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Study into the Health and Wellness of Appalachian English Dialect: A Portrait of an Endangered Dialect

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Abstract

Appalachian English (AppE) is one of the surviving archaic regional dialects of English still spoken in the United States. It has been associated with persons living in the southern Appalachian mountain range, especially West Virginia, eastern Kentucky, extending southward into the mountainous portions of East Tennessee . Until the period preceding the 1940s, the mountains served as an effective geographical barrier against physical mobility. The effect of this isolation, coupled with unusually high rates of illiteracy, has been to preserve the original character of the dialect of English spoken throughout the region. The 1940's ushered in a new era for the region, in terms of economic and social development, opening up the region to outside influences. With the creation of the Tennessee Valley Authority (TVA), dams were built on the Tennessee River to provide hydroelectric power to the region, and to improve river navigation. For the first time, the physical barriers to outside cultural influences were greatly minimized. In 1926, the United States government set aside approximately 700,000 acres of mountain wilderness which would become the Great Smoky Mountains National Park. The impact of visitors from many other parts of the country cannot be underestimated, in terms of influence on the language and culture of the region.

The time frame of the late 1930's and early 1940's was hypothesized to be a watershed event, because the creation of the Tennessee Valley Authority opened up the region to outside influences by improving navigation on the Tennessee River system, and by providing electricity which brought into the region radio, and later, television. These technological advances brought in speech patterns other than the local dialect, which may in turn have influenced the speech of southern Appalachian speakers who listened to them.

The purpose of this study was to describe to the casual reader the phonological features of selected vowels produced by three generations of present-day native Appalachian English speakers living in Del Rio, a small, relatively remote community of approximately 2400 persons (Cocke County Chamber of Commerce, personal communication, 1999) in East Tennessee, and to discuss what, if any, change has occurred over time. These speech samples have been compared perceptually cross-generationally and analyzed for presence/absence of AppE features. It was hypothesized that Appalachian English speakers who, as children, learned to talk prior to 1940, prior to any appreciable development of the region, would present with very different vowel characteristics from either their children or grandchildren, as demonstrated by perceptual analysis of their speech. It was further hypothesized that the grandparents and their adult progeny would demonstrate a lesser degree of change in their vowel characteristics than subsequent generations would reveal.

Introduction

Appalachian English (AppE) is one of the surviving archaic regional dialects of English still spoken in the United States. It has been associated with persons living in the southern Appalachian mountain range, especially West Virginia, eastern Kentucky, extending southward into the mountainous portions of East Tennessee (Luhman, 1990). Until the period preceding the 1940s, the mountains served as an effective geographical barrier against physical mobility. The effect of this isolation, coupled with unusually high rates of illiteracy, has been to preserve the original character of the dialect of English spoken throughout the region. The 1940's ushered in a new era for the region, in terms of economic and social development, opening up the region to outside influences. With the creation of the Tennessee Valley Authority (TVA), dams were built on the Tennessee River to provide hydroelectric power to the region, and to improve river navigation. For the first time, the physical barriers to outside cultural influences were greatly minimized. In 1926, the United States government set aside approximately 700,000 acres of mountain wilderness which would become the Great Smoky Mountains National Park. The impact of visitors from many other parts of the country cannot be underestimated, in terms of influence on the language and culture of the region.

The time frame of the late 1930's and early 1940's was hypothesized to be a watershed event, because the creation of the Tennessee Valley Authority opened up the region to outside influences by improving navigation on the Tennessee River system; and by providing inexpensive electricity which brought into the region radio, and later, television. These technological advances brought in speech patterns other than the local dialect, which may in turn have influenced the speech of southern Appalachian speakers who listened to them.

The purpose of this study was to examine the phonological features of selected vowels produced by three generations of present-day native Appalachian English speakers living in Del Rio, a small, relatively remote community of approximately 2400 persons (Cocke County Chamber of Commerce, personal communication, 1999) in East Tennessee, to determine what, if any, change has occurred over time. These speech samples were then compared perceptually cross-generationally and analyzed for presence/absence of AppE features. It was hypothesized that Appalachian English speakers who, as children, learned to talk prior to 1940, prior to any appreciable development of the region, would present with very different vowel characteristics from either their children or grandchildren, as demonstrated by perceptual analysis

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of their speech. It was further hypothesized that the grandparents and their adult progeny would demonstrate a lesser degree of change in their vowel characteristics than subsequent generations would reveal.

Method

Investigation site and participants

Del Rio, Tennessee was selected as the site of this investigation. It is a small, remote community in upper East Tennessee with an estimated population of 2,400. Three volunteer liaisons who reside in Del Rio identified potential participants who were sent an information packet about the study. Once permission had been obtained, the first author contacted the participants to schedule the experimental session. These sessions were conducted approximately one month after the information packets were sent.

Ten families with three generations of native southern Appalachian English speakers participated. Each family, or triad, consisted of three generations of persons; adult child, parent, and grandparent who have lived in a relatively remote community within the rural community of Del Rio in East Tennessee all of their lives. The age ranges for each generation were as follows: Generation 1 (G1) or grandparents' ages fell between the approximate ages of 56 and 70+; Generation 2 (G2), or children were between the approximate age of 36 and 55; Generation 3 (G3), or grandchildren were between the approximate ages of 18 and 35. In all, there were 30 participants, 10 from each of the three generations. Data from one additional family were discarded because of the inability of the G1 participant to complete the tasks. All participants were born in the Del Rio community of Cocke County, Tennessee and had lived there for at least two-thirds of their lives, including their formative years. Participants' forebears had likewise lived in Del Rio, going back at least one generation from the grandparents of each triad. Finally, all participants used English as their first and only language.

Each participant completed a demographic questionnaire. Based on these data, the age range for G1 was 70-90 years (M=79.9), G2 was 44-55 years (M=49.2), and G3 was 22-32 years (M=27.3). The modal income range for G1 was $10k-20k, G2 was $20k-30k, and G3 $30k-40k. During the experimental session, each subject indicated the highest grade completed in school. Education-level ranges for the three groups were: G1 (6-12 years, M=7.5 years), G2 (6 - 18 years, M=14.1 years), and G3 (12-16 years, M=13.4 years). Gender within each triad was not controlled. In G1 there were five males, five females; G2, three males, seven females; and G3, three males, seven females (Table 1).

Personal Information	G1	G2	G3
Age:			
Range	70-90	44-55	22-32
M	79.9	49.2	27.3
Median	81.0	48.5	28.0
Years of School Completed:			
Range	6-12	6-18	12-16
M	7.5	14.1	13.4
Mode	9.0	12.0	12.0
Median	9.0	14.0	13.0
Income (reported in numbers of individuals):			
10k-20k	9	0	1
20k-30k	1	4	3
30k-40k	0	3	6
40k-50k	0	2	0
50k+	0	1	0
Note: Income reported in thousands of dollars			

Table 1: Results of participant questionnaire.

The Eight Vowels of Interest

The vowels examined included diphthongs, rhotacized vowels, and selected exemplars of the monophthongal vowels that were drawn from those earlier identified as belonging to the dialect of Appalachian English by Hall [3] and by Wolfram and Christian [12], rather than to GAE, as each of the researchers understood the standard to be. While many of the vowel productions found in each of these catalogues are common to most AppE speakers, it should be noted that Wolfram and Christian's population was from West Virginia, while Hall's population was from the region in and around the Great Smoky Mountains, including the area in which the participants in the present study reside. While it is beyond the scope of this study, the differences noted between Wolfram and Christian [12] and Hall [3] may have been due to sub-regional variation not otherwise noted. The specific vowels of interest in the current study, as originally described by Hall [3] and using his diacritical system for the examples, included:

1. /o͡ɪ/: This diphthong is described as low-mid-back (as in /ɔ̰/), or mid-back (as in /o/) onglide to mid-front, or high-front /ɪ/ offglide in GAE [9]. An example of occurrence of this diphthong in GAE is [bɔ]l]. Hall p. 46 [3] noted that some of the elderly speakers in his study were found to have used the archaic /a͡ɪ/, as in his observation of the instance of one speaker self-correcting [ʤɔ]sts] to [ʤa]sts]; however, most of the older speakers of the present AppE cohort were expected to produce this as a monophthongal, or only slightly diphthongized vowel when preceding /l/, as in [bɔᵊl]; younger speakers of AppE were expected to produce some diphthongization, as in [bɔᶦl].

2. Rhotacized /a͡ɪ/, or /a͡ɪr/ sequences: The rhotacized version of /a͡ɪ/ which is a diphthong plus consonant sequence moves from a low-back onglide to mid-front or high-front offglide [9] and then to /r/. An example of this sequence in GAE in [fa͡ɪr]. Older speakers of Appalachian English were expected to produce this as a monophthong /ɑ/, as in [fɑr]; younger speakers of AppE were expected to produce this higher and more fronted as in [far]. Speakers of Southern American English (SAE) were expected to produce this similar to speakers of GAE.

3. Rhoticized /ɛr/: This sequence is produced as low-mid, front, lax and carrying an /r/ coloring [9]. An example of this consonant sequence in GAE is "bear," pronounced [bɛr]. Older speakers of AppE were expected to produce this as [bɑr], while younger speakers of AppE were expected to produce this more as [bær] in the same manner as speakers of SAE.

4. Final, unstressed /o/: The vowel is produced as mid-back and rounded [9]; as in [pɪlo]. Older speakers of AppE were expected to rhotacize the /o/, as in [pɪlɚ] for [pɪlo]; however, younger speakers of AppE were expected to produce this vowel as a final, unstressed /ə/, as were speakers of SAE.

5. Final unstressed /ə/: This vowel is produced as mid-central, lax [9]; as in [sodə]. Speakers of Southern American English were expected to produce it in this way. Older speakers of AppE were expected to produce this vowel as an /i/, which is high-front and tense, as in [sodi], while younger speakers of AppE were expected to produce this as in the manner of GAE speakers, more toward [sodə].

6. Stressed /ɪ/: The raising of the /ɪ/,which is high-mid, front, lax, and unrounded to /i/ in GAE, to a high-front, tense, and unrounded [9] has been noted to occur predominantly in AppE in combination with /ʃ/ and with /l/, as in [fɪʃ] being pronounced [fiʃ]. In some cases, according to Wolfram and Christian (1975), this may be produced with an intrusive glide to /ə/, as in [krɪb] being pronounced [krijəb].

Speakers of Southern American English are not expected to produce this added diphthongization. Older speakers of AppE were expected to produce the raised and tensed form. Younger speakers were expected to produce the diphthongized version as in [krijəb] but not the former, as in [fiʃ].

7. Stressed /æ/: The IPA defined /æ/ as a high-low-front vowel, noting that it had a slightly higher tongue placement than /a/, which is a non-American English phoneme. This vowel has a tendency to be of long duration, which is the major distinction between /æ/ and /ɛ/.

For this reason, /æ/ is sometimes described as long and tense for speakers of GAE [9]. Older speakers of AppE were expected to produce a raised and fronted variation, more toward /e͡ɪ/, as in [ke͡ɪf]; younger speakers were expected to produce a more standard /æ/, as in [kæf], as were speakers of SAE.

8. Stressed /ɪr/: Shriberg and Kent [9] described this as a rhotacized form of the high, front vowel /ɪ/. Older speakers of AppE were expected to produce this rhotacized vowel in a more backed position, as in /2/ with r-coloring, or even as [jɛ], glided /j/ with r-coloring. This vowel cannot be described as /ɝ/, as in [hɝ] because of the placement of the initial portion of the vowel.

The eight vowel features selected for inspection were noted in Wolfram and Christian [12] and/or in Hall [3] as being representative of a changing regional dialect. The selected vowels did not include the monophthongization of /a͡ɪ/, as in [tem] for "time," nor the collapse of /ɪ/ and /ɛ/, as in "pin" and "pen," because these contrasts were judged by Bailey [1] and others to be salient to SAE, and therefore not unique to AppE, but rather productions that are pervasive throughout the South.

Data collection procedure

Each participant completed one experimental session approximately an hour in length. During this session, the participant engaged in two conversational tasks: a breathless narrative (see definition below), and a monitored conversation, as well as three additional tasks constructed for the larger study. Some participants required an extra session to complete the constructed tasks. All participants, however, completed the two conversational tasks during the first session.

Conversational speech samples

Breathless narrative: The first task was a speech sample centered on topics designed to control for this phenomenon by eliciting highly charged emotional content from the participant. Labov [4] created this task, calling it the "Breathless Narrative." Labov's [4] intention in using the "Breathless Narrative" was to evoke a memory so vivid that the speaker psychologically relives the event. Michael Montgomery (personal communication, 1999) recommended topics that included, but were not limited to (1) fear of death experience; (2) childbirth experience; (3) the "Christy" story, eliciting opinions and feelings about the highly publicized novel by Catherine Marshall, written about the participants' community [6]; (4) "snake handlers," a term used to describe a fundamentalist religious sect still known to engage in arcane and dangerous practices based on the religious belief that their faith will protect them from harm; and (5) personal, rather than religious, encounters with venomous creatures. The purpose of this task was to minimize the "Observer's Paradox," (Hall, date unknown), to ensure elicitation of the most unguarded, and therefore the most natural speech.

The "Observer's Paradox" is defined by Hall as the awareness on the part of the speaker that his/her speech is being observed (Montgomery, Hall's Obituary, unpublished).

As described by Labov [4], breathless narratives are characterized by the participant's use of present tense, nervous laughter, and an increased rate of respiration. Breathless narratives were elicited from many participants in this study. Approximately 40 percent of G1 participants lapsed into a breathless narrative, compared with 20 percent and 10 percent for G2 and G3, respectively. On some occasions, the participant's monitored conversation and breathless narratives became intertwined. The first author made notations in the transcribed samples when the participant was observed to exhibit the cardinal signs of telling a breathless narrative.

Monitored conversation : A second conversational sample was elicited from the participants, on topics of high personal interest to the individual. Topics for dialogue included, but were not limited to (1) farming practices of the past, relative to the present; (2) hunting and fishing; (3) how today's children differ from children who lived when the participant was young; (3) cooking and preservation of food; (4) herbal medicine; (5) child-rearing practices, and (6) professional or vocational interests. To enhance the naturalness of the interaction, topic selection was gender-specific and highly individualized to the participant's interests.

The PI conducted all of the experimental sessions with a liaison present on some occasions. Sessions were audio recorded on digital audio tapes (DAT) using a Sony PCM-M1 DAT recorder and a Crown CM-311 head worn microphone. Recordings were made in a quiet room of the participant's home, or in the home of another member of the triad. When more than one member of the triad was present, the session took place in a separate room from other participants. When this was the case, the investigator discussed the true purpose of the study only after all participants had completed the data collection protocol.

As previously mentioned, conversational speech samples were collected by the PI, accompanied by the liaison, as appropriate. Each liaison was a native speaker of southern AppE, and was a social acquaintance of the participant. The PI was the main conversational partner for all interactions. The liaisons, when present, had only minimal input into the conversation. If the liaison was known to the participant, she stayed for the duration of the visit; if the liaison was unknown to the participant, the liaison was excused after the initial visit. The latter situation occurred in 40%, 60%, and 100% of the G1, G2, and G3 sessions, respectively. The absence of the liaison did not appear to have an effect on the participants' willingness to engage in the experimental tasks.

A minimum of five different words, or tokens, for each of eight target vowels was collected during each of the two conversational tasks (breathless narrative, monitored conversation). According to Labov's [4] paradigm, the investigator was optimally to gather over 20 to 25 opportunities for each vowel for each task. In some instances, the optimal number of opportunities could not be obtained. To ensure sufficient tokens for statistical analysis, the PI continued the conversation long enough to ensure that all target vowels had the opportunity to occur at least five times across the two conversational tasks. For the present study, tokens collected during the two conversational tasks were collapsed into one task ("conversation") for the purposes of statistical analyses.

Purpose of study and debriefing: In order to prevent participants from altering their speech in any way, they were initially given a "faux objective" for the study. They were told that the purpose of the study was to learn more about the people of the community and the

region (adapted from Labov, 1982). The initial paperwork did contain a few statements which described to true purpose of the study. This paperwork, however, was completed one month prior to the scheduled interview; well before the interview session, to provide ample time for "forgetting." At the end of the session, the investigator informed the participants that the true purpose was to determine the status of the AppE accent by transcription of words containing eight selected vowels. After debriefing, each participant had the opportunity to remove himself or herself from the study. In no instance, did participants ask that his or her tapes not be analyzed for the true purpose of the study.

Following the interviews and before the debriefing, the investigator asked the participants in four families what they thought the true purpose of the study was before debriefing them. Fifty percent of these G1 participants were able to identify "listening to their speech" as the purpose of the study, compared with 100 percent of G2 and G3 participants, respectively. This question was asked, however, after these participants had completed the all "additional" tasks which did not relate to the "faux objective" presented to them (reading passages, sentence completion, and minimal word pairs). It is likely that the minimal word pairs task provided the participants with the most insight to the true nature of the study.

Speech Sample Analysis Procedures

The speech samples were transcribed using a three-step procedure: orthographic transcription, classification of target vowels, and narrow phonetic transcription. First, each participant's entire conversational sample (breathless narrative and monitored conversation) was transcribed orthographically by the PI who is a native speaker of Southern American English (SAE), and who is very familiar with the Appalachian dialect. Second, the PI identified each word containing one or more of the eight target vowels, and classified it as AppE or SAE. A vowel production was classified as belonging to the AppE dialect if it was produced in the manner matching the phonetic descriptions of AppE found in the literature [1,3]. A vowel production was classified as belonging to SAE dialect if it was produced in a manner similar a speaker from outside the immediate locale but from another Southern community (e.g., the city of Knoxville, located some 50 miles away), as recognized by a native speaker. Third, during another listening pass, all tokens identified as AppE productions were transcribed using International Phonetic Alphabet (IPA) narrow transcription techniques.

Reliability

Inter-and intra-judge reliability was determined by the re-classification and re-transcription of six of the thirty speech samples, or 20 percent of the total corpus. The samples were selected randomly with two of the ten participants chosen randomly from each of the three generations. For inter-judge reliability, a second individual experienced in narrow phonetic transcription of normal and disordered speech independently re-classified target vowels as belonging to AppE or SAE, and then re-transcribed tokens classified as belonging to AppE from the conversational samples of six participants. For intra-judge reliability, the PI also re-classified the vowel targets as AppE or SAE, and then re-transcribed tokens identified as belonging to AppE from the same six samples. For all reliability measures, a point-by-point mean agreement level of 85 percent or greater was considered acceptable.

Inter-Relibility Judge Training

For training purposes, the inter-reliability judge listened to three native speakers who were recorded in East Tennessee between 1937 and 1940 by Hall [3] as part of his seminal study of the dialect of Appalachian English. This judge transcribed 24 words from each speaker, for a total of 72 words. Each set of 24 words contained three tokens of each of the eight target vowels. Each of these speakers resided in the Great Smoky Mountains National Park or surrounding area, with one being a resident of Del Rio, Tennessee. The PI and inter-reliability judge obtained at least 90 percent consensus agreement for narrow transcription of the 72 AppE tokens using the standard IPA diacritics, as described by Shriberg and Kent [9]. Segmental and suprasegmental markings were included in the transcriptions. Suprasegmental aspects addressed included stress patterning, and lengthening and shortening of the segmental characteristics within the word.

Inter-Reliability Judge Procedures

Following the training period, the inter-reliability judge was given the audio recordings from the present study and corresponding orthographic transcriptions of the six randomly selected samples from the Del Rio corpus. Her task was to listen to the recorded samples with the orthographic transcript in hand, to listen and read as she listened, and in order to identify words with the eight target vowels, classifying the words as SAE or AppE. The judge independently completed this task and orthographically transcribed the words with target vowels belonging to AppE on a worksheet. After a two-week break, the inter-reliability judge was given the same recordings to listen to a second time. She was asked to phonetically transcribe the AppE words without access to the orthographic transcriptions, using Shriberg and Kent's [9] system of diacritics.

Results

Reliability

Inter-judge reliability for classification of vowels to SAE or AppE was calculated as vowel-by-vowel percent agreement per total vowel tokens. For this measure, all agreement levels were above the acceptable level of 0.85, averaging 0.94 inter-judge agreement (range = 0.89-0.95, per vowel). In the reliability sample, the total number of vowel tokens was 7339, with the range of 0-1184 tokens per target vowel across the six samples. Inter-judge agreement for re-transcription of the AppE vowels was determined to be 0.92 (range of 0.93-0.95). Intra-judge agreement for classification of target vowels to SAE vs. AppE across the same six samples was calculated to be .96 (range = 0.93-0.98). Intra-judge agreement for re-transcription of the AppE vowels was 0.97 (range = 0.93-1.00). Vowel shifts such as raising the final, unstressed schwa to /I/ (as in [sodI] for "soda"), and the rhotacization of the final, unstressed /o/ (as in [piller] for "pillow" represented gross distinctions that drove the reliability percentages this high (Table 2).

Tests of statistical significance

Because the data were not normally distributed, the responses were ranked, and statistical operations performed on the means of the ranks. Non-parametric repeated measures ANOVA with three within-subject

Participant	Recount of Southern English vs. AppE	Retranscription of AppE
G1, Family 1	0.94	0.92
G1, Family 6	0.94	0.93
G2, Family 1	0.94	0.94
G2, Family 7	0.93	0.93
G3, Family 2	0.95	0.89
G3, Family 10	0.95	0.90
Overall Agreement	0.94	0.92

Table 2: Summary of Inter-Judge Reliability for Selected Sample.

factors: generation, vowel, and condition (or task) was performed using the ranked data to compare the means of the ranks among the three generations, using the three within-subject factors (alpha level 0.05). Analysis of the results using the Huynh-Feldt statistic indicated the presence of a significant main effect for generation [F (1.522, 13.694) = 24.907, p< 0.001]; and likewise for vowel [F (5.629, 50.664) = 16.432, p<0.001]. However, no main effect was found for condition alone. The analysis also revealed a two-way interaction between generation and vowel [F (6.467, 58.202) = 2.822, p<0.02]; but not between generation and condition, or condition and vowel. For this reason, each vowel was analyzed separately for pairwise comparisons of the estimated marginal means (EMM) to test whether the effect of the interaction between generations, by vowel could reveal significance among the generational groups. The measure to be analyzed was the percent of AppE versus SAE used by speaker, within family. The range of the ranks fell between 1 and 48 (three generations x eight vowels x two conditions, totaling 48 observations). The data were ranked within variable, using the Family as the unit of measure. Plots of the mean ranks for each vowel fell between 10 (number of families) and 48 (number of observations). After generating the ranked data, the means of the ranks were computed and compared between generations, reported as pairwise comparisons among the EMM which allowed for comparison of each generation to the other. The Sidak adjustment was applied to the significance levels used in post hoc tests and in construction of the confidence intervals used to calculate the observed power of the test [10].

Pairwise comparisons between G1 and G3

Comparisons made for each vowel between Generations 1 and 3, the oldest and youngest Appalachian English dialect speakers revealed that five of the eight vowels showed statistically significant change from AppE to SAE (p>0.05). These included the three rhotacized vowels /ɑ͡ɪ r/, /ɪr/, /ɛr/, together with /ɪ/ and final, unstressed /ə/. Within the G1 cohort, the rhotacized vowels occurred in AppE form more than for any other cohort. For G3, /ɑ͡ɪr/ and /ɪr/, as in "tire" and "here" showed the greatest overall pattern of significant decline in AppE form. In order of frequency of occurrence as AppE forms, G1 retained the archaic form of [ɛr], pronouncing "bear" as [bɑr] (EMM = 41.4), followed by /ɪr͡ɪ (EMM = 41.0), and [e]r] (EMM = 37.1), respectively. These three vowels showed pairwise comparisons with G3 as follows: for /ɛr/, the significant mean difference was 4.4 (p>0.05, SE = 0.966); for [ɪr], the significant mean difference was 17.2 (p > 0.05, SE = 2.478); /ɑ͡ɪr/ showed a significant mean difference was 22.3 (p>0.05, SE = 3.639). The vowel that showed the lowest frequency in occurrence for either cohort was /ɪ/, with G1 producing ranked data of EMM = 27.6, and G3, EMM = 20.2). However, there was a significant difference between the two groups on pairwise comparisons (p > 0.05, SE = 1.708).

Another, equally rare production rate was found with final, unstressed /ə/, as in "soda," as shown by the ranks of the data. G1 produced the vowel infrequently (EMM = 26.1), and G3 only rarely (EMM = 10.5). The difference between the two cohorts was found to be statically significant (p > 0.05, SE = 4.098). The lack of statistical significance for the remaining three vowels, /ɔ͡ɪ/, as in [kɔ͡ɪl], final unstressed /o/, as in [təbæko] and /æ/ as in [æpl] was accompanied by relatively high Standard Errors of Measure which suggested a wide range of variability in production across individual speakers and between generations (see Table 3).

Pairwise Comparisons between G1 and G2

Pairwise comparisons made for each vowel between Generations 1 and 2, the oldest and their adult progeny revealed that three of the eight vowels showed statistically significant change from AppE to SAE (p>0.05). Curiously, two of the rhotacized vowels, /ɪr/, /ɛr/ vowels showing statistical significance for change in the direction of AppE were also found to be in common with the G1-G3 cohorts. The highest incidence of occurrence observed in G1 was /ɛr/, with an EMM rank of 41.4; the same was true for G2, with usage reported as an EMM rank of 35.0. Pairwise comparisons between the two generations revealed a significant mean difference of 6.4 (p>0.05; SE=2.013) A more dramatic difference in usage between G1 and G2 was seen in /ɪr/. The eldest speakers produced this rhotacized vowel with great frequency (EMM of the ranks = 41.0); however, only moderate use of this vowel was recorded for G2 (EMM of the ranks = 24.8). A pairwise comparison revealed a significant mean difference of 17.2 (p>0.05, SE = 2.567). The third vowel showing significant differences between G1 and G2 was the final, unstressed /o/. One of the vowels that occurred only rarely for G2 was this final, unstressed /o/, with an EMM of the ranks reported of 11.5. For the G1 cohort, /o/ was produced in its AppE form with relatively high frequency, with an EMM of the ranks reported as 29.0. A pairwise comparison between the two generations revealed a mean significant difference of 17.5 (p>0.05; SE=4.610. The remaining five vowels shown by the data to have no significant differences on pairwise comparisons between the two generations (see Table 4).

Vowel	G1**	G3**	M Difference	Std. Error (SE)
[9]]	29.3	24.9	4.4	3.515
[e]r]	37.1	14.8	22.3*	3.639
[8r]	41.0	23.7	17.2*	2.478
[2r]	41.4	37.0	4.4*	.966
final [o]	29.0	16.5	12.5	6.256
[8]	27.6	20.2	7.4*	1.708
[q]	21.9	17.7	4.2	1.567
final [1]	26.1	10.5	15.6*	4.098

n=20 (10 per group)
Note: *p<0.05
** - Entries are Estimated Marginal Means (EMM) of the Ranks
a. Adjustment for multiple comparisons: Sidak

Table 3: Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G1 and G3.

Pairwise Comparisons between G2 and G3

The data show that there were no significant differences between G2 and G3 on production of any of the eight vowels of interest. For visual inspection, the eight vowels have been plotted for each generation (see Fig. 1). It should be noted that the profiles for G2 and G3 are quite similar, but that the profile for G1 takes on a very different shape. This suggests that the younger two generations were more similar, and that both were different from the eldest generation. This finding was

Vowel	G1**	G3**	M Difference	Std. Error (SE)
[9]]	29.3	23.5	5.8	4.471
[e]r]	37.1	19.5	17.5	6.080
[8r]	41.0	23.8	17.2*	2.567
[2r]	41.4	35.0	6.4*	2.013
final [o]	29.0	11.5	17.5*	4.610
[8]	27.6	24.7	2.9	1.046
[q]	21.9	16.4	5.6	2.256
final [1]	26.1	15.2	10.8	6.513

n = 20 (10 per group)
Note: *p<0.05
**Entries are Estimated Marginal Means (EMM) of the Ranks
a. Adjustment for multiple comparisons: Sidak

Table 4: Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G1 and G2.

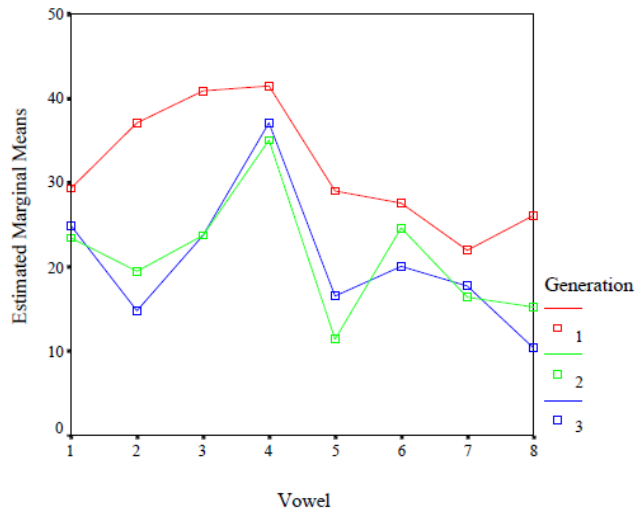
not unexpected, and tends to support the original hypothesis of this study that speakers of Appalachian English who acquired speech prior to 1940 speak differently from either their children or grandchildren (Table 5). This notion is also supported by previous research which suggested that certain phonological characteristics considered to be the defining features of AppE tended to be limited to the oldest members of the population [3,12].

Analysis of the data revealed a significant two-way interaction between generation and vowel ($p>0.05$), which suggested a correspondence between group membership (G1, G2, or G3) and the degree to which AppE vowel production was retained or abandoned for the vowels under investigation. Significant differences were found by pairwise comparisons of the EMM between G1 and G3 ($p>0.05$) for five of the eight vowels: /ɑ͡ɪr/, /ɪr/, /ɛr/, /ɪ/ and final, unstressed /ə/.

Likewise pairwise comparisons of the Estimated Marginal Means (EMM) between G1 and G2 ($p > 0.05$) were found to exist for three of the eight vowels: [8r], [2r], and final, unstressed /o/. No significant differences were found to exist between G2 and G3. Figure 1 graphically illustrates the profiles for all three generations. A visual inspection of the plotted data points in Figure 1 revealed close correspondences between G2 and G3, and that the profile for G1 was different from either of the other two groups. This finding was of interest, for two reasons: (1) it illustrates the dynamic of change for this relic dialect; and (2) it supports the original hypothesis that speakers of Appalachian English who acquired speech prior to 1940 (G1) would present with different phonological characteristics than either their children (G2) or grandchildren (G3). The year 1940 appears to mark the beginning of an increase in the decline of AppE as a unique and post-insular dialect. These findings draw support from a similar discussion offered by Wolfram and Schilling-Estes [7] highlighting the changes to other dialectal boundaries in the second half of the twentieth century.

Discussion

The primary purpose of this investigation was to determine whether change is occurring in the sounds of Appalachian English (AppE) spoken in an isolated community of East Tennessee, by the examination of pronunciation of eight vowels in conversational speech. This was accomplished by interviewing three generations of native speakers of AppE in two conditions: (1) a "Breathless Narrative," in which the speaker was asked to recount a traumatic or life-changing event in his/her life [4]; and (2) a monitored conversation, in which the speaker was asked to describe his/her life, interests, or casual events of the past. Significant main effects for generation and vowel were found to exist for the factors of generation and vowel. However, a significant two-way interaction between generational membership and vowel required that each vowel be analyzed separately. For five of the vowels of interest, there were significant differences between the eldest and the youngest generations (G1 and G3, respectively), and significant differences for three of the vowels of interest between the eldest and the middle generations (G1 and G2, respectively), with the oldest cohort (G1) using more AppE productions in their speech than did their adult children or grandchildren. No significant differences were found between the middle and youngest generations on any of the vowel productions (G2 and G3). Because the data were not normally distributed and in the presence of a significant two-way interaction, discussion of the statistically significant differences was necessarily by vowel.



N=10 speakers per generation
Legend: Vowel 1=[**9**] Vowel 5=[**ɪ**]
Vowel 2=[**e**]**r**] Vowel 6=[**8**]
Vowel 3=[**2r**] Vowel 7=[**q**]
Vowel 4=[**o**] Vowel 8 = [**8ɪ**]

Figure 1: Generational profile of eight appalachian english vowels for three generations of speakers of appalachian english.

G1 and G3 Vowel Differences

Pairwise comparisons of the ranked data revealed significant differences between G1 and G3 for five of the eight vowels of interest: /ɛr/, /ɑ͡ɪr/, /ɪr/, /ɪ/ and /ə/. Three of the five vowels were the rhotacized vowels in the collection: /ɛr/, /ɑ͡ɪr/, and /ɪr/. AppE productions of these three rhotacized forms occurred more frequently in the G1 cohort than any other vowel form. Figure 1 above numbers each of the vowels, taken from left to right. The paragraphs below discuss the vowels in the order of this rank. The number as ascribed to the vowel corresponds to the number in Figure 1.

Vowel Four: /ɛr/, as in [bɛr]

As shown in Figure 1, the vowel /ɛr/ had the highest rank of AppE productions across all three generations. G1 showed statistically significant differences from both G2 and G3, but G2 and G3 were not significantly different from each other. G1 produced the AppE form of /ɛr/ in 85 percent of total opportunities for this vowel. In contrast, G2 produced the AppE form of /ɛr/ in 61 percent, and G3 in 69 percent of total opportunities for this vowel. AppE productions of /ɛr/ tended to be described as either /ɝ/ or /ɑr/. There was only one word in which all three generations varied in their productions of /ɛr/, as influenced by context and sentence placement. In all opportunities for production of /2r/ in the word "there," all three generations produced AppE versions approximately 60 percent of the time. AppE productions of this vowel were detected in other words, including one instance each of "berry" in all three generations and in approximately 60 percent of productions of "where" for all three generations. This finding of "r-fullness" is supported by both Dial (1975/1978) and Williams [11] who noted that a strong r-quality was consistent with both AppE and the Scottish forms from which the dialect derives.

It may be noteworthy that G3 presented with more variability in this vowel form than G1 or G2. This suggested that the vowel was unstable in this generation. Variations of this form included such productions as [ðɛr], [ɑr], [ðɑr], [ðar], and [ðɝ] for "there," often within the same speaker. This phenomenon was clearly demonstrated in the speech sample of a man from G3. Such variability appeared to be driven by linguistic context, sentence position, and whether the word

was emphasized or not, and speaks to the relative instability of the form, suggesting a dynamic of change. This is consistent with findings of Wolfram and Christian [12].

Vowel Two: /a͞ɪr/, as in [fa͞ɪr]

Very few of the two younger generation speakers used a retracted and lowered /a͞ɪr/ (e.g., /ɑr/ for "fire"), a finding which may account for much of the dynamic change to AppE, as it appears to be evolving toward Southern American English (SAE). The degree to which this vowel form has changed is exemplified in words such as [tɑr] for "tire," productions which were observed predominantly in the speech samples of the oldest speakers (G1), but not the younger two groups. This finding was supported by contrasting Hall's (1942) observations with those of Wolfram and Christian [12]. In the former study, Hall observed that the pronunciations of /a͞ɪr/ in many in his population were consistent with reduction of the diphthong to an /ɑ/. This was clearly not the case with the G3 cohort in the present study, whose productions of this vowel were different; these were more fronted and tensed, as in [tar] for "tire," which corresponded to the observations of Wolfram and Christian [12]. In sum, G1 produced the diphthong /a͞ɪr/ with a retracted /ɑ/, whereas, G2 and G2 produced it with a more fronted /0/.

Vowel Three: /ɪr/, as in [hɪr]

Only a few members of the G2 and G3 cohorts produced /ɪr/ as /ɛr/ or [jɛr], as compared to the participants of all ages in Hall's (1942) study and the members of G1 in the present study who used these AppE forms frequently. The degree to which this vowel form has changed from its purely retracted and diphthongized AppE form in G1 in words such as [hɛr] or [hjɛr] for "hear," can clearly be supported by Hall's observations (Hall, 1942, p. 41). G1 produced /ɪr/, as in the word "hear" or [hɪr] as [hɛr] or [hjɛr], in 79 percent of their total AppE opportunities for production of this vowel in all instances during conversational tasks. This is compared with 20 percent and 16 percent for G2 and G3, respectively. Clearly, this form appears to be in a state of decline in the dialect, as demonstrated by the paucity of its use among the youngest participants of the study.

Vowels Six and Eight: /ɪ/ as in [fɪʃ], and final /ə/ as in [sodə]

The two remaining vowels from the present study which were found to be significantly different between G1 and G3 were /ɪ/ and final, unstressed /ə/. Interestingly, these two vowels were reported by Hall (1942) and Wolfram and Christian (1975) to be replaced by a raised /i̝/, or more like /ɨ/. The vowel /ɪ/ is produced as /i̝/ especially preceding /ʃ/ or /l/. In the present study, G1 produced /i̝/ preceding /ʃ/ in this manner in five percent of their total opportunities for AppE production of this vowel; that is, preceding /ʃ/ in all contexts, compared with one percent for G2 and two percent for G3, respectively. Therefore, the speakers from G1 were twice as likely as G2 or G3 to produce a raised /i̝/ in conversational tasks when in combination with /ʃ/, as in "feesh." When the vowel preceded /l/, as in "hill," G1 produced the raised AppE form in this context 34 percent of the time, compared with 12 percent for G2 and 17 percent for G3. Again, this finding shows that G1 used the raised form of /8/ preceding /l/ at least twice as often in this context as the younger two generations. This observation is supported by Wolfram and Schilling-Estes' (1998) reported merger, or near-merger of /ɪ/ and /ɨ/ when they occur, especially when preceding /l/, which they note is characteristic of SAE (Wolfram and Schilling-Estes, 1998, p. 71). Anecdotally, the PI observed several of the participants, particularly the G1 cohort, producing this vowel with a facial contortion, in their failed attempts at hyper-correction during the minimal-word pairs task. Participants from G2 and G3 cohorts were observed to pause in puzzlement after reading a pair of words such as "pill" and "peel," as if recognizing that the two words should have sounded different, but did not.

For participants in all three generations, the unstressed forms of the pronoun "him," were produced as [i̝ m], by raising and tensing the /ɪ/ and omitting the initial /h/. G1 used this raised form in four percent of total productions of this vowel in "him." G2 and G3 used /8F/ in seven percent and 19 percent of total productions of this vowel in "him," respectively. This tendency was also observed by Wolfram and Christian [12]. In cases of the pronoun in unstressed position, a diphthongization of the vowel, such as [hɪjəm], did not occur. However, this phenomenon of diphthongization did occur with [hɪm] in this present study, but only when the word was used for emphasis, ". . . in the prolonged end-clause or end-sentence position" (Hall, 1942, p. 14). The increase across generations seen in this present study is consistent with the /ɪ/-/ɨ/ collapse currently underway in AppE, as described by Wolfram and Schilling-Estes [7].

A significant difference was also found to exist between G1 and G3 for production of the AppE form of final, unstressed /ə/, in which the vowel is substituted with an /i̝/, as in [sodi̝] for "soda." The younger cohort used the AppE form rarely or not at all in conversation, using the raised form in four percent of total productions of the final, unstressed /ə/. The older speakers used this form frequently and freely in conversation, demonstrating its use in 63 percent of total usage opportunities. In the latter cohort, the vowel alteration was particularly noticeable when the speaker was comfortable and relaxed with the interviewer. This finding is supported in Hall (1942), who noted that its use was limited to the elderly, the isolated, and the uneducated, and suggested at the time that this indicated a fading from the dialect. Wolfram and Christian (1975) came to the same conclusion among the speakers of AppE in West Virginia, finding it almost exclusively in the speech of elderly speakers.

G1 and G2 Vowel Differences

Two of the three vowels that were shown to be significantly different between G1 and G2 were the same as those vowels shown to be significantly different between G1 and G3. These vowels were /ɪr/ and /ɛr/ previously described. The third vowel found to distinguish G1 from G2 was final, unstressed /o/. The two rhotacized vowels, /ɪr/ and /ɛr/, and the /ɚ/ for /o/ substitution that appeared to distinguish the G1 cohort from the other two cohorts were thought by the PI to reflect the general tongue placement of speakers of AppE [11]. In order to produce the AppE form of a rhotacized vowel, such as /ɛr/, the speaker had to retract and anchor the tongue. This phenomenon was borne out in the transcriptions, and heard by both the PI and by the Reliability Judge to have been the manner of production common to all participants who produced these particular vowels in this way. The influence of preceding consonants on the production of /o/ was not thought to be a factor, as /ɚ/-for-/o/ substitutions occurred with equal frequency following stops, affricates, and liquids in speakers who used this feature of AppE. G1 produced the final, unstressed /o/ as /ɚ/ following stops and liquids in 41 percent and 32 percent, respectively, in all opportunities. G2 produced /o/ as /ɚ/ following stops, affricates, and liquids in 33 percent of all cases of all three consonant classes, respectively. By comparison, G3 did not produce final, unstressed /o/ as /ɚ/ following stops or affricates, but did so following the liquid /l/ in 90 percent of all opportunities. This is reminiscent of Esling and Wong (1983), who discussed "voice quality setting" or "general articulatory posture," (p. 89) which they suggested distinguishes languages (and by inference, dialects) from each other.

A significant difference was observed between G1 and G2 (but not in G1 vs. G3) in production of the final, unstressed /o/, as in [təbæko] for "tobacco." G1 most often substituted a /ɚ/ for the final /o/, pronouncing the word as [təbækɚ]. The younger cohort produced the final, unstressed /o/ as a /ə/ almost exclusively, with an occasional exception when producing "hollow" as [hɑlɚ]. This difference was also observed by Hall [3], Wolfram and Christian [12], and Williams [11]. All three studies found that this form was produced most often in the speech of older speakers, and was thought by all of the investigators to be one of the chief characteristics of AppE [3,11,12]. That the younger cohorts (G2 and G3) used this form very infrequently may point to a true decline in the traditional AppE manner of pronunciation of this vowel.

G2 and G3 Similarities

No significant differences were found between the pronunciations of G2 and G3 cohorts in any of the vowels of interest. This was borne out by both statistical analysis using pairwise comparisons, and by visual inspection of the profiles generated in Figure 1. This finding was not unexpected, and tends to support the original hypothesis of this study that speakers of Appalachian English who acquired speech prior to 1940 speak differently from either their children or grandchildren. This notion is also supported by previous research which suggested that certain phonological characteristics considered to be the defining features of AppE tended to be limited to the oldest members of the population [3,12].

Why Generational Differences Were Found in Frequency of AppE Usage

One possible account for G1 differing from G2 and G3, and for the similarities between the younger two generational cohorts was that the education levels of G2 and G3 were more similar to each other than to G1. Some members of each of the two younger generations had at least some exposure to college work. Two participants in G2 completed some graduate work; one of these completed a master's degree. The mean number of years in school for G2 was 14.1, and for G3, 13.4 years as reported anecdotally by the participants. These levels of education were compared to an average of 7.5 years in school for G1.

Other factors included the age of the participants. Only the G2 and G3 participants were all born after 1940, increasing the likelihood of early exposure to outside linguistic influences through the broadcast media. Radio, telephone, and television exposure was brought on by affordable electricity produced by TVA. Increased tourism into the region with the opening of the Great Smoky Mountains National Park exposed children during their language development years to linguistic influences from outside the region. All this in addition to expanded educational opportunities through a national emphasis on public education and access to higher education, following the end of World War II. This explanation finds support in the work of Labov [4], who found that education was a major factor in linguistic change in his 1966 study of the speech of residents of New York City. For demographic details, see Appendix A

The impact of advancements in technology was central to the hypothesis of the present study: that speakers who learned to talk before 1940 (before these advancements occurred) talk very differently from their progeny, and their progeny's progeny, all of whom learned to talk after that point in time. The findings of the present study are similar to those of other recent studies: that major technological advances in transportation and communication, particularly telecommunication have been suggested as change-agents [2,14,15].

Migration

Migration out of the region, while not found to have occurred as much in this study, is often cited as a change-agent for dialectal decline. Evans [2] collected preliminary data on the impact of living in Ipsilanti, Michigan on the speech of native speakers of AppE. Her preliminary findings suggest that the speech of older Appalachian natives living outside the area has changed less than the speech of their progeny. Evans' results [2] suggest that migration and subsequent contact with other dialects may have affected the speech of younger generations more than their elders. These findings may suggest susceptibility in G2 and G3 to the influence of other dialects, reminiscent of the linguistic "swamping" phenomenon discussed in Wolfram and Schilling-Estes [7]. The impact of outside influences on Southern dialect (and by extension, AppE) has been observed in areas where there has been an influx of speakers from Midland and Northern dialectal regions. Increasing numbers of these persons migrated southward seeking economic opportunities and a more favorable climate. The oldest speakers studied by Evans [2] seem to have been more resistant to change in their dialect, a possibility that may also apply to the current study owing to the similarity of the two age groups.

Several of the families who participated in the present study reported that they had relatives who had worked in New Jersey, only to return to the area after the beginning of World

War II. However, among the G1 participants themselves, there were no reports anecdotally of their moving out of the region to seek employment. One participant in G1 reported that, when she was a child her family spent the summers in southwestern Virginia, for her father to perform seasonal work; however, this location was within the confines of the southern Appalachian Mountain region. Two men in the G1 cohort both served in the United States military and were stationed in the Pacific Theater during World War II. One participant from the G2 cohort reported having worked outside the local area for two years as a traveling throughout the Atlanta Georgia area as a pharmaceutical sales representative and her encounters with other dialects cannot go unnoticed. During these relatively short periods, all four of these individuals would have been exposed to speakers from other parts of the country. While these subjects spent brief periods outside the region, most of the participants in this study resided in the area all of their lives. These examples make it clear that residence outside the region was limited among all participants in the study.

Wolfram and Schilling-Estes (1998) provide several possible explanations for the shift in regional dialects observed over time. The first of these has been the migratory patterns of the population across the United States. During the period known as "The Great Depression," many in the Appalachian region, searching for employment, participated in a northward migration along a Midwestern route which included St. Louis, Chicago, and Detroit. Another migratory corridor during this period was along the Eastern Seaboard, including Washington, DC and New York (Wolfram and Schilling-Estes, 1998, p. 115).

Perhaps more influential than outward migration to the findings of the present study was the influx of non-southern speakers, as speakers from the Midland and Northern dialect areas moved southward following the Post-War Years, to seek better economic opportunity and better climate. The impact on the regional dialect by this migration of non-Southern speakers has been reported in terms of linguistic "swamping," the result of which has been the observation that a genuine "Southern accent" is becoming a rarity (Wolfram & Schilling-Estes, 1998, p. 116). This linguistic "swamping" may have been a factor in the findings of the present study, with the suggestion that, despite the

suggestion that the AppE dialect has historically been viewed by native speakers as a source of cultural pride [11], many of the younger AppE speakers, in many cases, could not be distinguished from speakers of Southern American English for vowels such as final, unstressed /ə/ or /o/, /ɪr/, /a͞ɪr/, and /æ/.

The status of other relic dialects all bear some important similarities to the status of AppE: these are all "post-insular" dialects, such as the English spoken on Ocracoke Island of North Carolina, on Smith Island of Maryland, and "Gullah," a dialect of African-American English spoken on the Sea Islands of South Carolina. Studies show that, for reasons of historical geographic isolation from the mainstream of American culture, these dialects have been relatively immune to change until recently. And they have all been identified by linguists and other researchers as "endangered" dialects, because their chief features appear to be in the process of becoming assimilated into GAE, beginning with their being "swamped" by Southern American English, or SAE [15]. The impact on the "endangered dialect" or post-insular dialects from outside influences cannot be minimized (Wolfram, 1996). Because of such changes as increased tourism to the region after the opening of the Great Smoky Mountains National Park in the mid-1930's, it is the opinion of this author that AppE should be included in the canon of dialects at risk for assimilation into General American English (GAE).

Social Stigma

Schilling-Estes and Wolfram [8] have posited that the linguistic features which can be described as having social significance, in terms of determining one's cultural identity, are the most likely to undergo unusual patterns of variation and change. This patterning usually happens during what they termed "performance mode," an extreme condition in which the speaker is aware that s/he is being listened to, and responds by using stereotypic, socially significant forms of speech in the given dialect. This may have occurred in the present study. Two incidents occurred during which the participants may have been enticed to use performance mode. The first incident occurred while a participant from G2 was performing the sentence completion task. When she reached the sentence that had been pre-loaded with the item "Butcher Hollow," she paused and smiled as if to herself, and uttered, [butʃɚ hɑlɚ], as if she were going into performance mode. The PI concluded from this incident that the lexical choice of "Butcher Hollow," heard in a line from a popular song of the 1970's, (". . . I was born and raised in Butcher Holler. . .") motivated this woman to use performance mode. The second incident occurred with a participant from G1 who appeared to have slipped into performance mode while describing the term used by speakers of AppE to refer to carbonated beverages, pronouncing "soda pop" as [sodi pɑp]. When the PI showed interest in the colloquial term "sodi pop," the subject launched an entertaining 10-minute monologue using the term.

Support for the idea of social stigma as a linguistic change-agent comes from a study by Wolfram and Schilling-Estes [14]. In this study, three generations of life-long residents of Ocracoke Island were interviewed and a phonological variable, the /ɔ͞ɪ/ for "high" and "tide," produced as "hoi tide" or [hɔ] tɔ͞ɪd], was studied in depth. An important finding of the Ocracoke Island study pertained to dialectal exaggeration which occurs as a result of the speaker's use of performance mode. The findings suggested that linguistic features which carry symbolic meaning, in the form of negative cultural stereotype, fade more rapidly in younger generations than those features that are more culturally significant to popular culture. That is, younger people are more inclined to use less stereotypic features of the language in order to be more "acceptable" to popular culture [7,15].

In the present study, this notion is upheld in that the vowels which have changed the most over time, particularly among the youngest participants, seem to have been those which carry the most stereotypic cultural significance [15]. These were the final unstressed vowels /o/ and /ə/, and two of the three rhotacized vowels, /ɪr/ and /a͞ɪr/. In the present study, both the PI and the Reliability Judge observed what appeared to be tongue retraction and anchoring. This behavior seemed to have had the effect of /r/-coloring most of the AppE productions, and occurred more often when the phonetic context required less emphasis, rather than more. One of the features which seemed to be the most susceptible to tongue retraction, the [ɛr], has been retained; whereas the /ɪr/ and /a͞ɪr/ have not been retained. More study is needed to determine the reasons for this unevenness of shift in the rhotacized vowels used by speakers of AppE.

Phonetic Context

Phonetic context effects in vowels were observed in the /ɪ/ - /i/ collapse preceding /l/ and /ʃ/, and has been described by Wolfram and Schilling-Estes [15]. Though not termed a "collapse" in an earlier study by Wolfram and Christian [12], the raising and tensing of this vowel was noted as most likely to occur when preceding /l/ (as in "peel" for pill); or /ʃ/ (as in "feesh" for fish), and was described as a characteristic feature of AppE. In the present study, phonetic context may have also played a significant role in the raising of /æ/. This AppE characteristic was observed to be more likely to occur preceding velar /g/ (as in "baig" for bag) and alveolar nasal /n/ (as in "ain't" for ant), possibly due to anticipatory co-articulation for raising of the consonant. The vowel /æ/ has the lowest tongue height on the vowel continuum of all English vowels. The observation that it is raised in AppE, combined with an upward shift of /ɪ/ to /i/ suggests that perhaps an overall upward shift of the vowel space is occurring in this dialect, reminiscent of the Great Vowel Shift of the 1500's. It was during this period that pronunciation of English changed, with the entire vowel system shifting higher and forward in the oral cavity. The argument may be made that English speakers descended from Scottish and Ulster Scots immigrants were among those who failed to make the Great Vowel Shift. Many of these came to America at the beginning of the 17th Century, and many of them were functionally illiterate, tending to pronounce words the way they heard them. More study is needed to determine the precise extent of these phenomena in Appalachian dialect.

Shifts in Cultural Centers

Another possible explanation for the fading of the dialect relates to a shift in cultural centers. For instance, during the twentieth century, the United States has shifted from a rural agrarian culture to an urban and suburban culture. This shift was strongly reflected in the narrative reports obtained in the present study, with 100 percent of G1 having grown up on the family farm, compared to approximately 20 percent of G2 and G3 being reared on the family farm. The post-World War II generations represented in the present study grew up with the expectation of going to college or working "in town," and not making their living on the farm, as was reported anecdotally. This shift is supported by reports in the literature of a shift in cultural centers having an effect on the traditional manner of speech, most often by minimizing the dialectal boundaries [2,15].

Summary

This study was conducted to investigate the possibility that the Appalachian English (AppE) dialect may be in the process of becoming assimilated into the Southern American English manner of speech. This was accomplished by collection of conversational samples from three

generations of native speakers of the dialect. Eight vowels thought to be characteristic to the AppE accent, and documented in the literature as being unstable and therefore hypothesized to be susceptible to change, were examined for presence or absence of features that would classify them as belonging to the Appalachian English dialect. In this manner, the study was designed to answer the research question: "Do older generation speakers of Appalachian English speak differently from their children or grandchildren?" It was hypothesized that speakers of Appalachian English who acquired speech prior to 1940 would present with different phonological characteristics than either their children or grandchildren (i.e., they would tend to use more AppE forms).

The relationship between generational membership and vowel production in the conversational samples was examined by performing non-parametric, repeated measures ANOVA. The results revealed several findings for the first research question:

1. There were significant main effects for Generation and Vowel, but not for Condition.
2. There was a significant two-way interaction only between Generation and Vowel.
3. Pairwise comparisons indicated that there were significant differences between G1 and G3 for five of the eight vowels.
4. Pairwise comparisons indicated that there were significant differences between G1 and G2 for three of the eight vowels, and for two vowels between G1 and G3.
5. Pairwise comparisons indicated that there were no significant differences on any of the eight vowels between G2 and G3.

Conclusion

The findings of the present study support the hypothesis under investigation: those speakers of Appalachian English who acquired speech prior to 1940 (the G1 cohort) would present with different vowel characteristics than either their children or grandchildren (the G2 and G3 cohorts, respectively), as demonstrated by perceptual analysis of their speech. The differences between G1 and the remaining two groups, G2 and G3, are a direct reflection on the health of Appalachian English as a post-insular dialect at the present time. Other research has confirmed that other post-insular dialects are at present in the same state of assimilation, but to varying degrees and stages [14,15].

This present research has provided clear evidence of the amount and direction of change in the post-insular dialect of AppE in one remote community in East Tennessee, as demonstrated by comparison of the speech of three generations of native dialect speakers. As Schilling-Estes and Wolfram [14] remind us, there is an urgent need for this research to continue, as the rate of decline in AppE dialect is expected to continue, perhaps even accelerate. Through expansion and broadening of the scope of study of Appalachian English, we can not only document, but perhaps explain the progression of change in this insular dialect. These changes indicate and perhaps explain the nature of endangerment of such dialects where they still exist.

Relic dialects are an important part of the cultural story of America, and help the people of a region to understand themselves as speakers of a formerly insular dialect. The careful and thoughtful study of change in post-insular dialects such as AppE perhaps helps its speakers understand the forces of their own linguistic change.

This present study has the potential to add to the body of literature on regional dialects in the United States by adding to the body of information currently being assembled through the Telsur Project under the direction of Labov and his colleagues [4]. The project was designed to respond to the questions, "How many dialects of American English are there?" and "Where are the boundaries located?" The influence of such research serves not only the people who are speakers of AppE dialect, but also the educators who teach them, the speech-language professionals who diagnose and treat their speech and language disorders, and the linguistic scholars who seek to validate the legacy of Appalachian English through its oral history, regional literature, and other educational issues of relevance.

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