To the Graduate Council:

I am submitting herewith a dissertation written by Melinda L. Richards entitled "An Examination of Selected Vowel Structures of Three Generations of Native Appalachian English Speakers." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Speech and Hearing Science.

Dr. Lori A. Swanson
Major Professor

We have read this dissertation
and recommend its acceptance:

Dr. Mary L. Erickson

Dr. Peter Flipsen, Jr.

Dr. Stephen Handel

Dr. Pearl A. Payne

Accepted for the Council:

Dr. Anne Mayhew
Interim Vice Provost and
Dean of The Graduate School

(Original signatures are on file in the Graduate Student Services Office.)

An Examination of Change in Selected Vowel Structures of Three Generations of Native Appalachian Speakers

A Dissertation
Presented for the
Doctor of Philosophy
Degree
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Melinda L. Richards
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Dedication

In Memory of
Dr. Joseph S. Hall
and
Mr. Wilfred Metcalf
"The Scholar and the Hill Man"

"I will look up my eyes to the hills, from whence my help comes"
Psalm 121: 1

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" . . . it takes a village. . ."

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Abstract

Appalachian English (AppE) is a relic dialect, until recently considered to be resistant to change due to the relative isolation of its speakers. AppE may have become an "endangered dialect," much in the same manner as other insular dialects such as those spoken on Ocracoke Island, Smith Island, and the Sea Islands (Wolfram & Schilling-Estes, 1995; Wolfram & Schilling-Estes, 1998). The purpose of this investigation was to answer two research questions: (1) Are there significant cross-generational differences in the production of eight selected vowels during conversational speech, and (2) Are there significant cross-generational differences in the degree to which speakers style shift as the speech task becomes progressively more formal?

Ten families of three generations (G1, G2, and G3) of native adult speakers of AppE living in a remote community of upper East Tennessee participated in the study: G1 (between the ages of 70 to 90), G2 (between the ages of 44 to 55), and G3 (between the ages of 22 to 32). Each individual engaged in two types of conversation: a "breathless narrative" and monitored conversation, to determine the amount of AppE present by generation. Each participant also performed three constructed tasks: (1) reading task; (2) sentence-completion task; and (3) minimal pairs word task, to determine the degree to which style shifting occurs toward Southern American English (SAE), after Labov (1981).

For Research Question One, a significant two-way interaction was found between generation and vowel ($p < .05$). Significant differences were found between G1 and G2 for five of the vowels, and between G1 and G3 for three of the vowels, but no differences were found between G2 and G3. For Research Question Two, a significant three-way interaction was found between generation, condition, and vowel ($p < .05$). Pairwise comparisons between tasks showed the following: (1) for G1, significant differences in the direction of SAE for 11 pairs of tasks among four vowels; (2) for G2, significant differences in the direction of SAE for four pairs of tasks among three vowels; and (3) for G3, significant differences in the direction of SAE for 11 pairs of tasks among three vowels. The style-shifting differences in the direction of SAE were statistically significant ($p < .05$) for G1, but not for G2 and G3.

These findings indicate that change in the relic dialect of AppE across three generations in this community was detectable, suggesting that a shift toward the "American Standard" of English may be in progress. The quantity and direction of the changes in AppE indicate a need for continued investigation as the decline in AppE dialect is expected to progress (Wolfram & Schilling-Estes, 1995), and perhaps accelerate. The benefits of such research serve 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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Chapter I

Introduction and Review of the Literature

Introduction

Appalachian English is one of the surviving nonstandard 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 and eastern Kentucky, extending southward into the mountainous portions of East Tennessee (Luhman, 1990). Until recently, these mountains served as a geographical barrier against physical mobility, either into or out of the region. Unlike the remaining two-thirds of the state, the mountains of East Tennessee have kept the residents of the area landlocked, for practical purposes, despite some contact with cultural centers such as Knoxville or Asheville (Hall, 1942). The effect of this isolation has been to preserve the original character of the dialect of English spoken throughout the southeastern mountain region of the United States.

Prior to 1940, little evidence of change was noted in the agrarian lifestyle or in the Appalachian dialect spoken by the residents who were native to the mountain area. The people living in remote locations lived in a manner that was very similar to their pioneer ancestors (E. Walker, personal communication, 1999). However, the economic development policies of the Federal Government in the 1930's and 1940's, reacting to the

effects of the Great Depression, changed the situation for the Appalachian region in terms of economic and social development.

The time frame of the late 1930's and early 1940's is thought to be a watershed period for many aspects of life in the region (E. Walker, personal communication, 1999). Prior to the 1940's, the practice of over-farming the land had rendered it virtually useless in terms of productivity. Over-grazing was common, the best timber had been harvested, and that which remained was often burned to make way for more pasture. The Great Depression had a negative impact on employment opportunities, and the people who lived in the isolated communities were without work, which forced them to live in extreme poverty. When Congress responded to the demand for "the proper use, conservation, and development of the Tennessee River Basin," the result was that the Federal Government created the Tennessee Valley Authority (Tennessee State Dept., 1994, p. 232). This advancement had the effect of opening the region to outside influences by improving navigation on the Tennessee River system, by providing electricity which encouraged industry and brought radio, and later, television into the region. These and other technological advances also brought with them speech patterns different from the local dialect, which may in turn have influenced the speech of southern Appalachian speakers.

An examination of the present state of research into the dialect spoken by residents of the Southern Appalachian Mountains, in particular the phonological characteristics of the indigenous people of the mountain region, reveals a paucity of literature on the subject (Adler,1990; Bailey, 1979; Davis, 1998, Hall, 1942;

Montgomery, March 1994; Williams, 1992; Wolfram & Christian, 1975; 1980). Wolfram and Christian (1975) asserted that the dialect seemed to be fading, and was in some stage of transition toward General American English (GAE). Hall commented that the speech of people who have lived in the Great Smoky Mountains all of their lives varied, depending on whether the speaker was an elderly person or a child. This observation suggested that outside influences existed at that time which may be identified as causal agents in any transition that might have been taking place at the time of Hall's cataloging of the speech of the region. Hall postulated that the influx of tourists as a by-product of the creation of the Great Smoky Mountains National Park was already having an effect on the speech of the residents by making them conscious of how they must sound to others. The result would eventually be to gradually "bring their language into conformity with standards recognized elsewhere" (Hall, 1942, p. 1).

Although previous studies of AppE have provided an invaluable cataloging of information (Bailey, 1979; Hall, 1942; Wolfram & Christian, 1975), these investigations have not examined change in AppE within families in a cross-generational manner. It was the aim of the current study to examine the speech of multiple generations within families who have lived all of their lives within a restricted geographical area known as Del Rio, Tennessee, to determine whether the phonology of Appalachian English (AppE) is, as some have claimed, fading in the direction of General American English (GAE).

Review of The Literature

Dialects of American English

Labov (1991) documented the dialectal differences among the various dialects of English spoken in America. The purpose was to assist phoneticians in speech recognition studies, as well as in the reconciliation of phonological systems within the historical and social reality of a given region. Labov found from his examination of the chain shifts, as he termed the directional principles of patterns of linguistic change, that there existed two major types of American English dialects, the Northern and Southern dialects. He reported that these dialects were undergoing gradual changes, which he termed the Northern Cities Shift and the Southern Shift, in that they appeared to be moving in opposite directions. Additionally, a third major dialect type emerged from Labov's analysis, which he determined was the result of certain other mergers, and represented a cohort of what he termed essentially "neutralized speakers of English" (p. 30). In the final analysis, he concluded that the organization of American English, roughly speaking, was closely patterned after the traditional division of American dialects into those that are observed in the North, the South, and the West. Shriberg and Kent (1995) term this third type "General American English (GAE)," as it is the form usually found in print, broadcast media, and as such reflects the "standard."

Southern American English

Along a continuum of "standardness" a dialect may be described as belonging to the "formal standard," the "informal standard," or the "vernacular dialect" (Wolfram &

Schilling-Estes, 1998, p. 11). The standard varieties of a language are sociologically determined by association with middle- and upper-class mainstream speakers; the vernacular dialect (also called the non-standard dialect) is distinguishable from the standard by its usage and association with socially out-of-favor groups. Often, the reliance on a "gold standard" engenders false beliefs about the people who speak non-standard varieties of a dialect, their level of sophistication, or their level of education. This value judgement, has often been applied to the variety of English spoken in the South; in particular, the rural South. The standard variety of English which is referred to throughout this study as Southern American English (SAE) is that which most Southerners use in formal speaking situations, which fits most socially acceptable norms, and which avoids most socially stigmatized linguistic structures (Wolfram & Schilling-Estes, 1998). In contrast, AppE has been considered a vernacular dialect, and its speakers a socially out-of-favor group.

Following migratory patterns of the settlement of North America, the English spoken in the South may be characterized as belonging to either the South Midland or Southern varieties (McCrum, Cran, & MacNeil, 1986). The southward and westward expansion created a three-tiered pattern of settlement and dialect which became the South Midland variety. The settlers from the Mid-Atlantic states of Pennsylvania and Maryland made inroads along the ridges of the Appalachian Mountain Range, through Tennessee and Kentucky on their way west (Wolfram & Schilling-Estes, 1998). The

speech patterns transmitted along these routes contributed heavily to the development of speech found throughout the region at the present time.

Physiographical History of the Appalachian Region

The Appalachian Mountain region in Tennessee is one of eight geographic regions into which the state is divided, and is the predominant feature of the easternmost of the three "Grand Divisions" of the state, as described by Folmsbee, Corlew, and Mitchell (1969). Running in a generally southwestern to northeastern direction, the entire mountain range extends from the interior of Georgia and Alabama to Maine. The Southern Appalachian Mountains consist of three parallel chains, extending from Georgia to Pennsylvania.

Cocke County, Tennessee, the area of interest for this investigation, is located at the northern boundary of the Great Smoky Mountains National Park. It consists of a portion of the middle of the three parallel chains of the Southern Appalachian Mountains, forming the state boundaries of Tennessee and North Carolina along most of its length. This middle chain is flanked on the east by the Blue Ridge Mountains of North Carolina, and on the west by the Cumberland Mountains. Situated between this middle chain and the Cumberland Mountains is the Great Valley of East Tennessee, a wide geographical feature which makes up the southern extension of the Shenandoah Valley of Virginia. According to a historic description by Guyot, found in Avery and Boardman, the valleys in the southern Appalachians comprised the main arteries of migration from the north, as the frontier expanded southward and westward (as cited in the Tennessee State Dept.,

1994). The land which lies between the middle ridge and the Blue Ridge Mountains is rugged and difficult to traverse, with scattered bottom lands where rivers course, especially the French Broad and the Nolichucky Rivers (Hall, 1942). These bottom lands were conducive to settlement, as the land and the soil were found to be suitable for farming.

Del Rio, Tennessee, located within Cocke County, is situated on the western slope of the Cherokee National Forest, near the county lines of Greene and Cocke Counties. The small community lies 11 miles east of Newport, situated between the prongs of Big Creek to the south and Mooneyham Creek to the north, more or less at the foot of the middle ridge of the Appalachian chain. Logging of the abundant timber, and farming the rich soil of the French Broad River bottoms (Jones, 1996) were, and remain the primary means of earning a living for people who settled the area.

Nestled deep within the mountain region, the community was essentially cut off from the outside world for approximately 120 years of its 200-year history. The first telephone lines were run to Del Rio in 1911, serving Jonestown, Nough, Del Rio, Huckleberry, and subscribers who lived between these places. In 1952, a telephone line was run to the Big Creek area for the first time. The railroad depot and the telegraph operator's office were the only locations to which electricity was provided until January of 1941 (Jones, 1996), long after many locations in Tennessee had been provided with electrical power.

Migration and Settlement History

There were two general periods of early European incursions into the Tennessee region. The first period involved the Spanish conquistadores Hernando de Soto and later Pardo in the 16th century. The second period came approximately 100 years later, in 1673, with the arrival of the British and French fur traders. Fur trading was a highly profitable business for the traders, but costly in terms of wildlife native to the region. Because of increasing competition between the British and the French for the native Indian trade, and ultimately for control of the region, by 1754 the two factions were at war in a struggle for native alliances: the French and Indian War. The end of this conflict brought a wave of settlers into the back-country regions of Virginia and North Carolina, ignoring the British Proclamation of 1763, which prohibited settlement west of the mountains, into lands belonging to the Cherokee and Creek Nations (Tennessee State Dept., 1994).

Migration history

The earliest settlers in Upper East Tennessee came in by one of three routes: from Virginia by way of the Great Indian War Path, from North Carolina by way of the Yadkin and Watauga Rivers, and from South Carolina and Georgia by way of "a southern [route around] the Smokies" (Bailey, 1979). Many of the settlers continued their western migration; others of them, perhaps only the most hardy, stayed in the east to farm the rugged terrain, to herd their cattle, and to hunt unimpeded (Hall, 1942). Between 1780 and 1795, migration of settlers into the region increased dramatically with the sale of cheap land which had been purchased for speculation. (Tennessee State Dept., 1994).

Settlement history

By the early 1770's, four different communities had been established in what would later become northeast Tennessee along the rivers and valleys: the Watauga, the North Holston, the Nolichucky Rivers, and in Carter's Valley. These communities set a new priority for the settlers. The possession of farming land became important, replacing hunting and trading as the goal of settlement. Within the century, local governments would be established in the western regions of North Carolina, whose western border at that time was the Mississippi River. Washington, Sullivan, and Greene Counties were established in the east; and Davidson, Sumner, and Tennessee Counties in the middle district. The western settlers demanded of their state government only two things: protection from the Indians and the right to navigate the Mississippi. Eventually, the western lands of North Carolina were ceded and formed the "Territory of the United States, South of the River Ohio," which would in 1796 become known as the State of Tennessee (Tennessee State Dept., 1994, p. 317).

In the 18th century, as the population of the territory grew, more county governments were formed. Among these was Jefferson County, which was carved out of Greene County in 1792 (Tennessee State Dept., 1994). Five years later, Cocke County was created out of the southeast corner of Jefferson County. The first permanent settler in what is now Cocke County was John Gilliland who planted a crop of corn at the mouth of the Big Pigeon River in 1783, according to the 1853 Edition of *Ramsey's Annals*. At that time, the area was still known as Greene County, North Carolina. Settlers began

migrating to the area, and by 1787 there were enough residents to organize Big Pigeon Primitive Baptist Church. In 1792, the land area was part of Jefferson County, but the inconvenience of reaching the county seat at Dandridge eventually led the citizens living "on the water of the French Broad and Big Pigeon Rivers above the mouth of the Chuck (sic) . . ." to petition the Tennessee legislature for the formation of a new county. This act passed October 9, 1797. The new county was named for William Cocke (1747-1828), a prominent political figure in the early days of Tennessee's history (E. Walker, personal communication, 1999).

The exact dates of settlement of Del Rio have not been clearly established. However, there is on record a land grant dated 1783 to John Huff, who is presumed to be the first settler in the community. Most of the subsequent settlers to Del Rio came from Buncombe County, in North Carolina, as documented in the land records of Cocke County. The people came to the area on foot by way of the Cherokee Trail, which crosses Round Mountain to the French Broad River from Lemon's Gap. After 1794, they came by wagon from Asheville, North Carolina by way of Warm Springs; after 1823, they were able to reach the area by passing along the toll road which ran from Greenville, South Carolina to Greeneville, Tennessee. Cocke County, Newport, and Del Rio lie along that route (Jones, 1996).

Socio-cultural History and Dialectal Development

The cultural heritage of the people who settled this region was predominately Scots-Irish. They had come to America from the northern regions of Ireland, having

originally migrated from Scotland, particularly the Lowland areas such as Ayrshire, Wigtonshire, and Kirkcudbrightshire (McCrum et al., 1986; Montgomery, 1989; Robinson, 1984; Williams, 1992). Elements of the language and accent of these European regions are still found in the southern Appalachian region.

Socio-cultural history

Many of the descendants of the original Scots immigrated to North America in the late 1600's and especially after 1717 (Montgomery, 1989). Shortly after their arrival in America, these second- and third-generation Americans of Scots-Irish descent (Montgomery, 1994) moved inland, mixing first with German and English neighbors in the Pennsylvania Dutch country before pushing south along the ridges of the Appalachian Mountain chain. They brought with them to this region a rich oral tradition, full of aphorisms, proverbs, superstitions, and a marked ability to turn a phrase.

The rhymes and songs of the people who settled the area reflected the traditions of both Scotland and Ireland, and their Scottish Lowland ballads of the 16th and 17th centuries became an important influence in what would later come to be known as American country music (McCrum et al., 1986). Results of the field work of Sir Cecil Sharp, in his 1932 collection of *Childe Ballads*, and of Olive Dame Campbell were their discoveries of many surviving examples of ballads and songs from the British Isles, such as “Barbara Allen” (as cited in Hall, 1942). This encouraged researchers of the time to conclude that the people of the Appalachian region also spoke a relatively pure Elizabethan English or even Chaucerian English. In fact, many of the dialectal features of

early 20th century Appalachian English contain expressions which were common in the 14th through the 17th centuries (Hall, 1939; 1941). For example, according to Hall, Stoffel and others, the common mountain expression "a right smart . . . ," referring to a goodly amount of something, was in common usage during the reign of Queen Elizabeth I. The Queen herself used the word "right" to mean "very," a common practice owing to the presumed lack of usage of the phoneme [v] in English speech of the day (source unknown). In a letter from Elizabeth I to her ambassador to France in 1570, she writes, "We are *right glad* that it hath pleased God . . ." (as cited in Harrison, 1968, p. 82). Similar usage was found in the literature of Chaucer, according to Donaldson in 1958 (as cited in Harrison, 1968, p. 996).

Hall (1941) and later, Dial (1975/1979), further noted that expressions likewise common to Anglo-Saxon and Middle English ("hit was . . . ;" "studied on . . .;" "that's his'n or her'n") were found in the speech of the mountain people (Dial, 1975/1979, p. 49). The notion of Appalachian English being solely an Elizabethan relic has been disputed by Hall (1939, 1941). Hall (1942) noted that AppE contains elements from many of the archaic forms of English in use prior to immigration. Important to this present study is the suggestion that the lexicon of Appalachian English which has remained remarkably well-preserved across time, is traceable to the countries of origin. The sound system of Appalachian English reflects the phonology of an earlier time. Discerning the relationship between the dialect and its past may have led to a greater understanding of the history of modern pronunciation (Hall, 1942).

Development of the Appalachian Dialect

For many years following their migration to America, between approximately 1680 and 1730, and across the mountains into the western slopes of the Appalachians in mid-1700's, the Scots-Irish people who ultimately settled in these southern highlands found themselves isolated by geographical and physical boundaries (McCrum et al., 1986). Because the land was inhospitable and geographically difficult to traverse, they became relatively isolated from outside influences. The first documented linguistic influence from the outside was as a result of the War Between the States, and later, during Reconstruction, when logging companies came in from locations beyond the mountains (Hall, 1942; Walker, personal communication, 1999).

The linguistic heritage of the people of the southern Appalachian Mountains was rooted in oral tradition, and remained relatively immune to change, partially as a result of their relative isolation from the outside world. This lack of change is hypothesized to have been the result of the relatively low literacy rates both in the British homeland of the people and in the southern highlands to which they migrated. Those who could not read the words as they were spelled continued to pronounce words as they heard them, acquiring virtually all of their linguistic traits through oral tradition. Neither language nor pronunciation was codified by grammarians until the 18th century, just as the settlers came to the Appalachians; as a result, there was a laxness, not only in the spelling conventions prevalent at the time of migration, but also in speech sound production. Even those who could read and write tended to follow the traditional speech patterns of the communities

where they grew up. The perception was that this caused Appalachian talk to remain relatively unchanged, even well into the 20th Century (Peterson, 1987).

Hall (1942) found it significant that the traditional speech of the Appalachians was not measurably affected by school teachers, commenting that this part of mountain life was beyond the control of educators. However, he did express the concern that, against a backdrop of progress, Civilian Conservation Corps (CCC) workers and their superiors, a growing public school population, radio broadcasts and movie houses made possible by electricity, and an increase in tourism, the speech of the mountain people might not remain unchanged (Hall, 1942). Given the passage of 60 years after the region became open to many other linguistic cultures, it remains to be seen what influence these forces have exerted on the speech of native Appalachian individuals.

Phonological Characteristics of Appalachian English

Three studies are found in the literature that provide a more or less complete baseline inventory of the phonological characteristics of life-long residents of the Appalachian mountains (Bailey, 1979; Hall, 1942; Wolfram & Christian, 1975). Only a handful of other linguistic studies have been attempted in the study of AppE. The first of the large-scale studies was the cataloging of the phonetics of the Great Smoky Mountains by Hall between 1937 and 1940. His purpose was to describe the speech sounds of the region at a time which he suggested was important. Ten years prior to his data collection beginning in 1937, the United States government had purchased the acreage that would become the Great Smoky Mountains National Park. The people who lived on the land

were permitted to stay if they chose, some with lifetime leases on the property they were required to sell to the federal government. Many of them opted to move to locations outside the park. At the beginning of Hall's study in 1937, only 400 families remained of the original 1,000 residents of the area; by the time he returned in 1939 to complete the recording project, only 80 of those families who stayed remained. He found in that two-year period that the older people, who held the lifetime leases, were dying out (Hall, 1942). The last of these residents, Mr. Kermit Caughron, died in the spring of 1999 (Hartigan, personal communication, 1999). Therefore, at this writing, all of the original residents of the Great Smoky Mountains National Park are gone. Hall's work provides perhaps the most valuable source of baseline data this point. His study, and its accompanying recordings, provide a rare opportunity for scholars to hear the speech of residents of this region as they actually spoke the dialect.

The second relevant study was the comprehensive work of Wolfram and Christian (1975). The purpose of their study was to describe the linguistic and most commonly observed phonological and grammatical features of the dialect as found among the inhabitants of West Virginia in the 1970's. The cataloging of AppE phonology by Wolfram and Christian has provided further baseline data for the present study.

As noted by Wolfram and Christian (1975), the rules governing many aspects of the phonology of AppE can be shown to demonstrate commonalities with other dialects and varieties of English, such as the shifting of [a] to [n] in the present progressive tense

[-ing], or the collapse of the distinction between [ɪ] and [ɛ] in words such as “pin” and “pen.”

Wolfram and Christian (1975), Thomas and Bailey (1992), and others have observed that there was a temptation to assign value judgements to AppE, particularly with regard to the [pɪn] and [pɛn] collapse, drawing comparisons to other forms of English which were perceived by some educated members of the middle class to be more socially prestigious. Ordinarily, social stigma is attached to a language form because of the socio-economic status of the people who use that language form. Because few AppE speakers were economically prosperous, or highly educated, their language forms came to be regarded by educated people as inferior.

The phonological system of AppE demonstrates the use of forms which have been retained from earlier times. Even so, it would be simplistic to describe AppE as being a relic of an earlier stage in the development of English. Instead, it may be possible that AppE has historically preserved certain of the older forms of English, while at the same time experiencing a shift toward the present state of General American English (Wolfram & Christian, 1975).

A third, perhaps equally relevant study of an extension of Appalachian English dialect was conducted by Bailey (1979). His contribution was to provide to baseline data of the phonology of the Northern Cumberland Plateau of Tennessee. Bailey's study was important because of the unique position that Tennessee holds in migration patterns and subsequent dialectal changes through the southern United States. According to McDavid

(1971), Tennessee was the oldest secondary settlement in the South, following colonization; and it was also the primary source of population for all of the other southern states. For these reasons, it is from Tennessee that one finds the earliest westward extension, and possible modification of dialects of English spoken in the South Atlantic Coastal States (Bailey, 1979).

The Vowel Systems of Appalachian English

As noted previously, Hall's (1942) study of the state of AppE in the early decades of the 20th century provides a baseline against which the present state of AppE can be compared. His documentation of the phonological system of speakers at the time has suggested the possibility of change in the manner of speech, or accent of speakers of AppE over the sixty-year period that has transpired since the time of his study. Hall's findings of phonological variations within AppE that distinguish it from GAE were often corroborated in the findings of two studies of AppE phonology: (1) the work of Wolfram and Christian (1975), who documented the speech of life-long residents of the Appalachian Mountains in West Virginia; and (2) Bailey (1979) in his cataloging of the phonological system of speakers from the northern Cumberland Plateau which forms the western ridge of the Appalachian Mountains. This latter population was found to live in the westward migratory path, out of the principal range of the Appalachian Mountains.

The description of the phonological system of AppE for the purposes of this study will be organized into three groups of vowels. The vowels which have been selected for inclusion in this study comprise the first group of vowels to be described; followed by a

second group of vowels, with differences in production from Southern American English, but which were not selected for inclusion in the study because of their relative stability in the dialect at the time of Hall's (1942) writing. The third group of vowels are those with little or no variation from GAE, but which were described by Hall (1942). The first group of vowels, the vowels of interest in the present study, will be described in greater detail in Chapter II.

Descriptions of the Selected Vowels for the Present Study

1. [ɔɪ] as in *boil*: The diphthong [ɔɪ] was found by Hall (1942) in the mountains of East Tennessee to have occurred essentially in three forms: [ɔɪ], [ɔʏ], and [oɪ]. Of the three, the last one, [oɪ] seemed to be a description of the production of choice in words such as "Joyce." On another occasion, such as in the usage of "boy," the vowel was produced as [bɔʏˢ]. Hall perceived little or no effort to reduce the diphthong in most words containing the diphthong. However, he did report variation in the [ɔɪ] in words ending in [l], such as [bɔɪl], which included some instances of [ɔɹ], though not often. Most often, the [ɔɪ] held as the preferred production of this diphthong against the reduced form [ɔ] (Hall, 1942, p. 46).

Approximately thirty-three years later, Wolfram and Christian (1975) also noted the reduction of the off-glide in the diphthong [ɔɪ], and suggested that the apparent deletion of the off-glide did not always result in words of minimal pairs such as "boil" and "ball," though *close phonetically* as produced by speakers of AppE, they still maintain some degree of distinction (Wolfram & Christian, p. 90).

An archaic form was found in the speech of older informants: [0]] was often used in place of either [9]] or [o]], resulting in words such as [b0]l] for "boil," or [p0]zn] for "poison" (Hall, 1942, p. 46). Dial (1975/1978) commented that this pronunciation was a remnant from Elizabethan English. A widely publicized example of this retention of the archaic form which has been observed by this investigator, may be seen at the present time in the name of Pennyrile State Park in Kentucky, named for the Pennyroyal plant, a medicinal herb of the mountains.

2. Final unstressed [1], as *soda*: The treatment of these words, ending in "-a," "-ia," or "-ah" is similar in Hall's (1942) body of work to the [i] or [ɐ] endings observed in Wolfram and Christian (1975). Many times in the Great Smoky Mountain recordings, Hall noted that the word ending sounded like [ɐ], as in [q l1b q mɐ] for Alabama and [i], as in [rodi] for Rhoda. Two cases of this in particular were cited by Hall as being archaic forms, more related to early modern English than actually a distortion of standard English: (1) [q rɐ] for "e're a . . ." meaning "ever a . . ." and (2) [n q rɐ] for "ne'er a," or "never a . . ." (Hall, p. 76). These forms were observed by Hall to more likely be used by the very elderly, or the extremely isolated and very uneducated. Younger people and those who had attended school were more likely to substitute [1] or [y] for an -a or -ia ending; thus suggesting to him a tendency to abandon the older forms, and perhaps a fading from the dialect.

Wolfram and Christian (1975) wrote extensively on this feature, noting that a substitution most often occurs in final unstressed position. A variation of this vowel noted

as occurring frequently among the AppE speakers of West Virginia was that of production of the final unstressed [1] as the high front vowel [i], as in [sodi] for "soda" and [sqnti] for "Santa" (p. 93). Although the Principal Investigator (PI) has observed that there are few words remaining that are usually associated with this variation, the ones that do exist are at present found only among the elderly speakers of AppE. Wolfram and Christian also acknowledged that this was an archaic form, and as late as the 1970's observed that this form was in the process of fading from the dialect. They found more occasions in which this form appeared as a high front vowel [i] in the unstressed syllable position, as in [sodi] for "soda." This form was found most often in the speech of elderly speakers in both studies (Hall, 1942; Wolfram & Christian, p. 93).

3. [q] as in *apple*: Often becoming diphthongized and raised, ranging from [q] to [q 3], sometimes suggesting the [3:ɐ], as in *faint*: Hall (1942) was careful to point out that this extreme example only represented the vowel as beginning as a lax low-front vowel, shifting across its production to end as a tense mid-front glide, which had the effect of raising the first element to [q 3] or [23], giving AppE its distinctive character. This was another example of a vowel which retains most of its own character before most consonants, in the speech of AppE, except when adjacent to particular consonants (recall [9]] above). The exceptions to the normal treatment of [q] were influenced by the following conditions: (1) before [g] and [a], as in "bag" becoming [b q g] or sometimes [b q ^{ɐ}g] (Hall, p. 22); (2) before fricatives [f], [v], [c], as in "calf" becoming [k q 3f]; (3) before certain nasal combinations, [mp], [nt], [ns], and [n .], as in "camp" becoming

[kɑ:mp], [kɑmp], or [kɜ˞mp]; and (4) before [r] (Hall, p. 23). This last condition, [ɑ:] before [r] was confirmed by Wolfram and Christian (1975), and will be further described elsewhere.

The tendency of this vowel to become a diphthong was observed to be suppressed in several instances, particularly if it occurred in polysyllables and compound words. What Hall termed "simple [ɑ:]" often occurred on the recordings in such words as "casket," "rations," and "sassafras." However, the words "basketball" and "life everlasting" (the name of a herb) were recorded as [bɑ:skˈtbɔl] and [lɔˈfɛvɚ ɑ:ˈstɪŋ]. In most cases, it was the use of diphthongization for emphasis in a sentence that caused this transformation, according to Hall (p. 23).

4. Final, stressed [ɚ] as in *here*: In AppE, as in most of GAE, Hall (1942) reported a clearly articulated retroflex [r] in the rhotacized vowel. He also reported that the [ɝ] was lowered and retracted to [ɜr] by some speakers of AppE, such that pronunciation became [gɜrˈlz] for "girls." Also, the addition of [ə] that he occasionally observed, such as on the rare occasion that the word "church" became [. ˈɚə .] (Hall, p. 41). The same vowel was heard in a form of the word "worry," as one of Hall's speakers pronounced the word as "werrid" or [wəɹɚd] (Hall, p. 42).

Hall (1942) noted in his cohort that other words that contained rhotic vowels were produced as [ɚ], as in [pɚˈt] for "pert" and [hɚˈd] for "heard." An archaic variation of the latter was observed as [hɚˈn]. Hall also reported that speakers who used the GAE form of [hɝd] in reading "Arthur the Rat" used the dialectal form [hɚˈd] in spontaneous

speech (Hall, p. 41), perhaps suggesting that the speakers were style-shifting under what they perceived to be more formal circumstances. The use of a glide [y] or the vowel [8] before [6] was reported by him in such words as [y25b] for "herb" (Hall, p. 42). At the time of the Hall study, the vowel modification of [e5] for [6] was in a state of shifting away from the AppE form, and was only reported in the speech of elderly subjects. For instance, (Mount) Sterling was pronounced [ste5l8a], which may in part explain the origins of the name of a species of bird introduced into this country in the 19th century by the English. In its only occurrence, the word "worship" was recorded as [w9rc1p]. Hall noted that speakers of AppE sometimes produced words such as "burst" or "worst" as an [4] without the [r]. Particularly interesting was his observation that very few of the people he interviewed produced "curse" in its correct form, with the rhotacized vowel (Hall, p. 42); rather, they largely pronounced the word as [k4s].

5. [-0]r] sequences, as in *fire*: Wolfram and Christian (1975) did not use diacritics in their study; however, Shriberg and Kent (1995) term this diphthong as [e]r]. In both GAE and SAE, words ending with "-ire" or "-yer" were pronounced as two syllables, in the population studied by Wolfram and Christian (1975). In AppE, a variant of this sequence was found by them throughout the mountains that resulted in a coalescence of the two syllables into one. Where this was the case, the diphthong changed to become [e] (e.g., "tire" became [ter]). They observed that this process was more likely to occur in cases where the [-e]r] sequence was part of the word than in cases in which the [5] was a

morphologically conditioned suffix, as in “buyer” and “fryer” (Wolfram & Christian, p. 91).

6. [2] before [r]: Wolfram and Christian (1975) noted inconsistencies in pronunciation of this form, and suggested that it was more sensitive to variation from GAE than other forms. One of the most persistent variations of this form that they found was the lowering to a low front vowel, becoming more fronted than the [e] in “father.” This resulted in the perception of naive listeners that “bear” and “bar” were pronounced in a similar fashion (Wolfram & Christian, p. 91). Dial (1975/1978) observed that this pronunciation was characteristic of Scottish pronunciations of the vowel before [r]. The character of the already-archaic speech of the Scots-Irish pioneers was, by Williams' description a heavy Scottish vestigial [r], and was a general characteristic of AppE (Williams, 1992).

7. Final Unstressed [o]: The most common form of variation with this form was not only treated thoroughly by Hall (1942), but was also substantiated in the work of Wolfram and Christian (1975). Most often, they found that this form occurred as an [ɔ] especially in the speech of older speakers. This form was thought by Hall and by Wolfram and Christian to be one of the most characteristic of the features of AppE, especially when the permutation became rhotacized, as in [pɪlɔ] for “pillow.” When this did not occur, the variation became less rounded to a [ɔ], as in [pɪlɔ] for “pillow,” which is undifferentiated from Southern American English (SAE). This condition was not true

in either study for one-syllable words such as “low” or “flow” (Hall, 1942; Wolfram & Christian, p. 92).

Williams (1992) asserted that word endings with vowels and diphthongs were rhotacized largely by the uneducated members of the community. Words such as [ner5] for “narrow” were common among this segment of the population (Williams, 1992, p. 10).

8. [8], as in *big*: Most often, this vowel was pronounced in the same manner as GAE. Any variation occurred in the tendency to diphthongize it in monosyllabic words used for emphasis (Hall, 1942). This observation was in agreement with Wolfram and Christian (1975, p. 95), who noted a tendency to produce the vowel with an off-glide to a [1], in which a word like [kr8b] became [kr8y1b].

At other times, speakers showed a tendency to use a tense, slightly raised [8], approaching [i], especially when they were excited or enthusiastic about their accounts. This raised off-glide was often noted in words just prior to nasals, as in [8n j 1n] for “Indian," but most of the variations were very close to [8] (Hall, 1942, p. 16). Wolfram and Christian (1975, p. 95) concluded that this raised form, most often followed by [c] and [l] (as in [fic] for “fish”) was an observed albeit obscure difference from GAE.

Other Vowels With Variations from General American English

Additional vowels were documented as varying substantially from General American English (GAE) by Hall (1942) and others. Hall observed that most of the vowels produced by residents of the Appalachian region were not very different from

those used by the general American public, or speakers of GAE. Those vowels are summarized in the section below, and are organized in the manner of Hall, with vowels that occurred on stressed syllables discussed first, followed by those that occurred on unstressed or partially stressed syllables.

1. [i] as in *creek*: Hall (1942) noted in the speech of his subjects "a tendency to prolong [i] in final position of clauses or sentences" (p. 13). According to his observations, lengthening was also likely to affect virtually all vowels and diphthongs, which characterized AppE dialect, often marked by exaggerated prosody, with rising and falling of the lengthened word, which he concluded to be compensatory for the rest of the utterance, which was often produced at faster speech rate. Wolfram and Schilling-Estes (1998, p. 74) supported this notion by further concluding that it is this distinction that separates SAE from GAE.

2. [3] or [3]], as in *way*: The major difference that Hall (1942) observed in the pronunciation between AppE and GAE for this vowel is that AppE is more prone to diphthongization, appearing in such words as "acre." In addition, he occasionally noted the substitution of [2] for [3]], in which the subject pronounced "stay" as [st2] and another pronounced "naked" as [n2k8d] (Hall, p. 18).

3. [2] as in *beg*: Hall (1942) found that this vowel had a number of variants in the mountains of East Tennessee. He observed that, for emphasis, it became diphthongized with an off-glide to a [1], as in [sp2y1l] for "spell"; in still other cases, it became a [8], as in [gr8g5] for "Gregory" or lowered to [q], as in [b0 q n .] for "bench" (Hall, p. 19).

Bailey (1979) reported that the [2] was always pronounced as [q] in the northern Cumberland Plateau. Occasionally, Hall observed that [2] was diphthongized to [3], [3$8^{F}$] with a pinched off-glide, or [3y^{1}]. He also noted that occurring before [r], the [2] may be retracted and rhotacized, which may be the source of the pronunciation of "Maryville" as [m6v1l], instead of [m2r8v8l], as one might expect in GAE.

4. [9] as in *caught*: Hall's (1942) description of the vowel [9] was that it was most often "raised and over-rounded," to an [o]. He described the production of this vowel as beginning "with the lips slightly spread, ending with an extreme rounding," as in the diphthong [0[] (Hall, 1942, p. 31).

Hall (1942) observed the occasional unrounding of [9] to [e], as in the example of "hogwild", which was pronounced [hegw0^{8}ld]. He also found frequent instances of an intrusive [5], as in [we5c] for "wash" (Hall, p. 32), and of unrounding and fronting of the [9], which resulted in [hqnt] or [hq3nt] for "haunt" (Hall, p. 33)

5. [o] as in *throat*: Hall (1942) noted that "almost always under normal circumstances, the vowel was diphthongized" (p. 34), in cases where the speech was slow and showed some lengthening of elements. By his estimations, the diphthong was most audible under the following conditions: (1) when the [o] was in word-final position; (2) before nasals; or (3) before [l]. Before [r], it was more likely that the speaker would produce [o] than [9] as in [glor8] for "glory" (Hall, pp. 35-36).

6. [u] as in *due*. Hall (1942) observed that this vowel was found to have taken the archaic form of "ye" for "you," most commonly in older speakers. This dialectal feature

was often observed by Hall in certain words containing the vowel [u]: [y8] or "ye" for you was quite common at the time of Hall's study; and [yu1nz] for "you-ones." The latter form was found by Hall to be entrenched as a dialectal variation equally across all ages and social classes of speakers, unlike the former, which was most often observed in elderly speakers. He reported wide-spread use of this term, which was rapidly being replaced by [yu9l] or [y9l] for "you all" or "y'all" (Hall, 1942, p. 39). Montgomery (1989) suggested that "y'all" is not, as has been traditionally supposed, a contraction of the second person plural form, "you-all," but instead was a development of the Scots-Irish "ye aw" (translation not available). Bailey (1997) argued that "y'all" was more likely a compacted form of "you-all."

7. [4] as in *cup*: This vowel has many varied modifications and alterations in AppE, according to Hall (1942). Among the variations was a [7], in words such as "gun," and an occasional tendency to lower and retract the [4] to [9], which produced such words as [h9ari] for "hungry;" and to lower the vowel toward [e], which produced [ben .] for "bunch." In cases of illiterate speakers, he found that [4] was sometimes replaced by [2], as in [br2c] for "brush" or [j 2 j] for "judge" (Hall, p. 41).

8. [0]] as in *light*: The phonetic symbol for this diphthong as used by Hall was [0]], which is represented by Shriberg and Kent (1995) as [e]]. Observing that the variability among speakers was great, Hall (1942) noted that there was tendency throughout the South to simplify the diphthong [0]], reducing it to [e^{8}], [0], in any phonemic context, regardless of whether the syllable was accented or unaccented. In

AppE, Hall's observation was that the sound lay along a continuum between the first two, [e^{ə}] and [e], with the preferred form being subject to reduction. The common pronunciation of "Irish" in reference to a variety of potatoes was [e5c], with the diphthong reduced and lowered to an [e] (Hall, p. 44).

Wolfram and Christian (1975) described a variant of [0]] heard in West Virginia which was part of the general Southern vowel in which the off-glide is absent, noting that the absence of the off-glide is sensitive to linguistic context, such as when the consonant that follows is voiced, as in the words "time" or "side"; or when the word ends in the vowel, as in [p0] for "pie." This monophthongization of [0]] is wide-spread throughout the Appalachian Mountains, and indeed, throughout the South in general, and occurs without regard to social status or socio-economic level (Wolfram & Christian, 1975).

9. [0[] as in *cow*: The phonetic symbol for this diphthong as used by Hall was [0[], which is represented by Shriberg and Kent (1995) as [e[]. In AppE, Hall (1942) reported that this diphthong represented a clear departure from GAE, in that the on-glide is raised and fronted to [q]. This vowel is presented as an excessive drawl, with words being pronounced as [hq^{y}7s] for "house," forcing the monosyllabic word to become polysyllabic (Hall, p. 45). Following [k], the diphthong [0[] often followed a palatal glide, which might or might not be marked. The more extreme examples of this palatization were found in [kyq[] for "cow," [kyq[nti] for "county," and [skyq[ts] for "scouts." This consonantal combination of [ky] was not an unusual production (Hall,

p. 46). One elderly speaker recorded in Hall's study was heard by this investigator to have pronounced "card" as [kye5d], in describing the process of carding wool.

10. Words spelled with "a", pronounced [1], as in *about*: In the case of most speakers of AppE, Hall found that the unstressed syllable "-a" is pronounced as a [1], even when found as a phoneme within the syllable, as in [1bq[t] for "about"or [v1n8l4] for "vanilla" (Hall, 1942, p. 50). Among the more poorly educated mountain residents, the initial, syllabic [1] is usually deleted, such that "about" becomes [bq[t], and so forth. He also commented on a related grammatical anomaly of AppE, the use of the prefix "a-," in which the added syllable is prefixed to verbs, as well as adjectives and adverbs. "I'm a-tellin' you what . . ." is commonly heard in the dialect of Appalachian natives, and has been observed personally by this investigator.

11. Words spelled with an "e", as in initial syllable of *cement*: Often, in cases of partial stress or of stress shift to the initial syllable, Hall (1942) observed that the sound becomes [i], [8], or [2]. If the stress is absent, it is pronounced as [1], [5], or weakened variations of the preceding vowels, depending on the amount of stress. The [i] sound in syllables to which the stress is shifted was in observed to be common with SAE, in words such as [sim2nt] (Hall, p. 52). Bailey (1979) noted that the two predominant unstressed syllabic features of the northern Cumberland Plateau were the [1] and the [5].

12. Words spelled with "i", as in *cigar*: Hall (1942) observed that the speakers pronounced the vowel as [8], but instances of [i] and [0]], were noted. In a second group, words in which the initial unstressed syllable contained the vowel [8], the stress was

shifted to the initial syllable. Words such as [sige5] and [g8te5] were common in Hall's cohort (Hall, p. 56).

13. Medial syllable occurrence of [0] or [o], as in *almanac*: Hall (1942) noted that most of the utterances containing these two vowels in medial position were pronounced as [1], with the exception of words in which [8] was substituted, as do speakers of GAE. However, his observation was that, if the syllable was partially stressed, the sounds produced by the speaker were occasionally pronounced as [2], [3], or [o], which may reflect a critical difference between AppE and GAE. Hall further observed that these instances were rare. One of the most common substitutions noted by Hall was [9lm1n8k] (Hall, p. 59). There were also instances of the medial vowel being pronounced as [8], or raised to [i], as in [qlkih9l], and the place name [omih9] for "Omaha" (Hall, p. 60).

Omissions of the vowel occurred with frequency, and under three conditions: (1) before [n] followed by an unstressed vowel, as in [k4mpn8] for "company;" (2) before [r], as in [h8kri] for "hickory," and (3) before [l], as in the three variations of "Carolina," [k q 5la8n1], [k5la8n5] and [k1la8n1] (sic) (Hall, 1942, p. 60). Of the tendency toward medial omissions, Bailey (1979) noted that the subjects from the northern Cumberland Plateau also practiced reduction. He wrote that a vowel followed by a resonant was reduced to the nasal, as in [fyunr1l] for "funeral" (Bailey, p. 167).

14. Medial [3] and [i], as in *medicine*: Most often occurring variations of these vowels in unstressed medial position as observed by Hall were substitutions using [8] or [1], usually preceding [l], [m], [n] or [r] (Hall, 1942, p. 61). Among the oldest speakers,

Hall observed that the vowel was determined to have risen to [i], as “talkified.” Hall also detected an opposing tendency in some words to reduce the medial vowel to an indistinct quality, resembling the [1]: [mqr1v1l] for “Maryville,” a town in East Tennessee (Hall, p. 62). Bailey (1979) confirmed this finding in his observation that the speech of the northern Cumberland Plateau produced unstressed syllables in two ways: with the allophonic reduction of the vowel to a [1] or an [5].

15. Words containing the [1] in final unstressed syllable: Hall (1942) observed that the history of the English language was influenced by its Germanic and French roots in word-final syllables. Words characterized by German endings (“chicken” and “shovel”), and words characterized by French endings (-ain, -ance, and -ous), as well as compound words (chestnut) are replete in the English language (Hall, p. 69). Because of this, he noted that the [1] was characteristic of all of these endings, both in SAE and in AppE (though not always in GAE), occurring under the following conditions:
(1) preceding nasals, as in [qen . 1nt] for “ancient;” (2) preceding laterals, as in [neksv1l] for “Knoxville;” (3) preceding sibilants, as in [b8ly1s] for “bilious;”
(4) preceding miscellaneous sounds, not otherwise specified, as in [k4nf2d51t] for “Confederate;” and (5) in compound words (as in [br2kf1st] for “breakfast” (Hall, pp. 69-70).

16. Words that contain final [i]: Hall (1942) noted that -y endings (produced as the high fronted vowel, [i]) were common in both GAE and in AppE, and showed the influence of both Germanic and French languages on English. He observed that a more

commonly occurring vowel in English is the [ɛ] production as distinguished from the [i], especially in GAE, occurring under five circumstances: (a) in final position, as in [kɘzbɛ] for "Cosby," in AppE, the production of this vowel in final position was noted to lie somewhere along a continuum between [i] and a lax [ɛ]; (b) before dental and palatal stops, as in [bɑlɛt] for "ballad" with devoicing of the final consonant was considered characteristic of AppE; (c) before fricatives and affricates, as in [kɑbɛj] for "cabbage;" (d) before sibilants, as in [ɘfɛs] for "office;" and (e) before nasals, as in [rebɛn] for "robin" (Hall, 1942, pp. 73-75).

17. inflectional endings: Transcriptions made by Hall (1942) revealed an interesting anachronism in inflectional forms of word endings: the addition of [ɪ] preceded by a sibilant. An example of these plural and possessive inflectional endings of this type is [nɛstɪz] for "nests". The disyllabic ending, according to Dial (1975/1978), can be traced back to English spoken in the Middle Ages. Occasionally an [r] coloring was noted in these productions, most notably in [wɘspɔz] for "wasps" (Hall, 1942, p. 82).

Vowels With Little or No Variation from General American English

Hall (1942) observed that few of the vowels produced by residents of the Appalachian region were similar to those used by the general American public, or General American English (GAE). Those vowels are summarized in the section below, and are organized in the manner of Hall's study, with vowels that occurred on stressed

syllables discussed first, followed by those that occurred on unstressed or partially stressed syllables.

1.The [ɐ] vs. [ɜ] collapse: A characteristic of AppE observed by Hall (1942) was the [ɐ] and [ɜ] collapse, which is also characteristic of Southern American English (SAE), and has been the subject of frequent inquiry (Bailey, 1997; Brown, 1991; Butters, 1981). While in fact a departure from GAE, this difference places AppE squarely within the parameters of SAE, and as such does not qualify as an identifying feature of AppE. Brown, and later Bailey, reported that, in most cases, southern speakers, including speakers of AppE fail to make the distinction between the two vowels, either in production or in perception, especially true preceding nasals. By this description, [pɐn] and [pɜn] become homophones in both AppE and in SAE.

Of interest is the history of this vowel collapse, in that its existence has become predominant in the South only in the 20th century (Bailey, 1997). Bailey, and earlier Maylor reported that the non-distinction began in the last half of the 19th century as a socially stigmatized form, and became a part of the language of southern speakers regardless of social class within the past fifty years (as cited in Bailey, 1997). While some have characterized this as a relic of 17th century colonial English, others such as Kurath and McDavid (1961) noted its existence in English folk speech, particularly of the central counties. This, however, does not explain its rise to predominance in the American South in the latter half of the twentieth century, even among the well-educated (Brown, 1991). Among Brown's conclusions was the wave of urban migration which coincided with the

industrialization of the South after 1875. The suggestion was that the [ɚ] and [ɔ] collapse became pervasive as a result of industrialization and urban migration, and the blurring of class distinction that ensued.

2. [e] as in *shop*: Both of these vowels belong to the low back group, and were considered to be virtually the same phoneme, both in GAE and AppE as spoken in the late 1930's and early 1940's. Any difference in production in AppE noted by Hall (1942) were also related to coarticulation, as in [e] preceding [g], certain fricatives, and [r]; in these cases the [e] is replaced by [ɛ], as in [dɛg] for [deg]. Hall further observed that the [e] of AppE that he heard was of a "darker" quality than GAE, but conceded that there were several border-line cases, in which the [e] and [ɛ] were indistinguishable, because of different degrees of lip-rounding (p. 27).

Some of the occasional (and perhaps individual) variations noted by Hall (1942) in his recordings were substitution of [ɑ] forms for [e] in words such as [yɑndɚ] for "yonder," [ɑɚ] for "are," or [pɑɚ bɚɔl] for "parboil." Other examples recorded and discussed in Hall's study were ones in which [r] disappeared entirely in early modern English when the vowel was produced as [ɑ]. Examples of this include [pɑɚsl] for "parcel," and [kɑtɚɔj] for "cartridge" (Hall, p. 30-31).

3. [ʊ] as in *stood*: Hall observed little difference in this vowel, whether produced by speakers of AppE or speakers of GAE, even though he also observed that the [ʊ] of AppE was slightly more fronted and tense than GAE, but not enough to warrant "the use of modifying symbols" (Hall, 1942, p. 37). While little diphthongization was noted when

the word fell in the rhythmic context of a sentence, Hall observed that it occurred under the following conditions: (1) in a word which the speaker was emphasizing; (2) after a pause; or (3) at the end of the sentence. Wolfram and Christian (1975) confirmed this latter finding of Hall's, in reporting that, in cases where [7], which is a back vowel was produced more fronted, there was a tendency to glide into a [1] or on occasion, even an [i]. This was found to be especially true in instances where the vowel occurred before [c] of [l], as in "bush" or "pool" (Wolfram & Christian, 1975, p. 95).

4. [u] as in *booze*: Most, but not all, of the occurrences of this vowel among AppE speakers, according to Hall's study, were similar to productions among the general American public. In fact, in his estimation, AppE shared with the rest of the South the feature of "being very tense and fronted" (Hall, 1942, p. 37). Words such as "coop", or "hoop" are pronounced with the Southern preference for [u]. The only exceptions were the utterances of [s4t] for "soot," and [b4t] for "butte," the latter being a geographical feature. Hall noted that the term "Butt" appeared frequently on U. S. Geological Surveys within the Great Smoky Mountains National Park (Hall, p. 38).

Bailey (1979) reported in his study of northern Cumberland Plateau speech only one instance of [7] replacing [u] before a nasal, that of [br7m] for "broom." Before plosives, he found that only [7] was found to have occurred in this population. On the other hand, [u] was the usual pronunciation, especially before labiodentals; even so, the plural of "hoof" was almost always [u], while the singular form of the word was reported as [7] (Bailey, 1979, p. 81).

Hall (1942) concluded that any vowel modifications of the vowel by speakers of AppE usually involved some form of diphthongization, such as breaking the vowel to produce [u] with a fall in pitch in the second element. As transcribed from the tapes, [u] is usually very tense and fronted, and always preceded by the palatal glide [d^{8}u] or, when drawled, the disyllabic [j F?u] for "due" or "dew." This disyllabic tendency was also noted following the affricate, [j] as in [j yun] for "June," (Hall, 1942, p. 38).

Language Style and Variation

An important consideration of the study of phonological change among speakers of AppE is that of variation of speech style under differing conditions. Research has suggested that this aspect of dialect is equally important to regional and class distinctions, cultural identity, ethnic, or gender differences among speakers of the dialect. The changing of one's style of speech to fit the situation has been termed "style-shifting" (Labov, 1981; Wolfram & Schilling-Estes, 1998). Style-shifting differs from code switching in that the speaker's speech patterns change with the formality of the task, rather than purposefully changing his/her speech to fit the situation. One ramification of style-shifting is the extent to which the awareness of being observed by an investigator causes the speaker to adjust his or her speech, and has been identified in Labov's dissertation, *The Social Stratification of English in New York City*, as "the Observer's Paradox" (Labov, 1981). These two concepts (style shifting, observer's paradox) were thought by the PI to be quite salient, and were addressed as part of the current study.

Any discussion of style-shifting inevitably comes to the question of "why" people change the way they talk from one situation to the next. Several models have been proposed by various investigators to explain the reasons why style shifting is prevalent in human communication (Wolfram & Schilling-Estes, 1998).

Attention to Speech Model

One of the first explanations of style-shifting centers on the perception that the attention paid to the speech of the person speaking caused him/her to change to a more formal style than s/he would ordinarily use in situations where the speaker is less self-consciousness. If the speaker were, for some reason, to pay more attention to his/her own speech, a more formal style would result. Conversely, the less attention the speaker pays to his/her speech, a less formal or a casual style would result (Wolfram & Schilling-Estes, 1998). Labov (1981) proposed a solution to the problem of eliciting speech from subjects that would alter their speech patterns because they were aware that he was listening. His paradigm to circumvent the "Observer's Paradox" was to ask a highly emotionally charged question, to elicit what he termed the "Breathless Narrative." This concept will be discussed in greater detail in a later section of this chapter.

The "Attention to Speech" model drew criticism from several different critics. First, Labov's (1981) so-called "channel cues," his term for metalinguistic cues to the presence of style-shifting, were thought to be unreliable (Wolfram & Schilling-Estes, 1998). For instance, one of Labov's (1981) metalinguistic cues was laughter. In some contexts, laughter may indeed signal abandonment of self-consciousness; in others, it may

signal nervousness and therefore, increased self-consciousness. Second, how can naturalness in speech be quantified? Experimental studies have shown a disparity in results; some studies such as Mahl produced a correlation between increased (aural) attention and standard variation. Others, such as Moon have found just the opposite (as cited in Wolfram & Schilling-Estes, 1998). Finally, the model has been criticized as being one-dimensional, because it defined styles under the one criterion of degree of formality. According to Labov's critics, the listener may intuit differences or similarities inappropriately, because of the pre-determined contexts demanding similar or different degrees of formality along a pre-determined continuum. To further this argument, Wolfram and Schilling-Estes suggested that some speech styles fail to conform to the strictly defined formality continuum. The example of extreme violation of the formality notion is a speech style that could be termed "dialectal imitation" with exaggerated informality, such as "Y'all come back now, y'hear?" Under the formality criterion of the model, this would require identification as a very formal style. Even faced with the criticisms of this model as being too restricted, Wolfram and Schilling-Estes observed that it has been recognized as having value for investigating variation of linguistic style in surveys taken using the interview format (Wolfram & Schilling-Estes, 1998).

Speech Accommodation Theory

Giles proposed the Speech Accommodation Model to explain the speaker's social and psychological adjustment to the listener (1975; 1984). For example, the term "convergence" has been used with respect to this model to describe how the speaker has a

tendency to become more like the listener linguistically as the conversation progresses. The opposite of this is termed "divergence," in which the speaker, for whatever reason, chooses to distance him/herself from the conversational partner. Wolfram & Schilling-Estes (1998) considered that the motivations of the speaker, the social psychology, and the relationship between the speaker and listener have been considered central issues in explaining why style shifting occurs.

Criticism of the model has been proffered, in spite of its general acceptance as a model for style shifting. The issue of being a one-dimensional model has been used to criticize the Speech Accommodation Model, a similar criticism to the Attention to Speech model. The Speech Accommodation Model attributes all of the style shifting to one factor in this case: audience make-up (Wolfram & Schilling-Estes, 1998).

Audience Design Model

Bell (1984) proposed a model for style-shifting which was similar to the Speech Accommodation Model of Giles (1984), which he called the "Audience Design Model." In this model speakers adjust their speech to match that of their audience, for the purpose of achieving a common bond with them (Bell, 1984). The "folksy humor" often exhibited by politicians as they campaign for election to office is a prime example of this. The opposite may also be true: a speaker may use this strategy to create distance from the audience, by adjusting away from the perceived identity of the listeners.

Wolfram and Schilling-Estes (1998) describe this model as "an extension of the Speech Accommodation Model, in two ways: (1) it articulates the types of audiences

which will affect speaker convergence or divergence; and (2) the quantitative investigation of linguistic variables may use the Speech Accommodation Model, to avoid the necessity of addressing 'accent' across speech style" (Wolfram & Schilling-Estes, 1998, p. 227). This form of style-shifting includes not only intended audience members, but also incidental hearers. The adjustments are typically directed to the intended listeners. The degree to which adjustment occurs depends on the speaker's awareness of the presence of others, and whether those participants are "ratified" or sanctioned to participate in the discussion. If not addressed, those participants are termed auditors; if not ratified, they are termed overhearers; and if not ratified and not known to the speaker, are termed eavesdroppers. Bell's (1984) studies of style-shifting demonstrated the relative roles of addressees, auditors, overhearers, and eavesdroppers.

A criticism of the Audience Design model was the concept of referee design. An early claim made by Bell (1984) that his model was based on audience design and not on referee design was criticized, largely because most referee-designed shifts were more short-lived than audience design shifts. In his view, referee design was presumed to be based on audience design. Recent research has tended to suggest that the Audience Design Model was not fully developed as originally conceived, and that more detailed examination of this model is needed to understand the dynamic of initiative style-shifting and how pervasive it might be.

Speaker Design Models

A relatively recent development in the study of style-shifting has been the development of the Speaker Design Model in which style shifting is seen as more initiative than responsive. This notion has led researchers to look to social psychological approaches to the concept of style-shifting. Factors internal to the speaker, according to the Speaker Design proponents, are as important to style-shifting as environmental factors. Current thought supports Speaker Design models, rather than Audience Design approaches.

Under the Speaker Design paradigm, style-shifting is seen as a way for the speaker to project his/her own personal identity. However, Coupland (in press) cautioned that in the Speaker Design model, style shifting is more appropriately viewed as either a dynamic process which changes with conversational demands, or in terms of role relationships as well as identification factors, (as cited Wolfram & Schilling-Estes, 1998). This is contrasted to a "static intersection of various demographic categories, such as age, social class, and race" (Wolfram & Schilling-Estes, p. 232). A researcher collecting interviews for later analysis might attempt to raise the comfort level of the subject by adopting a role, that of a neighborly sort of person. However, viewed from this perspective, there is reason to be concerned about the naturalness of speech collected by taped interviews. The concern arises that the person being interviewed may shift into something termed "performance mode" in response to the audience not present; presumably linguists who

might hear the tape at a later time. That is, even with a neighborly conversational partner, the interviewee realizes that s/he is being observed, and chooses to shift either toward standard speech, or away from it (Wolfram & Schilling-Estes, 1998). In either case, the "Observer's Paradox" must be considered in any study in which the interview is an important instrument for data collection (Labov, 1981).

"Observer's Paradox"

The term "Observer's Paradox," coined by Labov (1981), identified the element of artificiality in the speech of subjects who know their speech was being observed. His findings suggested that a continuum of formality existed from formal speech to casual speech, depending on the degree to which the speaker was paying attention to how s/he might sound to others. A person who knows s/he is being listened to critically has a tendency to become self-conscious, and thereby may alter his/her manner of speech. This alteration has the potential to cause a threat to validity by rendering a speech sample invalid that was intended to be analyzed for accent, thus making the observation of the authenticity of a particular dialect difficult because of the very presence of an observer (Labov, 1981).

Labov worked from the premise that the task of orally reading a passage, as well as lists of words in isolation, had the effect of shifting the speaker toward the formal end of the continuum. He based this notion on the relationship between reading and the formality of the occasion, when compared with conversational speech (Wolfram &

Schilling-Estes, 1998). This idea was explored in Labov (1981), in which he devised a set of tasks that followed the continuum from the most casual speech to the most formal. He discovered that the speaker could be manipulated into abandoning his/her focus on how s/he sounded by several techniques. The first of these was the discussion of highly emotional topics, such as the near-death experience, or the "Breathless Narrative." Labov used metalinguistic, non-verbal cues observed in the speakers to ascertain the presence of less-guarded speech. These cues included, but were not limited to: (1) increased rate of speech; (2) use of a higher pitched voice; (3) laughter; and (4) heavier breathing (Labov, 1981). The second task in Labov's paradigm was a monitored conversation, in which the interviewer sought to elicit information of high interest value to the subject. Other means of eliciting less-guarded speech included the use of a third party to whom the speech was directed, or to extrapolate the speech into extended discussions which were not in direct response to interview questions (Labov, 1981).

As the interview continued, the tasks became more of a formal nature, involving a reading task and reading from a list of minimal pairs words containing potential homophones related to dialectal pronunciation. An example of this from Labov's study was the pair, "guard" and "god" (Labov, 1981). In the present study, the [ɑ] vowel might be elicited by pairing "ant" with "ain't."

The findings of Labov's (1981) study suggested that speakers used dialectal styles, which he termed "stigmatized," at lower rates as they shifted from more casual

styles elicited by the "Breathless Narrative" to more formal styles elicited by reading minimal-pairs word lists (Labov, 1981; Wolfram & Schilling-Estes, 1998).

Style-shifting With Regard to Social Class

In a study of stylistic and social class differences among residents of New York City, Labov (1972) found that the percent of usage of dialectal features tended to remain relatively equivalent, regardless of social class. All levels of social class decreased their usage of stigmatized features, as they moved from casual to formal speech, bearing in mind that the lower socioeconomic speakers used more of the stigmatized features in every speech style than speakers of higher socioeconomic groups (Labov, 1981; Wolfram & Schilling-Estes, 1998).

Subjects in the present study are presumed to be more likely to belong to the low-to-mid socioeconomic strata, because of the rural nature of the community of Del Rio, as well the lack of an industrial base and service sectors of the community. These speakers are expected to use more features of AppE than might be expected of urban or suburban dwellers, who are more likely to be members of the middle working or upper working classes of society. Speakers who belong to these latter social strata in Labov (1972) were found to use dialectal features at a lower rate, and to practice a pattern which he termed "hypercorrection." Hypercorrection refers to the use of a hyper-standard style of speech, because of the speakers' apparent desire to elevate their status in society to a greater extent than do other socioeconomic groups. According to Labov (1981) and

Wolfram and Schilling-Estes (1998), these attempts to "talk like" the upper class often result in the increased use of "prestige features," such as the grammatical morpheme [ɪŋ], even where the focus is on more casual speech, where one would expect a speaker of AppE to use [ɪn]. The more upwardly mobile, and the better educated of the speakers of AppE in the present study are predicted to use more style-shifting, as well as hyper-correction as features of their speech style, and these occurrences will be noted as findings where they occur in the present study.

Evidence of Fading of the Appalachian Dialect

Two regional dialects that are similar in their linguistic features are Ozark English, a dialect spoken in the mountains of Arkansas, (OE) and AppE. In a comparison of the dialectal features of these two dialects, Christian, Wolfram, and Dube (1984) found discrepancies of usage of dialectal features of AppE between different age groups in a study of Appalachian and Ozark dialects. The finding that younger speakers in the 25- to 50-year age group were less likely than their older cohorts (those over 50 years of age) to use vestigial dialectal forms led Christian and her colleagues to conclude that there was a fading of the dialect, at least in some dialectal features such as "a-verbing." This finding also recorded a faster rate of change among the speakers of Ozark English than among speakers of AppE, a finding which may suggest a lingering resistance to change in the Appalachian region. However, the findings of Christian et al. (1984) also suggest that the fading of the dialect of English spoken in the Appalachian Mountains is a very real

phenomenon, and is taking place in a more gradual manner than other dialects of English spoken in North America.

Summary

Appalachian English (AppE) is regarded as a relic dialect spoken by the descendants of Scots-Irish settlers of the principal mountain chain of the eastern United States. Until recently, the dialect of English spoken in this region was thought to have remained relatively unchanged from the time of settlement. Archaic productions such as "Pennyrile" for the medicinal plant, Pennyroyal, and "bile" for "boil" have been reported in the region by Hall (1942) as late as the 1940's, and mostly in the speech of the elderly. In the present study, the PI observed this manner of production exclusively in the eldest generation, and only on the lexical item "coil," which was often produced as [kwel], when referring to reptile behavior. The middle of the 20th century may have been a watershed time frame for linguistic change, because of the convergence of a number of significant factors: (1) the opening of the Great Smoky Mountains National Park on 2 September 1940, which brought tourism to the region as a new industry; (2) the creation by the United States Congress of the Tennessee Valley Authority (TVA) in the 1930's, which brought affordable electricity to the region for the first time; and (3) improved navigation of the rivers of the region, impacting commerce and accessibility to the region.

Three studies have been conducted whose purpose was to document the phonological system of Appalachian English. Hall's 1942 cataloging of the phonology of

the Great Smoky Mountains was the first to systematically collect samples of the speech of approximately 173 speakers of AppE living on the land at the time of purchase of the Great Smoky Mountains National Park, or in the counties surrounding the Park. Wolfram and Christian (1975) collected and described speech samples of persons living in the Appalachian Mountains in West Virginia. Finally, Bailey (1979) catalogued and described the speech of residents of the northern Cumberland Plateau, which constitutes the western range of the Appalachian Mountains. The speech samples from both of these studies revealed many phonological similarities to Hall's (1942) samples. Chief among the observations made by these three studies were the dialect-specific vowel productions that appeared to be more common among the elder speakers of the dialect, implying that changes were already underway.

Purpose of the Current Study

A paucity of research into this phenomenon in the literature, coupled with the current status of a dialect in the process of change, speaks to the need for research in this area. It is hypothesized that information gained through this study will provide educators with an in-depth knowledge of the language system used by the children they encounter and their forebears (Luhman, 1990; Mulac & Rudd, 1977; Peterson & Peters, 1985; Reck, Reck, & Keefe 1993; Wolfram & Christian, 1980).

The purpose of this study was to examine the perceptual features of the phonological system of speakers of Appalachian English produced by three generations of

present-day native Appalachian speakers living in a relatively remote community of East Tennessee, to determine what (if any) change has occurred over time. Specifically, the study addressed the following questions:

1. Is there a significant difference in the pronunciation of the eight selected phonological forms as measured by percentage of use in obligatory context by speakers of AppE who are members of three age groups: G1 (between the ages of 70 to 90 years), G2 (between the ages of 44 to 55 years), and G3 (between the ages of 22 to 32 years), across the following tasks: (1) The "Breathless Narrative;" and (2) Conversational Interview?

An important consideration of this study is the extent to which speakers of AppE engage in style-shifting, as the tasks vary. In order that style-shifting be controlled, the experimental tasks under study were constructed in a hierarchical manner, from tasks of a highly charged emotional nature to more formalized tasks, as an adaptation of the paradigm developed by Labov (1981). The question to be examined will be:

2. Is there a significant difference between speakers of AppE who are members of G1, speakers who are members of G2, and speakers who are members of G3, in the degree to which they engage in style-shifting as the speech task becomes progressively more formal, and therefore more subject to self monitoring, when presented with the following tasks?

A. The "Breathless Narrative"

B. Conversational Interview

C. Reading Passages

D. Sentence Completion

E. Minimal Pairs of Words

In answering Research Question One, 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, as demonstrated by perceptual transcription of their speech. It was further hypothesized that the children (G2) of the oldest speakers (G1) of Appalachian English would speak more like their parents than would the grandchildren (G3). In answering Research Question Two, it was hypothesized that all speakers of AppE would engage in some degree of style-shifting, as the tasks vary along a continuum of formality, from casual speech in the unselfconscious narration of highly emotionally charged material, to the highly formalized speech of reading lists of minimal pairs of words. The speech of G2 and G3 was hypothesized to demonstrate style-shifting to a lesser degree across tasks than G1, because of the possible effects of more education than their forebears, and also due to the possibility that the younger cohorts are already using more SAE than the G1 cohort. The changes would therefore not be as dramatic as expected in the older generation.

Chapter II

Method and Analysis

Method

Description of the Study

Wolfram and Schilling-Estes (1998) describe the form of American English spoken throughout the South as a variant of the language defined by how phonemes are produced regionally and are organized into phonological systems. The manner of speech production found to be common to speakers of a dialect has also been referred to as "accent" (Hulit & Howard, 1997). One purpose of this study was to examine the characteristics of selected vowels produced by three generations of native Appalachian speakers to determine what, if any, change or changes in speech production may be occurring in the dialect over time. The Principal Investigator (PI) hypothesized that Appalachian English (AppE) speakers who, as children, learned to talk prior to 1940, before any appreciable socioeconomic development of the region, would present with very different phonological characteristics than either their children or grandchildren. It was further hypothesized that the grandparents would demonstrate less tendency to use Southern American English (SAE) vowel characteristics than their children or grandchildren. This study also addressed the question: Do speakers of AppE engage in 'style-shifting' as the task becomes progressively more formal? It was hypothesized that the speech of younger speakers would be less subject to style shifting across tasks due to

a greater degree of internal monitoring, across all tasks. Such lesser tendencies may also be due to a possible propensity of younger speakers to use SAE forms than AppE forms, overall.

Description and Source of Participants

Ten families of native Appalachian speakers participated in the study. Each family, or "triad," consisted of three generations of speakers delineated as follows: Generation 1 (G1) consisted of persons between the ages of 70 and 90; Generation 2 (G2) consisted of the children of G1, and were between the ages of 44 and 55; Generation 3 (G3) were the grandchildren of persons in G1, between the ages of 22 and 32. The Family was the experimental unit. The data from one family that had initially been recruited were eliminated because of the inability of the G1 participant to see to read the last three tasks, and another family was recruited in its place. Personal data were provided by the participants who completed a Participant Questionnaire. Both the questionnaire and the data provided may be found in Appendix A.

Assessment Site Identification

A small, remote community within Cocke County Tennessee, Del Rio, was selected as the assessment site. The present population is unknown, as the community is unincorporated. Many of the residents of this community are descendants of pioneer families and have lived in the area all of their lives (E. Walker, personal communication, 1999). The PI established two contacts living in this area who volunteered to act as liaisons between the PI and the potential participants (agreements of confidentiality and

letters of support from both liaisons may be found in Appendix B). A third liaison was later identified who was helpful in referral but did not actually participate in any other capacity.

Participant Identification

Participants were identified for recruitment in the following manner: the two individuals willing to recruit candidates for participation in the study were oriented and trained as field liaisons by the PI (see below). The liaisons acted in concert with the PI, as appropriate, after having signed letters of support and confidentiality agreements as described above.

The PI met with the volunteer liaisons to discuss the scope and purpose of the study, at which time they were asked to identify potential participants. The potential candidates were sent an information packet for completion and return in a timely manner as requested. The packet consisted of a fact sheet describing the purpose of the study, an informed consent form explaining that participation was strictly voluntary, and a participant questionnaire form (see Appendix C for Fact Sheet and Informed Consent Form, and Appendix A for Participant Questionnaire). Once informed consent had been granted, the PI contacted the participants for the purpose of further clarifying the "faux goals" of the study, to answer any remaining questions, and to remind participants to complete all necessary paperwork (i.e., Participant Questionnaire form) prior to the interview session. All paperwork was collected personally from the participants by the PI at the time of the initial interview, one month after forms were distributed. Although the

true purpose of the study was shown on the fact sheet and the informed consent form provided in the initial packet, the one-month delay before the actual interview increased the likelihood that the true purpose of the study had faded from memory. Because the true purpose of the study had the potential to confound the data, the PI verbally explained that the study was one of interest in the people of the region, and how they lived.

The PI then proceeded with the experimental paradigm. As noted above, participants had the option of withdrawing from the study at any time. No participant refused the tasks in their entirety. However, two participants terminated participation for the tasks requiring reading. The first of these was not able to complete the tasks beyond the initial interviews, due to poor vision which precluded her reading the material presented. Her reluctance to read, coupled with an overall inability to fully participate in the study, resulted in the data from her family being eliminated. As previously mentioned, another triad was recruited to replace this one. A G1 participant from Family Five was more lucid, and although he was unable to continue with the reading tasks due to poor eyesight, he was retained as a participant for the conversational tasks because of the quality of the conversational samples.

Participant Description

A total of thirty participants, grouped into "triads," comprised of ten sets of three adults, each from the same extended family, engaged in the study. All participants met the following criteria: (1) they were born in the Del Rio community of Cocke County, Tennessee; (2) they had lived in the same community for at least two-thirds of their lives;

(3) their forebears had lived in the community, going back at least one generation from the grandparents of each triad; (4) they used English as their first and only language; and (5) they were consenting adults. Initial assignment to generational groups was by age: the G1 cohort was to consist of individuals between the ages of 65 and 90; the G2 cohort between 35 and 64; and the G3 cohort between 18 and 34. Every attempt was made to gain participation from the grandparent cohort of individuals in their late 70's, 80's, or 90's as these individuals were considered to be the most representative of those who learned to talk before the social and economic development of the region. In the final analysis, the G1 cohort was between 70 and 90 years of age, so this was considered to be a successful effort.

Each participant in the study completed a demographic questionnaire, in part to assist in accounting for any speech change or lack thereof (see Appendix A). The profile covered factors such as socioeconomic level, education level, history of any travel or brief residence outside the region (including but not limited to military service), leisure time activities, and reading habits which were considered as having an impact on the participant's speech patterns. For results of demographic questionnaire, see Table 1. The age range for G1 was 70-90 ($\underline{M}$ = 79.9); for G2 was 44-55 ($\underline{M}$ = 49.2); and for G3 was 22-32 years of age ($\underline{M}$ = 27.3). Although the questionnaire asked for educational levels within broad categories, during the course of conversation, each subject revealed to the PI the highest grade in school completed, from which the average years of school attendance was calculated. The education-level ranges for the three groups were: G1 attended school

between 6 and 12 years (M = 7.5 years); G2 attended school between 6 and 18 years (M = 14.1 years); and G3 attended school between 12 and 16 years (M = 13.4 years). Relative to income, the modal (i.e., most commonly reported) income range was 10k-20k for G1, 20k-30k for G2, and 30k-40k for G3.

Data Collection Procedure

In most cases, each participant participated in one "interview" session approximately an hour in length. During this session, the participant completed two conversational and three constructed tasks. Two of the elderly participants required short, multiple sessions due to eye strain during the constructed reading tasks. The PI, accompanied by the liaison, conducted the interview sessions, recording the spontaneous and constructed tasks on high-resolution audiotape (Sony Digital Audio Tape or Maxell Audio Pro DAT) using a Sony PCM-M1 Digital Audio Tape (DAT) recorder and a Crown CM-311 headworn microphone. Recordings were made either in the participant's home, or in the home of another member of the triad, free of audible distractions. On those occasions when more than one member of the triad was present, the interview took place in a separate room from other participants. When such was the case, the PI discussed the true purpose of the study only after all participants had been interviewed.

The conversational speech samples were collected by the PI, accompanied by the liaison, as appropriate, who was a native Appalachian speaker. 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

Table 1

Results of Participant Questionnaire

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

duration of the visit; if the liaison was not known to the participant, the liaison was excused. The latter situation occurred in all of the G3 interviews, in approximately 60 percent of G2, and in 40 percent of G1 interviews, respectively. The absence of the liaison did not appear to have an effect on the participants' willingness to engage in the experimental tasks. To the contrary, feedback provided by both liaisons to the PI after the completion of the study was that she (the PI) was accepted as "one of them."

In terms of size of sample, the PI collected five to ten different words for each target vowel in each task (as in Labov, 1981). The minimum number of tokens of each vowel target was five within each of the five different tasks. According to Labov's paradigm, the PI was optimally to gather over 20 to 25 opportunities for each vowel for each task. However, this was not always possible. In some instances, the optimal number of tokens per vowel could not be obtained during conversational tasks. To ensure sufficient tokens for statistical analysis from the conversational tasks, the PI continued the conversation long enough to ensure that all target vowels were addressed conversationally and the opportunity-criterion was met; that is, until there had been opportunity for at least five tokens to occur. The PI tracked vowel instances in as surreptitious a manner as possible by keeping a running tally. The investigator-created tasks were designed to elicit at least 5 to10 tokens of each of the vowel targets.

As noted previously, the exact nature of the study was included in the fact sheet and in the informed consent that had been completed approximately one month prior to the interview (see Appendix C for Fact Sheet and Informed Consent). The PI avoided

calling attention to the issue of listening to their speech. This was done to minimize the "Observer's Paradox." The subjects were told in the beginning of the session that the PI was interested in learning more about the people of the community and the region. After all tasks were completed, the PI described the true nature of the study in detail, explaining that she wished to determine the status of the AppE accent by transcription of words containing eight selected vowels. This afforded the participant the final opportunity to remove himself or herself from the study at that time. In no instance did a participant ask that his or her tapes not be analyzed for this purpose.

In one case, a woman from the G3 cohort (Family 8) revealed that she had guessed the true intention of the study when, during the execution of Task Five, she pronounced "spoil" in the manner of GAE with the diphthong [ɔɪ], then self-corrected to AppE pronunciation with [$ɔ^{1}$], saying to herself, "That's not how I say that." This led the PI to ask informally of her, "Do you know what I am really doing?" To this the participant replied, "Yes, my speech." She was not eliminated from the study, and her responses were recorded exactly as she produced them. This led the PI to ask participants in the remaining cohorts (Families 6, 7, 9, and 10) at the end of their interview, "Do you know what I am listening for?" prior to the explanation of the true nature of the experiment, to determine if s/he knew the true purpose of the study. Approximately 50 percent of the remaining G1 participants were able to identify "listening to their speech" as the purpose of the study upon completion of all experimental tasks, compared with 100 percent of G2 and G3, respectively. The participants were not asked to identify the

vowels of interest. Descriptions of the target vowels were included in the PI's explanation of the purpose of the study. At the point in the discussion when the participant revealed they did or did not know what the aim of the study was, the PI explained exactly what each task was designed to investigate. In the judgement of the PI, the task that likely provided the participants with the most insight to the true nature of the study was the minimal pairs task.

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 (1942) and by Wolfram and Christian (1975), 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 (1975) and Hall (1942) 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 (1942) and using his diacritical system for the examples, included:

1. [9]]: This diphthong is described as low-mid-back (as in [ ]), or mid-back (as in [o]) onglide to mid-front, or high-front [ɪ] offglide in GAE (Shriberg & Kent, 1995). An example of occurrence of this diphthong in GAE is [b9]l]. Hall (1942, p. 46) noted that some of the elderly speakers in his study were found to have used the archaic [0]], as in his observation of the instance of one speaker self-correcting [j 9]sts] to [j 0]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 [b9^{1}l]; younger speakers of AppE were expected to produce some diphthongization, as in [b9^{ɪ}l].

2. Rhotacized [e]], or [e]r] sequences: The rhotacized version of [e]] which is a diphthong plus consonant sequence moves from a low-back onglide to mid-front or high-front offglide (Shriberg & Kent, 1995) and then to [r]. An example of this sequence in GAE in [fe]r]. Older speakers of Appalachian English were expected to produce this as a monophthong [e], as in [fer]; younger speakers of AppE were expected to produce this higher and more fronted as in [f0r]. Speakers of Southern American English (SAE) were expected to produce this similar to speakers of GAE.

3. Rhoticized [2r]: This sequence is produced as low-mid, front, lax and carrying an [r] coloring (Shriberg & Kent, 1995). An example of this consonant sequence in GAE is “bear,” pronounced [b2r]. Older speakers of AppE were expected to produce this as [ber], while younger speakers of AppE were expected to produce this more as [bɝ] in the same manner as speakers of SAE.

4. Final, unstressed [o]: The vowel is produced as mid-back and rounded (Shriberg & Kent, 1995); as in [p8lo]. Older speakers of AppE were expected to substitute [5] for [o], as in [p8l5] for [p8lo]; however, younger speakers of AppE were expected to produce this vowel as a final, unstressed [1], as were speakers of SAE.

5. Final unstressed [1]: This vowel is produced as mid-central, lax (Shriberg & Kent, 1995); as in [sod1]. 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 [sod1].

6. Stressed [8]: The raising of the [8],which is high-mid, front, lax, and unrounded to [i] in GAE, to a high-front, tense, and unrounded (Shriberg & Kent, 1995) has been noted to occur predominantly in AppE in combination with [c] and with [l], as in [f8c] being pronounced [fic]. In come cases, according to Wolfram and Christian (1975), this may be produced with an intrusive glide to [1], as in [kr8b] being pronounced [kri^{y}1b]. 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 [kriy1b], but not the former, as in [fic].

7. Stressed [q]: The IPA defined [q] as a high-low-front vowel, noting that it had a slightly higher tongue placement than [0], which is a non-American English phoneme. This vowel has a tendency to be of long duration, which is the major

distinction between [ɑ] and [ɔ]. For this reason, [ɑ] is sometimes described as long and tense for speakers of GAE (Shriberg & Kent, 1995). Older speakers of AppE were expected to produce a raised and fronted variation, more toward [ɜ], as in [kɜf]; younger speakers were expected to produce a more standard [ɑ], as in [kɑf], as were speakers of SAE.

8. Stressed [ɚ]: Shriberg and Kent (1995) described this as a rhotacized form of the high, front vowel [ɚ]. Older speakers of AppE were expected to produce this rhotacized vowel in a more backed position, as in [ɔ] with r-coloring, or even as [yɔ], glided [y] 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 (1975) and/or in Hall (1942) as being representative of a changing regional dialect. The selected vowels did not include the monophthongization of [e], as in [tem] for "time," nor the collapse of [ɚ] and [ɔ], as in "pin" and "pen," because these contrasts were judged by Bailey (1997) and others to be salient to SAE, and therefore not unique to AppE, but rather productions that are pervasive throughout the South.

General Procedures

In answering the first research question, “Is there a difference in the pronunciation of the eight selected phonological forms (as measured by percentage) among speakers of Appalachian English (AppE) who are members of each of three generations?” The speech

of qualified participants was analyzed for the presence of AppE vs. Southern American English, a regional variety of General American English (GAE), for each of eight selected vowels. Using the following experimental paradigm, each participant was engaged in two forms of conversation: monitored conversation and a "breathless narrative."

Each of the 30 participants was interviewed for the purpose of elicitation of conversational speech. The interview consisted of two parts. First, the PI explored what Labov (1981) called the "breathless narrative." This was followed by an initial interview of a casual nature ("the monitored conversation"), with questions asked being of high interest to the participant. Conversations with participants elicited material over 30 to 45 minutes, depending on the participant. Breathless narratives were exemplified by the participant's lapsing into present tense, nervous laughter, and increased rate of breathing (Labov, 1982). In most instances, "breathless narratives" could be elicited by the PI in conversation, during the course of which the participant's emotional state was heightened. Interestingly however, this was not universally the case. Approximately 40 percent of G1 participants lapsed into "breathless narrative," compared with 20 percent and 10 percent for G2 and G3, respectively.

Following the conversational tasks, each participant was asked to perform three additional tasks intended to address the second research question: "Is there a difference between speakers of AppE who are members of G1, speakers who are members of G2, and speakers who are members of G3, in the degree to which they engage in "style-shifting" as the speech task becomes progressively more formal, and therefore

more subject to self-monitoring," To accomplish this portion of the experimental paradigm, each participant was asked to (1) read two passages which had been loaded with vowel tokens of interest; (2) read a list of sentences for which the participant supplied a word to fill in a blank; and (3) read a list of minimal word pairs which been constructed to potentially force AppE pronunciation more toward Southern American English (SAE) for one of the words of each pair. All participants performed the tasks in this order.

Experimental Tasks

Following the paradigm adapted from Labov (1981), a series of five tasks was created for phonological analysis of speakers of AppE. The design of the tasks was to elicit speech in ever-increasing degrees of formality, from most natural to most formal. Depending on the nature of the participant, occasionally tasks one and two would become intertwined. Notations were made in the orthographic transcriptions when the participant was observed to exhibit the cardinal signs of telling a "breathless narrative" (Labov, 1981). The five tasks are described as follows:

"Breathless Narrative"

The first task was a language sample centered on topics designed to elicit highly charged emotional content from the participant. Labov (1981) created this task, calling it the "Breathless Narrative." The purpose of this task was to minimize the "Observer's Paradox," described in Chapter One by eliciting a memory strong enough to

psychologically replicate the event. Montgomery (M. Montgomery, personal communication, 1999) recommended topics that included, but were not limited to (1) fear of death experience; (2) child birth experience; (3) the "Christy" story, eliciting opinions and feelings about the highly publicized book written about the participants' community; (4) "snake handlers," a fundamentalist religious sect still known to engage in arcane and dangerous practices based on the biblical belief that their faith will protect them from harm; and (5) personal encounters with venomous creatures (see Appendix D, Task One for suggested questions designed to elicit the "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 selected included, but were not limited to (1) farming practices of the past, relative to the current practices; (2) hunting and fishing; (3) how children differ from when the participant was young; (3) cooking and preservation of food; (4) herbal medicine; (5) child-rearing practices, and (6) professional or vocational interests. The topic selection was gender-specific and highly individualized by participant interest, to enhance the participant's experience of the interview as being as natural as possible (see Appendix D, Task Two for a sample of the interview/dialogue questions and topics).

Passage Readings

In addition to a conversational samples, participants were asked to read from two preselected passages ("Arthur the Rat" and an adaptation of "Louis Braille" passages).

The first of these readings was chosen because it contained multiple opportunities for elicitation of the vowels of interest. The second reading was selected and adapted to ensure that a sufficient number of tokens would be included in the reading task. Each participant was given the opportunity to read each passage silently prior to taping it, to reduce the possibility of mispronunciations and hesitations (see Appendix D, Task Three for the reading passages).

Sentence-Completion Task

As a modification of Labov (1981), the participants were asked to perform a sentence-completion task which is a protocol for assessing vowels employed by Pollock (Walton & Pollock, 1993) and described in Wolfram and Fasold (1974). In the sentence-completion task, the target within the sentence was not the completion word, but another word embedded within the sentence. The participant, however, was unaware of this target. For example, the participant was asked to fill in the word in the following sentence: "The _____ has lived in Butcher Hollow for years." In this case, the PI's purpose was to elicit the participant's production of "hollow" without regard to the word supplied in the blank. Ten fill-in-the-blank sentences were constructed for each of the eight target vowels and randomized by the PI using a random-number generator (see Appendix D, Task Four for the list of sentence-completion stimuli).

Minimal Pairs Word List

Following the protocol used by Labov (1981), the participant was presented with a list of word pairs which were phonemically similar, but spelled differently. Words such as

"ant" and "ain't" may have been separately and individually produced in a similar manner by speakers of AppE; however, when confronted with the two words together, with the SAE target in the first position, the speaker was predicted to make a phonological distinction. Wherever possible, the word pairs were constructed from real words and the use of nonsense words was avoided. The word lists were randomized using a random-number generator (see Appendix D, Task Five for a list of the words of minimal pairs).

Data Analysis

Speech Sample Analysis Procedures

Once all recordings were completed, the PI transcribed the recorded speech samples in two ways. The first was an orthographic transcription of the participant's speech. After transcribing the sample orthographically, the PI listened to the recording of the session, and identified all targets as either AppE (+) or Southern English (-). The second transcription was produced from the first, using International Phonetic Alphabet (IPA) narrow transcription techniques with only the tokens identified as AppE on the first "pass" being transcribed onto worksheets. A list of unique words produced as AppE is provided (see Appendix E for a sample worksheet of transcribed vowel tokens and the List of Unique AppE Words).

The decision process for determination of what constituted vowel productions belonging to AppE dialect versus Southern American English was accomplished during the first listening pass by the PI, who is a life-long speaker of Southern American

English. If the subject pronounced a word containing a vowel of interest in the same manner as a speaker from outside the immediate locale, but from another community somewhere in the South (the nearby city of Knoxville, for example), that vowel was coded as Southern English (-). An example of this includes the word "Knoxville." A speaker of Southern American English does not typically pronounce the [8] in [v8l] as a high-mid, fronted, lax and unrounded vowel (Shriberg & Kent, 1995), but rather centralizes the [8] to [1], which results in the name of the city being produced as [0kneks1v1l]. The [8l] sequence may even become syllabic [l1].

The orthographic transcriptions of tasks one and two were made, after which AppE tokens were extrapolated from the collection and phonetically transcribed. These transcribed words were then used to compare one speaker against another, across all three generations, under the first two (conversational) conditions for Research Question One. The rationale for using only the conversational tasks was that tasks three through five were intended to force production of SAE, forcing the speaker to produce speech in this manner, instead of AppE. This was thought to have been a confounding factor in analyzing the speech of the participants for the presence of AppE.

For Research Question Two, a second comparison was made across all five tasks for the purpose of determining the presence of style-shifting from very natural speech to very formal speech. Phonetic transcriptions of all five tasks were compared against each other by pairwise comparisons to determine the degree to which style-shifting occurred as the tasks became systematically more formal. Intra-speaker comparisons were then

possible by comparing the extent to which the speakers style-shifted. For example, a participant may speak of living "back in the hollow," pronouncing it as [hel5], and later read a passage with a reference to the "hollow," pronouncing the word as [helo] or [hel1], if the participant style-shifted.

Reliability

Inter- and intra-judge reliability were addressed by the re-classification and re-transcription of six of the thirty speech samples. The samples were selected quasi-randomly with two of the ten participants chosen randomly from each of the three generations. For inter-judge reliability, a second individual (described below) experienced in phonetic transcription independently: (1) re-classified vowels as AppE or Southern American English; and (2) re-transcribed conversational samples from six participants. For intra-judge reliability, the principal investigator also re-classified the vowel targets as AppE or Southern American English, and then re-transcribed the same six randomly selected speech samples. The second judge was required to sign an agreement of confidentiality, for the protection of the participants (see Appendix F for Validator Agreement of Confidentiality).

Inter-Relibility Judge Training

A speech-language pathologist experienced in the transcription of normal and disordered speech was selected as the inter-reliability judge. This individual holds a Ph.D. in Speech Science, and has taught an undergraduate-level phonetics class at the University of Tennessee since 1996, using Shriberg and Kent (1982; 1995) as the primary

text. The PI ascertained in advance the potential for inter-judge agreement by providing training on the transcription of normal speech of AppE speakers, and analyzing trial data with the reliability judge.

Although the inter-reliability judge had resided in the Knoxville area for more than 16 years, she was not a native speaker of either AppE or SAE. Therefore, training and practice in hearing what constituted "standard" SAE was required. Pre-reliability training consisted of re-transcription of 24 words (containing at least three iterations each of the eight vowels) selected at random from each of three pilot subjects for a total of 72 words for re-transcription, as well as practice in listening and reproducing vowels produced by AppE speakers. She was trained by the PI to transcribe normal speech of the Appalachian dialect in the following manner. First, both the PI and the inter-reliability judge listened together to recordings of three speakers of Appalachian speech. These samples were independent of the experimental sample. Exemplars of the vowels under investigation were highlighted by the PI on the recordings, and described as to how they differed in production from SAE. The inter-reliability judge practiced producing the vowel herself, and then the word in each vowel example, in order to facilitate description and understanding of how these productions differed from SAE. This stage of training took place over two training sessions, approximately one week apart, with time for the inter-reliability judge to emerse herself in the dialect and to practice both producing and hearing the vowels under investigation. Only when the PI and the inter-judge achieved 90 percent agreement on accuracy of transcription of AppE tokens using the taping of the

Del Rio native from Hall's (1942) study reading "Arthur the Rat" did the process move to the next level.

Once the training was complete, the PI and the inter-reliability judge discussed and agreed upon a system of diacritics to be employed, following the protocol of Shriberg and Kent (1995). Using Shriberg and Kent's system for phonetic transcription, diacritics most closely aligned with the vowels produced by AppE speakers were selected and agreed upon by both judges. To identify the phonemic and/or allophonic content of the target words, suprasegmental as well segmental markings were included in transcription. Suprasegmental aspects addressed in the present study included stress patterning, and lengthening and/or shortening of the segmental characteristics within the word.

Inter-Reliability Judge Procedures

The PI provided the inter-reliability judge with orthographic transcriptions of the six randomly selected samples, for the purpose of listening and classifying the words as SAE or AppE. All tokens containing the vowels of interest were identified as potential targets prior to the first listening pass, for training purposes. The listening pass was then accomplished to identify the target words as either AppE or SAE on an unmarked worksheet. After a two-week break, the PI again provided the inter-reliability judge with orthographic transcriptions, together with worksheets containing the tokens of AppE words for phonetic re-transcription, using the agreement-level diacritics. These procedures were followed with all six of the random samples.

Inter-judge agreement of a mean of 85 percent or greater was considered acceptable for the purposes of this study. Should the criterion of a mean of 85 percent agreement on any given feature not have been reached, then the PI was to have reexamined those data, and reliability re-accomplished after a two-week hiatus. However, this was not the case.

Intra-Reliability Judge Measures

When reliability measures were initiated, both the word-classification reliability and re-transcriptions measures were accomplished concurrently by the PI, using the same protocols as those described above. The PI performed measures of intra-judge reliability on the same six speech samples selected for determining inter-judge reliability, using the agreement-level diacritics from the inter-judge procedures for phonetic re-transcription of the AppE tokens in the samples. As in the inter-judge reliability measures, the intra-judge agreement of a mean of 85 percent or greater was considered acceptable for the purposes of this study. Should the criterion of a mean of 85 percent agreement on any given feature not have been reached, then the PI was to have re-examined those data, and reliability re-accomplished after a two week hiatus. However, this was not the case.

Treatment of the Data

In the present study, all data analysis was performed with *SPSS 10.0* for Windows 98 (*SPSS*, 1999). Tests of distribution were conducted to determine whether the data were normally distributed, prior to performing repeated measures ANOVAs with three within-subjects factors: generation, condition, and vowel. The Kolmogorov-Smirnov

goodness-of-fit test was used to test the null hypothesis that the data were drawn from a normal distribution with mean equal to the sample mean and variance equal to the sample variance. All of the Kolmogorov-Smirnov statistics from the data were significant, $p < .05$, suggesting that null hypothesis was rejected, and the data were not normally distributed. Because the data were not normally distributed, as determined by the preliminary statistical measures, the data were ranked and a non-parametric repeated-measures ANOVA from the General Linear Model was performed on the ranked data (Conover & Iman, 1981).

Chapter III

Results

Reliability

Inter-judge Reliability

Reliability on assignment of vowels to SAE or AppE was calculated as percent agreement per total vowel tokens, or point-to-point agreement. For this reliability measure, all participant scores were equal to or above the acceptable level of .85, and averaged to .94 inter-judge agreement. For the six participants, the total number of tokens per each of the eight vowel targets, ranged from zero (for AppE productions of [9], [e]r], [ɚr], [o], [ɑ], and [1] in several individuals) to 1184 (total of AppE and SAE productions of [ɑ] in one member of the G1 cohort) per person in the two conversational tasks. For the reliability sample, the total number of vowel tokens was 7339. Across all 30 participants, the tokens per vowel also ranged from zero (for AppE productions of [9], [e]r], [ɚr], [o], [ɑ], and [1] in several individuals) to 1184 (total of AppE and SAE productions of [ɑ] in the same member of the G1 cohort as in the reliability sample). For the total sample, the total number of the eight vowel tokens from the two conversational samples was 33,617. For transcription reliability, all of the inter-sample reliability scores for re-transcription were above the level of acceptance, or .85, with overall agreement determined to be .92, as shown in Table 2.

Table 2

Summary of Inter-Judge Reliability for Selected Sample

Participant	Recount of Southern English vs. AppE	Retranscription of AppE
G1, Family 1	.94	.92
G1, Family 6	.94	.93
G2, Family 1	.94	.94
G2, Family 7	.93	.93
G3, Family 2	.95	. 89
G3, Family 10	.95	.90
Overall Agreement	.94	.92

Intra-judge Reliability

Intra-judge reliability for assignment to SAE vs. AppE was calculated as above. For this reliability measure, all participant scores were above the acceptable level of .85, and averaged to .96 intra-judge agreement for identification of target vowels.

Relative to transcription agreement, all of the intra-judge reliability scores were also above the level of acceptance, or .85, with overall agreement determined to be .97 for transcription of the target vowels. For a summary of intra-judge reliability scores, refer to Table 3.

Tests of Statistical Significance

Research Question One

The first research question investigated the difference of pronunciation of the eight selected vowels among speakers of AppE who are members of G1, the grandparent generation, G2, their children, and G3, their grandchildren within two conversational tasks, the "monitored conversation" and the "breathless narrative," with the Family being the experimental unit. Because the data were not normally distributed, the responses were ranked, and statistical operations performed on the ranks, as described below. To answer this research question, a non-parametric repeated measures ANOVA with three within-subject factors: generation, vowel, and condition was performed using the ranked data to compare the means of the ranks among the three generations, using the three

Table 3

Summary of Intra-Judge Reliability for Selected Sample

Participant	Recount of Southern English vs. AppE	Retranscription of AppE
G1, Family 1	.95	.96
G1, Family 6	.96	.99
G2, Family 1	.98	1.00
G2, Family 7	.96	.93
G3, Family 2	.93	.93
G3, Family 10	.98	.99
Overall Agreement	.96	.97

within-subject factors. The significance level was set at an alpha level of .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 < .001]; and likewise for vowel [F (5.629, 50.664) = 16.432, p < .001], as shown in Table 4. 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 < .02]; but not between generation and condition, or condition and vowel, as shown in Table 4.

Pairwise comparisons among the Estimated Marginal Means (EMM) were used to test whether the effect of the interaction between generation by vowel could be demonstrated to be significant among the generational groups. The measure to be analyzed was the rank of the response reflecting the percent of AppE versus SAE used by the speaker, within family. The range of the ranks was between 1 and 48 (three generations x eight vowels x two conditions, totaling 48 observations). These data were ranked within variable, the Family being the unit of measure. This produced 10 variables (the families) and 48 observations. The plots of the mean ranks for each vowel were in the 10-48 range, given that the raw data (the ranks) ranged from 1 to 48.

After generating the ranked data, the means of the ranks were calculated, and compared between generations. The results were reported as pairwise comparisons among EMM, as each generation was compared to every other generation. The Sidak adjustment was added to the significance levels used in post hoc tests and in constructing

Table 4

Summary of Analysis of Variance for Significant Differences Between Generation (G1, G2, and G3), Condition (Breathless Narrative and Monitored Conversation), and Eight Vowels

Source	Type III Sum of Squares	df	M Square	F-Value
Generation	123112.909	1.522	8092.173	24.907*
Error(Generation)	4449.122	13.694	324.890	
Condition	75.208	1.000	75.208	1.296
Error(Condition)	522.208	9.000	58.023	
Vowel	19312.225	5.629	3430.623	16.432*
Error(Vowel)	10577.275	50.664	208.772	
Generation*Condition	12.857	2.000	64.29	.077
Error(Gen*Cond)	1495.757	18.000	83.098	
Condition*Vowel	992.367	5.766	172.096	1.408
Error(Cond*Vowel)	6343.550	51.897	122.233	

Table 4 (cont'd)

Summary of Analysis of Variance for Significant Differences Between Generation (G1, G2, and G3), Condition (Breathless Narrative and Monitored Conversation), and Eight Vowels

Source	Type III Sum of Squares	df	M Square	F-Value
Generation*Vowel	4652.991	6.467	719.510	2.822*
Error(Gen*Vowel)	14837.978	58.202	254.939	
Gen*Cond*Vowel	845.493	8.606	98.243	.740
Error (Gen*Cond *Vowel)	10287.059	77.455	132.813	

Note: F-Value computed using the Huynh-Feldt Statistic

* $p < .05$

the confidence intervals used in calculating the observed power for the test (*SPSS*, 1999). The EMM of the ranked data for G1 was compared with G2 and G3, respectively; and G2 with G3.

G1 and G3 were shown to demonstrate the greatest number of significantly different pairwise comparisons ($p < .05$), as shown in Table 5. There were only a few significantly different pairwise comparisons between G1 and G2, and none between G2 and G3. It is important to note that the differences observed between the generations were vowel-specific, and these differences cannot be generalized across the population, or across all vowels. Thus, the differences will be discussed by individual vowel, reporting pairwise comparisons for G1, G2, and G3, respectively. Figure 1 displays the composite generational profile of the plotted EMM, reflecting differences by vowel between G1, G2, and G3.

Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G1 and G3

As shown in Table 5, five of the eight vowels were statistically significant for change from AppE to Southern American English between G1 and G3 ($p < .05$). These were the three rhotacized vowels, [e]r], [ɜr], [2r], along with [ɜ], and [1]. The rhotacized vowels occurred more often as AppE productions in G1 than in any other cohort; and for G3, [e]r] and [ɜr] showed the greatest overall pattern of significant declines.

Table 5

Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G1 and G3

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
[ɐr]	41.0	23.7	17.2*	2.478
[ɜr]	41.4	37.0	4.4*	.966
final [o]	29.0	16.5	12.5	6.256
[ɐ]	27.6	20.2	7.4*	1.708
[ɑ]	21.9	17.7	4.2	1.567
final [ɪ]	26.1	10.5	15.6*	4.098

n = 20 (10 per group)

Note: * - p < .05

** - Entries are Estimated Marginal Means (EMM) of the Ranks

a. Adjustment for multiple comparisons: Sidak

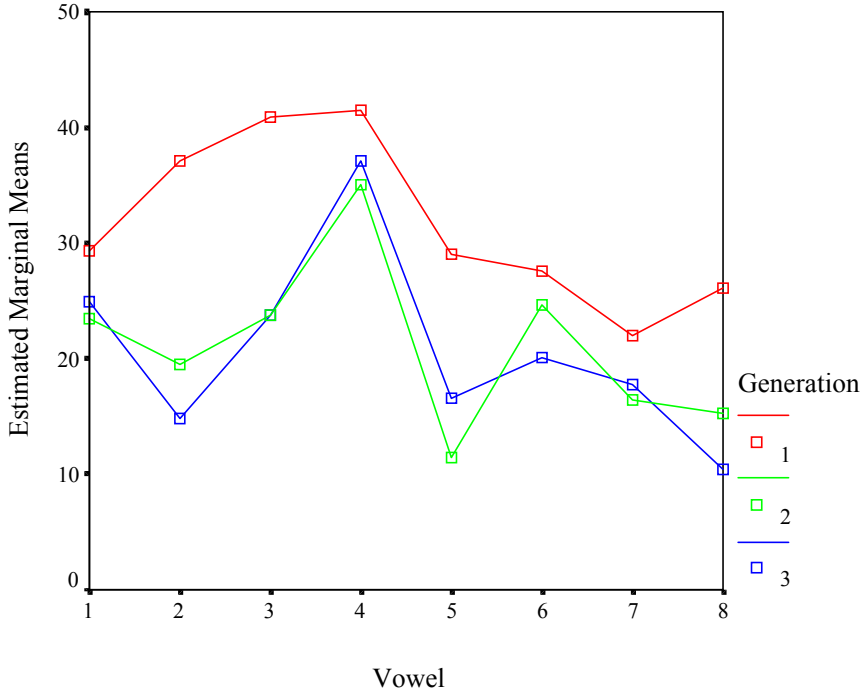


Figure 1. Generational Profile of Eight Appalachian English Vowels for Three Generations of Speakers of Appalachian English

n = 10 speakers per generation

Legend: Vowel 1 = [9]] Vowel 5 = final, unstressed [o]

Vowel 2 = [e]r] Vowel 6 = [8]

Vowel 3 =[8r] Vowel 7 = [q]

Vowel 4 = [2r] Vowel 8 = [1]

The vowel with the greatest frequency of AppE usage observed for G1 was [2r], with an Estimated Marginal Mean (EMM) for the ranked data of 41.4. The G3 cohort retained this vowel form as AppE more than any other vowel (EMM = 37.0). Pairwise comparison of the two cohorts showed a significant mean difference of 4.4 ($p < .05$, SE = .966).

The second highest incidence of AppE production of any vowel was observed in the ranked data for [8r] as used by G1 (EMM = 41.0). AppE production of this vowel was observed in the ranked data for G3 less frequently, as reflected in the ranked data (EMM = 23.7). Pairwise comparison of the ranked data for the two cohorts showed a significant mean difference of 17.2 ($p < .05$, SE = 2.478).

The third highest incidence of AppE usage of any vowel observed in the ranked data was G1's production of [e]r] (EMM = 37.1). The second lowest incidence of AppE usage was observed in the ranked data for G3's production of the same vowel (EMM = 14.8). Pairwise comparison of the two cohorts showed a significant mean difference of 22.3 ($p < .05$, SE = 3.639).

A significant difference in the ranked means for the vowel [8] was shown between G1 and G3. For G1, [8] was one of the least frequently occurring vowels in its AppE form, as shown in the ranked data (EMM = 27.6). However, it occurred even less often in G3 (EMM = 20.2). The pairwise comparison of the two groups showed that a difference between the two cohorts was significant ($p < .05$, SE = 1.708).

A significant difference in the EMM for AppE usage of the vowel [1] also appeared between G1 and G3. For G1, [1] was one of the least frequently occurring vowels in AppE form, as shown in the ranked data (EMM = 26.1). However, the occurrence of this vowel in G3 was extremely rare (EMM = 10.5). The difference between the two groups was significant ($p < .05$, SE = 4.098). The remaining three vowels [9]], final unstressed [o], and [q] were not significantly different between G1 and G3. One of the non-significant vowels, final unstressed [o], showed a relatively high standard error, which may be a reflection of the wide range of variability in the usage of this form across speakers and generations.

Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G1 and G2

Findings for the G1-G2 pairwise comparisons are shown in Table 6. Three of the eight vowels were found to be statistically significant for change from AppE to Southern American English between G1 and G2 ($p < .05$). As noted previously, two of these vowels were also found to be significant for G1 and G3: [ɚ] and [2r]. The third significant difference between G1 and G2 was for final, unstressed [o].

The highest incidence of AppE usage observed in G1 was for the vowel [2r] with an EMM of the ranked data of 41.4. The G2 cohort retained this vowel form as AppE more than any other vowel (EMM = 35.0). Pairwise comparison of the two cohorts revealed that G1 and G2 showed a significant mean difference of 6.4 ($p < .05$, SE = 2.013).

Table 6

Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G1 and G2

Vowel	G1**	G2**	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: * - $p < .05$

** - Entries are Estimated Marginal Means (EMM) of the Ranks

a. Adjustment for multiple comparisons: Sidak

In contrast with usage of the AppE form of [ɜr] as used by G1 (EMM = 41.0), this vowel was observed in the ranked data for G2 to have occurred only moderately, as reflected in the ranked data (EMM = 23.8). Pairwise comparison of the ranked data for the two groups showed a significant mean difference of 17.2 ($p < .05$, SE = 2.567).

One of the AppE vowels of less frequent occurrence in G2 was the final, unstressed [o]. In the G1 cohort, this vowel was one of the vowels produced in the manner of AppE relatively frequently (EMM = 29.0). For the G2 cohort, the final, unstressed [o] occurred only rarely (EMM = 11.5). The pairwise comparison of the two groups, G1 and G2 showed a mean significant difference of 17.5 ($p < .05$, SE = 4.610). Five of the vowels were shown by the data to be non-significant: [9]], [e]r], [ɜ], [q], and [1].

Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G2 and G3

For a summary of the G2-G3 pairwise comparisons, refer to Table 7. The data show that there were no significant differences between G2 and G3 on production of any of the eight vowels. A visual inspection of Figure 1 shows a similar profile for G2 and G3.

Summary of Research Question One

Analysis revealed a significant two-way interaction between generation and vowel ($p < .05$). This suggested a correspondence between group membership (G1, G2, or G3) and the degree to which AppE vowel production was retained or abandoned for the

Table 7

Pairwise Comparisons for AppE Vowel Frequency of Occurrence for G2 and G3

Vowel	G2**	G3**	M Difference	Std. Error (SE)
[9]]	23.5	24.9	1.5	3.405
[e]r]	19.5	14.8	4.8	5.374
[ɐr]	23.8	23.7	2.5	3.371
[2r]	35.0	37.0	2.0	2.387
final [o]	11.5	16.5	5.1	2.855
[ɐ]	24.7	20.2	4.5	2.042
[q]	16.4	17.7	1.4	1.840
final [1]	15.2	10.5	4.8	3.936

n = 20 (10 per group)

Note: * - $p < .05$

** - Entries are Estimated Marginal Means (EMM) of the Ranks

a. Adjustment for multiple comparisons: Sidak

vowels under investigation. Significant differences were found by pairwise comparisons of the EMM between G1 and G3 ($p < .05$) for five of the eight vowels: [e]r], [ɚ], [ɜr], [ɚ], and [ɪ]. Likewise, pairwise comparisons were significantly different between G1 and G2 ($p < .05$) for three of the vowels: [ɚ], [ɜr], and [o]. However, no significant differences were shown to exist between G2 and G3. The profiles of the three generations illustrate these differences graphically, as was seen in Figure 1, and clearly show similar profiles for G2 and G3, as well as a dissimilar profile between G1 and the younger generations.

Research Question Two

The second research question investigated the within-speaker difference among speakers of AppE who are members of G1, G2, and G3 respectively, in the degree to which they engaged in style-shifting as the speech task became progressively more formal across each of five conditions, and presumably more susceptible to self-monitoring. To answer this question, a non-parametric repeated measures ANOVA with three within-subject factors: generation, vowel, and condition was used to determine the correspondence between group membership (G1, G2, or G3) and the amount of style-shifting that occurs across multiple tasks (see Table 8). The significance level was set at an alpha level of .05. Analysis of the results using the Huynh-Feldt statistic of within-participants effects indicated significant main effects for generation [F (1.394, 12.548) = 12.370, $p < .002$]; condition [F (2.722, 24.499) = 5.029, $p < .009$]; and vowel,

Table 8

Summary of Analysis of Variance for Significant Differences Among Three Generations (G1, G2, and G3), Five Conditions (Breathless Narrative, Monitored Conversation, Passage Readings, Sentence Completion, and Minimal Word Pairs), and Eight Vowels

Source	S.S.	df	M Square Error	F-Value *
Generation	126029.299	1.394	90397.230	12.370 *
Error(Gen)	91692.439	12.548	7307.597	
Condition	23973.733	2.722	8806.941	5.029 *
Error(Cond)	42905.329	24.499	1751.290	
Vowel	231174.553	5.674	40742.702	38.576 *
Error(Vowel)	53922.680	51.066	1056.154	
Gen * Cond	14657.830	6.427	2280.659	2.559 *
Error(Gen*Cond)	51560.995	57.843	891.393	
Generation * Vowel	35651.638	9.832	3625.962	3.590 *
Error(Gen*Vowel)	89385.291	88.491	1010.107	
Condition * Vowel	181195.330	20.424	8871.798	12.473 *

Table 8 (cont'd)

Summary of Analysis of Variance for Significant Differences Among Three Generations (G1, G2, and G3), Five Conditions (Breathless Narrative, Monitored Conversation, Passage Readings, Sentence Completion, and Minimal Word Pairs), and Eight Vowels

Source	S.S.	df	M Square Error	F-Value *
Error(Cond*Vowel)	130746.041	183.814	711.297	
Generation*Condition * Vowel	47689.516	37.460	1273.068	1.964 *
Error(Gen*Cond *Vowel)	218578.325	337.143	648.326	

Note: F-Value computed using the Huynh-Feldt Statistic

* - $p < .05$

[F (5.674, 51.066) = 38.576, p < .001]. Also, significant interactions were found for generation by condition [F (6.427, 57.843) = 2.559, p < .026]; generation by vowel [F (9.832, 88.491) = 3.590, p < .001]; and condition by vowel [F (20.424, 183.814) = 12.473, p < 001]. A significant three-way interaction was found among generation by condition by vowel [F (37.460, 337.143) = 1.964, p < .001].

In the presence of a significant three-way interaction, the statistically significant main effects for generation, vowel, or condition alone, as well as the two-way interactions, cannot be generalized across generations. The significant three-way interaction, requires that the statistically significant findings must be addressed only per individual vowel for differences between the ranked means for pairwise tasks. Pairwise comparisons among the Estimated Marginal Means (EMM) described below were used to test whether the effect of the interaction among generation by vowel by condition was significant among the generational groups. This reflects the amount of style shifting that occurred in each of the generational cohorts.

The measure to be analyzed was the rank of the response reflecting the percent of AppE versus SAE used by the speaker, within family. The range of the ranks was between 1 and 120 (three generations x eight vowels x five conditions, totaling 120 observations). These data were ranked within variable, the Family being the unit of measure. This produced 10 variables (the families) and 120 observations. The plots of the

mean ranks for each vowel were in the 20-120 range, given that the raw data (the ranks) ranged from 1 to 120.

As with the first research question, after generating the ranked data, the means of the ranks were calculated, and compared across the five tasks. The results were reported as pairwise comparisons among EMM, as each task was compared to every other task, constituting pairs of tasks. The Sidak adjustment was added to the significance levels used in post hoc tests and in constructing the confidence intervals used in calculating the observed power for the test (*SPSS*, 1999). The tasks were ordered such that the pairwise task differences were expected to be positive; that is, shifting from AppE to SAE. Cases where the ordered differences were negative are referred to as "reversals;" that is, the shifting was back toward AppE dialect instead of away from it. Residual plots were constructed to produce graphic displays of the amount of style-shifting, per vowel. The higher plotted values on the y-axis reflected the greater the amount of AppE in use within a given generation. The five tasks were plotted on the x-axis, to enable the reader to see the degree to which style-shifting occurred.

Examination of the mean differences between the means of the ranks for paired tasks revealed that five of the eight vowels contained significant differences within generation, across the five tasks. Two of these vowels, [ɜr] and [ɔr], showed shifts toward SAE across all three generations. One vowel, [ɛ], showed reversals in the direction of more AppE, but for G2 and G3 only. The remaining two vowels with significant

differences, [e]r] and [q], showed shifting in both directions. Figure 2 represents a compilation of the residual plots for each of the eight vowels under investigation. Visual inspection of the profiles plotted in Figure 2 for these five vowels suggest that style-shifting does occur as the task becomes more formalized, but that these differences were scattered for the three generations of AppE speakers with regard to how much style-shifting occurred within the groups, and in which direction. This means that for each vowel the number of pairwise comparisons that were significant for each generation differed; however, G1 showed significant amounts of style-shifting toward SAE, but the other two generations did not. Pairwise comparisons Pairwise comparisons for the vowels that showed no statistically significant differences, are found in Tables 14 through 16 in Appendix G. These vowels include [9]], final unstressed [o], and final unstressed [1].

Vowels With Significant Mean Differences for Style-Shifting

Vowel Two: [e]r], as in “fire” or [fe]r] (Figure 2-B)

For G1 and G3 alike, pairwise comparisons of the Estimated Marginal Means (EMM) of the five experimental tasks revealed a significant difference between only one pair of tasks. For G1, tasks two (monitored conversation) and five (minimal word pairs) showed a mean difference that was statistically significant. The mean difference was 52.0

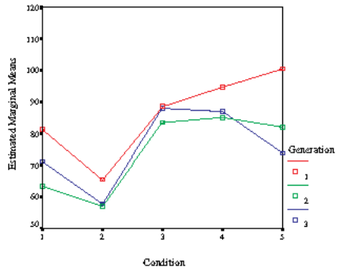


Figure 2-A
Pairwise Comparisons of /ɔ/

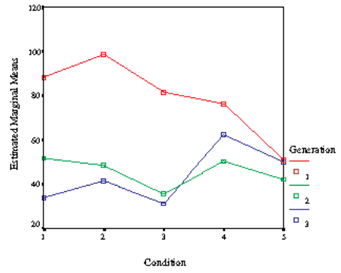


Figure 2-B
Pairwise Comparisons of /ɔ͡ɪr/

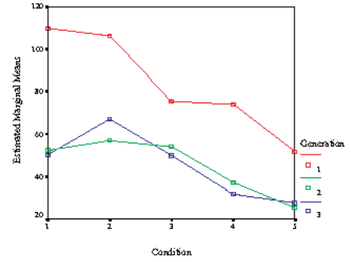


Figure 2-C
Pairwise Comparisons of /ɪr/

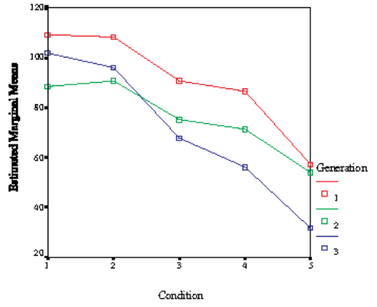


Figure 2-D
Pairwise Comparisons of /ɛr/

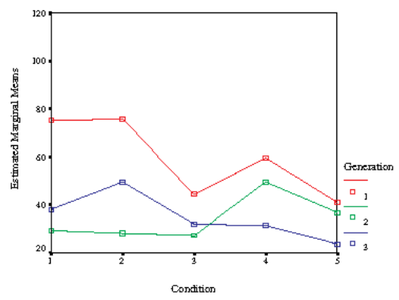


Figure 2-E
Pairwise Comparisons of /ɑ/

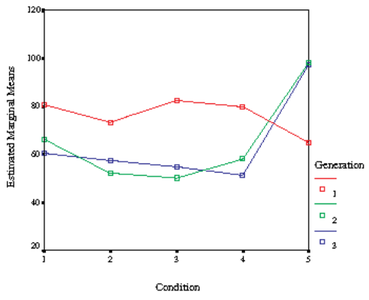


Figure 2-F
Pairwise Comparisons of /ɑ/

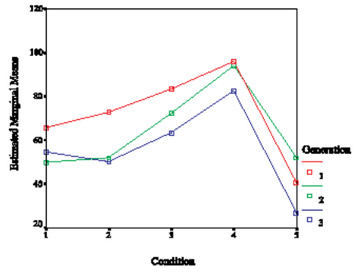


Figure 2-G
Pairwise Comparisons of /æ/

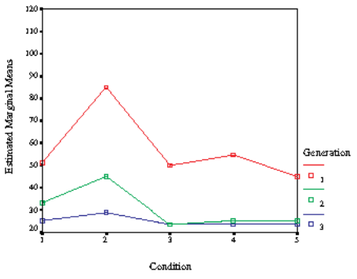


Figure 2-H
Pairwise Comparisons of /ɜ/

Legend: Condition

Task 1 = Breathless Narrative Task 2 = Monitored Conversation
Task 3 = Reading Task Task 4 = Sentence Construction
Task 5 = Minimal Word Pairs

Figure 2

Composite of Vowel Profiles of Plotted EMM Ranks Indicating Style-Shifting for Three Generations of Speakers of Appalachian English

(SE = 10.397). For G3, tasks three (passage readings) and four (sentence completion) exhibited a mean difference that was significant. But, the mean difference was -32.2 (SE = 8.643), which indicated a shift back toward AppE. All other pairwise comparisons for G1 and G3, as well as all comparisons for G2, were shown to be non-significant. These data, together with a visual inspection of Figure 2-B suggest that, for the vowel [e]r], the presence of style-shifting in the direction of SAE may be greater for G1 than for G2 or G3, both of which showed minimal shifting across all five experimental tasks.

Vowel Three: [ɜr] as in "hear" or [hɜr] (Figure 2-C)

For G1, pairwise comparisons of the EMM of the five experimental tasks for G1 revealed significant differences between six of the pairs of tasks. As shown in Table 9, pairwise comparisons for the remaining two generations, G2 and G3 demonstrated significance for two pairs and one pair, respectively. As with [e]r], these data and a visual inspection of Figure 2-C suggested that the presence of style-shifting toward SAE for G1 may be greater for this vowel than for either of the other two generational groups, both of which showed only minimal variation across all five experimental tasks for this vowel. G1 appeared to style-shift toward SAE more than each of the other two generational groups, as demonstrated by the rate of decline of the plotted EMM. All three groups showed style-shifting toward SAE across all five tasks, as the tasks became more formalized.

Table 9

Summary of Significant Pairwise Comparisons for [ɚ] Across Five Tasks Among Three Generations of AppE Speakers

Generation	Tasks		M Difference	S.E.
1	1	3	33.7 *	8.582
	1	4	33.7 *	7.845
	1	5	55.7 *	8.134
	2	3	30.0 *	7.524
	2	4	30.0 *	6.791
	2	5	52.0 *	8.346
2	1	5	29.4 *	7.686
	2	5	34.1 *	6.615
3	2	5	40.3 *	9.869

Note: * - $p < .05$

Vowel Four: [2r] as in “bear” or [b2r] (Figure 2-D)

For G1, pairwise comparisons of the EMM for the five experimental tasks revealed statistically significant differences for two pairs of tasks, compared with one pair of tasks for G2 and six pairs of tasks for G3, as shown in Table 10. A visual inspection of the data in Figure 2-D also suggested that G3 engaged in style-shifting toward SAE to a greater degree than the other two groups, as demonstrated by what appeared to be a steeper slope in the plotted EMM; however, all three groups engaged in style-shifting across all five tasks to some degree, as the tasks became more formalized.

Vowel Six: [8], as in “fish” or [f8c] (Figure 2-F)

Pairwise comparisons of the EMM of the five experimental tasks for all three groups revealed no significant difference among tasks for G1, compared with four pairs of tasks each for G2 and G3, respectively, as shown in Table 11. A visual inspection of Figure 2-F suggested that G1 showed minimal change across all five tasks. G2 and G3 showed a marked reversal for four pairs each, indicating greater AppE usage for task five for the vowel [8]. This artifact may have been due to phonetic context in the stimulus words contained in the minimal word pairs task and will be addressed in greater detail later.

Vowel Seven: [q], as in “apple” or [0q1pl] (Figure 2-G)

Pairwise comparisons of the EMM of the five experimental tasks for G1 revealed significant differences among five tasks, compared with four for G2 and six for G3.

Table 10

Summary of Significant Pairwise Comparisons for [2r] Across Five Tasks Among Three Generations of AppE Speakers

Generation	Tasks		M Difference	S.E.
1	1	5	50.4 *	8.981
	2	5	49.7 *	8.712
2	2	5	37.1 *	7.397
3	1	3	33.1 *	8.202
	1	4	45.0 *	8.894
	1	5	68.8 *	4.413
	2	4	39.4 *	8.912
	2	5	63.3 *	4.351
	3	5	35.8 *	8.133

Note: * = $p < .05$

Table 11

Summary of Significant Pairwise Comparisons for [ɐ] Across Five Tasks Among Three Generations of AppE Speakers

Generation	Tasks		M Difference	S.E.
2	1	5	-38.8*	4.373
	2	5	-42.9*	5.053
	3	5	-47.2*	9.574
	4	5	-39.0*	9.637
3	1	5	-48.2 *	6.506
	2	5	-50.2 *	5.921
	3	5	-40.9 *	8.563
	4	5	-43.4 *	6.467

Note: * = $p < .05$

A reversal of the curve toward more AppE was found between tasks one, two, three (conversational tasks and reading task), and task four, for all three generations, followed by a sharp declination in the direction of SAE between tasks four and five, the sentence-completion task and the minimal word pairs task (see Table 12). As with [8], this artifact may have been due to phonetic context in stimulus word selection in the sentence-completion task. The possible reasons for this reversal will be addressed later.

Vowels Demonstrating No Significant Differences

Vowel One: [9], as in "boil" or [b9l] (Figure 2-A)

The EMM for the ranked data for [9] were shown to be non-significant for each of the three generations, when pairwise comparisons were made across the five tasks, as shown in Table 14 in Appendix G. The EMM for the vowel productions tracked across the tasks showed minimal change for all three generations of AppE speakers. A visual inspection of Figure 2-A did suggest trends in style-shifting across all three generations: (1) between tasks one and two (breathless narrative and monitored conversation), a drop in the ranks of the EMM, which reflected a shift toward the SAE form of this vowel; and (2) between tasks two and three (monitored conversation and the reading task), a rise in the use of AppE form, as reflected by the increase in the ranked EMM. This, together with the absence of any significant differences among the generations suggests that there are no generational differences in style-shifting for this vowel.

Table 12

Summary of Significant Pairwise Comparisons for [ɑ] Across Five Tasks Among Three Generations of AppE Speakers

Generation	Tasks		M Difference	S.E.
1	3	5	41.0 *	8.421
	1	4	-45.1 *	10.941
	2	4	-40.4 *	10.134
	3	4	-12.1 *	1.925
	4	5	53.1 *	9.074
2	2	3	-31.3 *	7.775
	1	4	-53.2 *	8.071
	2	4	-42.2 *	5.465
	4	5	40.1 *	10.047
3	1	4	-37.5 *	8.776
	2	4	-37.3 *	8.829
	1	5	18.4 *	4.438
	2	5	18.6 *	4.629

Table 12 (cont'd)

Summary of Significant Pairwise Comparisons for [ɑ] Across Five Tasks Among Three Generations of AppE Speakers

Generation	Tasks		M Difference	S.E.
	3	5	37.8 *	8.346
	4	5	55.9 *	8.790

Note: * = $p < .05$

Vowel Five: final, unstressed [o], as in “tobacco” or [/t1ˈbɑqˌko] (Figure 2-E)

The (EMM) for the ranked data for [o] were shown to be statistically non-significant, when pairwise comparisons were made across the five tasks for each of the three generations, as shown in Table 15 in Appendix G. A visual inspection of Figure 2-E suggested the presence of style-shifting differences between G1 and both G2 and G3, respectively. Though determined by pairwise comparisons for G1 to be non-significant, the direction of slope from the conversational tasks (tasks one and two) to the investigator-constructed tasks (tasks three through five) suggested that more style-shifting occurred in this group than in either of the remaining two groups. The EMM plotted for the vowel production tracked across the tasks showed minimal variation for the remaining two generations of AppE speakers, G2 and G3. Nevertheless, the absence of any significant differences among the generations suggests that there are no real changes in style-shifting for the vowel [o].

Vowel Eight: final, unstressed [1], as in “soda” or [sod1] (Figure 2-H)

The EMM for the ranked data for [1] were shown to be statistically non-significant, when pairwise comparisons were made across the five tasks for each of the three generations, as shown in Table 16 in Appendix G. This suggested that minimal style-shifting occurred across tasks for all three generations. A visual inspection of Figure 2-H suggested the presence of certain style-shifting differences between G1 and both G2 and G3, respectively. Though determined to be statistically non-significant, the general

downward direction of slope in the direction of SAE from task two through the remaining tasks for G1 suggested that an overall pattern of more style-shifting occurred in this group than in either of the remaining two groups for the vowel [1].

Summary of Research Question Two

A non-parametric repeated measures ANOVA with three within-subject factors: generation, vowel, and condition indicated that main effects existed for all three within-subject factors; however the analysis of the data further revealed a significant three-way interaction among generation, condition, and vowel ($p < .05$). The profiles of the eight vowels illustrated the differences in pairwise comparisons graphically, as was seen in Figure 2. Overall, 11 of the 14 significant pairwise comparisons for G1 were in the direction of SAE; for G2, four of the 11 significant pairwise comparisons were in the direction of SAE; and for G3, 11 of the 18 significant pairwise comparisons were in the direction of SAE. Table 13 provides a summary of the significant pairwise comparisons within and across each generation.

Although the interaction effect in the ANOVA analysis did not permit analysis of the style-shifting trends, some analysis of this issue is possible. Despite the fact that the bulk of the pairwise comparisons were not significant, a Sign test showed a significant trend to shift toward SAE for G1, as the tasks became more formal ($p < .05$). The trends

Table 13.

Summary of the Style-Shifting Trends Across Generations Indicating the Direction of Shift Toward Either SAE or AppE*.

Vowel	G1	G2	G3
[e]r]	1 (SAE)	0	1 (AppE)
[ɛr]	6 (SAE)	2 (SAE)	1 (SAE)
[ɜr]	2 (SAE)	1 (SAE)	6 (SAE)
[ɛ]	0	4 (AppE)	4 (AppE)
[ɑ]	2 (SAE)	1 (SAE)	4 (SAE)
	3 (AppE)	3 (AppE)	2 (AppE)
Totals:			
SAE:	11**	4	11
AppE:	3	7	7

* cell entries equal number of significant comparisons

** $p < .05$

for G2 and G3 however, were not significant. Therefore, when dialect shifts occurred for G1, they were in the predicted direction.

Relative to specific vowels shown in Table 13, two vowels, [ɜr] and [ɔr] consistently showed shifts toward SAE. Two of the vowels, [eɪr] and [ɑ], showed shifting in both directions. And [ɜ] tended to shift back toward AppE.

Visual examination of the plots of EMM in Figure 2 showed that profiles of style shifting from AppE to Southern American English exist more for G1 than G2 and G3, for four of the eight vowels: [eɪr], [ɜr], [oʊ], and possibly [ɪ], compared with none for G2, and one, [ɔr], for G3. Two of the vowels, [ɑ] and [ɜ] visually demonstrated curve reversals in style-shifting back toward AppE, particularly for the younger two generations, for the sentence-completion task (task four) for [ɑ] and minimal word pairs task (task five) for [ɜ], respectively. The remaining vowel, [ɝ], showed a non-discernible pattern across the five tasks for G1; and a flattening of the curve indicating that consistently more SAE was observed for the investigator-constructed tasks for G2 and G3, respectively.

Chapter IV

Discussion

The primary purpose of this investigation was to determine whether change is occurring in the character 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 (Labov, 1981); and (2) a monitored conversation, in which the speaker was asked to describe his/her life, interests, or casual events of the past. A significant two-way interaction was found between generation and vowel, which overshadowed the significant main effects for generation and vowel. 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). Further, 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 (1998) highlighting the changes to other dialectal boundaries in the second half of the twentieth century (p. 118).

A second purpose of the study was to determine if one generation, if asked to perform multiple tasks of increasing formality, could be forced more than another generation to "style-shift" from very informal speech (which would contain more AppE vowel productions) to the very formal (which would contain fewer AppE productions and more Southern American English productions). To accomplish this goal, each speaker was asked to perform three additional tasks, an adaptation of Labov (1981) following the conversational tasks: reading of two passages; sentence completion; and production of minimal word pairs. A significant three-way interaction was found among generation, condition, and vowel. Pairwise comparisons of the tasks within generation, for each vowel suggested that, overall, G1 experienced significant style-shifting toward SAE not

seen in either of the other two generations. This finding also is demonstrated by examination of the plotted EMM in Figure 2.

Assimiliation of the Appalachian English Dialect into Southern American English

Research question one sought to determine whether there was a difference in the manner in which G1 speakers produced eight vowels versus their adult children (G2) or grandchildren (G3) under two conditions: breathless narrative and monitored conversation. These conversational samples were analyzed to determine the presence or absence of AppE productions of these vowels in the speech of three generations of native Appalachian speakers. The following discussion compares the significant differences, or lack thereof, among the three generations of Appalachian English speakers.

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: [ɔr], [eɪr], [ɑr], [ɑ] and [ɪ]. Three of the five vowels were the rhotacized vowels in the collection: [ɔr], [eɪr], and [ɑr]. AppE productions of these three rhotacized forms occurred more frequently in the G1 cohort than any other vowel form.

Vowel Four: [2r], as in "bear" or [b2r]

As shown in Figure 1, the vowel [2r] 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 [2r] in 85 percent (509/602) of total opportunities for this vowel. In contrast, G2 produced the AppE form of [2r] in 61 percent (352/575), and G3 in 69 percent (416/ 600) of total opportunities for this vowel. AppE productions of [2r] tended to be described as either [6] or [er]. There was only one word in which all three generations varied in their productions of [2r], 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 (1992) 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 [;2r], [er], [;er], [;0r], and [;6] for "there," often within the same participant. This phenomenon was clearly demonstrated in the

speech sample of a participant 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 (1975).

Vowel Two: [e]r], as in "fire" or [fe]r]

Very few of the two younger generation speakers used a retracted and lowered [e]r] (e.g., [er] 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 [ter] 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 (1975). In the former study, Hall (1942) observed that the pronunciations of [e]r] in many in his population were consistent with reduction of the diphthong to an [e]. This was clearly not the case with the G3 cohort in the present study, whose productions of this vowel were more fronted and tensed, as in [t0r] for "tire," which corresponded to the observations of Wolfram and Christian (1975). In sum, G1 produced the diphthong [e]r] with a retracted [e], whereas, G2 and G2 produced it with a more fronted [0].

Vowel Three: [8r], as in "here" or [h8r]

Only a few members of the G2 and G3 cohorts produced [8r] as [2r] or [y2r], 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 [h2r] or [hy2r] for "hear," can clearly be supported by Hall's observations (Hall, 1942, p. 41). This vowel form was not addressed in Wolfram and Christian (1975). G1 produced [8r], as in the word "hear" or [h8r] as [h2r] or [hy2r], 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: [8], as in "fish" or [f8c] and final [1] as in "soda" or [sod1]

The two remaining vowels from the present study which were found to be significantly different between G1 and G3 were [8] and final, unstressed [1]. Interestingly, these two vowels were reported by Hall (1942) and Wolfram and Christian (1975) to be replaced by a raised [8F], or more like [i]. The vowel [8] is produced as [8F] especially preceding [c] or [l]. In the present study, G1 produced [8] preceding [c] in this manner in five percent of their total opportunities for AppE production of this vowel; that is,

preceding [c] 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 [8F] in conversational tasks when in combination with [c], as in "fish." 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 [8] and [i] when they occur, especially when preceding [l], which they note is characteristic of SAE (Wolfram & 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 [8Fm], by raising and tensing the [8F] 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 in 1975.

In cases of the pronoun in unstressed position, a diphthongization of the vowel, such as [h8y^{1}m], did not occur. However, this phenomenon of diphthongization did occur with [h8m] in this present study, but only when the word was used for emphasis, " . . . and 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 [8]-[i] collapse currently underway in AppE, as described by Wolfram and Schilling-Estes (1998).

A significant difference was also found to exist between G1 and G3 for production of the AppE form of final, unstressed [1], in which the vowel is substituted with an [8F], as in [sod8F] 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 [1]. 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 [ɚ] and [ɝ] previously described. The third vowel found to distinguish G1 from G2 was final, unstressed [o]. The two rhotacized vowels, [ɚ] and [ɝ], and the [ɔ] 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 (Williams, 1992). In order to produce the AppE form of a rhotacized vowel, such as [ɝ], 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 [ɔ] 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 [ɔ] following stops and liquids in 41 percent and 32 percent, respectively, in all opportunities. G2 produced [o] as [ɔ] 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 [ɔ] 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 [/t1ˈbɑ/ko] for "tobacco." G1 most often substituted a [ɔ] for the final [o], pronouncing the word as [/t1ˈbɑ/kɔ]. The younger cohort produced the final, unstressed [o] as a [ɪ] almost exclusively, with an occasional exception when producing "hollow" as [ˈhe/lɔ]. This difference was also observed by Hall (1942), Wolfram and Christian (1975), and Williams (1992). 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 (Hall, 1942; Williams, 1992; Wolfram & Christian, 1975). 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 Vowel 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 (Hall, 1942; Wolfram & Christian, 1975).

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. Each of the two younger generations had, on average, at least some exposure to college work. Two participants in G2 completing some graduate work. The mean number of years in school for G2 was 14.1, and for G3, 13.4 years as reported anecdotally by the participants. This was compared to 7.5 years in school for G1. Other factors included age of the G2 and G3 participants, all of whom were born after 1940, which increased the possibility of early exposure of these participants to outside linguistic influences through the media, and through increased tourism to the region, in addition to expanded educational opportunities. For demographic details, see Appendix A. This explanation finds support in the work of Labov (1981), who found that education was a major factor in linguistic change in his 1966 study of the speech of residents of New York City.

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 & Schilling-Estes, 1998, p. 115).

Evans (2000) 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. This suggests that migration and subsequent contact with other dialects may have affected the speech of younger generations more than their elders. This may suggest a susceptibility in G2 and G3 to the influence of other dialects, reminiscent of "swamping" discussed by Wolfram and Schilling-Estes (1998). The oldest speakers studied by Evans might have been more resistant to change in their dialect, a possibility that may apply to the current study.

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 them moving out of the region to seek employment. One participant in G1 reported that her family spent the summers in southwestern Virginia when she was a child, for her father to perform seasonal work; however, this location was within the confines of the 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 sales representative for a pharmaceutical company, and her encounters with other dialects cannot go unnoticed. During these relatively short periods, all four 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.

Perhaps more influential than outward migration was the introduction of different dialects to the South, 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 the non-Southern speaker 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 many of the younger speakers, in many cases, could not be

distinguished from speakers of Southern American English for vowels such as final, unstressed [1] or [o], [ɚ], [e]r], and [q]. This is despite the suggestion that the AppE dialect has historically been viewed by native speakers as a source of cultural pride (Williams, 1992). The impact on the "endangered dialect," or post-insular dialects, (Wolfram, 1996) from outside influences cannot be minimized. 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 GAE.

Several related studies have recently come to light which corroborate the findings of the present study, and may help to explain the fading of this "endangered" dialect, Appalachian English. Other relic dialects, such as the English spoken on Ocracoke Island of North Carolina; and on Smith Island of Maryland; and speakers of "Gullah," a dialect of African-American English spoken on the Sea Islands of South Carolina, all bear some important similarities to the status of AppE: these are all "post-insular" dialects. That is, 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 (Wolfram & Schilling-Estes, 1998).

Schilling-Estes and Wolfram (1999) 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. For example, 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, [bu . 5hel5], as if she were going into performance mode. The PI concluded from this incident that the lexical choice of "Butcher Hollow," related in a popular song of the 1970's 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 pep].

Support for social stigma as a linguistic change-agent comes from a study by Wolfram and Schilling-Estes (1995) in which three generations of life-long residents of Ocracoke Island were interviewed and a phonological variable, the [9]] for "high" and "tide," produced as "hoi tide" or [h9] t9]d], was studied in depth. An important

finding of the Ocracoke Island study, pertaining to dialectal exaggeration which occurs as a result of the speaker's use of performance mode, was that linguistic features which carry symbolic meaning, or stereotypical significance, fade more rapidly in younger generations than those features that are culturally significant (Schilling-Estes, 1995; Wolfram & Shillings-Estes, 1998).

In the present study, the vowels which have changed the most over time, particularly among the youngest participants, could have been those which carry the least social significance (Wolfram & Schilling-Estes, 1998). These were the final unstressed vowels [o] and [1], and two of the three rhotacized vowels, [8r] and [e]r]. Both the PI and the Reliability Judge observed what appeared to be tongue retraction which seemed to have had the effect of 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 [2r], has been retained; whereas the [8r] and [e]r] 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 effects in vowels were observed in the [8] and [i] collapse preceding [l] and [c], and has been described by Wolfram and Schilling-Estes (1998). Though not termed a "collapse" in an earlier study by Wolfram and Christian (1975), the raising and tensing of this vowel was noted as most likely to occur when preceding [l] or [c] 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 [ɑ]. This AppE characteristic was observed to be more likely to occur preceding velar [g] and alveolar nasal [n], possibly due to anticipatory co-articulation for raising of the consonant. The vowel [ɑ] 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 [ɐ] 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. More study is needed to determine the precise extent of these phenomena in Appalachian dialect.

Another possible explanation for the fading of the dialect relates to a shift in cultural centers. During the twentieth century, the United States has shifted from a rural agrarian culture to an urban and suburban culture. This 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 raised 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 (Labov, 1991; Evans, 2000; Wolfram & Schilling-Estes, 1998).

The last important linguistic change-agent that may have had a bearing on the speakers of AppE (as well as other post-insular, or relic dialects) are the two main technological advances in transportation and communication, particularly telecommunication (Wolfram & Schilling-Estes, 1998). Not only is the speech of the Appalachian region a part of this phenomenon, with the creation of the Tennessee Valley Authority in the late 1930's, but it has likely affected the speech of residents of the North Carolina barrier islands, the Chesapeake Bay islands of Maryland, and the Sea Islands of South Carolina. All of the above mentioned regional dialects have been reported as being in decline in recent studies (Evans, 2000; Wolfram & Schilling-Estes, 1995; Wolfram & Schilling-Estes, 1998). 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.

Style-Shifting Among Speakers of AppE: Generational Differences

To answer the second research question, that style-shifting differences exist among three generations of native AppE speakers, the EMM of the ranked data were analyzed through pairwise comparisons between each of the five tasks, per vowel. This analysis was similar to that performed to answer Research Question One. The ranked data indicated the relative degree to which AppE manner of production of each of the eight

vowels was subject to style-shifting within each of the three generations, as the tasks became more formal.

These pairwise comparisons revealed that, for all three generations, five of the eight vowels had significant differences between the five tasks within groups in use of AppE productions vs. SAE productions of the eight vowels of interest: [e]r], [2r], [8r], [8], and [q]. These differences showed uneven patterns across the three generations. The latter of the three vowels, [q] and [8], actually showed reversals in style-shifting, back toward a more AppE manner of production to some extent for all three generations, a finding which showed statistical significance for G2 and G3, but not for G1 in the case of [8]. The issue of reversals will be discussed in the respective sections for each vowel. Some of the vowels were found to show non-significant differences, suggesting that these vowels were less sensitive to style-shifting than others of the collection, as was the case for [9]], [o], and [1]. The first of these, [9]] appeared to be relatively stable across all three generations. One reason for the lack of sensitivity to style-shifting in the latter two vowels produced by the younger cohorts may be due the "floor effect" or a tendency to use these AppE forms rarely, leaving little room for style shifting to occur.

When taken separately however, the vowels do show some trends generationally. When the plot is examined visually, these trends seem to support the second hypothesis that all speakers of AppE engage in some degree of style-shifting, as the tasks vary along a continuum of formality, from casual speech to the highly formalized speech of reading

lists of minimal pairs of words. The speech of G2 and G3 was hypothesized to demonstrate a lesser degree of style-shifting across tasks than G1. These trends will be highlighted to show that generational differences may indeed exist in style-shifting.

As the participants in the study responded to increasingly formal tasks, certain trends became apparent. Analysis of the style-shifting trends across all vowels did show a significant trend for G1, to more SAE. No such differences were observed for G2 or G3. This pattern is also borne out by visual inspections of Figures 2-B, 2-C, and 2-E. The curves for G1 tended to slope downward, taken visually from left to right, slightly more often than did the other two groups. The downward slope indicated less use of AppE forms, relative to SAE. One possible explanation for the steeper slope in G1 is that they used fewer SAE forms during conversational speech. The more shallow slopes seen in the younger two generations are due to the greater preponderance of SAE forms that already existed in the conversational speech of these two cohorts.

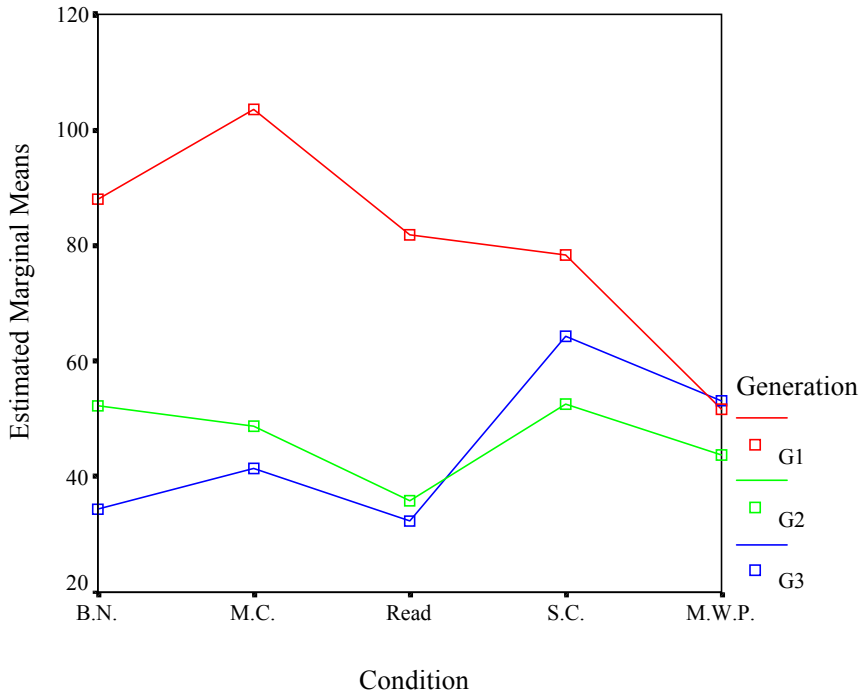
Figures 2-B, 2-C, and 2-E, the rhotacized vowels, [ɚ], [ɝ], and to a lesser extent, [e]r], show a more consistent pattern of decline in the use of AppE in G1 than the curves in G2 or G3. This suggested that the older generation moved away from their dialectal pattern of AppE, toward more SAE-like pronunciations somewhat more consistently than the younger two cohorts, for two of these vowels. And the previously discussed floor effects suggested that the younger generations had less room to shift as the tasks became more formal. In Figure 2-D, the vowel [ɝ] had a sharper rate of decline in G3 than either

of the other two cohorts. This decline suggests that, as the tasks become more formal, G3 produced this vowel using SAE more frequently than AppE. The three vowels are described below, relative to the significant differences shown to exist between tasks.

Vowels With Significant Mean Differences Across Tasks

Vowel Two: [e]r], as in "fire" or [fe]r]

When pairwise comparisons of the estimated marginal means (EMM) for the ranked data were performed, the only significant difference observed for relative degree of use of AppE form vs. SAE form of the vowels was between tasks two (the monitored conversation) and five (minimal word pairs), and only for G1 in the predicted direction. All other pairwise comparisons for this generation were statistically non-significant, as were all of the tasks for G2. G3 showed one significant pair, but it was in the direction of AppE. A visual inspection of the plotted EMM for all generations in Figure 3 clearly reveals a generally downward slope for G1, but not for the remaining two cohorts. The degree and direction of the slope clearly suggest that style-shifting toward SAE occurred for G1, but that little sloping was observable in either G2 or G3. This implies for G1 a clear tendency to style-shift toward SAE as the task becomes more formal. The less dramatic curves toward SAE observed in the plots for the G2 and G3 cohorts suggest that the AppE form, reflected in the retracted rhotacization of the vowel is used rarely, if at all by younger speakers. The observed reversal, or spike toward AppE by G2 and G3 in task



Legend:

B.N. = Breathless Narrative

M.C. = Monitored Conversation

Read = Passage Readings

S.C. = Sentence Completion

M.W.P. = Minimal Word Pairs

Figure 3.

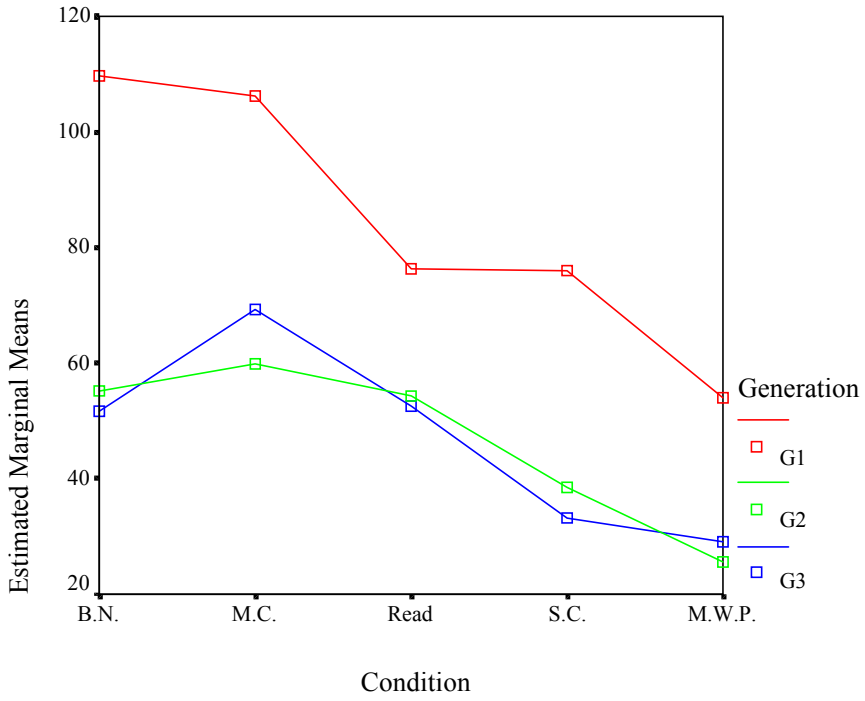
Plotted EMM of the Ranks of the Vowel [e]r]

four (sentence completion) appears to be an artifact which bears further investigation. The reversal may be due to an unanticipated familiarity with the words on the part of the participants, reminiscent of fossil forms used by second language learners (Acton, 1984). For sentence-completion 8 of the10 words were in sentence-final position, which also might explain the finding.

Vowel Three: [ɜr], as in "here" or [hɜr]

Group performance of [ɜr] is shown in Figure 4. Pairwise comparisons of the EMM for G1 between the five tasks showed significant differences between the conversational tasks (tasks one and two) and all of the remaining tasks, respectively. That is, task one (breathless narrative) was significantly different from tasks three (passage readings), four (sentence completion), and five (minimal word pairs). The same significant differences existed between task two (monitored conversation) and the remaining tasks. This finding suggests that as the task becomes more formal, G1 speakers used fewer AppE productions of the target vowels, compared to G2 and G3. It may be that, for the older speakers, this vowel may be more sensitive to style-shifting, particularly from conversational to constructed tasks. G2 and G3 were observed to use the SAE form of the vowel, indicating that little shifting was left to occur in their speech.

For both G2 and G3, the only significantly different pairwise comparison was between task two (monitored conversation) and task five (minimal word pairs). For these



Legend:

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M.C. = Monitored Conversation

Read = Passage Readings

S.C. = Sentence Completion

M.W.P. = Minimal Word Pairs

Figure 4.

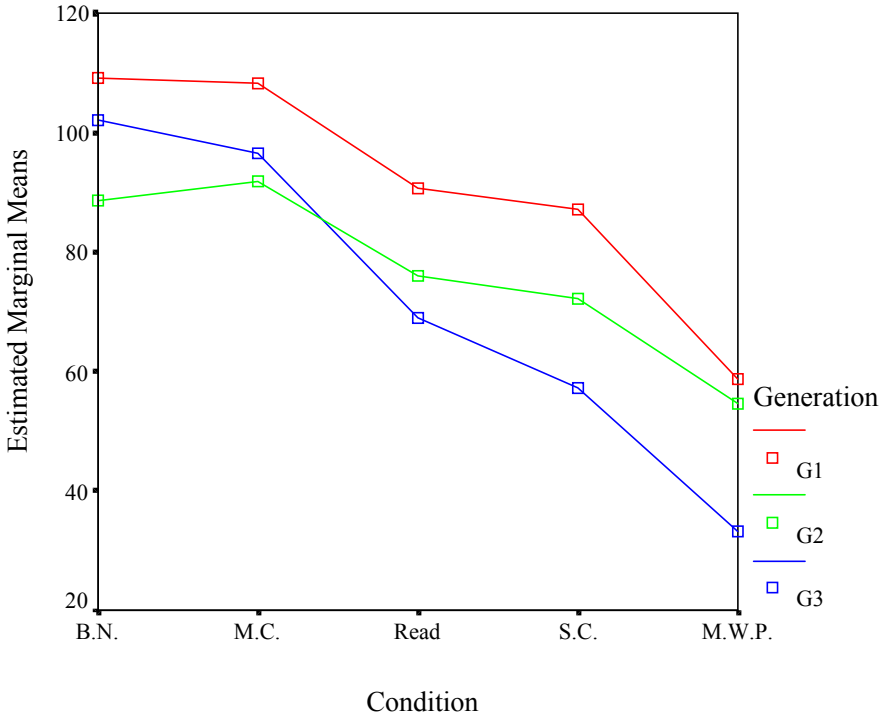
Plotted EMM of the Ranks of the Vowel [ɐr]

two generations, all of the remaining pairwise comparisons between tasks were non-significant. The lack of significant differences between the remaining tasks for G2 and G3, taken together with the preponderance of tasks reported as significant for G1, suggests that the presence of style-shifting for G1 is greater than for G2 and G3. As shown in Figure 4, G1 had a sharper angle of decline toward SAE than G2 and G3. The younger generations may have experienced a near-floor effect during task five.

In summary, for this vowel, G1 is exhibited more style shifting than either G2 or G3, as the tasks became more formal. The younger generations were limited in the amount of style shifting they could demonstrate due to a floor effect.

Vowel Four: [2r], as in "bear" or [b2r]

The pairwise comparisons of the EMM between tasks showed at least two or three significant differences between tasks for all three groups, which resulted in a clear indication of style-shifting in all three generations, as shown in Figure 5. For G1, a significant difference was found between tasks one (breathless narrative) and five (minimal word pairs), and tasks two (monitored conversation) and five. One pair of tasks was found to be significantly different for G2, tasks two and five. Six pairs of tasks were found to be significantly different for G3, with differences between tasks one and three (the reading task), four (sentence completion) and five; between tasks two and four, and two and five; and between tasks three and five. was more easily forced into a manner of



Legend:

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Read = Passage Readings

S.C. = Sentence Completion

M.W.P. = Minimal Word Pairs

Figure 5.

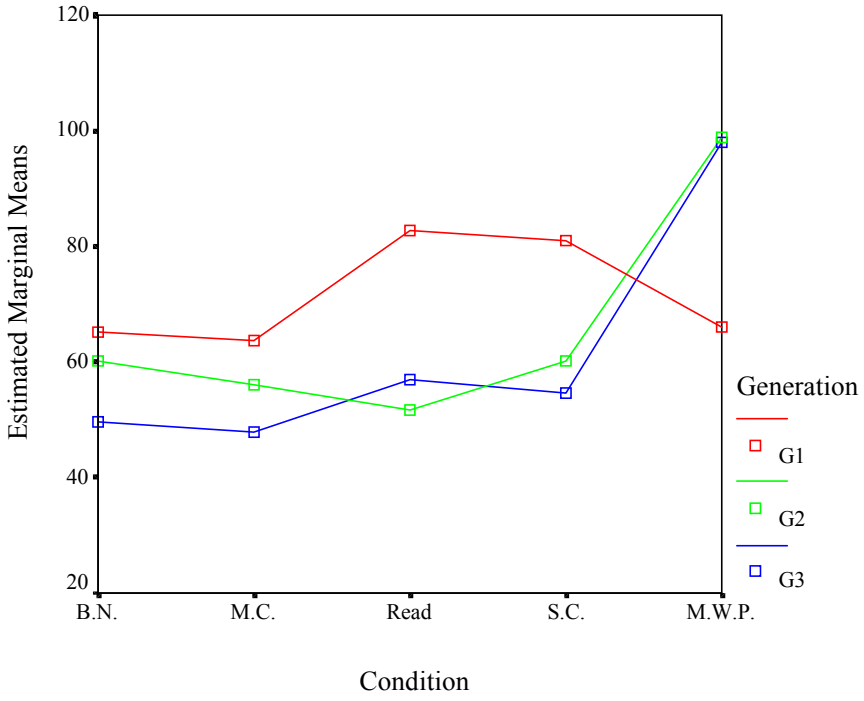
Plotted EMM of the Ranks of the Vowel [2r]

production closer to that of SAE than G1 or G2. This coupled with the number of significant pairwise comparisons for G3 suggests that this group was more susceptible than the remaining two cohorts to style-shifting for this vowel. The angle of declination of the slope formed by G3 across tasks, being visually observable to be more acute than either the G1 or G2 cohorts, suggested that this generation engaged in more style-shifting than the two cohorts for this particular vowel.

Vowel Six: [8], as in "fish" or [f8c]

Pairwise comparisons of the EMM for G1 showed no significant differences between any of the tasks, with regard to use of AppE vowel productions vs. SAE. Very little, if any, style-shifting was noted in the older generation, as demonstrated by the relatively flat curve of the G1 profile (see Figure 6). The PI observed in G1 an unusual pronunciation of the word "wish," which occasionally appeared in the speech of some of the elders as [w4c]. This was treated as an AppE production when it occurred.

As displayed in Figure 6, G2 and G3 showed reversals back toward the use of more AppE productions for task five. These reversals were verified by significantly different pairwise comparisons between several of the pairs of tasks (G2: three pairs; G3: four pairs). Because of the observation of Wolfram and Christian (1975), the PI concentrated on the relationship of [8] with the following consonants [c] and [l]. The most plausible explanation for this finding might be that task five was heavily loaded with words containing the target vowel and ending in [l]; whereas the other



Legend:

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M.W.P. = Minimal Word Pairs

Figure 6.

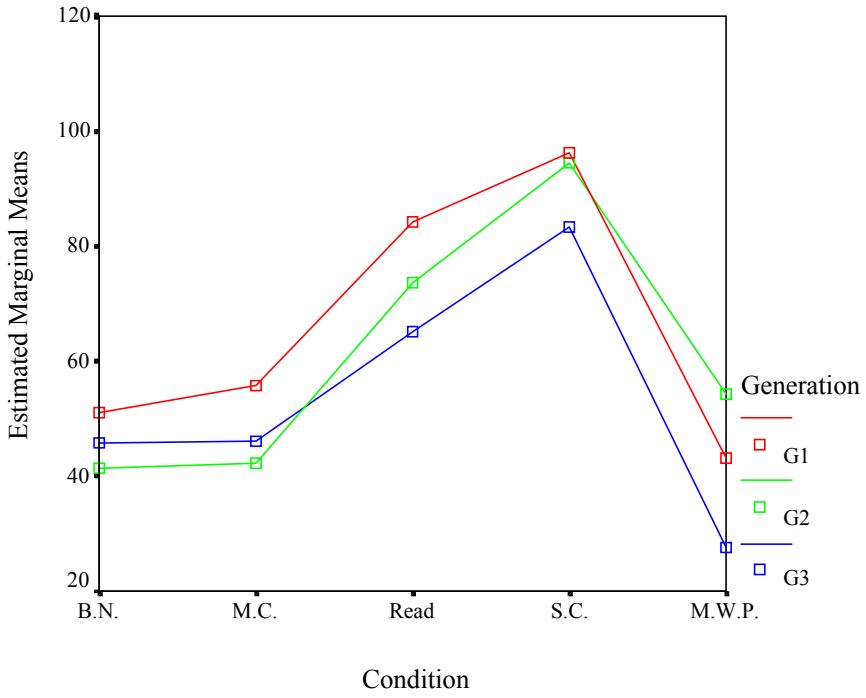
Plotted EMM of the Ranks of the Vowel [8]

investigator-constructed tasks (three and four) were more heavily loaded with words ending in [c]. This loading was unavoidable, as the PI sought to minimize the use of nonsense words. Where this was not possible in the minimal word pairs task, the PI elected to use the AppE pronunciation of the target word as the foil. Many speakers from all three generations were observed to use the raised manner of production preceding [l], as in [p8Fl] for "pill," particularly during task five, the minimal word pairs, a finding which may account for the sharp increase toward the AppE form. The finding of a reversal back toward more AppE than SAE in task five was suggestive of the [8] and [i] collapse to the raised and tensed form discussed by Wolfram and Shilling-Estes (1998). That the older generation did not demonstrate this reversal may be the result of their observed tendency to hyper-correct while producing this vowel, as observed by their facial grimaces in efforts to clearly articulate this vowel. During the minimal word pairs task, several of the G2 and G3 speakers were observed to pause, as if in puzzlement at the two words of a pair sounding the same to them. This was especially true if the word pair ended in [l]. These observations are corroborated in the literature (Hall, 1942; Wolfram & Christian, 1975; Wolfram & Shilling-Estes, 1998). In the present study, G1 appeared to style-shift only to a slightly greater degree than either G2 or G3 when producing [8] in these phonetic contexts. However, none of the pairwise comparisons for this generations were found to be statistically significant. For the other two generations, eight of the pairwise comparisons were found to be statistically significant for each generation.

However, all of the shifts for G2 and G3 were reversals toward AppE. Viewed from this perspective, two things become apparent: (1) the tensing and raising of [8] preceding [c] is stable or only slightly in decline; and (2) the merger of [8] and [8F] discussed in Wolfram and Schilling-Estes (1998) is most strongly evidenced in the younger populations when the vowel is produced preceding [l].

Vowel Seven: [q], as in "apple" or [q pl]

This vowel showed an overall pattern of mixed findings, as it was one of two vowels that had significant shifts in both directions for all three generations. A significant amount of curve reversal back toward AppE, or noticeable shift back in the direction of more AppE use was observed in the [q] vowel, generally across tasks one through four, as shown in Figure 7. This was followed in all three generations by a shift back toward more SAE usage between tasks four and five. For G1, significant differences that marked "reversals" toward AppE occurred between tasks three (passage readings) and four (sentence completion); between tasks four and all tasks (one, two, three). For G2, significant differences in the direction of AppE were noted between tasks two and three, and between task four and all of the remaining tasks (tasks one, two, three). A significant difference was noted between tasks four and five in G2, as well as for G1. For G3, the tasks that showed significant differences in the direction of AppE were between tasks one (breathless narrative) and four (sentence completion). Significant shifting was noted in



Legend:

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M.C. = Monitored Conversation

Read = Passage Readings

S.C. = Sentence Completion

M.W.P. = Minimal Word Pairs

Figure 7.

Plotted EMM of the Ranks of the Vowel [ɑ]

this generation between tasks one and five (minimal word pairs); and between task five and all four of the remaining tasks (tasks one through four). This suggested that, as the participants progressed through these tasks, a progressive reversal or shift back to AppE occurred in all three generations, followed by a return to style-shifting in the direction of SAE between tasks four and five.

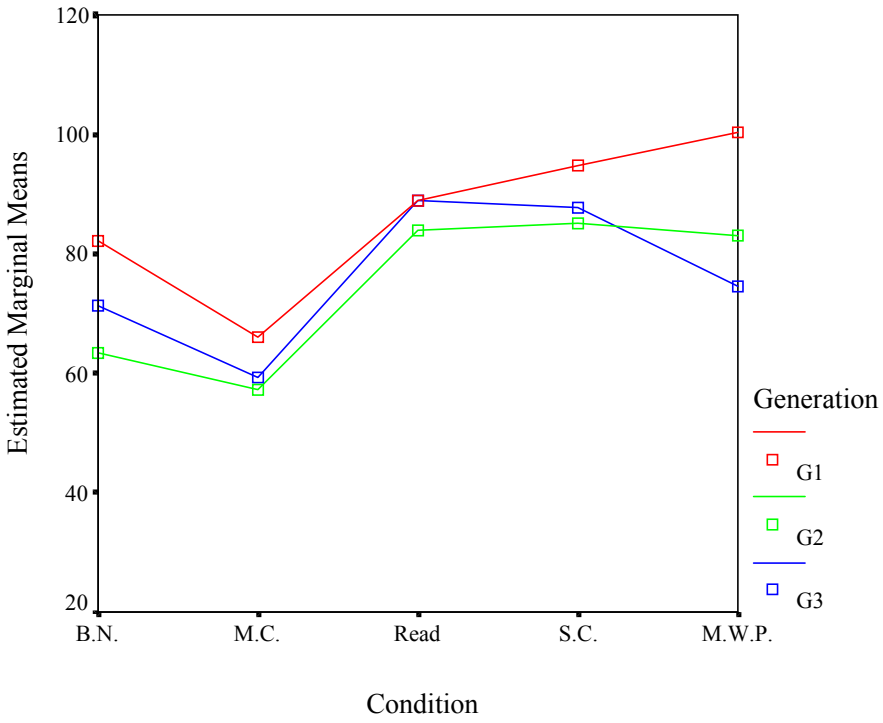
Visual inspection of the plotted EMM in Figure 7 for all three groups suggested that all three followed a similar pattern of style-shifting across all five experimental tasks, which was different from the pattern observed in all of the other vowels. For the three generations, a reversed trend for style-shifting was noted, followed by a sharp drop (or return to SAE) between tasks four and five. For this, as with the preceding vowel, one plausible explanation for the increase usage of SAE might again lie in phonetic context; that is, tongue position for [g] following the vowel [q] influencing the production of [q]. For the sentence-completion task, word choice was weighted with a velar stop (final [g]), as in [b q g], [h q g], and [n q g] for "bag," hag," and "nag." Even if presented medially, though still following the [q], as in "stagger" or [st q g], this consonant may have skewed the participant's response toward the AppE manner of production. Given similar observations by Hall (1942), especially that velars tend to raise the vowel position of [q], possibly due to anticipatory co-articulation, this suggests that this vowel is more or less stable in its AppE form when the final consonant is the velar stop [g], despite the passage of 60 years. Additionally, subject familiarity with the words used in the sentence

completion task may also have had a bearing on a shift back toward AppE productions for task four. The minimal word pairs which tended more than other tasks to drive the style-shifting for this vowel, contained a variety of final consonants, including final [g], but also a range of other final consonants, such as [k q f] and [m q p] for "calf" and "map."

Vowels Demonstrating No Significant Differences

The three remaining vowels, [9]], final unstressed [o], and final unstressed [1], were shown to have non-significant differences across tasks for the degree to which style shifting occurred, for all three of the generations. For the first of the vowels, [9]], visual inspection of the plotting of EMM across all five tasks did not reveal a clearly distinctive pattern of style shifting among any the generations, as shown in Figure 8. In spite of the implication in Figure 8 that G1 demonstrated a shift toward SAE in monitored conversation, this vowel showed no statistically significant differences, and appeared to be stable as a feature of AppE, for the present.

The two final unstressed vowels [o] and [1] revealed a different pattern, compared to [9]]. In spite of non-significant differences across tasks, certain trends were noticed upon visual inspection of the plotted EMM in Figures 9 and 10. In the case of final unstressed [o], shown in Figure 9, trends toward SAE were noted for G1 and G3, but not for G2. For G1, the indication that the presence of style-shifting appeared to be somewhat greater than the remaining two cohorts, as determined by the degree of declination of the



Legend:

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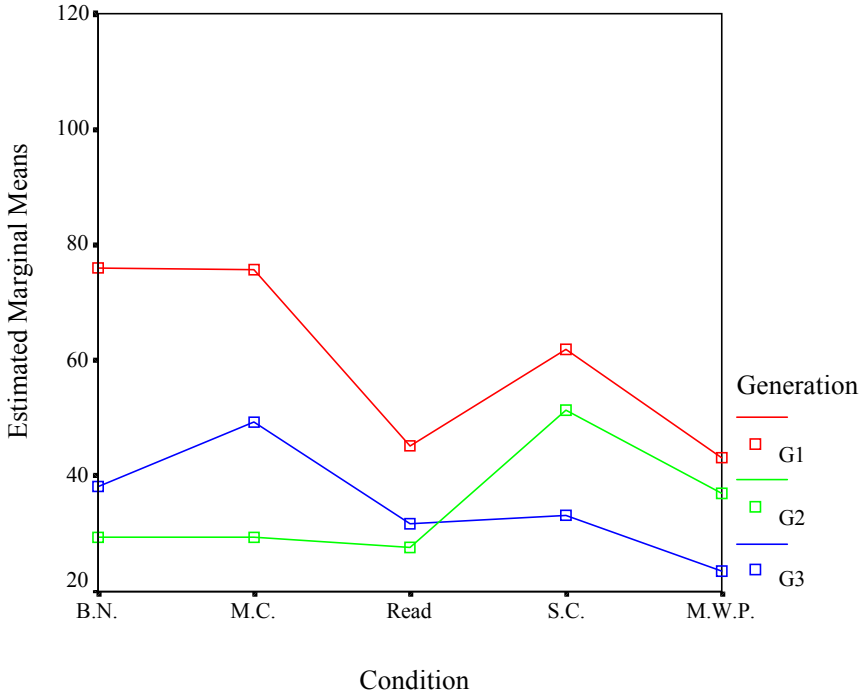
Figure 8.

Plotted EMM of the Ranks of the Vowel [9]]



Legend:

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Read = Passage Readings

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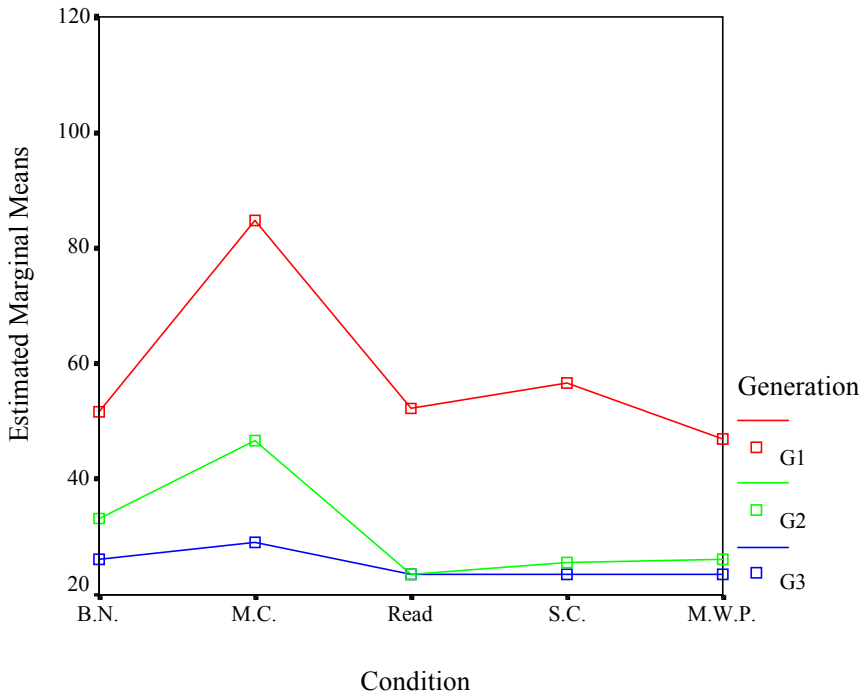
M.W.P. = Minimal Word Pairs

Figure 9.

Plotted EMM of the Ranks of the Vowel [o]



Legend:

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M.C. = Monitored Conversation

Read = Passage Readings

S.C. = Sentence Completion

M.W.P. = Minimal Word Pairs

Figure 10.

Plotted EMM of the Ranks of the Vowel [1]

curve for this generation. This occurred in the most highly structured of the tasks for G1. The downward trend toward SAE productions for G3 suggested that this AppE vowel form rarely, if ever, occurred in the structured tasks. The paucity of use for this form in G2 and G3 compared to G1, and most particularly in the speech of G3, suggested a dialect in decline, as relates to this particular phoneme.

A similar but even more clearly delineated pattern of trends was noted for final unstressed [1], shown in Figure 10. In the absence of significant differences, a visual inspection of the plotted EMM of ranked data suggested the presence of style-shifting differences among the generations. In general, the elderly participants used this form more than either of the other two generations, but only showed significant use of final [1] during the "monitored conversation," before reaching a plateau in the use of the SAE form to a lesser degree in the investigator-constructed tasks. The apparent reversal of style-shifting between tasks one and two, the conversational tasks may reflect that the AppE form of raising the final, unstressed [1] occurs most often when the speaker is more relaxed, less emotional, and also possibly using performance mode in his/her speech. Use of the word [sod8F] or "sodi" to refer to a common term for carbonated beverages, and [v5 j 8ny8F] or "Virginia" appeared in the speech of several of the eldest speakers. The direction of slope from the conversational tasks (tasks one and two) to the investigator-constructed tasks for G1 suggested that more style-shifting occurred in this group than in either G2 or G3. A lack of usage of the AppE form in the two remaining

cohorts, but not particularly in G3, was suggestive of the relative absence of this form in AppE, and may well be a signal that a signature feature of AppE is being extinguished.

Style-Shifting: Why or Why Not?

Results of an experimental task in style-shifting across five tasks using a modification of Labov (1981) suggested that, overall, all three generations of AppE speakers engaged in style shifting to some degree as the task became more formal. The modification to Labov's style-shifting paradigm was the inclusion of the sentence-completion task (task four) following the protocol described in Wolfram and Fasold (1974). Post hoc univariate analysis (i.e., the sign test) suggested that the eldest speakers of AppE were statistically more susceptible to style-shifting than either their children or grandchildren. Two of the vowels selected for inclusion in this study, [ɛr] and [ɔr], showed that certain of the tasks were significantly different from the other four tasks in the degree of style-shifting observed in certain generational cohorts, as indicated by the amount of AppE vs. SAE production for the vowels of interest. One vowel, [ɛ], also showed statistical difference for G2 and G3, but only in the direction of AppE and these were termed "reversals." Two vowels, [eɪr] and [ɑɪ], showed significant differences in the both directions. Overall, these results tended to support the original hypothesis for this research question.

A study of the demographics for each group provided at least one possible reason why this hypothesis held. Educational differences may also have played a part in the degree to which the cohorts style-shifted, as well as the amount of AppE used found in Research Question One. Members of G1 completed fewer years of schooling than their children or grandchildren, and were also educated in a manner which was remarkably different from their children or grandchildren, as was revealed in their personal histories given during the interview process. With regard to manner of education, a number of the elders told stories of attending one-room schoolhouses, in which all children of all ages were educated more or less together. The younger two cohorts, all of whom began attending school from the 1950's forward, reported having attended either large community schools or consolidated schools of several communities. The influence of education may have accounted for the shift away from their use of AppE forms toward SAE in all speaking tasks, and may explain why so little change or shifting was noted in these two generations, when compared with their elders. This finding was corroborated in Labov's (1981) study, in which he determined that "education is a sharp differentiator" for the stratification of certain phonemes (Labov, 1981, p. 275).

Levels of education, by their very nature, have an impact on one's earning potential and choice of career. One of the most accurate of the recognized indicators of socioeconomic status among sociologists is occupational status. When ranked across all occupational groups in the 1970 U. S. Census, professional and managerial workers were

placed at the top of the hierarchy, while blue-collar factory and farm workers were placed at the bottom (Mueller & Parcel, 1981). In the present study, G2 had approximately 33 percent college-educated medical professionals: two nurses and a medical technologist; G3 showed a similar pattern among college-educated professionals: one nurse, one nursing student, and two medical receptionists who either graduated from or had attended some college. By contrast, G1 consisted mainly of factory workers, farmers, retired farmers, or wives of farmers. This subgroup represented approximately 80 percent of G1, compared with approximately 30 percent for G2 and G3, respectively.

Factors such as the amount and type of education received on average in each of the three generations and the relative socioeconomic status of the speakers in each group may be the principal agents contributing to the changes observed in the dialect. Psychologically, the changes noted in the present study may be indicative of the desire of the people of the region to be more acceptable to society at large, and therefore less susceptible to stereotype by their speech, as observed by Hall (1942). The results of this study lend support to the suggestion that the direction of change is away from Appalachian English and more toward SAE as a subset of GAE.

The influence of technology on the future health of post-insular dialects cannot be underestimated. This rapidly changing sector of society is becoming increasingly pervasive in all communities, including those that were once considered remote. In 1994, the State of Tennessee Department of Education began a concerted effort to include

access to advanced technology through Internet links to all public schools across the state, including the schools of Cocke County. Radio and television were observed by the PI to be available to virtually every one of the participants in the present study. Exposure to the speech patterns of individuals living in other regions is available at the present time as at no time in the history of the United States, and cannot be underestimated as a change-agent of dialectal patterns.

For both research questions, the results suggested a change in the direction of SAE, or showed expected directionality of shifting which were generation-specific. For research question one, certain of the vowels showed significant differences across all three generations: [e]r], [ɚ], and [ɝ], with G1 using the AppE forms generally more than G2 or G3. For research question two, significant style-shifting common to all three generations occurred on the vowels [ɚ] and [ɝ]. From an articulation perspective, it is noteworthy that all three vowels are r-colored, and that two of them are common to both research questions. The presence of a strong, prolonged [r] possibly influenced the preceding vowels by the perception of anchoring and retracting the tongue. This prolongation has been reported as common in the speech of the Ulster Scots immigrants to the region under investigation (Williams, 1992), and may be diminishing, which would account both for the high degree of variability in vowels such as [ɝ], as in the multiple ways observed to produce “there” as previously noted. The use of the prolonged form by

immigrants might increase the tendency for these AppE forms to be viewed as "different."

Implications of the Major Findings

This study has shown empirically what the scholarship has assumed intuitively: that the speech of life-long residents of Del Rio, Tennessee may be evolving away from a distinct relic dialect (AppE) to SAE, and may probably be a dialect in a state of decline. Similar conclusions were reached by Wolfram and Schilling-Estes (1995) in their recent study of [e]] pronounced as [9]], which remains the signature vowel characteristic of the dialect spoken by life-long residents of Ocracoke Island, a barrier island off the North Carolina coast.

In the population of Appalachian English speakers examined in the present study, five of the eight vowels selected for study appear to be in a state of change: [e]r], [8r], [2r], [8], and [1] in two conversational tasks. AppE productions of these vowels were shown to occur less often in the younger cohorts than in the older generation. Two of the vowels were demonstrated to occur significantly less as AppE productions in both G2 and G3, as compared to G1: the rhotacized vowels [2r] and [8r]. Two more of the vowels, final unstressed [o] and [1], appeared very infrequently in G2 and G3 as AppE productions, unless forced by the constructed tasks toward "performance speech," as in

the case of a participant from G2 who paused and smiled to herself before uttering, "Butcher Hollow," pronouncing it as [hel5].

Although [q] showed mixed directionality in terms of style-shifting for all three generations, this vowel showed inter-generational differences that are equally worthy of notice: the [q] which, like the final, unstressed vowels [o] and [1], appeared to have shifted by degrees toward SAE for the conversational tasks. This shift occurs by an increase of diphthongization noted by Wolfram and Schilling-Estes (1995) as perhaps a version of Labov's Principle I, which holds that as a vowel goes through stages of change, diphthongization occurs. This was clearly observed in Family 8, in which the G1 participant produced "can't" as [k3nt], his daughter (G2) produced the word as [k0y^{1}nt], and the granddaughter (G3) produced the Southern English form, [k q nt].

Within groups, there was a great deal of individual variation among subjects across the vowels, as was observed in the large standard error measures in some of the pairwise comparisons of the Estimated Marginal Means (EMM). For example, the mean differences in the ranked data between G1 and G3 for [2r] were significant at 4.4, while a similar difference of 4.8 between G2 and G3 for [e]r] was not significant. In the former case, the Standard Error of Measure (SEM) was .966, while the latter SEM was 5.374.

Overall, members of a given generation used very similar speech; however, within each generation, subjects at times showed considerable individual variation, especially in the case of G3. Linguistic conditions may account for the considerable individual

variation observed: (1) phonetic context in which the vowel occurs; or (2) whether the word was stressed. These patterns suggest that further research in the area of linguistic and phonetic contexts is warranted, as an indicator of the stability or instability of the dialect.

Within subjects, the PI occasionally observed considerable variation within individuals, which also may be the result of factors such as phonetic context, emphasis, sentence position, or whether the word was a content word or a function word. A participant from G3 showed widely varying productions of [2r], particularly using the word [;2r] or "there." His high degree of variation, in which the word "there" appeared as [;2r], [er], [;er], [;0r], and [;5r], all occurred in the space of the interview. The retracted forms were produced in unstressed contexts, whereas the more SAE-like productions were produced in sentence-initial position or contexts with linguistic stress. Other members of this triad showed more consistency in production of this vowel across all contexts within a given task than did he. This degree of variation was present in eight of the ten members of G3.

Another measure of the ongoing change of vowels under investigation in the present study was the style-shifting task. Three of the vowels selected for inclusion in this study, the front vowels [e]r], [8r], [2r] demonstrated that task five was more often significantly different from the other four tasks in the degree of style-shifting toward SAE observed in the individual speaker, as indicated by the amount of AppE vs. SAE

production for the vowels of interest. This finding supports the original hypothesis for this research question. Back-onglide, back, or central vowels such as [9]], [o], and [1] showed no significant style-shifting across all three generations, and as such may be more stable in their AppE form. Other vowels showed more generation-specific sensitivity to shifting, which may indicate one of two things: (1) there may exist a paucity of the AppE form in the speech of younger generations, as appeared to be the case in [1] and to some degree in [o]; or (2) the slope of shift from AppE toward SAE was present in all three generations, but to a slightly greater degree in G1, as was the case with [e]r] and [8r].

Style shifting may be important to educators and speech-language pathologists who serve these populations. As a predictor of the relative health of a dialect (Labov, 1981), features which show the most dramatic shifts may be the features most susceptible to change. Notwithstanding the floor effect observed in the younger speakers in the present study, G1, the generation with the strongest dialect showed more significant style-shifting across the experimental paradigm. As the people living in formerly remote regions of the country interact more with persons from outside the area, the issue of code-switching becomes increasingly important to the conducting of business with them, a process reminiscent of creolization of two foreign languages for the purpose of doing business (Hulit & Howard, 1997). Style-shifting should become a concern to speech-language pathologists who may attempt to take a representative language sample of "typical" language behaviors for diagnostic purposes, aware that the speech might

change depending on the task if it should proceed beyond a conversational sample to readings, for example.

Limitations of the Current Study

This present study was limited to a small sample population living in single community in a remote area of upper East Tennessee. The small sample size limited the PI's ability to infer a population effect from the findings of the study, which was a threat to the external validity of the design. A large-scale study would result in findings which could be generalized to the population of AppE speakers. This would allow the investigator to make inferences of the effects of change in the AppE dialect over time.

The study was limited to vowels identified by Hall (1942), Wolfram and Christian (1975), and Bailey (1979) as being in a state of change toward SAE. Consonants were not included, as they are not as subject to the type of shifting characteristic of vowels. Vowels whose features do not appear perceptually to be changing were likewise excluded, as were vowels whose production is essentially SAE in nature.

Statistical analyses of the data compensated for statistical power by analyzing the ranks of the EMM. It is, however, conceivable that some frequency effects may exist in the conversational tasks, particularly for rarely occurring vowels such as final, unstressed [o] and [1]. Speakers may have met the minimum required token count early on, when they were also more likely to be vigilant in their speech. If the vowels did not occur later

in conversation, this may have influenced the PI's ability to observe AppE forms. However, this may not have been the case. A post hoc review of temporal analyses of the last occurring AppE word in the participant interview revealed that, in all cases, the word occurred over half way through the sample, on average. For final, unstressed [o], the last occurring word was found after approximately three-fourths of the conversational sample in G1, approximately 70 percent in G2, and over 50 percent in G3. For final, unstressed [ɪ], the last occurring word was found after approximately 70 percent of conversation in G1, after 65 percent of conversation in G2, and approximately 80 percent of conversation in G3.

Because the present study was cross-sectional in nature, involving analysis of elicited speech, and did not involve random assignment to the independent variable; i.e., generational membership, the conclusion cannot be drawn that age alone was a causal factor in changes found in selected vowels of the AppE dialect. This posed a threat to the internal validity of the design. Rather, other factors such as educational status, socioeconomic status, combined with age of the participant had to be taken into account, and should have been added as factors in the statistical design. In retrospect, a question not factored in was occupation or work setting. Factorial analysis applied to these categories would have been instructive in explaining why certain changes happened the way they did.

The final limitation to the study involved the construction of tasks three through five in the style-shifting experimental paradigm. The phonetic contexts of the target vowels should have been balanced across tasks. This was not always possible due to two factors. First, the PI chose to use only those contexts most likely to elicit AppE productions, as documented by Hall (1942), and by Wolfram and Christian (1975), for example [8] followed by [c] or [l]. This constrained the number of possible words for the investigator-constructed tasks. Second, the minimal word pairs task required the use of real words or pseudo-real words (nonsense words that would sound real to AppE speakers). This further limited the pool of possible words for the PI-structured tasks. In spite of these two constraints, phonetic context could have been more carefully balanced. The lack of balance confounded the results for three vowels, [e]r], [q] and [8], by causing reversals back toward AppE in the constructed tasks. Replication of the style-shifting task for this population should seek to balance the surrounding consonants across tasks.

Areas of Further Investigation

This study has determined, to the extent of the size of the pool of participants, that generational differences in the speech that exist among speakers of Appalachian English in Del Rio, Tennessee. The implications of the study are that this relic dialect, which until recently has been insular and resistant to change due to the relative isolation of its

speakers, in the opinion of the PI, has become an "endangered dialect" (Wolfram, 1996), much in the same manner as other post-insular dialects such as those spoken on Ocracoke Island in North Carolina, Smith Island in Maryland, and the Sea Islands in South Carolina. As Wolfram and Shilling-Estes (1995) have stated, the importance of study of these so-called "endangered dialects" is the importance of documenting their existence and their extinction, as it occurs. Further research is needed to clearly establish the patterns and rate of dialectal change, and perhaps to explain how changes in dialect occur.

The first area of future research should expand the present study by acoustic mapping of vowels isolated from the data collected from all three generations of speakers of AppE in Del Rio, Tennessee. The purpose of this would be to more objectively quantify the degree and direction of shift of vowel production in AppE using F1 and F2, through formant mapping techniques which follow standard protocols for the analysis of such data. The resulting information should confirm the perceptual information in this present study.

The present study needs to be replicated across a larger cross-section of the population of AppE speakers. The purpose of such a study would be to allow for generalization of the findings to the general population. A research paradigm similar to the present study would be appropriate, targeting AppE speakers in each of the remaining outlying communities of Cocke County, Tennessee (Parrotsville and Cosby); or targeting a larger population sample, such as the Tri-State Area of Southwest Virginia, Upper East

Tennessee, and Southeast Kentucky. The results of the larger sample could be compared with findings of the present study.

Another area of research into the state of decline of Appalachian English should involve comparisons of the findings of the present study with other remote subcultures of AppE speakers, such as the Melungeons. This subculture of Appalachian English speakers has an enigmatic history that has been extensively researched, with only hypothetical conclusions as to their origin having been drawn. However, these people are known to be a mixed-ethnic population who have been concentrated in a relatively small area of southwest Virginia, southeast Kentucky, and upper East Tennessee for the past 150 to 200 years; the earliest settlement was recorded in 1755 (Chinn, 2000).

Comparisons between this subculture and other Appalachian communities such as Del Rio might yield interesting results. For example, the results of the two samples would be descriptive of the effects of isolation and dynamic change across different states of insular communities, and assist in chronicling the changes that have occurred and continue to occur.

Another task which would prove a valuable contribution would do so by providing perceptual information from the AppE speakers themselves. Such a task would involve the listener who is a native speaker of AppE in a listening task. The purpose of the task would be to determine whether pairs of spoken words are perceived to be the same or different. The pairs would be divided into: AppE and SAE; AppE and AppE; or

SAE and SAE, and changes noted between the pairs would be tested statistically. Listener judgement would provide information on how s/he perceives the state of the dialect.

The findings of the present study suggested that the rhotacized vowels, [e]r], [ɚr], and [ɔr] show different patterns and rates of fading in the direction of SAE. The first of these, [e]r], showed no significant differences between G1 and G2, but did show significant differences between G1 and G3; and the vowels [ɚr], and [ɔr] each showed significant differences between G1 and G2, as well as G1 and G3. These differences need to be studied in greater detail, as well as the phonetic and linguistic contexts in which they occur. An experimental paradigm should be designed for collection of conversational speech samples under varying contexts, and constructed tasks of repeated utterances with words targeting these three vowels. The conversational samples should be compared acoustically with the constructed speech samples. Tasks might include such activities as passage readings constructed with words embedded in different contexts, having the participant read a story and then retell it in his/her own words, or having the participant role-play a scene with another partner. Analyzing for within-vowel and between-vowel differences might be instructive in explaining the differences in rates of change among these three rhotacized vowels in AppE. One aspect of such a study might be, “To what extent do lexical differences influence the AppE productions of rhotacized vowels?” The larger question to be answered is “Why do some phonological features change more or less than others, in a given regional dialect?”

The purpose of future research in this area would be to provide clear evidence of change in the insular dialect of AppE. There is an urgent need for this research to continue, as the rate of decline in AppE dialect, and relic dialects in general, appears to be accelerating, due to ever-increasing influences from the world outside the insular communities (Schilling-Estes & Wolfram, 1999; N. Schilling-Estes, personal communication, 2001; Wolfram & Schilling-Estes, 1995).

Chapter V

Summary and Conclusions

Summary

This study was conducted to investigate two research questions that explored 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 first 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 a 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.

The second research question was posed: "Do older generation speakers of Appalachian English engage in style-shifting to a greater degree than their children or grandchildren, as the task becomes more formal?" This portion of the study extended the tasks to five, after the protocols of Labov (1981) to include: (1) a reading task; (2) a sentence completion task, and (3) a minimal word pairs task. The purpose of this arrangement of tasks was to force the speaker, to the extent possible, out of his/her dialect and toward a more formalized manner of speech, in which standard pronunciation was predicted to be elicited. All speakers of AppE were hypothesized to engage in some degree of style-shifting, as the tasks varied along a continuum of formality, from casual speech in the narration of highly emotionally charged material in a way that did not

appear to be self-conscious, to the highly formalized speech of reading lists of minimal pairs of words. The speech of the younger two generations (adult children and grandchildren) was hypothesized to demonstrate a lesser degree of style-shifting across tasks than the older generation.

The relationship between generational membership and manner of vowel production that would indicate style-shifting within the speaker across the five tasks was examined, using a non-parametric, repeated measures ANOVA. The results were as follows:

1. There were significant main effects for Generation, Vowel, and Condition.

2. There were significant two-way interactions between Generation by Condition, Generation by Vowel, and Condition by Vowel.

3. There was a significant three-way interaction among Generation by Condition by Vowel.

4. Pairwise comparisons indicated that style-shifting involved task five (minimal word pairs) more than any other task, with 12 of the 43 pairwise comparisons (29 percent) of the significant differences involving this task.

5. Style-shifting occurred as a reversal toward AppE for all three generations on task four on the vowel [ɑ], shifting back in the direction of SAE between tasks four and

five in all three cohorts. Reversals also occurred for G2 and G3 on task five on the vowel [8], and for G3 between tasks three and four on the vowel [e]r].

6. Pairwise comparisons indicated that G1 showed a significant tendency to style-shift toward SAE not seen in the other two generations ($p < .05$).

For all three generations, the significant differences among tasks were either in the direction of SAE, or of AppE, or in some instances both directions. Although the results were scattered among the three generations, two of the eight vowels, [8r] and [2r] showed consistent shifts toward SAE as the tasks became more formalized in all three generations. Only the vowel [8] showed significant shifts solely in the direction of AppE. Two more vowels, [q], and [e]r], showed significant shifts in both directions.

One reason that G1 exhibited more style-shifting than G2 and G3 toward SAE may be that the younger generations were already using more SAE than G1 during informal conversational speech tasks. Recall that this was the primary finding of Research Question One. During the continuum of style-shifting tasks the younger generations appeared to have had less opportunity to style shift than Generation One, which may have indicated the presence of a "floor effect."

Conclusions

The findings of the present study support both hypotheses under investigation: first, that 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; and second, that older generation speakers of Appalachian English engage in style-shifting toward Southern American English (SAE) to a significantly greater degree than either their children or grandchildren, as the task becomes more formal. 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 (Schilling-Estes & Wolfram, 1995; Wolfram & Schilling-Estes, 1998).

The degree to which a speaker style-shifted was thought by Labov (1981) to be evidence of the stability or changeability of one's dialectal patterns, and as such may be predictive of the health of the dialect. In the present study, analysis of the data lends some credibility to the notion that the AppE dialect is, in fact, in the process of becoming assimilated into SAE, the dominant speech pattern of the rest of the South.

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 (1995) remind us, there is an urgent need for this research to continue, as the rate of decline in AppE dialect is expected to continue, if

not 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 (Labov, Ash, & Boberg, 2000). The project was designed to respond to the questions, "How many dialects of American English are there?" and "Where are the boundaries located?" The benefits of research designed to add to this body of literature also serve to function as an extension of the present study. 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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Appendices

Appendix A
Participant Questionnaire
and
Demographic Information

A Multi-Generation Study of
Appalachian Speech
Participant Questionnaire

Age: _____ Education (years in school) completed (circle one): 1 to 6 years
7 to 9 years
10 to 12 years
some college
college graduate
graduate work

Occupation: _____

Other than yourself, how many persons live with you in your household? _____

How many generations live with you in your household? _____

What is your income bracket (circle one)? $10,000 to 20,000 per year
$20,000 to 30,000 per year
$30,000 to 40,000 per year
$40,000 to 50,000 per year
above $50,000 per year

How many hours per day do you watch television? _____

How many hours per day do you listen to the radio? _____

Do you read for pleasure? Yes No (circle one)

How many books do you read per year? _____ Magazines read per year? _____

Do you take vacations away from home? Yes No (circle one)

What is the longest distance you have ever gone to visit someone or vacation? _____

Thank you for your cooperation. Your participation in this study will help us learn more about the people of this region.

	age	educ	occupation	#/persons?	#/gen?	income	hrs/TV?	hrs/radio?	read?	#/books/yr	#/mag/yr	trips away?	dx travel?
G1-Fam 1	83	1-6	housewife3		3	10-20k4		2	yna	2			y200
G1-Fam 2	86	10-12	ret. farmer1		2	20-30k6		4	yna	365			y1200
G1-Fam 3	76	10-12	housewife1		1	10-20k3		newsn	na	few	n		KY
G1-Fam 4	79	7-9	Ret bus dr.2		1	10-20k2		0	n1		nan		na
G1-Fam 5	90	7-9	ret mech2		1	10-20k5		1	yBible	news	y		Dallas
G1-Fam 6	88	7-9	ret farmer1		1	10-20k2		rarelyy	1		dailyy		Texas
G1-Fam 7	70	7-9	ret farmer1		1	10-20k3		0	n0		12		nMyrtle Bch
G1-Fam 8	73	7-9	ret factory1		1	10-20k2		n/ay	5		2		yJapan
G1-Fam 9	84	7-9	housewife0		1	10-20k3		0	y2		1		n1000
G1-Fam 10	70	1-6	housewife1		1	10-20k0.5		0	y20		20		yFla
G2-Fam 1	44	Coll Gr	nurse3		3	30-40k3		2	y4		12		y800
G2-Fam 2	55	Sm Col	factory1		2	20-30k3		1	y10		10		y1350
G2-Fam 3	48	10-12	beekeeper1		1	20-30k3		0.5	n0		15		y1000
G2-Fam 4	53	10-12	machinist2		1	40-50k2		2	y4		10		nGermany
G2-Fam 5	47	10-12	teacher asst.1		1	20-30k1		0.5	y40		nay		1000
G2-Fam 6	50	10-12	USPO1		1	30-40k1		4	n1		0		y1000
G2-Fam 7	49	Sm Col	farmer1		1	30-40k2		2	y4		30		nGermany
G2-Fam 8	49	Grad	D.O.N.4		2	50-60k1		2	y6		36		yHong Kong
G2-Fam 9	52	Sm Col	med tech0		1	40-50k3/wk	3		y10		40+y		Europe
G2-Fam 10	50	Sm Col	social wkr1		1	20-30k1		2	y100		20		y3000
G3-Fam 1	25	Coll Gr	clerk, hlth dpt2		1	30-40k5		1	y15		nay		Penn
G3-Fam 2	32	10-12	lab tech, factory3		2	20-30k3		1	y4		nay		Texas
G3-Fam 3	32	10-12	factory4		2	30-40k3		1	y2		5		y700
G3-Fam 4	30	10-12	factory3		1	30-40k3		5	y10		5		n700
G3-Fam 5	25	10-12	housewife2		2	20-30k2		1	y52		36		y750
G3-Fam 6	24	Sm Col	housewife3		2	10-20k3		somen	0		24		n150

G3-Fam 7	28	10-12	med tech3	2	30-40k2	1	n0	5	y1200
G3-Fam 8	22	Sm Col	nursing std3	2	30-40k2	2	y6	12	yHawaii
G3-Fam 9	27	Coll Gr	housewife3	2	30-40k4	0.5	y2	12	yFla
G3-Fam 10	28	Sm Col	med recpt2	2	20-30k2	1	y3	10	y600

Demographic Information on All Participants

Appendix B
Sample Liaison Letters of Support and Agreements of Confidentiality

A Multi-Generation Study of
Appalachian Speech
Sample Liaison Agreement of Confidentiality
for Speech-Language Research Project
Melinda L. Richards, Ph.D. Student at the University of Tennessee
Directed by Dr. Lori A. Swanson, Associate Professor
Department of Audiology and Speech Pathology, The University of Tennessee

We are planning to conduct a study of the differences among three generations of speakers of Appalachian English. The study will involve approximately 30 individuals, and total participation time for each participant will be no more than two hours, total time. All sessions will be completed at times mutually agreed upon by you, the principal investigator, and the subject during the day. Your task will be to facilitate interaction with the subject and the Principal Investigator (PI).

The information obtained from this project will be included in a dissertation by Melinda Richards, in partial fulfillment of the requirements of the Doctor of Philosophy degree from the University of Tennessee. This information will also be used to help speech-language pathologists and others improve their knowledge of the speech characteristics of different generations of speakers of Appalachian English, and how they in turn differ from previously recorded generations.

If you agree to participate in this project, you will be asked to assist the PI in the study by providing a way to make the subject more comfortable about sharing his or her experiences with the PI. You also agree that you will protect the confidentiality of the subject at all times.

Statement of Agreement:

Name of Liaison _____

I have read this letter of agreement and agree to participate in this study. I understand that my participation in this project is completely voluntary. I agree to keep confidential any information revealed in my presence while participating in this study. I understand that individual results and information will not be disclosed to parties outside the study in order that confidentiality will be maintained

_____ Date

_____

Signature of Liaison

A Multi-Generation Study of
Appalachian Speech

Sample Letter of Support from Liaison

To Whom it May Concern:

I have been informed of the nature and substance of the study of Appalachian English in the Del Rio area to be undertaken by Ms. Melinda L. Richards of the University of Tennessee. I understand that the study involves approximately 30 individual subjects, and that each subject will involve approximately two hours each to accomplish data collection, for a possible 60 hours of time involvement. I support the study in all its aspects, and agree to act as liaison to Ms. Richards.

As I have lived in the area for many years, I would like to be informed of the findings of this study after it is completed. I wish Ms. Richards well in this endeavor.

Sincerely,

Mrs. Jamie Freshour
Newport, Tennessee

Appendix C
Fact Sheet and
Informed Participant Consent

A Multi-Generation Study of
Appalachian Speech
Fact Sheet
Conducted by Melinda L. Richards, Ph.D. Student
Directed by Dr. Lori A. Swanson, Associate Professor
Department of Audiology and Speech Pathology
The University of Tennessee

Site of Investigation Sessions:	Del Rio community of Cocke County, Tennessee
Time of Investigation:	January to December 2001
Task:	Investigator will meet with each participant for approximately one one-hour session. The participant will be audio-recorded by the principal investigator, in conversation with the PI and a liaison familiar to him/her, if needed; and later asked to audio-record reading passages, perform a sentence-completion task, and read from a list of words at home. Total participation time will be no longer than two hours per individual.
Primary Investigator:	Melinda L. Richards, a graduate student studying speech and language science at the University of Tennessee and an instructor in Communication Disorders at Middle Tennessee State University
Number of individuals participating:	Ten families of three generations of native speakers of Appalachian English who are lifelong residents of the Del Rio, Tennessee area
Results:	Overall results of the study will be made available upon request at the end of the study.
Benefit of Project:	Information obtained from this study will be used to determine the differences among successive generations of speakers of Appalachian English. These differences could lead to more complete information about the assimilation of the mountain dialect into Standard American speech.

A Multi-Generation Study of

Appalachian Speech

Informed Consent for Speech-Language Research Project

Melinda L. Richards, Ph.D. Student at the University of Tennessee

Directed by Dr. Lori A. Swanson, Associate Professor

Department of Audiology and Speech Pathology, The University of Tennessee

We are planning to conduct a study of the differences among three generations of speakers of Appalachian English. Total participation time for each participant will be no more than two hours, total time. Any and all sessions will be completed at times mutually agreed upon by you, the principal investigator, and the field worker during the day. If at any time during the session, you would like to stop participating, you will certainly be allowed to do so. There are no risks in participation other than those encountered in daily living. There are no penalties for not participating.

The sessions will be audiotaped in order to assure accurate record keeping, for later off-line analysis, and for validation by an independent observer. All audiotapes and all forms will be kept in a locked cabinet in the private office of Melinda L. Richards at the University of Tennessee. Only Ms. Richards, Dr. Swanson, and the independent validator will have access to these materials during the course of the project, to protect confidentiality. The participants names will not be used at any time for presentation or publication purposes.

The information obtained from this project will be included in a dissertation by Melinda Richards, in partial fulfillment of the requirements of the Doctor of Philosophy degree from the University of Tennessee. This information will also be used to help speech-language pathologists, educators, and others improve their knowledge of the dialectal characteristics of different generations of speakers of Appalachian English, and how they in turn differ from previously recorded generations.

If you agree to participate in this project, you will be asked to assist in the study by providing a conversational speech sample, two recorded readings, fill-in-the-blank sentences, and reading pairs of words. We need your informed consent to include you in this study.

Informed Consent Form

I have read this informed consent and have agreed to participate in this study. I understand that my participation in this project is completely voluntary. I am also aware that I may withdraw from participation at any time without penalty to me. I may also call to request more information or a general summary of the findings of the study from Ms. Richards (615-898-5425) or Dr. Swanson (423-974-1794). I understand that individual results will not be disclosed. I also understand that the tape recordings will be archived and may be used in other studies of a similar nature.

Name of Participant: _____

Signature of Participant: _____ Date: _____

Appendix D
Interview Protocol and
Task Stimuli

Task 1: the "Breathless Narrative"

PI: "To help us learn a little more about you and your background. First, I would like to ask you some questions about your past."

Possible questions:

1. "Was there ever a time when you were afraid you might die, or be killed? Could you tell me the story, as you remember it?"

2. "Do you have children? You have how many children? Can you remember going into labor with your first child? What was that like? Tell me what you remember about that."

3. "Have you ever been to a "Snake-Handling" church? Could you tell me what you remember about that?"

4. "Did you ever see "Christy" on television? What did you think about how Del Rio was portrayed?"

Task 2. The Monitored Conversation

PI: "That was very interesting. Thank you for sharing that. I have just a few more questions, about the region and how things are done. Can you tell me more about living in Del Rio?"

Possible Questions:

1. "Do you think kids are the same as when you were growing up? (If different), what do you think is different about kids then and kids now?"

2. To older female adults: "Do you preserve your own food? How is that done?"

3. "What is the best way to cook _____?"

4. Older male adults: "Do you farm? Tell me about your farm . . . what did you raise on the farm?"

5. "Do/did you go hunting or fishing? What sorts of game do/did you come back with?"

6. To younger adults: "Did you participate in activities when you were in school? In sports? In the band? What did you do for fun?"

7. "When you were a child, what was your favorite thing to do in the summer? Can you tell me about it?"

Task 3: The Reading

"I have a couple of things I would like for you to read. You may have all the time you want to look over this. Read it over to your self, and then let me know when you are ready to read it aloud. . . Are you ready?"

Arthur the Rat

There* was once a young rat named Arthur who would never take the trouble to make up his mind. Whenever his friends asked him if he would like to go out with them he would only answer, "I don't know." He wouldn't say "Yes" and he wouldn't say "No" either. He could never learn to make a **choice**. His **aunt** Helen said to him "No-one will ever **care** for you if you carry on like this. You have no more mind than a blade of **grass**." Arthur looked wise but said nothing.

One rainy day the rats heard a great **noise** in the loft **where** they lived. The pine **rafters** were all rotten, and at last one of the **joists** had given way and fallen to the ground. The walls shook and the rats' **hair** stood on end with **fear** and horror. "This won't do," said the old rat who was chief. "I'll send out scouts to search for a new home." Three hours later the seven scouts came back and said, "We've found a stone house which is just what we wanted. **There's** room and good food for us all. There's a kindly horse named Nelly, a cow, a **calf** and a garden with an elm tree." Just then the old rat caught sight of young Arthur. "Are you coming with us?" he asked. "I don't know," Arthur sighed, "The roof may not come down just yet." "Well," said the old rat angrily, "We **can't** wait all day for you to make up your mind. Right about face! March!" And they went off.

Arthur stood and watched the other rats hurry away. The **idea** of an immediate decision was too much for him. "I think I'll go back to my hole for a bit," he said to himself, "just to make up my mind." That night **there** was a great **crash** that shook the earth, and down came the whole roof. Next day some men rode up and looked at the ruins. One of them moved a board, and under it they saw a young rat lying on his side, quite dead, **half** in and **half** out of his hole.

* - Words were not highlighted on the participants' copy

List of Words Containing
the Vowels to be Examined
from “Arthur the Rat”

I. Target vowel: [2r]

1. There
2. where
3. hair
4. care
5. There's

II. Target Vowel: [9]]

1. noise
2. choice
3. joists

III. Target Vowel: [8r]

1. fear

V. Target Vowel: [q]

1. aunt
2. grass
3. calf
4. can't
5. rafters
6. crash
7. half
8. half

IV. Target Vowel: final, unstressed [1]

1. idea

PI: "Here is another thing I would like for you to read. Just like before, take all the time you need to read it over to yourself. Let me know when you are ready to read it aloud . . . Are you ready?"

He Gave Sight to the Blind

Not so very long ago, most people thought that blind people could never learn to read. People thought that the only way to read was to look at the words with your eyes. We now know that this is not the only way that people can read; they can do it with the sense of touch as well. This is the story of the man who invented a system for reading with the fingers. His name was Louis Braille.

From the time that Louis was only three **years** old, he had been blinded by a terrible accident. As he grew older, he knew he wanted to learn to read. He somehow instinctively knew that the world of thought and knowledge was tied to being able to read. Words and sounds were available to him through his **ears,** but sightless eyes made it impossible for him to learn to read. Young Louis was determined to **pierce** the darkness and unlock the key to reading for persons with life situations like his.

The story of Louis Braille begins in the early nineteenth century. He was born in the **year** 1809 **near** Paris, where his father was a leather-worker. Among the tools of his trade was a leather punch, called an awl. As Louis played near the **sofa** in the parlor, he could hear his father working in the shop next door. He heard the sounds of someone working, and went to the workshop **where** the sounds were coming from. The little boy took down the awl to play with. Much to the **sorrow** of his father, the little boy's grip slipped and he drove the tool into his eye. His only **wish** and prayer was that the young Louis be made to see again. The location of the injury, a **tear** in the eyeball, made the use of **alcohol** impossible, or even a solution made of **soda**, and soon infection set in, because his parents could not keep the injury from being **soiled**. This infection permanently damaged the eyes of young Louis, and **there** was no more sight for the young boy. The thought of being blind was almost more than the family could **bear**; it was as emotionally painful as a **boil** on their necks. It was **sort of** like a death in the family.

When the **bishop** learned of the tragedy, he quickly sent a representative to **ask** what could be done to help the child. With the zeal of a **missionary**, Louis' father sought help through prayer and fasting. The family was only to eat **fish**, not only on Friday, to celebrate the legacy of Good Friday, but every day of the week. It was the only main **dish** they were allowed during the early days after Louis' injury. They were to burn an **oil** lamp to represent bringing light into Louis' darkness. He ordered these things be done in hope that the boy's sight would be restored by a miracle by acts of faith.

As time **passed**, the prayers that the people made concerning the restoration of the child's sight went unanswered, or so they feared. Their prayers were to be **answered** in a way they never imagined. However, in the time being, the boy quickly adapted to his new condition and he learned to lead a pretty normal life. He never grew **tired** of hearing his old books being read to him. He was very intelligent, as well as creative. The loss of his sight was not going to stand in his way. A **fire** burning within drove him to seek answers to the question of how he was going to learn to read. The family was too poor to **hire** a tutor, and so he was on his own to pay for schooling. Louis was a talented musician, and was **hired** to play the organ to accompany the **choir** at their parish church.

Louis was sent to a school for the blind in Paris, where the books were printed in large, raised print. A smart little **fellow**, he soon read all of the volumes in the library – all fourteen of them. Rather than **wallow** for **half** a minute in self-pity, Louis sprang into action. It soon would **follow** that he would have an idea of raising the symbols, instead of letters, and make the process of reading even faster. As it happened, the French Army had begun using a code of dots and dashes; however these could not be read at night, because the lights to read them by would soon get the men shot. Even if the reader held the light in the **hollow** of his hand, it could be seen, placing him in danger. After all, matches were to light **tobacco** by, not to read by. Even if the men went inside, to a place **where** they thought light could not be seen, the lights could still be seen by the enemy, which would **foil** their plans. When the Church official heard the news of Louis' creation, he said, "Our prayers have been answered! This is indeed a miracle! It is as if we have sacrificed the fatted **calf**!"

The rest, as they say, is history. Louis Braille took the very awl that had blinded him for life and **toiled** to create an alphabet of raised symbols. He gave his name to his new system of helping the sightless to read; he gave a whole new world of ideas and words to hundreds of people who otherwise would never have known what lay beyond the darkness.

(Adapted from Phil Shapiro's 1995 story, "The Story of Louis Braille")
http://www.his.com/~pshapiro/braille.html)

List of Words Containing
the Vowels to be Examined from
"He Gave Sight to the Blind"

I. Target Vowel: [2r]

1. bear
2. tear
3. where
4. there
5. where

II. Target Vowel: [9]]

1. boil
2. soiled
3. toil
4. foil
5. oil

III. Target Vowel: [8r]

1. ears
2. years
3. pierce
4. year
5. near

IV. Target Vowel: final, unstressed [1]

1. sofa
2. soda
3. sorrow
4. alcohol
5. sort of

V. Target Vowel: [q]

1. answered
2. passed
3. ask
4. calf
5. half

VI. Target Vowel: final, unstressed [o]

1. fellow
2. wallow
3. hollow
4. tobacco
5. follow

VII. Target Vowel: [e]r]

1. choir
2. hire
3. hired
4. tired
5. fire

VIII. Target Vowel: [8]

1. bishop
2. missionary
3. fish
4. wish
5. dish

Task 4: The Sentence Completion Task

PI: "Thanks. This next thing is a set of fill-in-the-blank sentences. It's OK if you pause in between sentences to think of a word that goes in the blank. There are no right or wrong answers. Just say the first thing that comes to your mind that fits best in the sentence. I want you to read the whole sentence to me. Are you ready?"

A. Vowel [9]]

1. To make _____, you must first **boil*** the water.**
2. Come, go with me to ____ the **oil** in the car.
3. A gastric upset really makes my _____ **roil.**
4. The _____ wound up into a **coil**.
5. The ____ was as **loyal** as he could be.
6. The _____ **toils** in the fields all day long.
7. We had better ____ that roast, before it **spoils**.
8. The **soil** in the _____ is rich with fertilizer.
9. The boss cautioned us to do _____ according to **Hoyle.**
10. The _____ with her crown looked quite **royal.**

B. Vowel: Rhotacized [e]], or [e]r] sequences

1. The woods are ____; they're on **fire**.
2. I was late because of a ___ **tire**.
3. The ___ is for **hire**.
4. The ___ is afraid he will **mire** up in the ___.
5. If the female horse is the dam, then the ___ horse is the **sire**.
6. We keep the ___ in by using a barbed-**wire** fence.
7. I have heard that people in ___ use funeral **pyres**.
8. The _____ was hung in the church **spire**.

* Target words were not highlighted on participant copy

** Sentences were randomized for participants' set, using a random number generator

9. The ___ of the county used to be called The **Squire**.
10. Someone who doesn't tell the _____ is called a "**liar**."

C. Vowel: Rhoticized [2r]

1. I fell and got a **tear** in my _____.
2. A **bear** was seen in the _____.
3. He hasn't a **care** in the _____.
4. In the month of _____, we go to the county **fair**.
5. You really ____ me a **scare**.
6. Your _____ really wasn't **fair**.
7. The tourists always ____ about the mountain **air**.
8. The boy did ___ on a **dare** from his friends.
9. The little ____ stayed close by the **mare**.
10. A word we don't use much for _____ is "**hare**."

D. Vowel: the final unstressed [o]

1. _____ has lived in Butcher **Hollow** for years.
2. One of the largest _____ in this part of the state is **tobacco**.
3. We have to remind our son not to _____ on his **pillow**.
4. I hate it when I **swallow** a _____.
5. I think _____ is a pretty good **fellow**.
6. A common _____ on sweet **potatoes** is _____.
7. Do you ever put **marshmallows** on _____?
8. We had a good _____ of **tomatoes** this year.
9. It made me _____ when the driver of the car chose to **follow** to close.
10. They used to make ____ out of **tallow**.

E. Vowel: Final unstressed [1]

1. An important ingredient in _____ is baking **soda.**
2. My policy has never been to **borrow** ____ from anybody.
3. After the _____, he showed that he was in deep **sorrow**.

4. If you have a _____, you should take **Alka**-Seltzer.
5. You call it a _____, I call it a **sofa**.
6. My father's _____ was named **Louisa**.
7. The word we use for "_____" is **soda** pop.
8. Mount **Alta** is not a _____ around here.
9. My Aunt **Rhoda** used to use _____ to cure warts.
10. The _____ is popular as a musical instrument, **sort of**.

F. The raising of the [ɛ] to [i]

1. Please ____ your mother by washing that **dish**.
2. He _____ a **fish**.
3. The _____ granted the boy three **wishes**.
4. Your **mission** is to take this _____ to the Captain.
5. The head of the _____ is called the **Bishop**.
6. My grandpa used to _____ me with his **whiskers.**
7. The _____ were famous for making _____ **whisky**.
8. One thing that goes well with _____ is a good ol' cat-head **biscuit**.
9. The _____'s tail went "**swish**."
10. The boy fell out of the _____ when he went **fishing**.

G. Raising and fronting [ɑ] to [ɜ]

1. The **calf** nuzzled its _____.
2. One-**half** of the class went to the _____.
3. Better put some **salve** on that _____.
4. Put the _____ in a **bag** to take with you.
5. That old _____ looks like a **hag**.
6. The husband always _____ that his wife was a **nag**.
7. You could _____ the windows with that **rag**.
8. The ____ is starting to **sag**.
9. He put a **tag** on the _____.
10. With a _____ on his eyes, he couldn't help but **stagger**.

H. Backing of [8r] to [2r]

1. It's the time of **year** when the _____ turn.
2. I thought it was _____ to **hear** in a crowd.
3. The baby stuck a _____ in her **ear**.
4. In a dry _____, the only thing _____ can buy is **beer**.
5. The _____ struck **fear** in their hearts.
6. "My little horse must _____ it **queer**," is a line from a poem by Robert Frost.
7. The _____ is full of **deer**.
8. That noise under the hood is a _____ **gear.**
9. He likes to **smear** _____ on his toast
10. Over **here**, we like to _____.

Task 5: Minimal Pairs Word List

PI: "This is the last thing I will ask you to do. You have been terrific to do these things for me. Now what I want you to do is to read aloud these pairs of words. Just read down the list as fast as you can. There is no set time, but try not to spend too much time on any one pair of words. Are you ready? Let's begin."

1. Vowel [ɔ]

a.	boil	ball	f.	toil	tall
b	oil	awl	g.	coil	call
a.	spoil	spawl	h.	Doyle	doll
b.	soil	sawl	i.	foil	fall
c.	Royal	rawl	j.	loyal	loll

2. Vowel: Rhotacized [ɛ], or [ɛr] sequences

a.	tire	tar	f.	pyre	par
b	fire	far	g.	liar	Lars
c.	spire	spar	h.	skyer	scar
d.	mire	mar	i.	hire	Harr
e.	byre	bar	j.	fryer	far

3. Vowel: Rhoticized [ɜr]

a.	Bear	bar	f.	scare	scar
b	tear	tar	g.	dare	door
c.	wear	war	h.	hair	her
d.	mare	mar	i.	Rare	roar
e.	fair	far	j.	care	car

Note: Word pairs were randomized on participant copy, using a random number generator

4. Vowel: Final unstressed [o]

a.	pico	picker	f.	pillow	pillar
b	backhoe	backer	g.	pimento	minter
c.	yellow	yeller	h.	hollow	haller
d.	tallow	taller	i.	fillow	filler
e.	sallow	seller	j.	follow	faller

5. Vowel: Final unstressed [1]

a.	soda	soapy	f.	Clara	Clarie
b	sofa	Sophie	g.	soft of	sortee
c.	Linda	Lindy	h.	Sarah	scary
d.	Louisa	Louisie	i.	Hilda	Hildy
e.	Rhoda	Rhodie	j.	stoker	stogie

6. The raising of the [8] to [i]

a.	Bill	Beale	f.	dill	deal
b.	rill	reel	g.	mill	meal
c.	kill	keel	h.	sill	seal
d.	pill	Peal	i.	fill	feel
e.	hill	heal	j.	nil	Neal

7. The raising and fronting of [q] to [3]]

a.	salve	safe	f.	nap	nape
b.	calf	cave	g.	scrap	scrape
c.	gaff	gave	h.	rap	rape
d.	Ralph	rafe	i	tap	tape
e.	map	maple	j.	Ma'am	maim

8. Laxing of [ɪə] to [ɛə]

a. ear	air	f.	mere	mare
b. fear	fair	g.	steer	stare
c. deer	dare	h.	here	hair
d. beer	bear	i.	tier	tear
e. near	ne’er	j.	rear	rare

Appendix E
Sample Worksheet
and
List of Unique Words
Occurring in Appalachian Dialect

List of Unique Words
Utilizing Appalachian Vowel Production
Uttered by Participants in Conversational Speech Samples

1. [ɘɪ], as in [bɘɪl]

coil (-ed)	boy	boil (-ed)	broiler	Doyle
groin	hoist	joints	oil	point
poison (-ous)	spoil	tenderloins	toilet	

2. [eɪr], as in [feɪr]

brand-fire	fire	hire	Irish	iron
Myers	retired	Squire	tire (-d)	required
wiring				

3. [ɪr], as in [hɪr]

clear	fear	gear	here	heard*
miracle	nearly	reared	year (-s)	steer (-ing)

4. [ɛr], as in [bɛr]

anywhere	air (-port), (-plane), (-brakes)		area	barefooted
barely	barrel	(black) berry	buried	care care (-ful)
carrier	chair	compared	geriatrics	fair
Ferris	hair	heirs	hysterical	Jerry
kerosene	married	Mulberry	nowhere	pair
pear	parents	Parrotsville	perishable	prayer
repaired	scare(-s),(-y)	share	Sheriff	somewhere
stairs	sterile	tear	terrace	theirself
therapy	there	very	warehouse	wearin’
where				

5. final, unstressed [o], as in [t4bqko]

Carolina	banjo	fellow	Enka	follow (-ed)
hollow	potatoes	tobacco	widow	yellow

6. [8] raised to [i], as in [f8c] or [p8l]

big	bills	biscuits	bit	brick
britches	Bridgeport	built	chickens	children
chin	Christmas	Christy	clinic	crib
criticism	deliver	difference	dig	dim
dinner	dishes	distance	ditches	fifty
finish (-ed)	fish	fit	fix	flipped
fridge	grins	hickory	hill	hillbillies
him	history	ignorant	ill	imagination
inches	insane	inside	insurance	interest
*hit	kids	kill (-ed)	kitchen	Lillie
limbs	linen	listen	little	lived
Lizzy	midget	midsummer	milk	Millie
Mims	mill	minutes	miracle	Nichols
picker	picnic	pinched	pin	pitchfork
publicity	quit	rehabilitation	ribs	rich
ripped	Ritter	shift	shin	sick
Sill	sister	sittin’	skids	slip (-ed), (-ing)
spilt	stick	still	stitches	tension
tickets	timber	tissue	trip	visit (-ed)
*whip	Wilford	win	wind	window
				winter

7. [q], as in [⇩q1pl]

after (-noon), (-wards)		aggravation	ambulance	Agra
Asheville	ask	aunt	back	backwards
bad	bag	basketball	baskets	battles
braggin’	branch	camp	can’t	cast

catch	catfish	chance	comeback	dance
embarrassed	fashion	fast	flat	glasses
grass	Grassy	half	ham	hand
happen	last	laugh (-ing)	mash	Maxine
Metcalf	molasses	Nashville	national	passed
Pastor	pasture	plant	*raggedy	rather
rationed	Santa	Saturday	standing	swear
				wagon

8. final, unstressed [ɪ], as in [sodɪ]

borrow	California	extra	kind of	okra
sort of	sassafras	vice versa	soda	Virginia

* – words with typical AppE lexical interest as well as phonological interest

Appendix F
Validator Agreement of Confidentiality

A Multi-Generation Study of
Appalachian Speech

Validator Agreement of Confidentiality
for Speech-Language Research Project
Melinda L. Richards, Ph.D. Student at the University of Tennessee
Directed by Dr. Lori A. Swanson, Associate Professor
Department of Audiology and Speech Pathology, The University of Tennessee

We are planning to conduct a study of the differences among 30 subjects belonging to each of three generations of speakers of Appalachian English. Total participation time for each participant will be no more than two hours, total time. Should you agree to participate, your task will be to validate the data transcribed by the Principal Investigator (PI).

The information obtained from this project will be included in a dissertation by Melinda Richards, in partial fulfillment of the requirements of the Doctor of Philosophy degree from the University of Tennessee. This information will also be used to help speech-language pathologists and others improve their knowledge of the speech characteristics of different generations of speakers of Appalachian English, and how they in turn differ from previously recorded generations.

If you agree to participate in this project, you will be asked to assist the PI in the study by providing transcriptions of two samples from each generation, or 20 percent of the total subject data, selected at random. You also agree that you will protect the confidentiality of the subject at all times, by keeping private any material that you hear and transcribe.

Statement of Agreement:

Name of Validator _____

I have read this letter of agreement and agree to participate in this study. I understand that my participation in this project is completely voluntary. I agree to keep confidential any information revealed in my presence while participating in this study, in person or by recording. I understand that individual information will not be disclosed to parties outside the study in order that confidentiality will be maintained

_____ Date _____

Signature of Validator

Appendix G

Tables 14 through 21:

Pairwise Comparisons

Across Five Tasks for

Three Generations of AppE Speakers

Table 14

Pairwise Comparisons of [9]] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	16.3	(13.615)
		3	-6.6	(14.617)
		4	-12.6	(15.128)
		5	-18.3	(15.699)
	2	3	-23.0	(16.525)
		4	-28.9	(16.036)
		5	-34.6	(16.298)
	3	4	-6.0	(3.601)
		5	-11.7	(4.512)
	4	5	-5.7	(1.945)
2	1	2	6.2	(19.518)
		3	-20.6	(17.147)
		4	-21.8	(17.675)
		5	-19.9	(17.966)
	2	3	-26.7	(14.714)
		4	-28.0	(14.919)
		5	-26.0	(17.366)
	3	4	-1.3	(8.832)
		5	0.7	(8.843)

Table 14 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
	4	5	2.0	(11.455)
3	1	2	11.8	(18.156)
		3	-17.7	(14.551)
		4	-16.6	(13.252)
		5	-3.4	(16.009)
	2	3	-29.5	(11.589)
		4	-28.4	(10.993)
		5	-15.2	(10.400)
	3	4	1.1	(7.136)
		5	14.4	(8.365)
	4	5	13.3	(7.532)

Based on Estimated Marginal Means

* - $p < .05$

a. Adjustment for multiple comparisons: Sidak

Table 15

Pairwise Comparisons of final unstressed [o] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	.2	(11.869)
		3	30.7	(12.624)
		4	13.9	(8.626)
		5	32.7	(12.524)
	2	3	30.6	(12.053)
		4	13.8	(11.553)
		5	32.6	(11.840)
	3	4	-16.8	(8.081)
		5	2.0	(8.734)
	4	5	18.8	(6.885)
2	1	2	-0.3	(7.661)
		3	1.5	(1.500)
		4	-22.2	(6.903)
		5	-7.9	(5.989)
	2	3	1.8	(6.431)
		4	-22.0	(9.375)
		5	-7.7	(7.181)
	3	4	-23.7	(6.758
		5	-9.4	(5.844)
	4	5	14.3	(6.253)

Table 15 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	-11.2	(19.972)
		3	6.4	(14.249)
		4	4.9	(10.489)
		5	14.8	(10.243)
	2	3	17.6	(17.436)
		4	16.1	(14.548)
		5	26.0	(13.602)
	3	4	-1.5	(10.747)
		5	8.4	(8.400)
	4	5	9.9	(5.152)

Based on Estimated Marginal Means

* - $p < .05$

a. Adjustment for multiple comparisons: Sidak

Table 16

Pairwise Comparisons of final [1] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	-33.0	(11.542)
		3	-0.6	(14.550)
		4	-5.0	(13.565)
		5	4.7	(14.779)
	2	3	32.4	(13.696)
		4	28.0	(15.785)
		5	37.7	(15.232)
	3	4	-4.4	(6.556)
		5	5.3	(9.579)
	4	5	9.7	(7.777)
2	1	2	-13.4	(6.821)
		3	9.9	(9.900)
		4	7.6	(7.600)
		5	7.1	(10.583)
	2	3	23.3	(10.731)
		4	21.0	(9.041)
		5	20.5	(11.725)
	3	4	-2.3	(2.300)
		5	-2.8	(2.800)
	4	5	-0.5	(3.816)

Table 16 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	-2.8	(6.488)
		3	2.8	(2.800)
		4	2.8	(2.800)
		5	2.8	(2.800)
	2	3	5.6	(5.550)
		4	5.6	(5.550)
		5	5.6	(5.550)
	3	4	0.0	(0.000)
		5	0.0	(0.000)
	4	5	0.0	(0.000)

Based on Estimated Marginal Means

* - p < .05

a. Adjustment for multiple comparisons: Sidak

Table 17

Pairwise Comparisons of [e]r] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	-15.5	(17.998)
		3	6.2	(14.224)
		4	9.8	(17.001)
		5	36.6	(15.562)
1	2	3	21.6	(14.961)
		4	25.2	(10.219)
		5	**52.0***	**(10.397)**
	3	4	3.6	(10.197)
		5	30.4	(10.495)
	4	5	26.8	(8.084)
2	1	2	3.5	(3.450)
		3	16.4	(12.783)
		4	-.4	(14.092)
		5	8.3	(11.001)
	2	3	12.9	(14.848)
		4	-3.9	(15.776)
		5	4.8	(11.420)
	3	4	-16.8	(7.741)
		5	-8.2	(10.590)
	4	5	8.7	(11.057)

Table 17 (cont'd)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	-7.1	(16.273)
		3	2.1	(10.823)
		4	-30.1	(14.425)
		5	-18.7	(10.461)
	2	3	9.2	(14.688)
		4	-23.0	(16.710)
		5	-.116	(14.856)
	3	**4**	**-32.2***	**(8.643)**
		5	-20.8	(6.796)
	4	5	11.4	(7.790)

Based on Estimated Marginal Means

* - p < .05

a. Adjustment for multiple comparisons: Sidak

Table 18

Pairwise Comparisons of [ɚ] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	3.7	(2.323)
		3	**33.7***	**(8.582)**
		4	**33.7***	**(7.845)**
		5	**55.7***	**(8.134)**
	2	**3**	**30.0***	**(7.524)**
		4	**30.0***	**(6.791)**
		5	**52.0***	**(8.346)**
	3	4	5.000E-02	(8.645)
		5	22.1	(7.323)
	4	5	22.0	(9.495)
2	1	2	-4.7	(7.396)
		3	.9	(15.134)
		4	16.8	(10.184)
		5	**29.4***	**(7.686)**
	2	3	5.5	(13.965)
		4	21.4	(7.103)
		5	**34.1***	**(6.615)**
	3	4	15.9	(10.397)
		5	28.5	(9.995)
	4	5	12.7	(6.649)

Table 18 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	-17.6	(14.621)
		3	-.9	(10.794)
		4	18.4	(10.329)
		5	22.7	(11.469)
	2	3	16.7	(11.320)
		4	36.0	(9.999)
		5	**40.3***	**(9.869)**
	3	4	19.3	(7.571)
		5	23.6	(8.628)
	4	5	4.3	(4.222)

Based on Estimated Marginal Means

* - p < .05

a. Adjustment for multiple comparisons: Sidak

Table 19

Pairwise Comparisons of [2r] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	0.7	(2.451)
		3	18.4	(8.002)
		4	21.9	(8.299)
		5	**50.4***	**(8.981)**
	2	3	17.7	(7.734)
		4	21.2	(8.316)
		5	**49.7***	**(8.712)**
	3	4	3.5	(4.435)
		5	32.0	(9.260)
	4	5	28.5	(9.036)
2	1	2	-3.0	(5.830)
		3	12.7	(6.744)
		4	16.5	(8.400)
		5	34.1	(9.612)
	2	3	15.7	(6.606)
		4	19.5	(7.227)
		5	**37.1***	**(7.397)**
	3	4	3.8	(8.366)
		5	21.4	(8.418)
	4	5	17.6	(4.943)

Table 19 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	5.6	(2.773)
		3	**33.1***	**(8.202)**
		4	**44.9***	**(8.894)**
		5	**68.8***	**(4.413)**
	2	3	27.5	(9.030)
		4	**39.4***	**(8.912)**
		5	**63.3***	**(4.351)**
	3	4	11.9	(13.336)
		5	**35.8***	**(8.113)**
	4	5	23.9	(7.615)

Based on Estimated Marginal Means

* - $p < .05$

a. Adjustment for multiple comparisons: Sidak

Table 20

Pairwise Comparisons of [ð] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	1.7	(2.590)
		3	-17.4	(11.118)
		4	-15.7	(7.886)
		5	-2.4	(9.664)
	2	3	-19.1	(10.893)
		4	-17.4	(7.079)
		5	-2.4	(9.664)
	3	4	1.7	(7.104)
		5	16.7	(9.444)
	4	5	15.0	(9.336)
2	1	2	4.1	(2.018)
		3	8.4	(10.063)
		4	0.2	(9.135)
		5	**-38.8***	**(4.373)**
	2	3	4.3	(11.034)
		4	-4.0	(9.622)
		5	**-42.9***	**(5.053)**
	3	4	-8.3	(8.505)
		5	**-47.2***	**(9.574)**
	4	5	-39.0	(9.637)

Table 20 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	2.0	(3.371)
		3	-7.3	(10.001)
		4	-4.8	(7.211)
		5	**-48.2***	**(6.506)**
	2	3	-9.3	(9.028)
		4	-6.8	(6.462)
		5	**-50.2***	**(5.921)**
	3	4	2.6	(9.857)
		5	**-40.9***	**(8.563)**
	4	**5**	**-43.4***	**(6.467)**

Based on Estimated Marginal Means

* - p < .05

a. Adjustment for multiple comparisons: Sidak

Table 21

Pairwise Comparisons of [q] Across Five Tasks for Three Generations of AppE Speakers

Generation	Task	Task	M Difference	(Std. Error)
1	1	2	-4.8	(3.455)
		3	-33.0	(9.683)
		4	**-45.1***	**(10.941)**
		5	8.0	(8.005)
	2	3	-28.3	(8.807)
		4	**-40.4***	**(10.134)**
		5	12.8	(8.631)
	3	**4**	**-12.1***	**(1.925)**
		5	**41.0***	**(8.421)**
	4	**5**	**53.1***	**(9.074)**
2	1	2	-1.1	(4.632)
		3	-32.4	(8.879)
		4	**-53.2***	**(8.071)**
		5	-13.1	(11.027)
	2	**3**	**-31.3***	**(7.775)**
		4	**-52.2***	**(5.465)**
		5	-12.1	(10.021)
	3	4	-20.9	(5.895)
		5	19.3	(13.177)
	4	**5**	**40.1***	**(10.047)**

Table 21 (cont'd.)

Generation	Task	Task	M Difference	(Std. Error)
3	1	2	-0.2	(1.075)
		3	-19.4	(9.312)
		4	**-37.5***	**(8.776)**
		5	**18.4***	**(4.438)**
	2	3	-19.2	(9.135)
		4	**-37.3***	**(8.829)**
		5	**18.6***	**(4.629)**
	3	4	-18.1	(14.268)
		5	**37.8***	**(8.346)**
	4	**5**	**55.9***	**(8.790)**

Based on Estimated Marginal Means

* - p < .05

a. Adjustment for multiple comparisons: Sidak

VITA

Melinda L. Richards was born in Covington, Tennessee on 11 August 1952. She attended pubic school in Greeneville, Tennessee, where she graduated from Greeneville High School in 1970. She entered Tennessee Technological University, Cookeville, Tennessee in 1970 graduating in 1974 with the Bachelor of Science in Music Education (Magna Cum Laude), with dual teaching certifications in instrumental and choral music, K-12. She was granted a leave of absence from her first teaching position to enter the Master of Music program at the University of Tennessee in 1977, graduating in 1979. Upon graduation, she entered the United States Air Force and was commissioned a second lieutenant, to pursue a career as commander and conductor of bands, rising to the position of Command Band Staff Officer, the first woman in history to do so. In 1990, she returned to school to begin studies in speech-language pathology at Middle Tennessee State University and Tennessee State University concurrently, completing the endorsement in speech and hearing to her teaching license in 1990; and the Certificate of Clinical Competence from the American Speech and Hearing Association in 1992.

She was speech pathologist in the Putnam County Schools from 1990-1997. In 1993, she returned to the University of Tennessee to pursue the Doctor of Philosophy degree in speech science, with a second interest in voice pathology of the professional voice user. In 1997, she joined the faculty at Middle Tennessee State University, and will attain the rank of Assistant Professor upon graduation.