

The seven steps described above were applied to the task of developing a questionnaire to measure the personality traits of Japanese university students.

Step 1. Read and Plan

For our personality construct, the first step was to learn from the literature what was already known about learner personality. A review of the literature revealed that personality was one of the most studied themes in the history of psychology with it roots dating back over a hundred years (see Dörnyei, 2005 for a review of learner personality). Over the years, numerous personality theories were developed across different psychological paradigms, and so there were instruments for measuring personality traits and facets yet often in isolation from these theories (Dörnyei, 2005, p. 10). This state of disorder was brought to an end with the development of taxonomies which identified the main dimensions of human personality (Dörnyei, 2005). In particular, *the big five model* (e.g., Goldberg, 1992; McCrae & Costa, 2003) which emerged from the analysis of adjectives for characterising people in the English language, is now widely accepted and adopted in the personality literature. The five dimensions in this construct: (1) *extraversion*, (2) *agreeableness*, (3) *conscientiousness*, (4) *emotional stability*, and (5*) intelligence/imagination* have been found to represent the central features of human personality in empirical studies both within and across cultures. The fact that these traits have emerged more or less consistently across diverse cultures has led researchers to suggest that these universal traits evolved as a response to "core challenges from the ancestral environment" (Heine & Buchtel, 2009, p. 378).

The development of the big five model was accompanied by attempts to measure this fundamental construct. Numerous instruments were developed for measuring individual traits, as well as for broad personality inventories. While many of the personality inventories were proprietary instruments (e.g., the MMPI, CPI, 16PF, and NEO-PI), Goldberg (1999) suggested that these instruments should be freely accessible to the public so they can be subjected to ongoing validation and improvement (pp. 7-8). Goldberg established an online "collaboratory" (Finholt & Olson, 1997), the International Personality Item Pool (IPIP), which continues to offer a large pool of questionnaire items written and tested to measure the traits underlying pre-existing personality inventories (Goldberg, 1999, p. 9).

Steps 2 and 3. Develop Questions and Translate Questions

Following the review of the personality literature, the next step in our study was to develop the initial set of questionnaire items. Since "personality" is such a comprehensively researched topic and the items in the IPIP resource pool have been used frequently and been through extensive piloting, we decided not to try to "reinvent the wheel" and instead, draw on the IPIP resource (http://ipip.ori.org/ipip/). Because IPIP had already been translated into more than thirty languages, the Japanese version was adopted and slightly modified to match the context of our study. Although the questions were already in Japanese we still followed Dörnyei's (2010) applicable suggestions for translation to make sure the language and questions were appropriate for our specific population. Seven items for each of the five personality traits were selected to form the initial 35-item questionnaire (see Appendix A). Items were placed on a 5-point Likert scale. Positively and negatively worded items were included to avoid respondents marking only one side of the rating scale (Dörnyei, 2010, p. 43) and to reduce the harmful effects of any acquiescence bias (p. 9). The breakdown of items into the five personality dimensions are given in Table 1.

Dimensions	Items
Extraversion	1, **4, 6,** 8, **11, 15,** 21
Agreeableness	**2, 13,**18, 19, 26, 28, **31**
Conscientiousness	3, **16,** 22, **23,** 27, 30, **32**
Emotional Stability	7, 9, 17, **20, 25,** 29, **34**
Intelligence/Imagination	5, 10, **12,** 14, **24,** 33, **35**

Table 1.Hypothesis of Dimension and Item Loading for Personality

Note. Bold font indicates negatively worded items.

Step 4. Pilot the Questionnaire with a Small Group

The questionnaire items were then piloted on five Japanese native speakers of varying age and backgrounds, including research peers, adults, and college students. The purpose of this pilot was to examine the questionnaire for general comprehensibility, for clarity of instructions and procedures, and for average completion time.

Step 5. Modify Questions Based on Feedback

Feedback from the informants, particularly with regards to word choice and comprehensibility was addressed in the revision process.

Step 6. Pilot the Questionnaire with a Large Group

Finally, the refined version of the personality questionnaire was formatted for administration. The paper-and-pencil survey was administered to 542 Japanese students at five different universities in the greater Tokyo area. Dörnyei (2010) recommends a sample size of around 100 (± 20) for a large-group pilot (p. 55) to see "what happens in real-world conditions" (Gillham, 2008, p.42). However, since the IPIP items we adapted were already thoroughly tested and validated, we hypothesised that they would work well and would require few changes. Thus we opted for a sizeable large-group pilot sample in anticipation that "it may be possible to use at least some of the obtained data for the purpose of the 'real' investigation" (Dörnyei,

2010, p. 56). The universities were of varying levels of prestige, covering a wide range of proficiency levels. Respondents were kept anonymous but their IDs were recorded to allow for later analyses with different data sets (for strategies for getting around anonymity see Dörnyei, 2010, pp. 80-82). After administration, the questionnaire data were first checked for missing responses and then entered into an Excel sheet. Negatively worded items were reverse-coded before data entry. Finally, the data file was exported to *SPSS 13 for Windows* to be used in the item analyses.

Step 7. Analyse the Items and Produce a Final Questionnaire

The item analyses using SPSS proceeded through four major stages: (1) *principle component analysis* (PCA); (2) *principle factor analysis* (PFA); (3) decision-making based on PCA and PFA; and (4) internal consistency/reliability analysis. PCA and PFA are forms of *exploratory factor analysis* (EFA), which serve to "identify potential underlying dimensions in a scale" and to "reduce the number of items on a scale so that the remaining items maximise the explained variance in the scale and maximise the scale's reliability" (Netemeyer, Bearden, & Sharma, 2003, p. 121). In the case of scale development, PCA and PFA can be used in a complementary manner to "evaluate a potential a priori theoretical factor of measures and as a tool to reduce the number of items" (p. 121). The reliability analysis in the final stage of the item analysis checks if each of the resulting scales consistently measures the target dimension. Thus the overall goal of the item analyses was to develop a set of reliable scales by wringing out the weak items with an increasingly tighter "squeeze" at each stage of the item analysis process.

The basic procedures and settings for using SPSS are summarised in Appendix B. Detailed instructions for using SPSS can be found in books such as *Discovering Statistics Using SPSS* (Field, 2009) and *Using SPSS for Windows and Macintosh: Analyzing and Understanding Data* (Salkind & Green, 2008). The following description of the item analyses with SPSS focuses on the settings used for each

analysis, the interpretations of the output tables, and the decision-making processes based on the statistical results obtained.

Four Stages of Item Analyses using SPSS

Stage 1: Principle component analysis

The personality items were submitted to PCA using the *principle components* extraction method. The criteria settings for the analysis were: eigenvalues > 1.0, scree test, varimax rotation, and suppression of loadings < .30 (Netemeyer, et al., 2003, pp. 122-123). After running the analysis, three output tables: *Total Variance Explained*, *Scree Plot*, and *Rotated Component Matrix*, were examined. The *Total Variance Explained* estimates the number of components (factors) with eigenvalues > 1, and the amount of variance explained by each of these factors. In our data, nine factors were extracted with 59.08% of the total variance explained by these factors (see *Total Variance Explained* output screen in Appendix C). Seven factors independently accounted for more than 5% of the variance, which is one of the criteria for identifying a substantive factor (Hair, Anderson, Tatham, & Black, 1998, as cited in Netemeyer et al., 2003, p. 124). The *Scree Plot* displays a curved line connecting eigenvalues plotted in a graph. The point of inflection in the curve indicates the number of substantive factors for retention, which is another often advocated rule of thumb for factor extraction (Netemeyer et al., 2003, p. 123). Our data suggested five factors, which was consistent with the a priori hypothesis of five personality traits (see *Scree Plot* in Appendix C). The *Rotated Component Matrix* lists the magnitudes of loadings of each item onto the extracted factors. Items loading exclusively onto one factor are strong candidates for retention. In contrast, cross-loaded items are weak and thus considered for deletion, except for those items loading positively on one factor and negatively on another (Ross, 2009). Results showed that five items loaded exclusively on Factor 1, four items on Factor 2, five items on Factor 3, three items each on Factors 4, 5, 6 and 7, and one item each on Factors 8 and 9; while five items

cross-loaded on more than one factor; and two items cross-loaded with +/- loadings (see *Rotated Component Matrix* in Appendix C).

Stage 2: Principle factor analysis

Following PCA, the second stage of item analysis, PFA, was conducted. PFA has similar purposes and solutions to PCA but provides a tighter analysis by exclusively accounting for shared variances between each item and the underlying factors (Ross, 2009). The extraction method was changed to *principal axis factoring* and the eigenvalue > 1 criterion changed to a 5-factor forced solution based on the a priori hypothesis suggesting five personality traits. The scree plot result from PCA indicated five major factors in the data. All of the other settings used in the PCA were retained.

The total variance explained with the 5-factor solution dropped to 36.62%, however, each of the five factors still independently accounted for more than 5% of the variance. The Scree Plot strongly indicated five substantive factors in the data. Results from the *Rotated Factor Matrix* indicated that: six items loaded exclusively on Factor 1, five items on Factor 2, seven items on Factor 3, five items on Factor 4, and four items on Factor 5; one item cross-loaded with +/- loadings; and five items failed to load on any of the factors above the .30 threshold (see Appendix D for all three SPSS output screens of the PFA). Furthermore, Items 5 and 22 behaved inconsistently with the a priori hypothesis, which called for in-depth evaluation. Item 5 was intended to be a measure of intelligence/imagination but instead loaded on the conscientiousness dimension. Item 22 was originally a conscientious item but loaded negatively on extraversion. These were signs of potential problems with the items, suggesting their possible deletion from the questionnaire.

Stage 3: Decisions on item retention

Based on the results from PCA and PFA, together with the a priori hypothesis, final decisions were made as to which items to retain or delete. Only the items that loaded exclusively onto a single dimension in both PCA and PFA were retained (Ross, 2009).

Item 20, which showed a +/- loading, was also retained because it loaded positively on emotional stability as intended. Items 5 and 22 were deleted due to their ambiguity. The initial questionnaire which started with 35 items was reduced to 23. The remaining items and the corresponding factors are summarised in Table 2.

Factors/Traits	**Items**
Factor 1: Extraversion	1, **4**, **6**, 8, **11**
Factor 2: Agreeableness	**2**, **13**, 18, 28, **31**
Factor 3: Conscientiousness	**16**, 22, **23**, 27, 30
Factor 4: Emotional Stability	**20**, **25**, 29, **34**
Factor 5: Intelligence/Imagination	10, **12**, 14, **35**

Table 2. Dimensions and Items Retained after Exploratory Factor Analysis

Note. Bold font indicates negatively worded items.

Stage 4: Internal consistency estimate of reliability and saving factor scores

The final stage in the item analyses was to check the dimensionality/reliability of each scale. The most common measure of scale reliability is *Crombach's alpha*, which is estimated by "splitting the data in two in every possible way and calculating the correlation coefficient for each split" (Field, 2009, p. 674). While researchers suggest different criteria for item deletion/retention, an alpha value in the range of .70 ~.80 for a new scale is generally recommended (p. 679).

Using SPSS reliability statistics, items for each scale were entered and estimated separately. *Alpha* was selected as the statistical model and *descriptives for scale if item deleted* was ordered. After running the analysis, two output tables were examined: *Reliability Statistics* which provides the Crombach's alpha value; and *Crombach's Alpha if Item is Deleted* in *Item-Total Statistics* to check whether deleting any of the items would improve the alpha level. The alpha values for extraversion, agreeableness, conscientiousness, emotional stability, and intelligence/imagination were .77, .80, .68, .74, and .74 respectively. None of the alpha values were to improve

with further item deletion. Finally, these alpha values were compared to those of the initial 7-item scales (see Table 3). This comparison showed that although each scale was shortened through the process of item analysis and deletion, the reliability improved on all scales.

Personality Constructs	**Number of items and Cronbach's Alpha before EFA item analysis**	**Number of items and Cronbach's Alpha after EFA item analysis**
Extraversion	7 (.74)	5 (.77)
Agreeableness	7 (.74)	5 (.80)
Conscientiousness	7 (.64)	6 (.68)
Emotional Stability	7 (.72)	4 (.74)
Intelligence/Imagination	7 (.71)	4 (.74)

Table 3. Scales Before and After Internal Consistency Estimates of Reliability

Note. Values in parentheses indicate Cronbach's alpha scores. EFA = exploratory factor analysis.

One final strategy with the exploratory factor analysis was to save *factor score*s (as a z-score), which provided a standardised score for each person on each dimension of personality that could be used in other statistical analyses (for SPSS settings see Appendix B, for an explanation of factor scores and their various uses see Field, 2009, pp. 633-636). This allowed us to use the results of the personality questionnaire to explore our larger research question: the relationship between the learners' personality, WTC and their pragmatic appropriateness in English.

By using a step-by-step principled approach to questionnaire development and following seven basic steps we were able to successfully develop a bank of question items that measure five different aspects of learner personality of Japanese university students. Furthermore, the item analysis assisted us in creating more concise, stronger scales for each of the five personality constructs. These questions can now be used

with greater confidence in constructing a final version of the questionnaire that would in turn be administered to a new sample of Japanese university students.

A well-developed questionnaire is a fundamental tool for collecting empirical data. It allows for accurate and consistent data collection across time and different samples. These data can be transformed into standardised scores, which can then be analysed in relation to other constructs to answer greater research questions. For example, our personality measures were used as independent variables in a *path analysis* (see for example, Tabachnick & Fidell, 2007, pp. 676-780) to investigate their effects on willingness to communicate and the subsequent development of pragmatic appropriateness in English.

Conclusion

This paper aimed to elucidate a questionnaire design process informed by the principles of survey research in order to procure reliable data. It is imperative for teachers and researchers who plan to use questionnaires to start off on the right foot by first maximizing their knowledge of their area of inquiry. Once they have done this, they can clarify what they want to investigate in light of theory and formulate their research questions. After that, they can begin the item writing process and if need be, the translation of those items into the target language of their respondents. Once those steps are complete, they can enter the piloting stage of the design process in order to collect valuable feedback that will help them refine and polish their questionnaires. Finally, they can perform item analyses on the pilot data to fine tune their items and produce a final version of their questionnaire.

We are hopeful that the step-by-step principled approach to questionnaire development discussed in this paper, accompanied by the particulars of how those steps were implemented to develop items for a personality questionnaire, will aid neophyte and experienced researchers alike in developing effective questionnaires for their specific research purposes.

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Footnotes

(i) Although Gillham (2008) states “surveys are a main method in social research; and questionnaires the instrument most commonly used” (p. 81), for the purposes of this paper we will use the terms survey and questionnaire interchangeably to refer to “any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers” (Brown, 2001, p. 6).

Appendix A

Initial 35-Item Personality Questionnaire

Items in Japanese	Items in English
1．宴会の盛り上げ役である	Am the life of the party (E+)
2. 他人の問題には興味がない	Am not interested in other people's problems (A-)
3. 秩序を重じる	Like order (C+)
4. 引っ込み思案である	Keep in the background (E-)
5. ものごとの理解が速い	Am quick to understand things (I+)
6. 人見知りをする	Am quiet around strangers (E-)
7. 穏やかに落ち着いていることが多い	Am relaxed most of the time (ES+)
8. パーティーではいろいろな人と話す	Talk to a lot of different people at parties (E+)
9. 動揺しやすい	Get upset easily (ES-)
10. 想像力が豊かである	Have a vivid imagination (I+)
11. 寡黙である	Have little to say (E-)
12. 抽象的な概念を理解できないことがある	Have difficulty understanding abstract ideas (I-)
13. あまり他人のことが気にならない	Feel little concern for others (A-)
14. 発想が豊かである	Am full of ideas (I+)
15. 回りに人がいても気にならない	Feel comfortable around people (E+)
16. 忘れ物が多い	Leave my belongings around (C-)
17. 気分が変わりやすい	Change my mood a lot (ES-)

18. 人に共感しやすい	Sympathize with others' feelings (A+)
19. 心が優しい	Have a soft heart (A+)
20. 心配性である	Worry about things (ES-)
21. 人に注目されるのは嫌ではない	Don't mind being the center of attention (E+)
22. 計画性がある	Follow a schedule (C+)
23. 使ったものをもとに戻さないことが良く ある	Often forget to put things back in their proper place (C-) 23
24. 抽象的な考えには興味がない	Am not interested in abstract ideas (I-)
25. イライラしやすい	Get irritated easily (ES-)
26. 他人に安ど感を与える	Make people feel at ease (A+)
27. 細かいことに注意が向く	Pay attention to details (C+)
28. 他の人に興味がある	Am interested in people (A+)
29. 落ち込むことはめったにない	Seldom feel blue (ES+)
30. いつも用意周到である	Am always prepared (C+)
31. 他人にあまり興味がない	Am not really interested in others (A-)
32. 無茶なことをする	Make a mess of things (C-)
33. ものごとをじっくりと考える	Spend time reflecting on things (I+)
34. ストレスが溜まりやすい	Get stressed out easily (ES-)
35. 想像力に乏しい	Do not have a good imagination (I-)

Note. E = extroversion; A = agreeableness; C = conscientiousness; ES = emotional stability; I = intelligence/imagination. + indicates a positively worded item. – indicates a negatively worded item.

Appendix B

Detailed Steps to Follow in SPSS

Principal Component Analysis (PCA) Choose *Analyze*, Choose *Data Reduction*, Choose *Factor*. Select the items and move them into the *Variables* box. Then click *Extraction*. For *Method* select *Principal Components*, tick *Scree plot* and *Eigenvalues over 1.0* and click *Continue*. Then click *Rotation*. Tick *Varimax* and click *Continue*. Then click *Options* and tick *Sorted by size* and *Suppress absolute values less than .30* and click *Continue*. Click *OK* to run analysis.
Principal Factor Analysis (PFA) Choose *Analyze*, Choose *Data Reduction*, Choose *Factor*. Select the items and move them into the *Variables* box. Then click *Extraction*. For *Method* select *Principal Axis Factoring*, tick *Scree plo*t and *Number of factors* (enter the number of factors you hypothesise) and click *Continue*. Then click *Rotation*. Tick *Varimax* and click *Continue*. Then click *Options* and tick *Sorted by size* and *Suppress absolute values less than .30* and click *Continue*. Click *OK* to run analysis.
Saving Factor Scores Choose *Analyze*, Choose *Data Reduction*, Choose *Factor*. Select the items and move them into the *Variables* box. Use the same settings as above for PFA. Then click *Scores*. Tick *Save as variables* and for *Method* select *Anderson-Rubin* and click *Continue*. Click *OK* to run save factor scores.
Internal Consistency Estimate of Reliability Choose *Analyze*, Choose *Scale*, Choose *Reliability Analysis*. Select the desired items and move them into the *Items* box. For *Model* select *Alpha.* Click *Statistics* and tick *Descriptives for item: scale, scale if item deleted and Inter-item: correlations* and click *Continue*.

Appendix C

SPSS Output Screens for PCA

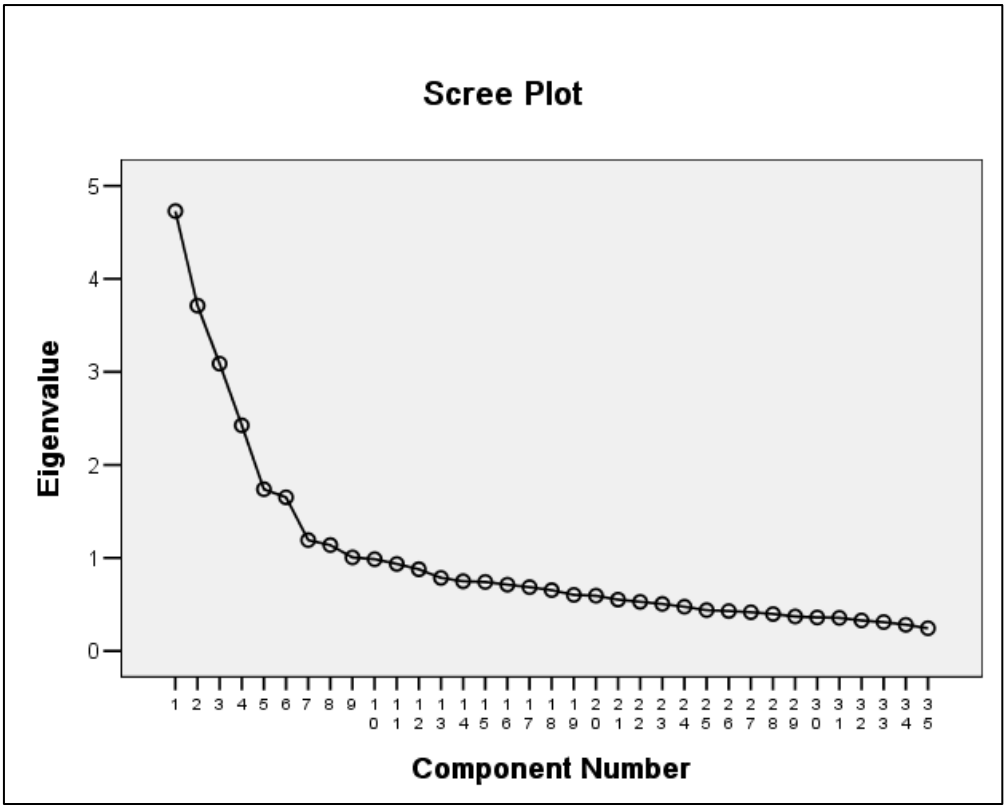
C. 1. Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.728	13.509	13.509	4.728	13.509	13.509	3.234	9.239	9.239
2	3.712	10.606	24.115	3.712	10.606	24.115	2.944	8.411	17.650
3	3.088	8.823	32.938	3.088	8.823	32.938	2.861	8.174	25.824
4	2.425	6.929	39.866	2.425	6.929	39.866	2.842	8.121	33.945
5	1.738	4.966	44.832	1.738	4.966	44.832	2.410	6.887	40.832
6	1.652	4.720	49.552	1.652	4.720	49.552	1.831	5.233	46.065
7	1.192	3.405	52.958	1.192	3.405	52.958	1.792	5.119	51.184
8	1.138	3.251	56.209	1.138	3.251	56.209	1.503	4.296	55.480
9	1.006	2.874	59.083	1.006	2.874	59.083	1.261	3.603	59.083
10	.987	2.819	61.902						
11	.936	2.674	64.575						
12	.878	2.509	67.084						
13	.785	2.244	69.329						
14	.749	2.141	71.470						
15	.742	2.120	73.590						
16	.713	2.037	75.627						
17	.686	1.960	77.587						
18	.653	1.866	79.452						
19	.603	1.723	81.175						
20	.594	1.696	82.871						
21	.552	1.577	84.449						
22	.528	1.510	85.958						
23	.505	1.443	87.401						
24	.475	1.357	88.759						
25	.439	1.254	90.012						
26	.429	1.227	91.239						
27	.417	1.190	92.429						
28	.397	1.135	93.564						
29	.371	1.060	94.625						
30	.360	1.029	95.654						
31	.356	1.018	96.671						
32	.328	.938	97.609						
33	.311	.887	98.496						
34	.282	.805	99.301						
35	.245	.699	100.000						

Extraction Method: Principal Component Analysis.

C.2. Scree Plot



C.3. Rotated Component Matrix

Rotated Component Matrix

	Component								
	1	2	3	4	5	6	7	8	9
P4	.729								
P6	.716								
P1	.658								
P8	.646								
P11	.635								
P21	.530							.375	
P31		.863							
P28		.803							
P13		.771							
P2		.771							
P30			.779						
P22			.726						
P16			.651						
P23			.584						
P33			.560				.315		
P27			.437						
P34				.779					
P25				.750					
P29				.640					
P17			.321	.567					
P20				.530		−.302			
P9				.436		−.322		.378	
P35					.852				
P10					.849				
P14					.820				
P26						.651			
P19						.626			
P18						.559			
P12							.803		
P24							.768		
P5							.396		
P15								.595	
P7	−.376							.564	.304
P3									.818
P32	−.327								.455

Appendix D

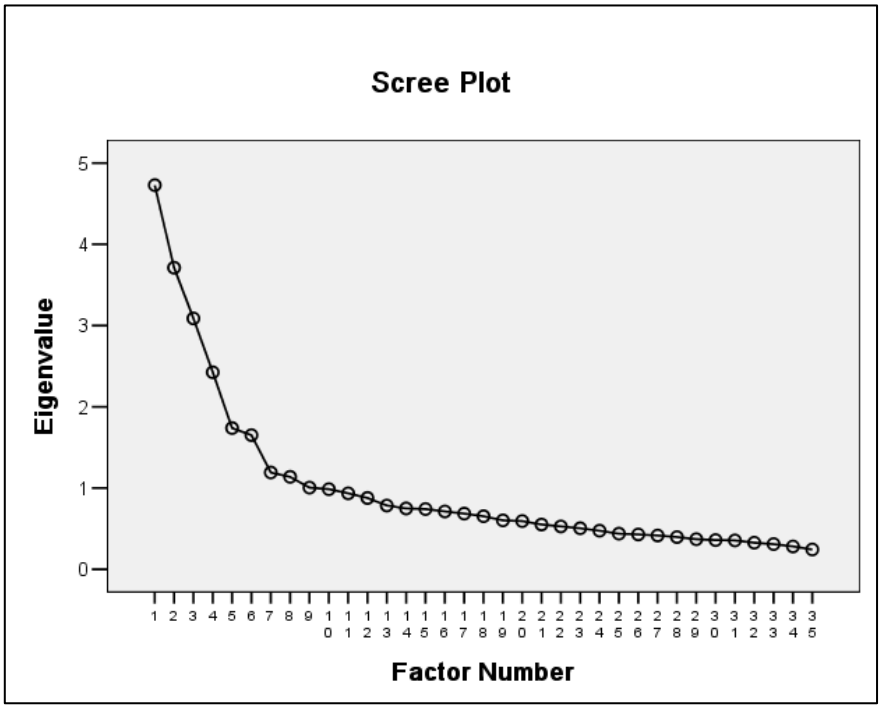
SPSS Output Screens for PFA

D.1. Total Variance Explained

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.728	13.509	13.509	4.129	11.797	11.797	2.826	8.073	8.073
2	3.712	10.606	24.115	3.175	9.072	20.869	2.710	7.742	15.815
3	3.088	8.823	32.938	2.441	6.973	27.842	2.644	7.554	23.369
4	2.425	6.929	39.866	1.937	5.534	33.376	2.453	7.009	30.378
5	1.738	4.966	44.832	1.135	3.243	36.619	2.184	6.241	36.619
6	1.652	4.720	49.552						
7	1.192	3.405	52.958						
8	1.138	3.251	56.209						
9	1.006	2.874	59.083						
10	.987	2.819	61.902						
11	.936	2.674	64.575						
12	.878	2.509	67.084						
13	.785	2.244	69.329						
14	.749	2.141	71.470						
15	.742	2.120	73.590						
16	.713	2.037	75.627						
17	.686	1.960	77.587						
18	.653	1.866	79.452						
19	.603	1.723	81.175						
20	.594	1.696	82.871						
21	.552	1.577	84.449						
22	.528	1.510	85.958						
23	.505	1.443	87.401						
24	.475	1.357	88.759						
25	.439	1.254	90.012						
26	.429	1.227	91.239						
27	.417	1.190	92.429						
28	.397	1.135	93.564						
29	.371	1.060	94.625						
30	.360	1.029	95.654						
31	.356	1.018	96.671						
32	.328	.938	97.609						
33	.311	.887	98.496						
34	.282	.805	99.301						
35	.245	.699	100.000						

D.2. Scree Plot



D.3. Rotated Factor Matrix

Rotated Factor Matrix

	Factor				
	1	2	3	4	5
P1	.624				
P8	.619				
P4	.616				
P6	.615				
P11	.515				
P21	.478				
P32	−.337				
P19					
P31		.826			
P13		.740			
P28		.723			
P2		.644			
P18		.329			
P15					
P30			.716		
P22			.625		
P33			.577		
P16			.527		
P27			.453		
P23			.407		
P7			.331		
P5			.312		
P26					
P3					
P34				.711	
P25				.665	
P29				.562	
P20		−.301		.505	
P9				.483	
P17				.465	
P35					.761
P10					.756
P14					.687
P12					.343
P24					

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The Influence of Near Peer Role Models (NPRMs) in Second Language Classrooms Intended to Improve Students' Pronunciation When Teacher Intervention is Not Enough

Michael Ruddick, ***Niigata University of International and Information Studies, Japan***
Paul Nadasdy, ***Tokyo Denki University, Japan***

Biodata

Michael Ruddick has been teaching English in Japan since 1999. He graduated from the Birmingham MA programme in TEFL/TESOL in 2008 and has been teaching at the Niigata University of International and Information Studies for almost two years. His areas of interest are sociocultural theory, classroom research and critical discourse analysis.

Paul Nadasdy has been teaching in Japan since 2002. He is currently employed at Tokyo Denki University. His main research interests are concerned with how group dynamics, motivation, and self-belief/self-efficacy affect foreign language learners. Other interests include sociocultural theory, media discourse, materials development, and CALL. He completed his Masters in TEFL/TESL in 2008.

Abstract

In the 2008-2009 academic year at the Niigata University of International and Information Studies (NUIS) a research project was initiated involving Near Peer Role Models (NPRMs). This study is a quantitative investigation into the effect that NPRMs have on *rounding off*, the habit amongst Japanese learners of English of inserting unnecessary vowel sounds into English words (Thompson, 2001, p. 296). On the Communicative English Programme (CEP) at NUIS, three older advanced students acted as NPRM tutors for four 50-minute periods in a first year English class. The NPRMs were asked to act as language assistants and instructed to specifically highlight the rounding off problem. A separate class was exposed to the standard teacher fronted explanations with regards to the problem. The language usage of both classes was then analysed and compared. The results show a larger drop in rounding off among those students exposed to NPRMs as compared to students who were not assisted by NPRMs.

Key Words

Near peer role models, peer tutoring, pronunciation, rounding off, Japanese students.

Introduction

In the field of language education, the methods used by Near Peer Role Models (NPRMs) involving positive behaviour and confidence boosting among students have been well documented (c.f. Dörnyei & Murphey, 2003; Murphey & Arao, 2001). It has been shown that individuals are more likely to imitate the successful behaviour of those that they consider to be close to themselves in proximity of age or status. These positive role models can have a powerful effect on what we believe we can achieve and how we perceive the future outcomes of our own actions. In their study of NPRMs, Murphey & Arao (2001) call for more research to explore “what beliefs and capabilities are most susceptible to change through NPRM-ing." This paper is an attempt to expand research in this field by investigating the effect that NPRMs have on English Language use in the classroom, specifically pronunciation, amongst Japanese university students of English.

The study below begins with an exposition of NPRM-ing. This is followed by an account of *rounding off*, or the placing of unnecessary vowel sounds on to the end of English words (Thompson, 2001, p. 296). A description of the Communicative English Programme (CEP) at the Niigata University of International and Information Studies (NUIS) is then given. Following this, the methodology is explained by describing the NPRMs used in the study, the procedure for collecting and analysing data and the results of this analysis. The paper ends with a discussion of the results and suggestions for further investigation in this area.

Near Peer Role Modelling

Murphey & Arao (2001, p. 3) describe NPRMs as people who might be near to their tutees in “age, ethnicity, gender, interests, past or present experiences and also proximity and in frequency of social contact". The idea behind NPRMs is that we may identify more closely with those people that are near to us in the above categories and in doing so we may want to imitate them or imitate some aspect or talent that NPRMs

have. This corresponds to Bandura's (1977, p. 22) social learning theory, which suggests that we are more likely to imitate a model if we observe that the model's behaviour leads to positive outcomes. Dörnyei & Murphey (2003, p. 128) see modelling as “one of the most powerful ways of teaching" as it sets worthy examples for learners to follow. As an example, they point out that, while growing up, we may watch siblings or older students and attempt to model their behaviour. Similarly, as a means of encouragement, educators finding positive behaviours, roles and beliefs in possible NPRMs might find ways to highlight these for other learners to emulate (Dörnyei & Murphey, 2003, p. 128).

Murphey & Arao (2001) report another study (Murphey & Murakami, 1998) in which students at a Japanese university were shown videos of older, exemplary students talking positively about learning English. The students videoed expressed their enjoyment at speaking English, commented positively on making mistakes and having goals in learning the subject, and stated the belief that Japanese can become successful language learners. The results of pre-watching and post-watching questionnaires showed a positive change in the reported beliefs of the younger students. In Murphey & Arao's (2001) replication study the same video was shown to 115 first year university students between the age of 18 and 20. Here, as with the earlier experiments, the younger students showed an overall increase in the belief that they were successful language learners. They also showed a boost in confidence with regards to improving English and showed a rise in agreement with the statements of their older peers in the video. Dörnyei & Murphey (2003, p. 129) highlight newslettering and language learning histories as two ways in which NPRMs have been used to help learners in their English studies. Newsletters, they claim, are a way in which writers and readers can identify with each other. The authors give examples of learners acting on the written suggestions of peers, which lead to experimenting with new language learning strategies, positive changing of behaviours and greater confidence (Dörnyei & Murphey, 2003, p. 129). Likewise, language learning histories

provide learners with a chance to see that they share many characteristics with their near peers. Language learners often go through the same education system, experience the same problems, and share needs and desires. As Dörnyei & Murphy (2008, p. 132) state, language learning histories, journals and diaries provide students with “strategies, beliefs and attitudes that can be easily modelled because of the similarities between the writers and the readers".

With regards to pronunciation, a study by Kirson & Lee (2004) recounts the benefits of NPRM-ing for a group of Spanish speaking ESOL students in an adult education class. In this music project a class of beginners was taught to sing the lyrics of an English Language song by a group of advanced students. After a discussion of vocabulary and pronunciation with the teachers, the peer groups then elaborated on their understanding by discussing semantics from their own perspectives and experiences, and by practicing pronunciation and intonation of words and sentences (Kirson & Lee, 2004, p. 29). The authors also report on the “reduction of stress often associated with pronunciation” and the “nurturing, creative and goal orientated environment” which allowed the beginners to develop components of fluency such as *automacity.* Although Kirson and Lee’s study touches on the effect of NPRM-ing on pronunciation, most of their paper centres on the positive affective elements of NPRMs. Much like the studies highlighted above by Murphey & Arao and Dörnyei & Murphy, Kirson & Lee underline the behavioural changes brought about by NPRM-ing, such as one student who initially found the ESOL class childish but later came to enjoy it (2004, p. 29).

We see from the above studies that NPRM-ing can lead to improved confidence, and positive changes in the behaviour of students. However, the following study differs from the above studies in that it centres mainly on the use of pronunciation, rather than affective elements, and is quantitative rather than qualitative. To the knowledge of the authors of this paper, no other quantitative study of pronunciation involving

NPRMs in Japanese university classes has been undertaken.

The Rounding Off Problem

When learning English as a foreign language, the Japanese, like all language learners, have their own specific problems with regards to negative transfer from their first language (L1). This study focuses on the problem that Japanese learners have with consonants in spoken English and specifically the insertion of unnecessary vowels used to *round off* final consonants in spoken English words (Thompson, 2001, p. 296). The Japanese alphabet and spoken Japanese are composed of syllables commonly comprised of a vowel or a consonant and a vowel. For example, the first ten letters of the Japanese alphabet are: あ (a) い (i) う (u) え (e) お (o) followed by か (ka) き (ki) く(ku) け(ke) こ(ko). This entails that, generally, spoken Japanese words end with a vowel. Thus, negative transfer from L1 might lead a Japanese speaker of English to pronounce the word dog as *do-gu* or the word cat as *ca-to.* In our own study we found sentences such as *I like my house* transformed into *I-yu like-ku my-yu house-u* and *My favourite sport is tennis* converted to *My-yu favori-to spor-to is-u tenni-su*.

On the CEP programme at NUIS the following study was undertaken in an attempt to approach the above problem from a different angle. The CEP programme applies an integrated approach to the teaching of pronunciation that highlights speaking and listening. There is a focus on stress, rhythm and intonation as well as an emphasis on vowel and consonant segments and explanations of their articulation process. In the 2008-2009 academic year at NUIS, despite these teacher-fronted explanations, pronunciation practice exercises and focusing on the problem, the majority of first year students at the university continued this *rounding off* habit throughout both academic semesters. It was hoped that using NPRMs as tutors to highlight the *rounding off* problem would add extra support to practice activities and also reach the students on a more personal level than the teacher-student relationship is able.

The Programme

The CEP programme at NUIS is a compulsory, semi intensive course for all first year students entering the university. At any given time there can be up to 125 students on the course, aged between 17 and 18 years old. Students are placed in one of seven classes ranged from A to F with A being the highest and F the most basic. The CEP first year classes are run on three week lesson cycles and are repeated four times during the first academic semester (CEP1) and four times again in the second semester (CEP2). Each week the students receive four 50-minute communicative English classes (Tuesday to Friday). During the third week of each cycle, students are given a speaking test. The students are tested in groups of three, chosen at random from each class. In the test, two native speaker evaluators ask randomly chosen questions related to the topic and target language studied in the previous weeks. Students then discuss the question for a period of three minutes. The instructors/evaluators listen and give each student a grade based on content, communication, grammar and pronunciation. Each student's score is an average of both the evaluator's grades.

The programme also runs two elective classes for advanced students and for those who wish to continue in English study beyond the compulsory first year course. These are the Advanced A and B classes. Advanced A is for those students with high to exceptional ability in English. Most students in this class are highly motivated and have studied in an English speaking country for three months or more. The NPRMs used in this study were chosen from this class.

Methodology and Data Collection

In order to test the effectiveness of NPRMs in this area, two classes were chosen: one class to be exposed to NPRMs and one class to be subject to continued teacher fronted explanations and pronunciation practice. From a general investigation of all classes at the beginning of the academic year, it was decided that class C and class B

would take part in the study. In the view of the CEP instructors, class C was the most prevalent user of *rounding off* in the communication classroom. This class also suffered from the lowest levels of extrinsic confidence and motivation, and had the lowest student to student and teacher to student rapport. Class B, conversely, had the highest levels of motivation, extrinsic confidence and rapport but, in the view of the instructors, it was comparable to class C in the use of *rounding off*. Although both classes were at beginner/pre-intermediate level, class B was slightly higher in knowledge and ability. Class C consisted of 24 students while class B contained 20.

Data was collected in two stages: firstly, in order to capture evidence of *rounding off* produced by the students. During the speaking test at the end of each cycle, classes were recorded following the methods proposed by Richards and Lockhart (2005, p. 11) and Burns (1999, p. 94). This allowed for a thorough aural analysis of interactions and utterances made by the students. However, in this case a digital recorder was used rather than the traditional method of recording with a tape recording as suggested by the above mentioned authors . This way, the digital data collected could be retrieved, reviewed, copied and distributed much easier.

Secondly, during a review of the recorded data a simple tally was taken of instances of *rounding off* produced during the tests. Tally sheets are often used in peer observation schemes or to categorise classroom interaction (Nunan, 1989, p. 78). For example, Wallace (1998, p. 115) gives an example of a tally used in the classroom to categorise teacher talk as opposed to student talk. Given that there was over two hours worth of dialogue recorded during the testing periods it was decided that, rather than transcribe the dialogue for analysis, a tally was the simplest way of collecting specific evidence. As Burns (1999, p. 96) points out, transcribing large quantities of recorded data can be time-consuming.

NPRMs

Murphy (1998) highlights a student project in NPRM-ing in which it is found that same sex role models are crucial. This project was similar to the studies mentioned above in that a video of junior high school students talking about speaking English was shown to elementary school students. However, in this case, male students watching the video were shown to lose motivation. It was later discovered that this decrease in motivation was caused by the lack of male role models being shown. For this study, in an attempt to create balance, two female students and one male student were chosen as NPRMs for the study. All three NPRMs were exceptional speakers of English from the NUIS advanced class. The two female students were final year students aged 23, had completed almost 3 years of advanced English classes and had studied abroad. The male NPRM was a third year student aged 21 and had completed two years of advanced classes. The NPRMs were told that they were to act as assistant language instructors in the study taking place. They were instructed to act in the following way while in the classroom:

- To introduce themselves and include a brief language learning history.
- To take part in listening practice dialogues with the instructor.
- To monitor the classroom for problems and help when needed.
- To take part in communicative group activities.
- To listen for and correct students who *round off* their words.
- To listen for examples of rounding off, write these examples on the board and correct them for the whole class.
- Take part in pronunciation practice with the whole class.

Procedure and Results

Cycle One

As previously mentioned, the programme CEP moves in cycles of three weeks. It was decided that the first cycle of the semester should be a period of settling into a new educational institution and a new course.

Cycle Two

The second cycle was given over to teacher fronted explanations and pronunciation practice regarding *rounding off* for both C and B classes. During this cycle test C class produced 252 instances of *rounding off* while class B exhibited 180 instances. This is in line with the assessment of the instructors who described class C as *high-frequency* users of *rounding off*.

Cycle Three

During the third cycle, the first week continued with teacher-fronted practice but in week two the NPRMs were introduced into Class C. This entailed that for four 50-minute periods the NPRMs met with class C. The first two periods involved the male NPRM while the second two involved the female NPRMs. The NPRMs acted in accordance with the instructions mentioned above. Again, during the speaking test both classes were recorded and the instances of *rounding off* tallied. In this case instances of *rounding off* in class C dropped to 120 from 252, while in class B instances fell from 180 to 145. This result shows that in class C a drop of 132 instances occurred or a reduction of 52.4 % between the cycle 1 and 2 speaking tests. In class B a reduction of 35 instances or 19.5% occurred during the same period.

Cycle Four

In the forth cycle teacher fronted explanations came once more to the forefront until the final speaking test, where the students were recorded again and instances of rounding off tallied. Here, instances of rounding off dropped from 120 to 79 for class C between cycle 3 and cycle 4 and a reduction from 145 to 96 for class B was recorded. For class C this is a reduction of 40 instances or 33.3% from the cycle 3 speaking tests. For class B this is a drop of 49 instances or 33.7% during the same period.

Overall, from cycle 2 to cycle 4 a drop of 68.6% has occurred for Class C and a

46.6% reduction for class B. This gives a discrepancy of 22% between the two classes.

Discussion

In answer to Murphey & Arao (2001), it would seem that one capability in language learning susceptible to change through NPRMing is pronunciation, or rather that habitual pronunciation behaviour patterns can be changed. What has been suggested here is that taking instructions from a more able peer raised student awareness of *rounding off* in a way that teacher-fronted instructions were unable to. The drop from 252 instances of *rounding off* in a teacher fronted class to 120 instances after instruction from the NPRMs is evidence of this, as it is the further drop from 120 to 79. However, after three weeks of teacher fronted practice, the reduction in *rounding off* use by class C began to fall slightly below class B. This may be evidence that the effect of NPRMs is ephemeral.

With regards to affective considerations, it has already been mentioned that, of all the CEP first year classes, class C showed the lowest levels of extrinsic confidence, motivation and rapport. This continued to be the case throughout the period of this investigation. Despite this, class C continued to perform better than class B in the area being studied. The 22% discrepancy between the two classes is evidence of this. The implication is that, although good rapport, extrinsic confidence and motivation are sought after elements in the classroom, they may not be necessary to produce results. In this case, negative extrinsic behaviour did not affect performance in the specific area targeted by this investigation.

It is possible, then, that in this case class C, having had their confidence raised and inspired by the superior knowledge of English and pronunciation abilities of the NPRMs, attempted to imitate them. This would support the work of Murphy & Arao (2001), Murphy & Murakami (1998) and Kirson & Lee (2004) above. However,

further studies in other Japanese universities and non-university contexts employing this same methodology will provide a wider body of data which can be compared and contrasted with the findings of this study. In the NUIS context, as with most Japanese universities, a compulsory English course must be completed before students can successfully graduate. If these university programmes have a speaking test component, and if, as with NUIS, willing advanced English speaking students are available, then it should be a simple matter to implement the above analytical framework.

Also NPRM-ing projects have been undertaken successfully with both elementary and junior high school students. However, in the pre-tertiary educational context in Japan speaking tests rarely, if ever, undertaken as a means of English Language assessment. Until speaking tests become a regular element of assessment in this area, it may be impossible to employ the above methodology or collect data to prove or disprove this study in the Japanese context.

From a more general perspective, however, language learners of all cultures have their own idiosyncratic problems with regards to pronunciation. From this point of view, the above study has much relevance to all language teachers attempting to raise awareness of specific pronunciation problems in any language. Intonation, stress and rhythm, “the nuts and bolts of pronunciation” (Jenkins, 2004. p. 109), are essential elements in the mastery of a language and are also elements which are tested for in examinations around the world as proof of learning. If, as this study has shown, the *rounding off* problem of NUIS students can be reduced by exposure to NPRMs, then there is a possibility of a resonance in contexts outside of Japan. Again, further studies applying the present methodology need to be undertaken to expand on these findings.

Finally, the employment of a long term study at the university or pre-tertiary level may clarify the above results more succinctly. Due to scheduling in the second

semester at NUIS, a continuation of the study past the first academic semester is impossible. As it has been mentioned, there is a possibility that the effect of NPRM-ing is ephemeral. If so, a long-term study would underscore the lasting power, so to speak, that NPRMs have with regards to this area.

Conclusion

To conclude, this paper has underlined the effectiveness of NPRMs as agents of positive change in the English Language classroom. The problem of *rounding off* amongst Japanese English Language learners was highlighted and shown to be susceptible to change through exposure to NPRMs. Quantitative evidence was produced showing that a class of 22 high frequency users of *rounding off* was positively affected by three older, more advanced peers. Over a period of four 50-minute lessons these students were made aware of the *rounding off* problem by NPRMs. A separate teacher fronted class was given similar instructions. *Rounding off* usage by both classes was tallied and compared during regular speaking tests over an academic semester. The class exposed to NPRMs exhibited a large reduction in *rounding off* in comparison with the teacher-fronted class. As Jenkins (2004, p. 109) points out, pronunciation is essential for "its influence on speakers' success (or otherwise) in conveying their meaning in specific contexts, its links with their sense of identity" and "its signalling of their group memberships". If this is so then the implications of the above study point to, not only a reduction in *rounding off* for Japanese learners but an increase in confidence and a strengthening of their sense of self.

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