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Perceptions of the Effects of Vocal Fry on Aspirational Careers in Prospective Job Markets

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Running head: VOCAL FRY

Perceptions of the Effects of Vocal Fry on Aspirational Careers in Prospective Job

Markets

Darby Kunnemann

Program in Communication Disorders

Honor Thesis

Spring 2017

Abstract

With the job market becoming increasingly difficult to enter, coupled by a growing public distaste for vocal fry, the question of the study is to determine if participants of the study in the general public can detect vocal fry, and if so, if it has an effect on which voice a participant would choose to hire for a position. The participants included 64 people residing in the United States, ranging from the ages 20-70 with varying backgrounds. Data was collected using an online questionnaire that included recorded voice samples. The study found that male students more accurately identifying vocal fry in males and females. Students more accurately identify vocal fry in males than employers, but employers are more accurate in identifying vocal in females than students. Lastly, minimal amounts of vocal fry in both male and female speakers results in career selections that involve more expertise or greater amount of time spent in speaking roles.

Perceptions of the Effects of Vocal Fry on Aspirational Careers in Prospective Job Markets

The way a person chooses to talk, form his words, and combine parts of grammar to construct dictation creates an individual's identity. A key identifier is the pitch an individual speaks in, called a vocal register. Vocal registers vary from the high, tin-like sound of falsetto, to the hushed, barely audible sound of a whisper. The vocal register known as vocal fry has grown in both use and popularity in the past ten years. Identified by the guttural, vibrating tone, young men and women between the ages of 20-25 have adopted the vocal range in everyday conversation. While the younger generation has no perceived grievances with the tone, the older generation has voiced complaints about the notations associated with vocal fry. The older generations have identified the register as unintelligent and believe it reflects poorly on the speaker, especially when used by young women (Sicoli 2015). Their opinion on the register contradicts earlier beliefs that speaking in a lower tone commanded respect and masculinity. The changed opinion over voice production leaves some young speakers fearful for their future. With the older generation voicing public distaste for vocal fry in conversation, those fighting to finding careers in the increasingly competitive and demanding job market speculate if speaking in vocal fry could damage prospective opportunities with employers from older generations. With the job market becoming increasingly difficult to enter, coupled

by a growing public distaste for vocal fry, the question of the study is to determine if participants of the study in the general public can detect vocal fry, and if so, if it will have an effect on which voice a participant would choose to hire for a position.

Review of the Literature

Vocal Registers

Voice registers fall within the category of linguistic registers, in which the primary marker is an acoustic voice quality layered on a string of speech and used in speech situation to define participant activities, stances, and role with predictability (Sicoli, 2015). While vocal quality was previously considered a result of natural or habitual musculature in the vocal tract, speakers use various voice registers at will that create sociolinguistic purposes in discourse. English speakers primarily use five major vocal categories, sorted by vibration, friction, pressure, and air flow of the vocal folds.

The modal register is often considered the normal voice an individual uses when speaking. It includes the range of fundamental frequencies often used in speaking and singing. Many speech language pathologists find the modal register as the most efficient register (Seikel, King, & Drumright 2010).

Falsetto, with high tension in laryngeal features, is often used to achieve higher pitches outside the modal range. The vocal range is often used as a way to better express a speaker's opinion. Studies speculate that the common practice of

using falsetto in evaluation, engaging audiences, expressing surprise, enlivening quotations, and yelling converge at the idea of better 'expressiveness' in discourse (Podesva, 2007). Falsetto is also seen with relation to the 'motherese' register, characteristic of "Euro-American white middle-class child socialization" (Sicoli, 2015, p. 113). The higher range of pitch allows for children to better comprehend key terms and develop key language skills.

The whisper voice is marked by the triangular opening of the glottis with low adductive tension and moderate to high medial compression (Sicoli, 2015). The register associates with the ideas of secrecy and intimacy. The use of the whisper register connects with the concept of restriction. In Meso-American culture it often applies to restricting access of a conversation by inviting one member to converse and excluding others.

Breathy voice features looseness of the vocal folds paired with aperiodic vibration, and often with subtle detectable friction (Sicoli, 2015). Speaking in a breathy register often includes higher-pitched gasping expressions to a lower-pitched speaking tone. Studies associate breathy voice with the stereotypical femininity of famous female starlets, including those of Marilyn Monroe. It ties in with the typical "sweet voice" that pairs ends of vocal segments with a complete breath.

Lastly, the vocal fry register identifies by strong adductive tension, medial

compression, and low airflow in the vocal folds (Sicoli, 2015). The low vocal register has many names and is often referred to as glottal fry, creaky voice, laryngealized voice, or glottalized voice (Blum, 2016). Society has developed a growing interest in the appearance of creaky voice, or more scientifically known as vocal fry, within the past twenty years. The thoughts and opinions of vocal fry have changed throughout the years, depending on the location and speaker using vocal fry. When used by the Hispanic-American culture identified as chicanas, vocal fry creates a “hardcore gang-girl persona”, but when spoken by upper mobile white American females, listeners find vocal fry as “annoying, irritating, or fashion fad” (Sicoli, 2015 p.114). However, the most accepted reason for vocal fry is to demonstrate an authoritative stance.

Vocal Fry in America

Regardless of society’s opinion on the vocal register, an apparent growth in vocal fry has occurred within the United States. As women began to enter the workforce in the 1950s, they were often criticized for their high pitch. The association between masculinity and vocal fry became a strategy to project an authoritative, male image.

However, vocal fry has only recently received attention. Studies dating back to the 1960s show few in the public could recognize the vocal register, let alone produce it on command (Oliveria, Davidson, Holczer, Kaplan, & Paretzky, 2015). A noticeable trend began in 1965, where the trend for women to speak with a low-

pitched voice took a strong hold, in contrast to the habit of ladies speaking with a high pitch for over 50 years. The spark in interest began in the 2000s, as the register became more common and identifiable.

As recent as 2015, researchers found that vocal fry was considered to enhance American women's desirability (Oliveria, et al., 2015). Attractive women in the spotlight, from singers like Brittany Spears to actresses like Scarlett Johansson, are known for their vocal fry production. Some researchers relate this to the growing use of vocal fry in American females between the ages of 18-25 years, having noted that younger women produce more vocal fry than middle aged women (Oliveria, et al., 2015).

Researchers speculate the spread of vocal fry in daily use of American English stems from California English (Yuasa, 2010). California English was the birthplace of the 'uptalk' vocal register, where speakers would end a statement at a higher pitch than at the beginning, and serves a cultural source of social phenomena. The higher geographic mobility among women create a greater ability to encounter and assimilate vocal function not commonly found in an individual's native dialect, and subsequently spreads the features to the next geographic location (Yuasa, 2010). Beyond geography, creating vocal fry is easier among women than men. The vocal register is created by the vocal folds adducting and bunching. Both can create the vocal register due to vocal cord length and volume having no effect on vocal fry

phonation (Yuasa, 2010). Females may slip into the vocal register with more ease than males due to female's having shorter vocal fold length and contributes to the bunching of vocal fry (Yuasa, 2010).

The use of vocal fry has a small, centered niche of users. White, upwardly mobile females between the ages of 18-25 create the greatest population of vocal fry users in the United States. An apparent growth in vocal fry has occurred within college students. According to a 2012 study by Lesley Wolk, Abedilli-Beruh Nassima, and Dianne Slavin, two-thirds of female college students between the ages of 18-25 use vocal fry. Males are not excluded from the growing use. In 2014, a prevalence of vocal fry in male college students (Nassima, Wolk, & Slavin). In comparison, black males and females use less vocal fry than the college-aged demographic, and instead uses falsetto more often in conversation (Sicoli, 2015). Researchers theorize "single index of power and authority afforded by the ultra low pitch of creaky voice may appear more effective where the index of whiteness positions a woman closer to the axis of white, male authority" (Sicoli, 2015 p. 117).

Perceptions of Vocal Fry

In history, vocal fry was considered a male speech marker. Studies by Podesva and Callier (2015) show evidence that vocal fry predominates the speech of men in Europe. In a study completed in the 1980s, British English male speakers and Modified Northern British English speakers used creaky voice more often than

females.

However, a shift in vocal fry occurred as American women began to enter the workforce. In the 1950s, they were often criticized for their high pitch. A noticeable trend began in 1965, where the trend for women to speak with a low-pitched voice took a strong hold, in contrast to the habit of ladies speaking with a high pitch for over 50 years. The association between masculinity and vocal fry became a strategy to project an authoritative, male image. The correlation between low pitch and low frequencies signaled power and greater masculinity (Yuasa, 2010). Yuasa suggested that creaky voice aligned with high social standings, “possibly from the impression that creaky voice is more characteristic of males” (2010 p.317).

Studies by Sicoli appear to agree with the concept that vocal fry signals power and high social status, as seen in the conversation sample of two female graduate students and one undergraduate student (2015). Vocal fry use by the speaker increased as the speaker maintained more control of the conversation, usually due to an increased knowledge of a subject of conversation. This portrayal carries over into the social perception of American women. In the media, actresses who play strong American female roles use more vocal fry in their dialogue than in British roles, noticeably in actresses like Reese Witherspoon, Renée Zellweger, and Gwyneth Paltrow (Oliveria, et al., 2015).

Beyond the ability to portray authority, Yuasa speculated that vocal fry could

also display comfort, sympathy, and positivity (2010). Her studies agree with the speculation, stating that the listeners in the study viewed vocal fry as “casual, educated, genuine, and compliant”, summarizing the study as one that views the register in a positive light.

Opinions about the steadily growing vocal range have received mixed judgments from peers. In the widely cited Yuasa (2010) study, participants found that females who used vocal fry were considered upwardly mobile, professional, and urban. However, more recent studies have shown a public disdain for the vocal range. Feminists, professionals, and journalists have put down the use of vocal fry, citing it as annoying and unintelligent.

A 2014 PLOS study asked participants to listen to males and females speaking with vocal fry, and then select their opinions from a list of adjectives. The study revealed that vocal fry in females made them appear less competent, educated, trustworthy, attractive, and hireable (Anderson, Klofstad, Mayew, & Venkatachalam, 2014). The study went on to suggest females restrict their use of vocal fry to maximize job market success.

Summary and Questions of the Study

As can be seen from this review of the literature, vocal fry while a condition identified for many years in speech-language pathology is now a use of voice commonly heard in college age individuals. It is also clear from the literature that a

common 'herd' habit of vocal use by a young population may not be valued by employers. This leads to the specific questions of this study.

1. Do males versus female college students recognize vocal fry to the same degree?
2. Is there a difference in the recognition of vocal fry between students and employers?
3. Does the presence of vocal fry affect the occupation preference in potential employers?

Methods

Participants:

Fifty participants were sought for this study. The participants ranged from ages 20-70, with varying educational and vocational backgrounds. All lived in the United States and were English speaking.

Measures:

A questionnaire developed from the research literature on vocal fry was used to collect data (See Appendix A). This questionnaire consisted of two parts. Part one of the questionnaire included questions pertaining to age, educational background, sex, current state residence, employment history, and experience in hiring. Part two included six voice samples all saying the phrase "thank you for your time". Three voice samples were male and three were female, with one male and one female displaying low vocal fry, one male and one female displaying low vocal fry, and one

male and one female displaying high vocal fry. After listening to the recordings, the participants selected the voice samples they believed displayed vocal fry. The questionnaire then prompted the participants to categorize the voice samples into the following categories: do not hire, hire for general labor, hire for law/law enforcement, hire for management, hire for medicine, hire for sales, hire for teaching, and hire for other.

Procedure

The questionnaire of the study was distributed via social media using a digital questionnaire platform, e.g., Qualtrics. Participants took the questionnaire with no incentives. The questionnaire was administered online so it could be completed from any location with no time constraints. The questionnaire did need to be completed in one logon.

Analysis

The results of the questionnaire were analyzed by finding the percentages of correct and incorrect responses with regards to identifying vocal fry. Responses were deemed correct if the participant could identify vocal fry in both the low vocal fry and high vocal fry voice samples, and responses lacking both selections were coded as incorrect. Responses that included a selection of the voice sample without vocal fry were also coded as incorrect as well as a false positive. Participant groups that displayed a lower percentage of errors in the voice sample selection were

deemed as having a higher percentage of accuracy. Responses regarding vocational choices were displayed as whole numbers.

Results

Demographics

Ninety individuals, ranging from the ages of 20-70, originally participated in the study. All were from the United States and English-speaking. Twenty-six questionnaires were incomplete and excluded from the data analysis. Of the sixty-four remaining participants, nineteen were male and the remaining forty-five were female. Twenty-seven participants identified as students, thirty-four identified as employers, and three identified as students and employers. (See Figure 1)

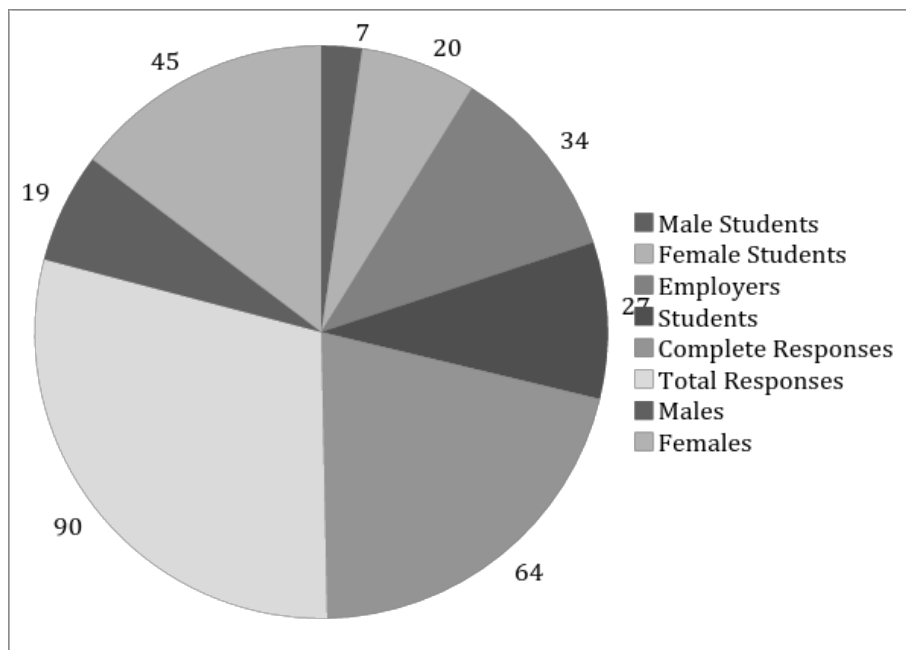


Figure 1: Participant Demographic

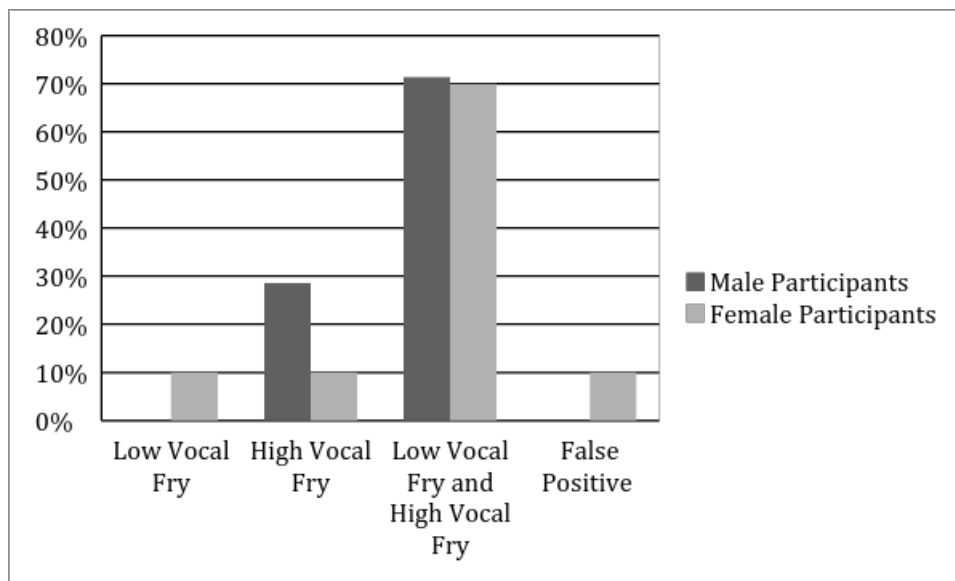
Vocal Fry Recognition in College Students

Participants completed questions in the questionnaire to determine participant's genders and identification. Of the sixty four participants, twenty seven were students. Seven identified as male and twenty identified as female. The student participants were asked to listen to three male voice samples and three female voice samples displaying no vocal fry, low vocal fry, and high vocal fry. The questionnaire prompted the participants to select any voice samples that displayed vocal fry, with the correct responses including selections of both the low vocal fry and high vocal fry voice samples.

Male participants displayed a higher percentage of accuracy when identifying vocal fry in male voice samples. Seventy-one percent of the male student participants accurately identified vocal fry in the low vocal fry and high vocal fry voice samples, twenty-nine percent of the male student participants identified vocal fry in the high vocal fry voice sample, zero percent of male student participants identified only low vocal fry, and zero percent of male participants falsely identified vocal fry: twenty nine percent of male students were unable to identify both low and high vocal fry. In contrast, seventy percent of the female student participants identified vocal fry in the low vocal fry and high vocal fry voice samples, ten percent identified vocal fry only in the low vocal fry voice sample, ten percent identified vocal fry only in the high vocal fry voice sample, and ten percent of the female

student participants falsely identified vocal fry: thirty percent of female students were unable to identify both low and high vocal fry. (See Table 1 below.)

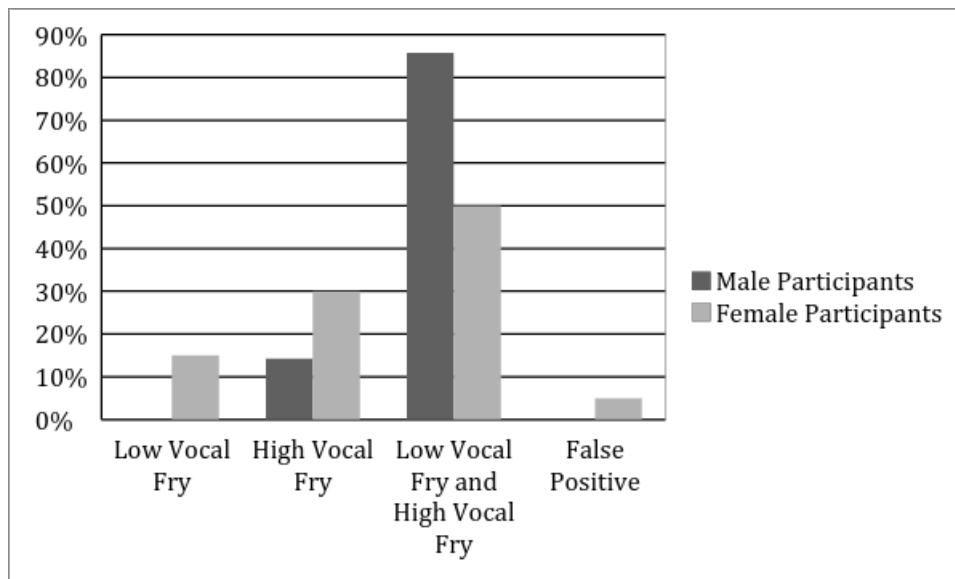
Table 1: Identification of Vocal Fry in Male Voice Samples by College Students



Male participants also displayed a higher level of accuracy when identifying vocal fry in female voice samples. Eighty-six percent of male student participants identified vocal fry in the low vocal fry and high vocal fry voice samples, 14% only identified vocal fry in the high vocal fry voice sample, zero percent identified vocal fry in the low vocal fry voice sample, and zero male participants falsely identified vocal fry. Fourteen percent of male student participants were unable to identify either low or high vocal fry. The female participants did not perform as well as the male participants. Only 50% of the female student identified vocal fry in the low vocal fry and high vocal fry voice samples, 30% only identified vocal fry in the high

vocal fry voice sample, 15% identified vocal fry in the low vocal fry voice sample, and five percent falsely identified vocal fry. Fifty percent of female student participants were unable to identify both low and high vocal fry. (See Table 2 below.)

Table 2: Identification of Vocal Fry in Female Voice Samples by College Students



Vocal Fry Detection between Students and Employers

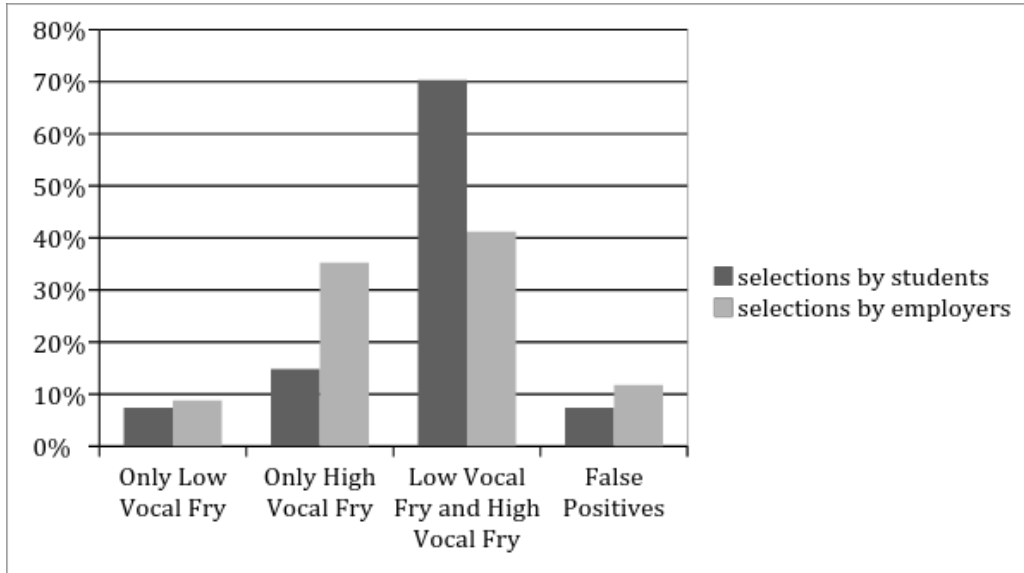
Items on the questionnaire were included to determine participant's identification as students and/or employers. Of the sixty-four participants, twenty-seven were students and thirty-four were employers. Participants were asked to listen to three male voice samples and three female voice samples displaying no vocal fry, low vocal fry, and high vocal fry. The questionnaire prompted the participants to select any voice samples that displayed vocal fry, with the correct

responses including selections of both the low vocal fry and high vocal fry voice samples.

Students showed a higher overall percentage of accuracy when identifying vocal fry in male voice samples. Seventy percent of students identified vocal fry in the low vocal fry and high vocal fry voice samples. Fifteen percent identified vocal fry only in the high vocal fry voice sample. Seven percent identified vocal fry only in the low vocal fry voice sample and seven percent of students falsely identified vocal fry during the sample selection. Twenty-nine percent of student participants were unable to identify either low or high vocal fry.

In comparison, 41% of employers identified vocal fry in the low vocal fry and high vocal fry voice samples. Thirty-five percent only identified vocal fry in the high vocal fry voice sample, nine percent only identified vocal fry in the low vocal fry voice sample, and twelve percent of employer participants falsely identified vocal fry during the sample selection, which was coded as incorrect. Fifty-six percent of employer participants did not correctly identify both low and high vocal fry. (See Table 3 below.)

Table 3: Student and Employer Identification of Vocal Fry in Male Voice Samples

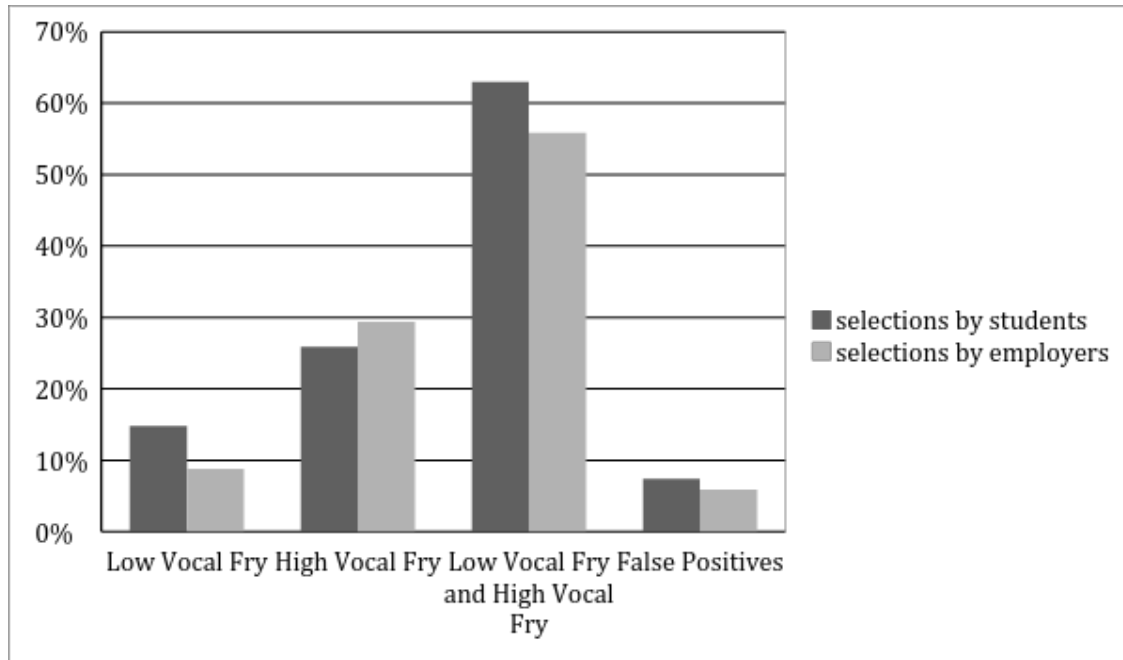


Students displayed a lower overall percentage of accuracy when identifying vocal fry in female voice samples. Sixty-three percent of students identified vocal fry in the low vocal fry and high vocal fry voice samples. Twenty-six percent only identified vocal fry in the high vocal fry voice sample. Fifteen percent of students only identified vocal fry in the low vocal fry voice sample, and seven percent falsely identified vocal fry in the sample selection. Forty-eight percent of students were unable to identify both low vocal fry and high vocal fry.

In contrast, 56% of employers identified vocal fry in both the low vocal fry and high vocal fry voice sample. Twenty-nine percent only identified vocal fry in the high vocal fry voice sample. Nine percent only identified vocal fry in the low vocal fry voice sample, and six percent falsely identified vocal fry in the voice sample selection. Forty-four percent of employer participants were unable to identify vocal

fry in the low vocal fry sample and high vocal fry sample. (See Table 4 below.)

Table 4: Student and Employer Identification of Vocal Fry in Female Voice Samples



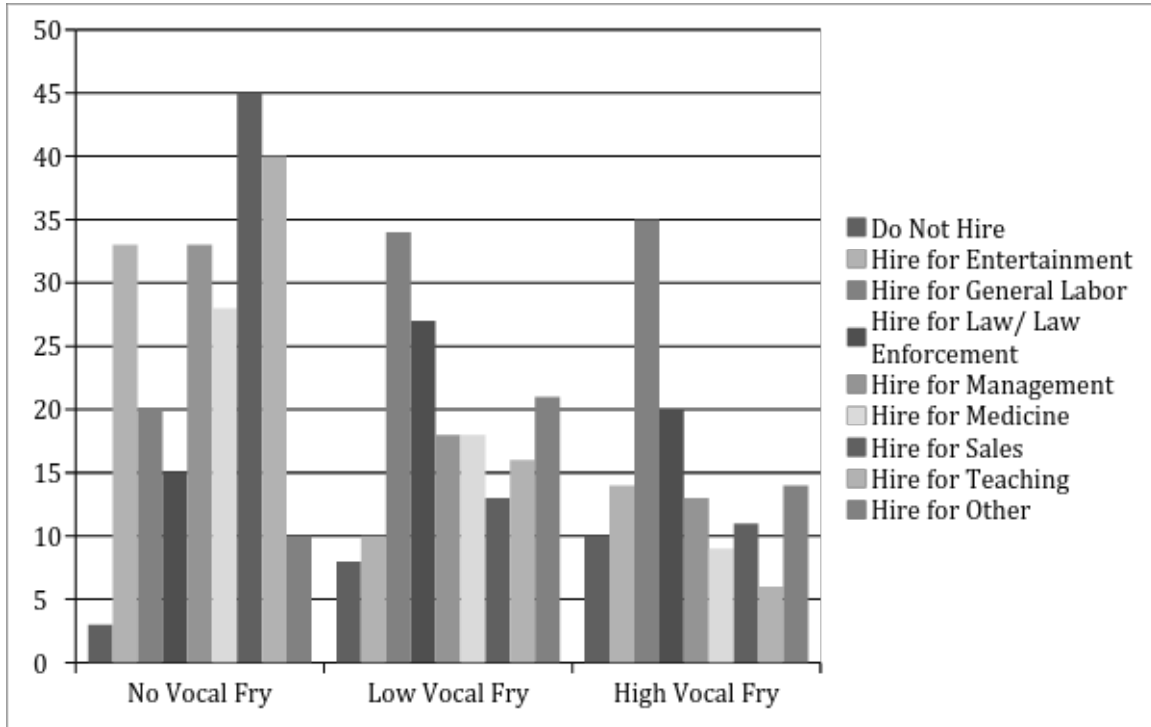
The Presence of Vocal Fry and its Effects on Occupational Preference

After all participants listened to the voice samples, the participants selected which/any jobs they would select for male voices displaying no vocal fry, low vocal fry, and high vocal fry, and the female voices displaying no vocal fry, low vocal fry, and high vocal fry. The participants chose from the following selections: do not hire, hire for entertainment, hire for general labor, hire for law/law enforcement, hire for management, hire for medicine, hire for sales, hire for teaching, and hire for other.

For the male voice samples, the results were as followed. For the voice sample displaying no vocal fry, three participants selected do not hire, 33 selected

hire for entertainment, 20 selected hire for general labor, 15 selected hire for law/law enforcement, 33 selected hire for management, 28 selected hire for medicine, 45 selected hire for sales, 40 selected hire for teacher, and 10 selected hire for other. For the voice sample displaying low vocal fry, eight participants selected do not hire, 10 selected hire for entertainment, 34 selected hire for general labor, 27 selected hire for law/law enforcement, 18 selected hire for management, 18 selected hire for medicine, 13 selected hire for sales, 16 selected hire for teaching, and 21 selected hire for other. For the voice sample displaying high vocal fry, 10 participants selected do not hire, 14 participants selected hire for entertainment, 35 selected hire for general labor, 20 selected hire for law/law enforcement, 13 selected hire for management, nine selected hire for medicine, 11 selected hire for sales, six selected hire for teaching, and 14 selected hire for other. (See Table 5 below.

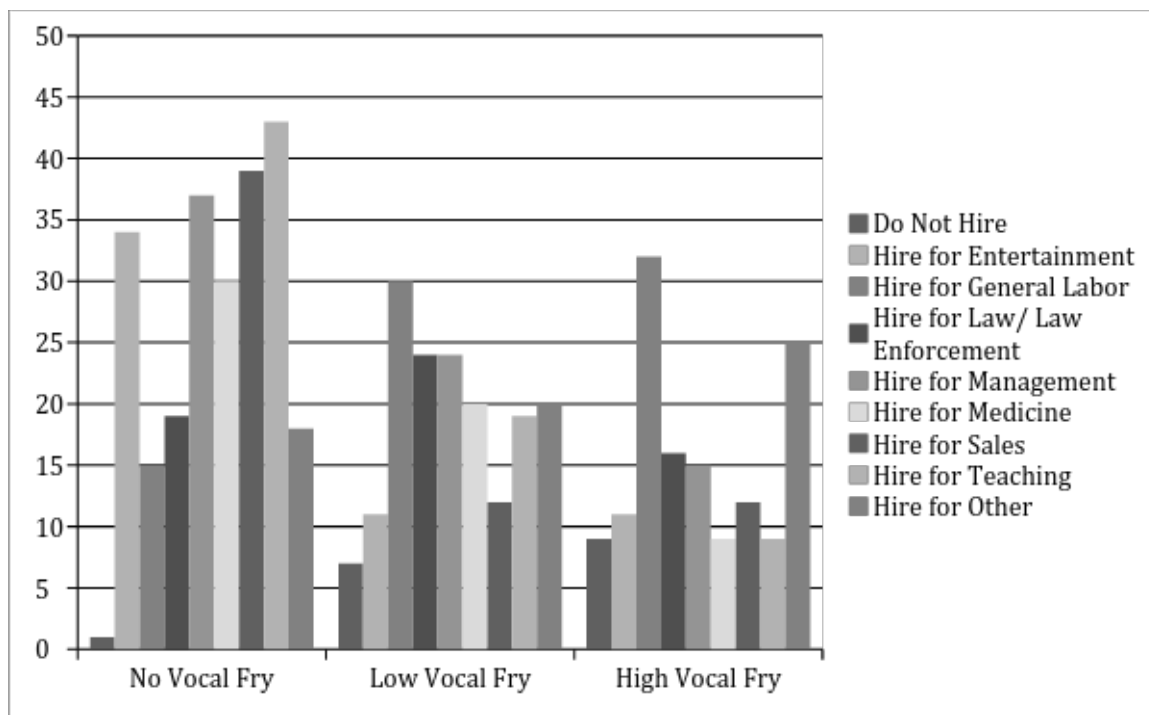
Table 5: Total Participant Job Preference in Male Voice Samples



For the female voice samples, the results were as followed. For the voice sample displaying no vocal fry, one participant selected do not hire, 34 selected hire for entertainment, 15 selected hire for general labor, 19 selected hire for law/law enforcement, 37 selected hire for management, 30 selected hire for medicine, 39 selected hire for sales, 43 selected hire for teaching, and 18 selected hire for other. For the female voice sample displaying low vocal fry, seven participants selected do not hire, 11 selected hire for entertainment, 30 selected hire for general labor, 24 selected hire for law/law enforcement, 24 selected hire for management, 20 selected hire for medicine, 12 selected hire for sales, 19 selected hire for teaching, and 20 selected hire for other. For the female voice sample displaying high vocal fry,

nine participants selected do not hire, 11 selected hire for entertainment, 32 selected hire for general labor, 16 selected hire for law/law enforcement, 15 selected hire for management, nine selected hire for medicine, 12 selected hire for sales, nine selected hire for teaching, and 25 selected hire for other. (See Table 6 below.)

Table 6: Total Participant Job Preference in Female Voice Samples



Discussion

The current study examined how the perceptions of vocal fry affect careers in prospective job markets. The specific goals were to examine differences in recognizing vocal fry between male and female college students, compare the vocal

fry recognition ability between students and employers, and determine if the presence of vocal fry change the occupation preference in potential employers. The results provided insight to the detection ability between males and female students, employers and students, and how the presence of vocal fry alters the opinions of employers.

The results show that male students have a higher percentage of accuracy when detecting vocal fry between male and female voice samples. Very little literature exists about vocal fry perception, especially between sexes, so the results were unexpected (Anderson, Klofstad, Mayew, & Venkatachalam, 2014). The results also suggest that females show a lower ability to detect vocal fry, which could explain that the higher prevalence of vocal fry in females results from a lack of self-identification of the vocal register.

The results regarding detection differences between students and employers were also interesting. Students only showed a higher rate of detection of vocal fry in males while employers showered a higher rate of detection of vocal fry in females. The employers displayed a significantly higher margin of error when detecting vocal fry in males compared to students than when detecting vocal fry in females. Data provided from the 2011 study by Wolk (2011) illustrates how male vocal fry is less prevalent in male college students than females, which could explain why employers displayed greater difficulty identifying vocal fry in males, as they had fewer

instances hearing the vocal register.

A number of studies have demonstrated that the presence of vocal fry in female voices leads to negative outcomes with relation to job markets. Specifically, women displaying vocal fry are likely to appear less hireable, and to a greater extent less hireable than males who display vocal fry (Anderson, Klofstad, Mayew, & Venkatachalam, 2014). However, the results from the third question of the study, which asked if the presence of vocal fry affects job preference, is not consistent with the aforementioned study. Regardless of the voice sample sex, participants assigned samples that displayed more vocal fry with professions that required less skill. The responses provided by participants regarding voice samples that displayed low and high vocal fry, however, do agree with literature provided by a 2014 PLOS study. A greater number of participants provided more selections for the voice samples that displayed minimal to no vocal fry, and chose professions that involved more speaking and prestige than the voices with a greater level of vocal fry. These results demonstrate that not only in female voices, but also male voices, that minimal vocal fry provides better job opinions by listeners.

The results of the study suggest that vocal fry does affect careers in the job market. Those who display a lower level of vocal fry, regardless of sex, are considered to fill positions that involve large speaking roles and expertise. Employers show a greater capacity to identify vocal fry in females over males when

compared to students, and male students have the greatest ability to identify vocal fry in both males and females.

Limitations

While the study sought to provide data on perceptions and the effects of vocal fry in prospective job markets, there were several limitations. The online questionnaire platform allowed for participants to save and leave unfinished questionnaires. Due to the nature of the anonymous link, the researcher could not remind participants to complete the questionnaire and their incomplete data could not be included in the study. Participants who completed the questionnaire commented on how the first question, "please check the box that best describes your current position: student, employer, student and employer" did not include an option for those who were neither a student nor an employer. The voice recordings were made by student volunteers with no experience in vocal training. The three levels of vocal fry were determined by the volunteers and researchers, without a scientific discriminator for the vocal fry degrees. Fourth, the voice recording phrase used in the questionnaire, "thank you for your time", lasted two seconds. The participants were allowed to replay the audio clips as many times as necessary, but a longer phrase would have provided more time for the participants to detect vocal fry in the recordings. Fifth, in the questions "for each of the three voices, which one would you prefer to hire and in what kind of job?" an answer option was "Hire for

Other", but did not provide an option for participants to describe the specific professional field for the voices.

Future Directions

Future studies should include a larger sample size. In addition, it would prove beneficial to use voice recordings made by voice actors providing longer audio phrases to benefit the participants. Remediating the question errors could lead to more detailed and accurate results, as well as providing an opportunity for researchers to remind participants to complete questionnaires. Information recorded by the questionnaire regarding to levels of education, regional locations, and age could be further analyzed to better understand the responses provided by participants.

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Appendix A

Vocal Fry Questionnaire

1. Please check the box that best describes your current occupation.
 Student Employer Student and employer
2. What is your gender? Male Female Other
3. How old are you in years?
 20-25 26-30 31-40 41-50 51-60 61-70 older than 70
4. What region of the United States do you reside?
 Southeast Northeast Midwest Southwest West
5. What is your highest level of education?
 High School Some College Associate's Degree
 Bachelor's Degree Master's Degree Ph.D. or Professional Degree
(MD, JD, etc.)
6. What is your employment status? Employed Unemployed
7. What is your employment level? Employee Management
8. Have you ever been apart of the employment process? Yes No

Part 2: Vocal fry is a low-pitched, rough or creaking way of speaking.
Listen to the three vocal recordings and then answer the following questions.

9. Which of the male voices exhibit vocal fry? A B C

Appendix B

IRB Approval

February 23, 2017

MEMORANDUM

TO: Darby Kunnemann
Fran Hagstrom

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 17-02-436

Protocol Title: *Perceptions of the Effects of Vocal Fry on Aspirational Careers in Prospective Job Markets*

Review Type: EXEMPT EXPEDITED FULL IRB

Approved Project Period: Start Date: 02/20/2017 Expiration Date:
02/19/2018

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<https://vpred.uark.edu/units/rscp/index.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 200 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu