

The *Cecily Effect*: A Pilot Study

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Abstract During earlier trials investigating mimicry ability and its effect on second language pronunciation, I discovered that while most subjects showed similar levels of ability across trials with different input languages, some did significantly better on one language than others. An examination of the individuals affected suggested that they may have been influenced by the perceived degree of attractiveness of the input language. This possible phenomenon I refer to as the *Cecily Effect*, after the Oscar Wilde character who felt speaking German made her look plain. This paper discusses the importance of mimicry in general and the role of perception of the target language in ultimate performance, as well as describing the original trials referred to above. It goes on to give a detailed account of a pilot study conducted on ten female subjects using three input languages. Subjects rated a sample of each language for attractiveness, completed a mimicry exercise in each language and filled out a personality questionnaire as well as providing a sample of English pronunciation. Scores in the mimicry exercise could then be compared both with each other and with the responses given to the survey questions, as well as the level of ability in English pronunciation. Although the number of participants was too small to draw any real conclusion from the attempt to link attitudinal factors with mimicry ability, the results do seem to support the claims that mimicry ability does influence eventual foreign language pronunciation, and that it may be influenced both by affective and personality factors.

Keywords Mimicry · Aptitude · Affect · Pronunciation · The *Cecily Effect*

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1 Introduction

The number and variety of individual factors which may affect the foreign language performance of any given learner is so great as to appear daunting to those who would investigate the reasons for success and failure among language students and yet, in their very complexity, these factors provide fascinating and apparently limitless opportunities for research. The difficulty in reaching firm and speedy conclusions as to the full extent of influential factors and their relative importance is due, in large part, to their tendencies to fluctuate across time and context and to interact dynamically with one another. These tendencies are so pronounced that perhaps the most respected commentator in the field, Zoltan Dörnyei, has spoken of the traditional view of unchanging, independent, individual differences as a ‘myth’, claiming that such a view “does not do justice to the dynamic, fluid and continuously fluctuating nature of learner factors and neither does it account for the complex internal and external interactions that we can observe” (Dörnyei, 2010, p. 253). One reaction to this statement might be to abandon the idea of individual differences research altogether, but this would be to miss the point. The wiser course is to continue to research factors contributing to learner success, but to do so in the knowledge that each of those factors is itself many-faceted and that its operation on the learning process may be influenced by a range of other factors, some of which may be completely unknown and unsuspected. This paper investigates a hypothesised complicating factor which might be responsible for the apparent breakdown, in some individuals, of a relationship which generally holds for the wider population. The number of factors leading to this kind of interference is certainly large and possibly infinite, however, the identification of those which have a particularly noticeable effect on the learning process is a valuable pursuit, both for the development of improved individualised teaching programmes and for the theoretical understanding of foreign language learning. I begin with a brief discussion of research into the possibility of mimicry ability as an individual difference affecting language learning and in particular its relationship to the eventual proficiency in pronunciation of the target language. One element of this discussion will be a review of my own previous research, focusing on a recent experiment involving mimicry in two languages which, despite reaching conclusions in line with expectations founded on previous work, produced some apparently anomalous results in the scores of certain individuals. My attempts to explain these unexpected results led to the description of a hypothetical factor affecting mimicry scores and possibly pronunciation levels, which I refer to as the *Cecily Effect*. This phenomenon and its possible impact are explained and discussed in a subsequent section. The principal focus of the paper, however, will be on the description of a study carried out with a small number of participants in order to ascertain whether or not traces of the *Cecily Effect* at work could be found to match those in the earlier research. The method and results are fully described in the relevant sections and followed by a summary of points of interest they raise. The size of the study means that these points serve only to encourage the execution of a

full-scale research project, rather than to provide evidence for the hypothesised effect. With this in mind, a careful analysis of the tools and methods used is also presented and possible changes and improvements in the further study are discussed.

2 Mimicry Ability

Piske, MacKay, and Flege (2001) list the following as factors claimed to affect degree of foreign accent: age of learning of L2, length of residence, gender, formal instruction, motivation, language learning aptitude and language use. Under the heading of ‘language learning aptitude’ they consider two possibilities: musical ability and mimicry. Although they suggest that insufficient study has been done on these factors they make the following observation:

In summary, musical ability has as yet not been identified as one of those variables that have an important influence on degree of L2 foreign accent. The ability to mimic unfamiliar speech sounds, on the other hand, has repeatedly been identified as a significant and independent predictor of foreign L2 accent. (Piske et al., 2001, p. 202)

They do not consider wider measures of aptitude, in spite of the fact that John Carroll’s Modern Languages Aptitude Test includes a task designed to assess what he terms ‘phonetic coding ability’ (Carroll, 1965) and Pimsleur’s Language Aptitude Battery actually makes ‘auditory ability’ account for over half the aptitude score (Pimsleur, 1966).

The principal work cited in favour of the influence of mimicry is that of Purcell and Suter (1980). They put mimicry ability second only to native language in importance of effect on foreign accent and noted, to the disappointment of many educators, that these were factors “which teachers have the least influence on” (Purcell & Suter, 1980, p. 285).

Sadly, Jilka (2009) points to a lack of studies which take mimicry ability to be a “universal pronunciation skill” (p. 7) and notes that most research which has been done has involved subjects mimicking sounds in the L2 or attempting to imitate certain foreign accents. Even these trials, however, were less concerned with speakers’ ability to mimic and more with perceptual differences between them.

A clear link between mimicry ability and foreign language pronunciation, however, was found in two small scale studies conducted by the present author (Hinton, 2013). In the first trial a group of 10 Polish students of English was assessed for a number of elements of linguistic performance and given a test mimicking an unknown language (French). When the students were ranked for pronunciation and mimicry ability, the two rankings were an almost perfect match and very strong correlations were also seen with other parts of spoken English, such as fluency. Although the sample was too small for the results to carry significance, the pattern of correspondence was obvious. A second trial, using identical tests,

outlined in the same paper, involving 16 students at the same institution also found a strong correlation, $r = .51$ ($p = .04$), between mimicry skill and pronunciation. In both tests, the students who were clearly the best pronouncers of English proved to be good mimics and those with very poor pronunciation were also very weak mimics.

More significantly, Reiterer et al. (2011) report on their larger scale study involving a total of 113 adult Germans who were assessed for a range of variables including their English pronunciation and ability to mimic sentences in Hindi, before some of them were subjected to MR brain scanning while performing mimicry tasks. This study shows, as would be expected, an interesting correlation between mimicry and working memory ($r = .37$, $p = .000$) and between mimicry and English language pronunciation ($r = .3$, $p = .001$), but no link between mimicry and measures of intelligence or language training. For the purposes of the second part of the study involving magnetic resonance brain imaging, the subjects were divided into three groups, the top 15 % of mimics, the bottom 15 % and the rest. A sample of members of each group (9 each from the extreme groups and 18 from the middle) was then scanned and differences in brain structure and activity noted. The analysis of this work is, necessarily, of a complex nature but clear differences were found between the groups. In conclusion, they state:

The results of our study point to a distinct neurofunctional/neuro-anatomical signature of speech imitation ability (aptitude) [...]

At the neuro-functional level (fMRI), we observed a clear-cut difference between low and high ability speakers as a function of their imitation ability: low ability imitators showed significantly higher amounts of activation and more extended clusters during sentence and word imitation. (Reiterer et al., 2011, p. 9)

They go on to report that the most important areas of activity revealed during the actual imitation test were connected with speech motor execution and the phonological loop which appears to suggest a distinct physiological basis for differences in both perception and production of sound, but the authors are reluctant to draw this inference as they believe the two functions to overlap significantly.

Taken together these results certainly suggest that mimicry ability is both a good predictor of foreign language pronunciation and an independent factor, not linked to intelligence or training but with an observable basis in brain chemistry. It is reasonable, therefore, to expect a particular learner's foreign language pronunciation to be predicted by his mimicry scores and, if mimicry ability is directly linked to the anatomy of the brain, to expect the degree of talent at sound repetition to be constant across different input languages. This does not mean, of course, that all languages will be mimicked with equal success in absolute terms, but that an individual who is relatively talented at mimicry should perform relatively well whatever the source of sounds, other things being equal. It is, then, also reasonable to assume that when a learner's relative mimicry ability does not predict his foreign language pronunciation or when his relative ability to mimic is not constant across different input languages, there must be other factors at work.

3 Affective Interference

The most obvious area in which to look for such factors is the affective sphere. The influence of affect on the learning process has been the subject of a great deal of study for some time (see Arnold, 1999). Of most interest here, however, is the impact of affective factors on particular cognitive processes and skills, such as those involved in mimicry. While much has been written about such interactions in general and some areas have been studied more closely, little work has been done on mimicry and pronunciation ability.

In the field of memory, for example, Stevick (1999) identified five different ways in which affect can influence its workings. He described these categories as: affective data; affect as a source of clutter; affect and feedback from one's own use of language; affect and playback from others' use of language; and affect and the use of what one knows. The point here being that affect is involved at every stage of the memory process, input, storage and output.

The only study which looks at affective factors, a wide range of personality scales, in conjunction with mimicry and pronunciation performance is that of Hu and Reiterer (2009). They looked at personality from several perspectives without trying to judge which was the correct one, but seeking observable patterns of personality traits and pronunciation talent. Unfortunately, their results did not bring much clarity to the issue. They found a weak link between empathy and pronunciation skill and discovered that "subjects with a greater degree of pronunciation talent experienced more positive affects such as being excited, proud and determined during the phonetic-articulation task" (Hu & Reiterer, 2009, p. 119). As they point out, however, it is impossible to know whether it is these positive affects which cause the better performance or the good performance which leads to positive feelings.

This same confusion has been highlighted in the study of language learning anxiety, a factor considered in this study, by the work of Ganschow and Sparks (1996). They accept the negative link between anxiety and performance but ask: "Does anxiety interact with pre-existing language ability, which, in turn, impairs foreign language performance or does poor foreign language performance lead to anxiety as a consequence?" (p. 200).

What is clear, is that the ways affective factors influence the processes of language learning and performance are numerous and complex. This study concentrates on one possible field of influence which is described in the following section.

4 The *Cecily Effect*

The *Cecily Effect* is named after Cecily Cardew, the character in Oscar Wilde's comedy *The Importance of Being Earnest*. At the beginning of Act Two, the young lady is about to be given a German lesson by her governess and complains, "But I

don't like German. It isn't at all a becoming language. I know perfectly well that I look quite plain after my German lesson" (Wilde, 1957, p. 375). The *Cecily Effect*, therefore, is defined not as a reluctance to speak a language which one considers unattractive, but, rather, as a reluctance to speak a language one considers to make one seem unattractive while speaking it. This reluctance, it is suggested, is likely to be manifested in poor accent when the 'Cecily' is forced to use the unbecoming language as she will attempt to resist the more unattractive sounds and replace them with the prettier sounds of her native tongue. Empirically then, we can say that the *Cecily Effect* has occurred when an individual demonstrating an above average level of interest in his own appearance produces lower scores, relative to the other testees, in the pronunciation of languages which he has identified as unattractive, than in the pronunciation of languages which he has identified as more attractive. The determination of the exact degree to which these scores should be lower and how far above average the interest in appearance must be is one of the objects of the experimental work.

The first evidence of this effect was noticed during analysis of the results of the experimental work undertaken as part of my doctoral studies (Hinton, 2012). This study involved a total of 41 participants, all trainee English teachers in Sieradz, Poland. Mimicry tests, using a similar method to the ones described below, were carried out using French and Dzongka (the official language of Bhutan) as input languages. The French test was undoubtedly harder, with much lower average scores (57 % compared to 73 %), and yet for a small group of participants the difference between the scores was very small or indeed reversed. When the overall mimicry scores of this group were compared with the English accent rating, it was clear that their mimicry was unexpectedly low, brought down by their poor performance in Dzongka. The overall mimicry to accent correlation was $r = .33$ (significant at $p = .035$, $n = 41$) for all participants but jumped to $r = .43$ (significant at $p = .005$, $n = 38$) when the three who had struggled at Dzongka mimicry were excluded from the results.

The challenge now was to find a reason why these participants had done so poorly in Dzongka mimicry. The first common factor was that the three most striking examples were all female. Also, all three could be regarded as attractive young women and, in the judgement of the researcher at least, seemed to pay particular attention to their appearance. All three also gave the impression of experiencing a degree of discomfort in completing the mimicry task, which may or may not have been related to the presence of the researcher while they were performing.

These circumstances led to the suggestion that they may have exhibited a *Cecily Effect* whereby their performance in mimicking Dzongka, an odd sounding language for Europeans, had been adversely affected by their feelings about how speaking that language would make them appear. Mimicry testing does appear to be a good way of predicting eventual degree of accent in foreign languages but will be more effective if factors such as the *Cecily Effect* can be accounted for and prevented from skewing results.

The *Cecily* hypothesis would, of course, need to be investigated experimentally, and other similar factors sought for. The present study is designed to pilot some of

the tools which may be used in that investigation, but is also of particular interest, despite its small size, since it features two of the original *Cecilys*, and thus allows for confirmation of the original results with the same subjects. The hypotheses under investigation are:

- (i) Feelings about how the nature and sound of a language affect the attractiveness of the speaker may affect performance in that language.
- (ii) This effect will be manifested only in those with a strong feeling for the importance of their appearance.
- (iii) Other attitudinal factors may interact with personality variables to affect both English accent and mimicry scores.

5 Method

The trials described in this section were conducted in Sieradz at the foreign language teacher training college (Nauczycielskie Kolegium Języków Obcych) in May 2013.

5.1 Participants

The participants were 10 female students of the college in their second or third year of full-time English studies. None of them had had any previous experience of the languages used in the mimicry exercise and none of them had spent a significant amount of time in an English-speaking country. All 10 had been taught in small classes by the researcher (among other teachers) for at least three semesters. Three of the participants (Nos. 1, 2 and 5) had taken part in the previous study described above and two of them (2 and 5) had been identified as '*Cecilys*'. The involvement of these individuals was designed to check whether the effect would be repeated at a different time, using different input languages and a different affect survey. As has been noted above, the small number of participants is related to the fact that this study was intended to pilot the method and tools of investigation for a larger study, and also to allow the consideration of qualitative data drawn from the researcher's knowledge of and relationship with the participants.

5.2 Materials

The first phase of the experiment consisted of a survey featuring 24 statements rated on a 5 point Likert scale, from 'disagree' 1 point, to 'agree' 5 points. The statements were in six groups of four, with each group designed to produce a score out of 20

for a different variable, A full list of statements is given in Appendix 1. The six categories were, importance of sound, importance of appearance, language anxiety, regard for Polish, regard for English, and interest in foreign cultures. The choice of these variables was based on a number of factors. In earlier studies, importance of pronunciation had appeared a promising category but had produced a limited range of scores as all students more or less agreed with its importance, so a slight change was made to focus instead on the sound of languages generally, and particularly, given the hypothesis of the experiment, on the attractiveness of that sound. Importance of appearance was obviously required to test the hypothesis that performance might be impacted by that very factor. Language anxiety is a well-known affective variable and had proved the most effective predictor in my previous work. The statements here were based on the frequently-cited work of Horwitz, Horwitz, and Cope (1986). The remaining three categories were designed to allow for the assessment of other possible factors of interference. Would a high regard for Polish lead to unwillingness to pronounce in a foreign accent? Would a high regard for English make up for a lack of mimicry talent in the English accent score and would a general interest in foreign cultures influence the mimicry of less-familiar, more exotic languages? With the exception of the anxiety scale, all of these categories were being piloted somewhat speculatively.

The second phase of the study involved the use of three input languages: Italian, Chinese and Greek. The choice of languages was made after informal questioning of students revealed a strong preference for the sound of Romance languages and a strong dislike for Asian ones. The decision to use Italian and Chinese as representatives of these groups was influenced by access to native speakers to assist with the grading of mimicry. Greek was chosen as something of a halfway-house, a European language, with an exotic sound which was unlikely to be recognised, although no native speaker could be found.

The third and final phase was the recording of each participant reading aloud a text in English. The text (see Appendix 3) was taken from an unpublished short story written by the researcher to ensure that it was unfamiliar to them all.

Samples were played and responses recorded on a standard laptop computer using freely-available Audacity software.

5.3 Procedure

Each participant was studied individually. At first, the participants were played samples of each of the three languages and after each sample were asked to respond on a 5-point Likert scale to four statements about the attractiveness of the language (see Appendix 2). They were also asked to identify the language if possible. The sound samples lasted about 30 s, were all taken from television programmes and all featured one male and one female native speaker of the language. Participants listened to each sample once.

The participants were then asked to complete three mimicry exercises, one in each of the three input languages, which were recorded. Ten words or short phrases were played to the subjects with a pause after each one for them to repeat the sound they had just heard. The input sound was heard just once and the repetition was immediate. These responses were then graded on a 0–3 scale: 0 = no response, 1 = a poor response, 2 = a reasonable response and 3 = a good response. While this scale may raise immediate questions as to what ‘poor’, ‘reasonable’ and ‘good’ mean, it should be remembered that what is of importance is not an absolute performance score but a relative placing within the group, and, as such, the key factor is that each rater be consistent with his own grading, not that all graders be consistent with each other. It should also be noted that, since the responses were recorded, it was possible for the raters to listen as many times as required to each one in order to be sure of its relative merit. Each participant, therefore, received a score out of 30 for each of the three input languages. The rating was conducted by the researcher, another native English speaker with teaching experience and knowledge of Chinese, and in the cases of Chinese and Italian, a native speaker of that language. These two individuals had no previous experience of teaching or research.

Finally recordings were made of each participant reading the English text. Before reading the text aloud, they were permitted to study it for a period no longer than 2 min. The readings were then graded on a scale of 1–10 for English accent by the two native speakers of English referred to above. Since the rating was for accent only, pronunciation mistakes with unfamiliar words were ignored. It is worth noting that one of the English speakers is an Englishman with many years residence in Poland and the other a Scot with many years residence in China and Taiwan, and in this way a wider perspective on what constitutes a good English accent could be achieved.

6 Results

The full results from the survey are shown below in Table 1. The numbers represent the combined score out of 20 for the four statements in that category.

With so few participants, any correlations would not carry statistical significance but there does appear to be a positive link between anxiety and importance of appearance and perhaps a negative relationship between anxiety and interest in foreign cultures, both of which would fit with general expectations about human behaviour. There are clearly three possible candidates for the *Cecily Effect*: Nos. 2, 4 and 9 who all score well above the mean for importance of appearance.

No. 5, who had previously been identified as a possible *Cecily* scores a very low 8 for this scale which seems hardly creditable based on her actual appearance. Indeed, her survey answers are intriguing: 6 ones, 7 threes and 11 fives. She was clearly attracted to extremes and gave no moderate twos or fours, making her totals rather suspect.

Table 2 gives a breakdown of mean scores and standard deviations for each statement in the survey. As each statement was scored between 1 and 5, a mean

Table 1 Results of attitude survey

Participant No.	Imp. of sound	Imp. of appearance	Anxiety	Regard for Polish	Regard for English	Int. in foreign cultures
1	17	11	15	16	20	13
2	16	15	18	18	16	13
3	13	10	10	17	17	15
4	17	14	12	14	17	16
5	14	8	12	20	12	16
6	20	8	10	14	16	15
7	18	12	16	16	14	15
8	17	10	13	18	16	18
9	18	14	11	11	15	18
10	14	12	12	14	14	14
Mean	16.4	11.4	12.9	15.8	15.7	15.3
SD	2.17	2.46	2.64	2.62	2.16	1.77

Table 2 Survey results by statement

No.	Mean	SD	No.	Mean	SD	No.	Mean	SD
1	4.8	.42	9	3.9	1.40	17	4.9	.32
2	3.2	1.14	10	3.8	1.62	18	4.1	.88
3	2.5	1.08	11	2.3	1.57	19	3.5	.85
4	2.9	.74	12	3.1	1.20	20	4.1	.88
5	3.3	1.57	13	3.5	1.27	21	3.7	.82
6	2.5	.97	14	4.6	.52	22	3.9	.99
7	3.9	.74	15	3.0	1.15	23	4.6	.70
8	3.5	1.08	16	4.2	.79	24	3.8	1.03

score close to either of these numbers reflects near universal agreement or disagreement with the statement, rendering it of little use in distinguishing between participants. Similarly, the higher the standard deviation, the more variation there was in the answers, and, therefore, the better the ability of that statement to find differences between those taking the survey.

The responses to the listening samples are summarised in Table 3, where the scores are out of 20 for attractiveness of the language. It is also noted whether or not the participant correctly identified the input language.

The table makes it clear that the attractiveness of the languages was exactly as expected: Italian, then Greek and finally Chinese. The ability to recognise the languages was also as expected with 7 participants identifying Italian correctly, 3 identifying Chinese and only 1, Greek, which was chosen as a European language unlikely to be familiar to the participants.

The results from the analysis of the recordings of the participants are set out in Table 4. The mimicry scores for Italian and Chinese are those given by the native

Table 3 Attitudes to input languages

Participant No.	Italian	Identified?	Chinese	Identified?	Greek	Identified?
1	15	n	8	n	11	n
2	16	y	9	y	18	n
3	13	y	4	y	14	n
4	17	y	8	n	8	n
5	18	y	20	n	18	n
6	16	y	12	n	10	n
7	12	n	9	n	17	n
8	19	y	10	y	14	y
9	18	y	7	n	8	n
10	14	n	6	n	14	n
Mean	15.8		9.3		13.2	
SD	2.3		4.35		3.82	

Table 4 Mimicry and accent results

Participant No.	Italian mimicry	Chinese mimicry	Greek mimicry	Total mimicry	English accent
1	19	10	20.7	56.0	7.5
2	16	7	19.7	46.0	5.5
3	15	15	18.0	55.0	8.5
4	19	7	21.0	54.7	5.5
5	12	6	16.7	41.2	5
6	19	12	21.0	58.3	6.5
7	18	11	18.0	50.7	4
8	18	14	21.3	60.3	5.5
9	18	9	20.0	52.3	5
10	17	14	17.3	51.7	5.5
Mean	17.1	10.5	19.4	52.7	5.9
SD	2.23	3.24	1.72	5.6	1.31

speakers of those languages, while the score for Greek is an average of the marks of three raters, two native speakers of English, one of Chinese. These scores are out of a maximum of 30. Also included is an overall mimicry score which is the sum of the average of all the raters scores for each of the languages, and is, therefore, out of 90. The final column in the table shows the average English accent rating of the two English native speakers.

As can be seen, Chinese proved the most difficult language to mimic, with some participants scoring very low indeed, and also showed the greatest level of variation between participants. The Italian native judge was particularly ungenerous: the average score of non-native raters for Italian was 23.4, more than 6 points, or 20 % higher. This is one reason for using an average of all raters in the total mimicry

score: using only the native raters scores would have meant Italian mimicry constituted an unfairly small part of the overall score and, since the ratings are not widely spread, would have had almost no effect on the relative totals.

Full analysis of the results is provided below but it can be seen at first sight that the three participants scoring above 5.5 for accent are all above average mimics and the three scoring below 5.5 are all below average mimics, as rated by the mimicry total. The apparent anomaly of the highest scoring mimic being rated at only 5.5 for accent is also discussed below.

7 Discussion

The analysis of the results described above is divided into two parts: firstly there is a discussion of how the results support the hypotheses set out in Sect. 4 above, and, secondly, an assessment of how well the tools used performed in gathering those results. The hypotheses were:

- (i) Feelings about how the nature and sound of a language affect the attractiveness of the speaker may affect performance in that language.
- (ii) This effect will be manifested only in those with a strong feeling for the importance of their appearance.
- (iii) Other attitudinal factors may interact with personality variables to affect both English accent and mimicry scores.

Since the group of participants is in the main too small to produce statistically significant correlations, the degree to which the results fit the hypotheses is determined by looking at individual cases. Hypothesis one suggests that there is a link between the attitude towards an input language and performance in that language. This may be investigated by looking at the relationship between regard for English and English accent, and the attitudes towards the input language and mimicry performance. For the former, the relationship was so apparent that it was actually possible to determine a significant correlation: Regard for English shows a correlation with English accent at $r = .69$ ($p = .03$), however, it is difficult to say whether this is evidence that strong positive feelings about a language lead to better accent or that better accent, and better performance all round, since the best pronouncers in this study were certainly also the strongest general language performers, lead to positive feelings. It would be quite natural for those who are good at English as a subject to have a high regard for English as a language.

The analysis of attitudes towards input languages does not reveal any obvious patterns. Chinese appears to be the best candidate to look at for variation since the scores for attractiveness ranged from 4 to 20 out of 20. However, the highest-scoring Chinese mimic (No. 3) actually gave the lowest score for attractiveness. The equal second best Chinese mimics (Nos. 8 and 10) gave scores of 6 and 10, while the participant who found Chinese most attractive (No. 5) recorded the lowest

Chinese mimicry score. Indeed, No. 5 gave very high scores for attractiveness across the three languages (18, 20, 18) but was the worst mimic in all three. It will be remembered, however, that No. 5 was identified above as having given extreme answers in the attitude survey and that trend continues here. This makes her an interesting case but means she is unlikely to fit any general patterns.

This lack of a relationship appears to provide evidence against the first hypothesis, but it must be viewed in the light of hypothesis (ii) which states that the effect will only exist in those with a high level of concern for their appearance.

The following three profiles are for the highest scorers on the interest in appearance scale: the potential *Cecily*s.

No. 2—average mimic for Italian and Greek, 2nd worst for Chinese.

Nos. 4 and 9—above average mimics in Italian and Greek, below average in Chinese.

Although all three rated Chinese at around the mean (9, 8, 7; Mean = 9.3) they seem to have been put off actually producing Chinese sounds. For all three, the order of mimicry performance followed the order of preference for attractiveness of the language, this despite the lack of correlation between attractiveness and performance for the population as a whole. The results, therefore, do fit the hypothesis that attractiveness of the language has an effect on performance, but only in those for whom appearance is of particular importance.

The third hypothesis stated that a number of other factors would influence scores for both mimicry and English accent. Again, looking at individual cases, there is good reason to believe that this hypothesis is also supported by the data. Profiles of three more participants suggest that anxiety can impact negatively on both scales:

No. 2—highest anxiety, below average accent, 2nd worst mimic.

No. 3—lowest anxiety, best accent, 4th best mimic but best at Chinese.

No. 6—low anxiety, low interest in appearance, 2nd best mimic, good accent.

No. 7—2nd highest anxiety, worst accent, poor mimic.

The performance of No. 3 is particularly interesting. She has clearly the best English accent but the lowest score for Importance of sound. She also gave low marks generally for attractiveness of the input language: a total of 31 points compared to a mean of 38.3. Her mimicry of Italian and Greek were below average and yet she performed exceptionally well with Chinese. These figures suggest a possible lack of enthusiasm for the experiment as a whole but perhaps greater engagement in the most difficult task. Certainly her lack of anxiety was reflected in her response to that task and her English reading.

The other factors assessed in the survey do not reveal any obvious patterns but there are interesting individual cases: No. 6, for instance, had a maximum score of 20 for Importance of sound, a good accent and was the second best mimic, however, others who gave high scores on the same scale (Nos. 7 and 9) had poor accents and were below average mimics. It is very possible that more combinations of factors such as the *Cecily Effect* are at work and that some individuals are greatly influenced by one factor, whether positively or negatively, while others are not.

It was noted at the end of Sect. 6 that there appeared to be some relationship between mimicry skill and English accent as predicted in the literature reviewed in Sect. 2. Participant No. 8, however, appeared to contradict this trend. A closer examination of her results reveals a likely reason for this. Firstly, she gave scores above the mean for every measurement in the attitude and attractiveness of input language survey, except for Interest in appearance. This suggests a high level of enthusiasm for the tasks and, possibly, a greater willingness to risk looking foolish during the mimicry exercises. Further proof of this is found in the detail of her mimicry scores: she was the only participant to attempt to repeat every phrase. Not only did this help her score directly since even a poor attempt was worth one point, it also suggests that she was trying harder than some of the others and rather enjoyed the whole process. It seems, then, that boldness may be a disturbing factor in the accent/mimicry relationship, and a scale to measure it might be included in a larger scale experiment.

One final comment on the results regards the identification of the input languages. Since almost everyone correctly recognised Italian, this variable has little impact. However, of the three who identified Chinese, one had the best mimicry score and another was equal 2nd, the third being No. 2, one of the Cecily's. Only one participant recognised Greek, No. 8 and she also had the highest score for Greek mimicry. Possible reasons for this are manifold and it may be simply coincidence but it is also possible that those with a 'better ear' are better able to both identify and mimic, or that the feeling of familiarity which comes from knowing what the language is makes the task easier. Participants, however, did not know that their identification was correct when they took the mimicry test, so this last explanation seems a little unlikely.

The final part of the analysis concerns reflections on the testing tools themselves, with a view to improvements to be made in a full-scale study. There are a number of ways to assess the value of the categories and individual questions in the survey. As with the results themselves, the small amount of data makes statistical calculation perilous but also means that much can be seen with the naked eye. One measurement of interest is whether the statement actually differentiates, this can be seen easily with just 10 participants but can also be measured by taking the standard deviation: a very low standard deviation (SD) shows that all answers are grouped around the mean and that the statement did not differentiate. Statements 1 and 17 had very low SDs, below .5, and received the same rating by practically every respondent. Statements 5, 10 and 11, however, had SDs of more than 1.5, showing that they prompted a variety of responses. Obviously, statements which do not differentiate between participants are of no use in making comparisons between them. The same methodology shows that while Anxiety scores were the most varied (SD 2.64) interest in other cultures had the least variety (SD 1.77) largely because of statement 17 'I like to travel to other countries' which, perhaps predictably, prompted universal agreement. This data illustrates which statements need to be altered or removed from the survey in future.

Analysis of internal reliability was also carried out, although again the small number of data meant that the figures obtained were heavily swayed by a few

Table 5 Cronbach’s alpha for affective categories

Category	Imp. of sound	Imp. of appearance	Anxiety	Regard for Polish	Regard for English	Int. in foreign cultures
Cronbach’s alpha	.13	.16	.29	.53	.53	-.47

individual cases. In order to test the reliability of each category, Cronbach’s alpha was calculated, the results appear in Table 5.

The very low levels for this function are explained largely by the small number of data but they remain useful for the rating of the value of individual statements. When the figure is re-calculated with one statement removed from the reckoning the effect that statement has on the overall reliability rating becomes clear. In this way it can be seen that statements 1, 3, 4, 14, 17, 22 and 24 all reduce the internal reliability measure. It is important to remember, however, what internal reliability actually means here: that all the statements are measuring the same thing. The interest in foreign cultures variable is actually a hybrid of interest in travel and interest in languages, two things which do not seem to be strongly related. Responses to statement 3 may have been influenced by the affluence rather than tastes of the participants, and it can certainly be argued in hindsight that statements 3, 4, 14 and 22 all take a different perspective from the others in their group. Statements 1 and 17 were discussed above as being rather redundant. In order to bring all categories up to an acceptable level of at least .50 it is clear that some of these statements should be changed in further studies, and that a degree of re-categorisation may be necessary: the foreign cultures scale is certainly too general and the anxiety scale might also be divided to reflect anxiety for speaking and general language learning anxiety.

There are a number of comments to make about other aspects of the practical work. A native speaker grader of Greek would have improved consistency across the languages but otherwise the mimicry tests ran smoothly and encountered no problems. The assessment of attractiveness was problematic only as regards the statement ‘this language sounds funny to me’ which may have been misunderstood by one of the respondents, No. 6, who agreed strongly with all the positive statements as well as this one.

Two problems were apparent with the assessment of English accent. One was that a number of participants had trouble with the reading. This did not make it impossible to grade them but certainly affected their fluency and may have influenced their accent grade. The second was the unexpectedly low correlation between the two raters. A statistically insignificant correlation of just $r = .51$ ($p = .13$) reveals some surprisingly large differences of opinion and throws some doubt on the validity of the scores. In subsequent studies a repetition of this phenomenon would have to prompt the use of more markers and the possible elimination of one or more of them who strayed from the norm.

8 Conclusions

The pilot study was a success in a number of ways. Firstly, in relationships which were known beforehand, the tools produced the expected patterns, supported strongly by the individual case-studies: that anxiety correlates negatively with both language performance, in this case accent, and mimicry ability; and that accent correlates positively with mimicry skill. Had the tools failed to establish these relationships their overall validity would have been very doubtful.

On the three hypotheses outlined in Sect. 4, the study is encouraging. The three participants with the highest concern for their appearance did appear to be affected by their feelings towards the sound of the languages they were to mimic [hypothesis (i)] and the other participants did not [hypothesis (ii)]. The *Cecily Effect*, therefore, has been reproduced. Some evidence of the importance of sound and regard for English also affecting mimicry and accent scores [hypothesis (iii)] was also found. These results are certainly enough to make the conducting of a larger scale study worthwhile.

It is clear that that study will benefit from an expansion of the survey, with a scale for boldness being introduced, and the adjustment of some categories and statements in accordance with the statistical analysis presented in Sect. 7, and the employment of a more numerous set of participants.

Appendix 1: Statements Used in Survey

Importance of sound.

Accurate pronunciation of English is very important to me. (Statement No.) 1

Some languages sound nicer than others. 10

If someone has an unpleasant voice, I find it hard to concentrate on what he's saying. 20

I am sensitive to the rhythm of different languages. 21

Importance of appearance.

I spend a lot of money on clothes and cosmetics. 3

I don't like scruffy, untidy people. 18

I never leave the house without make-up. 11

I spend a lot of time each day on my appearance. 6

Language learning anxiety

I would rather say nothing than say something stupid. 2

I feel nervous when I'm not sure how to pronounce a word. 5

I care about how other people see me. 8

I am happy with the sound of my voice. 4 (negative score)

Regard for Polish

- I think the Polish language is beautiful. 7
- I am proud to be Polish. 16
- I don't like to hear Polish mispronounced. 9
- I feel better speaking Polish than other languages. 22

Interest in foreign cultures

- I would like to travel in Asia. 12
- I like to travel in other countries. 17
- I am interested in all languages. 13
- I would like to learn a non-European language. 24

Regard for English

- I find the sound of English attractive. 14
- Speaking English feels natural to me. 19
- I like to hear myself speaking English. 15
- I want to sound like a native when I speak English. 23

Appendix 2: Statements About Attractiveness of Input Languages

- I would like to speak this language.
- I find the sound of this language attractive.
- I like the rhythm of this language.
- This language sounds funny to me.

Appendix 3: Reading Text for Accent Assessment

It wasn't until Paul had pushed his way through the narrow swing door of the Rose and Crown Public House and past the two huddled Bangladeshi women sheltering in the doorway that the realization that he would have to walk home fell upon him. He tapped his pocket forlornly hoping for the jangle of his car keys, but knew well enough that he had left them upstairs in the hands of an overweight painter and decorator called Ron, with every penny he had possessed yesterday keeping them company. So, utterly broke and reduced to the role of pedestrian he strode out anything but confidently into the onrushing East-End morning with a journey of several miles through some of the less salubrious districts of London to his home before him. The rain was intermittent but fell in large soaking drops and had a particularly unpleasant dampening quality—none of the freshness of spring now,

and the cold was permanent and irritating, carrying no promise of snow but rather suggesting the atmosphere sure to prevail when he explained to his wife why he had come home on foot. (From *Bad luck/good luck*, by Martin Hinton).

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