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SCHREYER HONORS COLLEGE

SCHOOL OF HOSPITALITY MANAGEMENT

Silent Selection:
Identifying predictors of hotel choice with regard to accommodations in the Deaf and Hard-of-Hearing community

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ABSTRACT

The present study examines deaf and hard-of-hearing individuals' desire for accommodations in hotels among a sample of 108 hearing-impaired respondents. Specifically, this research investigates several demographic variables—primary method of communication, age, sex, highest education level, annual household income, and employment status—and two scenario-based variables—traveling alone versus with a companion and traveling for one night versus multiple nights. The results demonstrated that, of the demographic variables, only employment status had an effect on hotel choice. Of the scenario-based variables, lone-travelers and multi-night travelers were more likely to select additional accommodations, regardless of a price premium, than group-travelers and single-night-travelers respectively. Implications in the context of hotel marketing and reservations systems are discussed.

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Introduction

It has been determined that roughly 16.1% of adults between the ages of twenty and sixty-nine have some form of speech-frequency hearing loss which detrimentally impacts their ability to communicate with others through verbal language (Agrawal, et al., 2004). Hospitality organizations and professionals ought to take care to pay attention to the needs of this particular age group as it is the demographic of most travelers for both business and pleasure. Adults between the ages of twenty and sixty-nine are currently the most highly traveled age bracket, and their trend of travel is also increasing the fastest compared to other age groups (Beckendorff, et al., 2010).

Under Title III of the Americans with Disabilities Act of 1990, as amended (ADA), discrimination on the basis of ability, denial of participation, participation in unequal benefit, and separate benefit are illegal (Americans with Disabilities Act, 1990). The intent of the ADA is to diminish and eventually eliminate the issues that all disabled persons--including deaf and hard-of-hearing individuals--face with regard to public accommodations. Although this objective is very straightforward, the terms established to achieve this goal are very unclear and leave much to the interpretation of what is necessary and what is reasonable. The regulations and required accommodations in place by the ADA are intended to span across all public buildings and organizations; as such, they must be relatively vague in order to apply universally. These basic principles establish a foundational level of accommodations for all public facilities and leave the opportunity for organizations to expand upon what is required, offering accommodations that allow for more access and inclusivity as each firm sees fit. This is an area that hotels can take advantage of to be able to serve deaf and hard-of-hearing individuals well as a means of increasing the amount that this particular demographic chooses to stay with their brand. Since

over an eighth of those that travel in the United States have some form of a speech-frequency hearing loss (Agrawal, et al., 2004), it would be advantageous for the hotel industry to cater more specifically to the needs and desires of this demographic.

Because of this opportunity for the hotel industry and to gain knowledge concerning the trends and desires of this group of deaf and hard-of-hearing individuals, this study will seek to determine several things. This study will examine whether demographic variables—such as primary method of communication, age, sex, highest education level, annual household income, and employment status—and scenario-based variables—traveling alone versus with a companion and traveling for one night versus multiple nights—have an effect on the desire for access to accommodations. This study will also examine whether these demographic and scenario-based variables have an effect on deaf and hard-of-hearing individuals' propensity to spend with respect to hotel room nights.

Literature Review

Economic Principles Relating to Propensity to Spend

Looking at the literature that currently exists relating to how individuals choose to spend their money, a clear pattern, depicted in Figure 1, is understood.

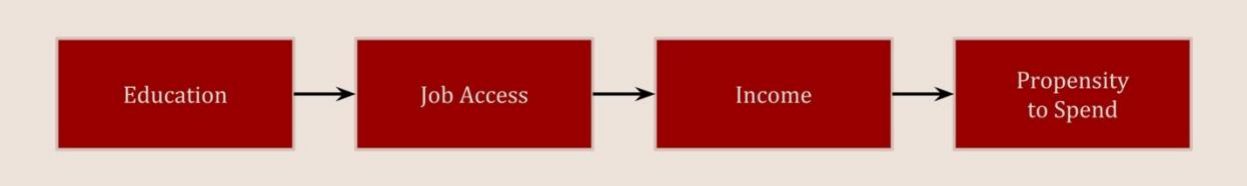

Figure 1. Economic Principle of Propensity to Spend

It has been demonstrated that, on a national scale, persons with higher levels of education experience a higher rate of employment (OECD, 2018). This is due, in large part, to the fact that candidates for open positions within an organization are oftentimes more qualified and more desirable individuals to fill this position. Of the persons looking for work, those with at least a four-year degree are 48.3% more likely to be invited to interview with a recruiter (Drydakis, 2019). Not only are individuals with college degrees more likely to be hired but there is also a hierarchy of degree holders that is present in the arena of job access--organizations often hold particular universities in higher esteem than others and consider applicants of these schools above that of others (Drydakis, 2019).

There is also a connection between education level and income--due largely to job access which, as has been detailed above, is mediated by education level. It has been supported that the average household income of persons with higher levels of education is greater than that with lower levels of education. Looking at a study of family income levels, there is a significant difference between families whose primary breadwinner has completed only elementary school, has completed some level of informal trade school education but has not received any

certification, has completed post-secondary education or vocational school, and has completed post-graduate degrees. Those with minimal education, 13% of the population, have an income that is only 71.1% of the national average; those with uncertified trade-education, over 45% of the population, have an income that is only 90% of the national average; those with post-secondary or formal trade-school education, 30% of the population, have an income that is 107% of the national average; those with tertiary degrees, 12% of the population, have an income that is 147% of the national average (Turcinkova & Stavkova, 2012). It is evident that the higher education a person has, and therefore the more access to jobs that they have, the higher their income is likely to be.

Similar to the relationships between education and job access and job access and income, income directly correlates with consumers' propensity to spend. It has been studied and supported that an increase in income will increase a consumer's likelihood of spending discretionary funds, while a decrease in income will decrease a consumer's likelihood of spending discretionary funds (Jappelli & Pistaferri, 2017). Overall, the more discretionary income that an individual has, the higher their propensity to spend will be.

Understanding this principle, the progression can be made--increasing education leads to increasing job access which leads to increasing income which leads to an increased propensity to spend. As an economic principle, this logic can be applied across all fields of study, including the hotel industry.

Factors Impacting Method of Communication

Looking at the literature that currently exists relating to how a hearing loss affects individuals, there is a clear progression that can be seen and is pictured in Figure 2. This is important to understand in the context of this study, because primary method of communication

is the principle variable that will be looked into as an aspect that affects deaf and hard-of-hearing individuals' hotel choices.

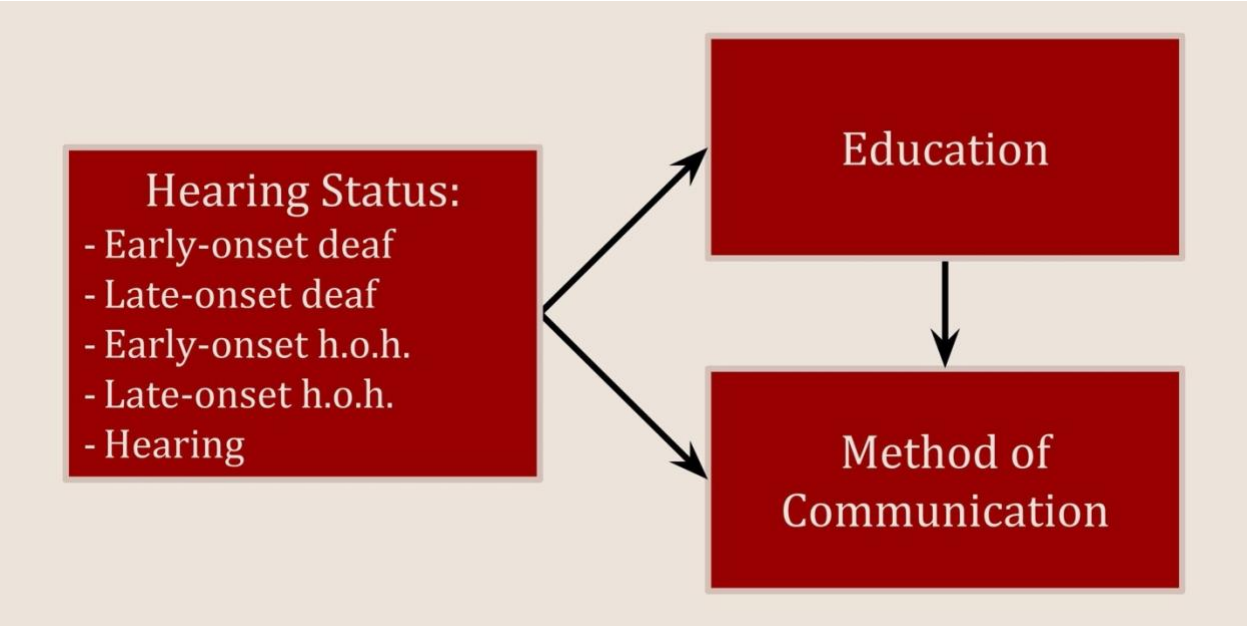

Figure 2. Factors That Impact Method of Communication

A person's hearing status affects many aspects of life, and for many deaf and hard-of-hearing individuals, this status is an integral part of their identity. For the purpose of this study, hearing status will be divided into five categories--early-onset deaf, late-onset deaf, early-onset hard-of-hearing, late-onset hard-of-hearing, and hearing. Early-onset deaf individuals are those who were born deaf or became deaf prior to age ten; late-onset deaf individuals are those who became deaf after age ten. Early-onset hard-of-hearing individuals are those who were born hard-of-hearing or became hard-of-hearing prior to age ten; late-onset hard-of-hearing individuals are those who became hard-of-hearing after age ten (Chomsky, 1974; Yoshinaga-Itano, Sedey, Coulter, & Mehl, 1998). Hearing individuals are those who have no hearing loss.

Hearing status is shown to affect education, which, as noted previously, is important in its progression towards propensity to spend. The average deaf student graduates from high school

with a fourth-grade reading level (Zazove, et al., 2013; Traxler, 2000; Allen, 1994). This is estimated from the 9th Edition of the Stanford Achievement Test and resulted in this way for many reasons. A primary reason for this limited language development is that the English language is less than 30% visual and principally auditory--sound being an aspect of the language that deaf students do not have access to and hard-of-hearing students have difficulty understanding (Blamey, & Sarant, 2011; Commission on Education of the Deaf Toward Equality, 1988). This auditory language barrier is why a person's hearing status also influences their method of communication. Method of communication, as it relates to this study, will be identified as any combination of the following: American Sign Language (ASL), spoken English, written English, lip-reading, and other signed systems such as Sign Exact English (SEE).

Education also informs the method of communication that is employed by an individual. Most hearing Americans attend a traditional, oral school--meaning that all subjects are taught in spoken English--but the methods of education for deaf students are vast. There are oral schools, manual schools (in which all subjects are taught in ASL), SEE schools, schools that use some other signed system for educating their students with a combination of visual signs and spoken English (Marschark & Spencer, 2011). Many different methods exist for educating deaf students, and many students are restricted by what is available within their geographic area, therefore the options that are available to them play a large role in the method of communication that they learn through school and subsequently employ in conversation as they engage with their community (Marschark, et al., 2011; Walter, & Dirmyer, 2013).

Conceptual Model and Hypotheses

There is much that is already understood about economics and how people make decisions, but there are still many questions left unanswered with specific regard to the deaf and hard-of-hearing population and their choices when it comes to accommodations in hotels. In response to the previous research that has been done around, but not necessarily within this topic, two research questions have been formed and will be analyzed and answered in this study:

RQ_1: How does primary method of communication as well as other variables such as age, sex, highest education level, annual household income, employment status play a role in an individuals' hotel choice?

RQ_2: How do variables within hotel scenarios, namely traveling alone versus with a companion or traveling for one night versus multiple nights, affect hotel choice?

Based on the conclusions drawn from past studies examined in the literature review of this paper and to answer these research questions, eight hypotheses have been developed.

As per Research Question 1, there are several variables that come into play with regard to individuals selecting a hotel room with more access to accommodations. It is assumed that deaf and hard-of-hearing individuals will desire more accommodations in hotels, and as a result, choose a hotel room that has these accommodations with and without a slight price increase. However, this relationship will be different depending on several demographic factors that impact a person's decision other than their desires. Hypotheses 1-6 have been developed on the basis of this understanding:

H_1: A deaf or hard-of-hearing person whose primary method of communication is ASL will be more likely to choose more accommodations.

The reasoning behind this can be understood when analyzing each method of communication. When a deaf or hard-of-hearing individual's primary method of communication is ASL, they are likely to desire accommodations that would allow them to communicate with the hearing employees of the hotel at which they are staying. If the deaf individual primarily employs the use of lip-reading and/or spoken English, he would be able to more easily communicate with the hearing employees and would likely have less desire for auxiliary aid in the form of additional accommodations. No literature currently exists that supports or disproves this claim; however, some research has been done regarding how the severity of a disability impacts individuals' desire for accommodations (Baldridge & Swift, 2011), and this hypothesis has been extrapolated from this understanding.

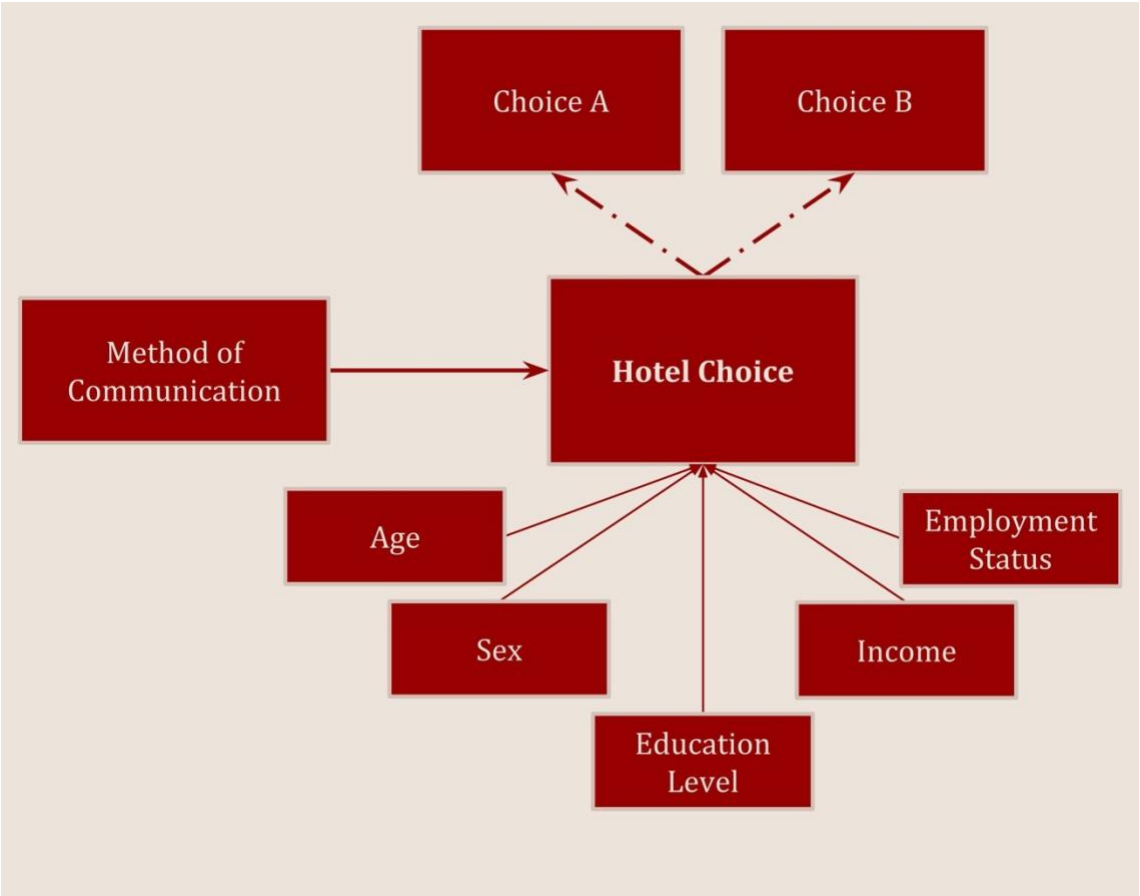

Figure 3. Model of Hypotheses 1-6

In addition to the method of communication, several potential additional variables could also affect a person's hotel choice. These additional variables have been developed as separate hypotheses:

H_2: The older a deaf or hard-of-hearing individual is, the more likely he or she will be to choose more accommodations.

It has been found that older individuals with disabilities are more likely than younger persons to request accommodations in event and workplace settings (Baldridge & Swift, 2011). Extrapolating from the current literature, this hypothesis denotes that the same relationship will occur, in this case, between age and hotel choice.

H_3: Deaf or hard-of-hearing women will be more likely than deaf or hard-of-hearing men to choose more accommodations.

It has been found that women submit more requests for accommodations in the workplace than men do (Baldridge & Swift, 2011), however, no research has been done to determine whether this principle holds true in the hotel industry. Extrapolating from the relationship that exists in the workplace, this hypothesis has been developed.

H_4: The lower the level of education that a deaf or hard-of-hearing individual has, the more likely he or she will be to choose more accommodations.

Education is the primary way in which deaf and hard-of-hearing individuals develop their communication skills, therefore, a person who is less educated will have been exposed to less communication development and would likely desire more accommodations (Blamey & Sarant, 2011; Schley, et al., 2011).

H_5: The higher a deaf or hard-of-hearing individual's income is, the more likely he or she will be to choose more accommodations.

A higher income allows for individuals to spend money on additional services to make their traveling simpler and smoother. An individual who has the disposable income to purchase additionally accommodating services are likely to do so (Bowe, 2004; Jones, 2004).

H_6: A deaf or hard-of-hearing individual whose employment status is not full time is more likely to choose more accommodations.

A deaf or hard-of-hearing person who works in-person in a full-time capacity generally interacts with hearing people on a regular basis is not likely to need additional accommodations in order to comfortably enjoy their stay and be able to communicate with the hearing employees at the hotel (Dammeyer, et al., 2019; Moore, 2001; Schroedel, & Geyer, 2000).

As per Research Question 2, there are variables within hotel choices that are also likely to have an impact on a deaf or hard-of-hearing person's hotel choice. In accordance with these assumptions, the following hypotheses have been developed:

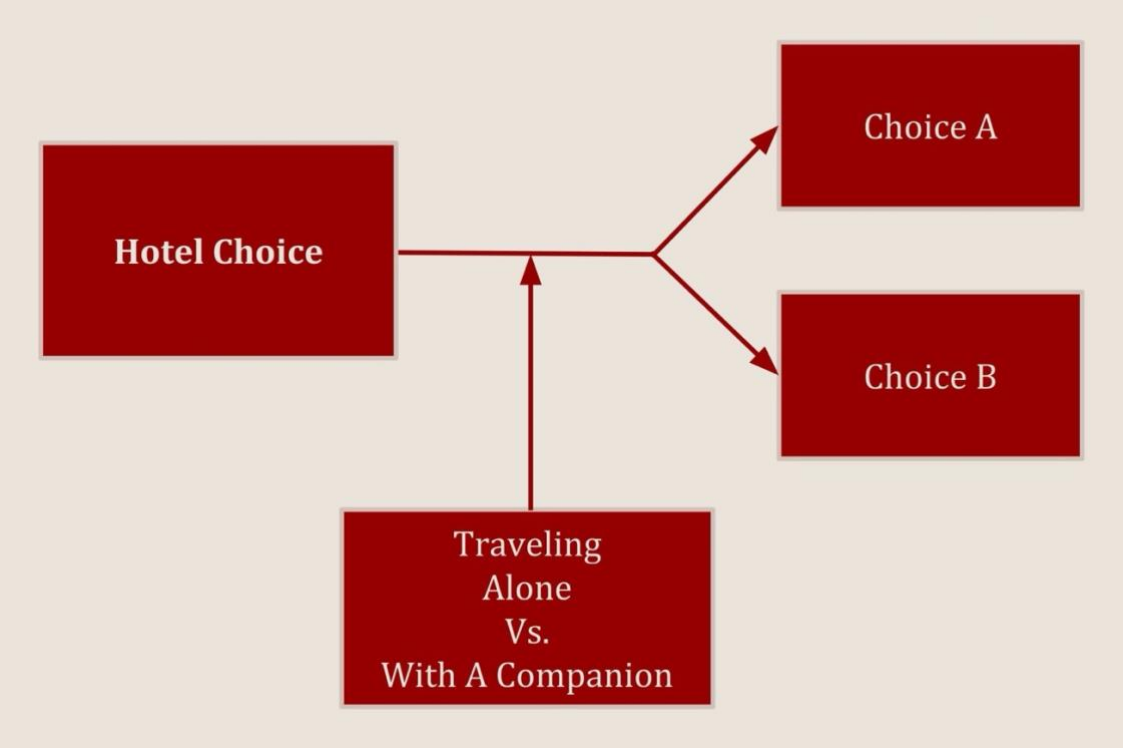

Figure 4. Model of Hypothesis 7

H_7: A deaf or hard-of-hearing person traveling alone (versus with a companion) is more likely to choose more accommodations, regardless of whether a premium cost is charged.

Similar to the lack of current literature that exists with regard to the previous six hypotheses, there is no current research that explores the impact that traveling alone versus with a companion has on deaf or hard-of-hearing travelers. Furthermore, no current research whatsoever explores accommodations for any disability in this respect. However, Hypothesis 7 has been developed according to principle reasoning and understanding of social structures that could impact a person's desire for accommodations with respect to whether they are traveling alone or with a companion—if a person is alone, they are more likely to desire to be able to communicate more easily with hotel employees and other guests than if they are traveling with someone who can readily interact with them.

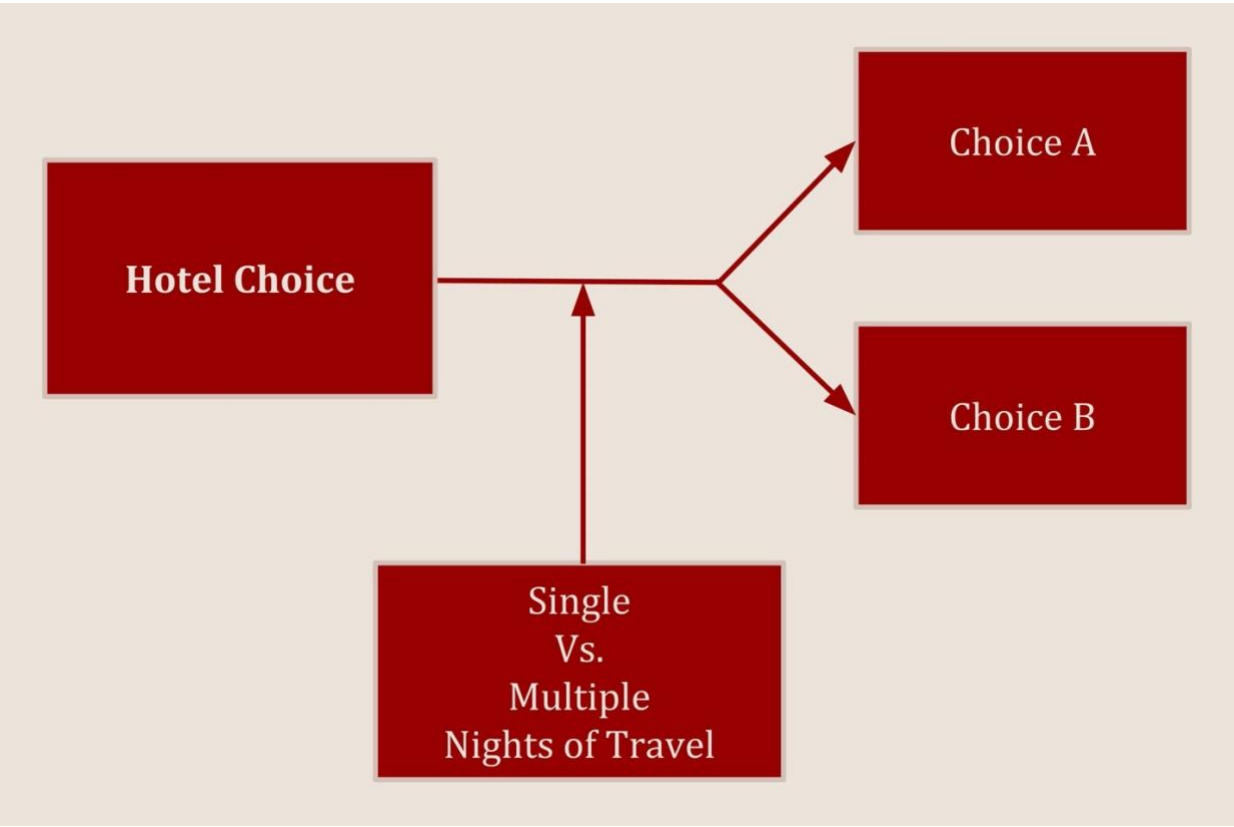

Figure 5. Model of Hypothesis 8

H_8: A deaf or hard-of-hearing person traveling for more than one night is more likely to choose more accommodations, regardless of whether a premium cost is charged.

The current literature also fails to address whether or not the amount of time that one is spending traveling has an impact on their desire for accommodations and subsequently their hotel choice. Similar to the process by which Hypothesis 7 was developed, Hypothesis 8 looks to the basic understanding of social interaction. If a person is traveling for many nights, they are more likely to seek out human connection through communication than if they are simply passing through a location. As such, the line of reasoning can be followed that persons traveling for more than one night will have a higher desire for accommodations as reflected by their hotel choice.

Design and Methodology

The collection instrument that was designed to capture data for this study took the form of a Qualtrics survey via Penn State. There were two online surveys used for this study—a pilot test as well as the formal survey instrument. The survey instrument (see Appendix B) collects information regarding demographics required to analyze the variables outlined in Figure 3--age, sex, highest education level, annual household income, employment status--as well as the constructs identified in Figure 2--hearing status, method of communication, and hotel choice. The dependent variable, hotel choice, was determined by eight different scenarios in which respondents were asked to select which hotel they would prefer—Hotel A (standard ADA accommodations) or Hotel B (additional accommodations above what ADA requires). In four of the eight scenarios (Scenarios 5-8), Hotel B had a price premium coupled with the additional accommodations. The primary purpose of the pilot test was to determine the appropriate premium price for Hotel B in these four scenarios. It is also important to note that the hotel choices all fell under the 'economy' category. This is because the average annual household income of deaf individuals in the United States is below the average annual household income of all Americans, therefore, deaf Americans are more likely to choose to stay in economy hotels while traveling (Garberoglio, et al., 2016; Bowe, 2004; Jones, 2004).

Hotel choice was determined by the survey instrument via a sliding scale from 0 to 100—respondents were given a scenario in which they had to slide the ticker either toward Hotel A or toward Hotel B. The data were coded such that a response of 80 or higher indicates a strong preference for Hotel B (which offered additional accommodations above what is required of ADA regulations) and a response of less than 80 indicates that the respondent did not have a strong preference for Hotel B.

Appendix A details the questions asked in the pilot test and Appendix B details the questions asked in the survey instrument. Regarding hearing status, however, additional explanation is required for an understanding of the study as well as the analysis of the data in conjunction with the hypothesis models (Figures 3-5).

Hearing status is determined to be any of the following: hearing, deaf, Deaf, hard-of-hearing, and/or Hard-of-Hearing. The purpose of these five options are twofold--to determine the physiological hearing status of the subjects and to determine the cultural hearing status of the subjects. These five terms can be defined as follows:

Hearing: A person with no audiological impairment

deaf: A person with a physiological impairment that allows for very little or no audiological function

Deaf: A deaf person who is a part of the Deaf community and uses ASL as their primary mode of communication

hard-of-hearing: A person with a mild to moderate hearing impairment

Hard-of-Hearing: A hard-of-hearing person who is a part of the Deaf community and uses ASL as one of their primary modes of communication

This is an important distinction to make, because people who are deaf but not Deaf generally assimilate with hearing people and operate their lives in a more similar function to a hearing individual than a Deaf individual.

In this pilot test, a non-probability, homogenous snowball sample of forty-seven deaf or hard-of-hearing respondents participated. The pilot test was designed using a Likert scale to develop the premium price that will be used as the Choice B hotel room option in the last four scenarios of the survey instrument.

Once the pilot test was disseminated and assessed, it was determined that the premium price for the last four hotel scenarios would be $10 higher than the standard, base-level ADA-compliant rooms. Once this had been determined, the survey instrument was disseminated in a non-probability, homogenous sample of one hundred and forty-one respondents. In compliance with IRB principles, all respondents were over the age of eighteen and responding on a voluntary basis with the understanding that their response to the survey does not enroll them in any services or messaging. Since the purpose of this study is to analyze the characteristics of deaf and hard-of-hearing tourism choices and tendencies, all usable responses were from either deaf or hard-of-hearing individuals. Because of this, the questionnaire was disseminated in areas and online channels that are heavily populated by deaf and hard-of-hearing individuals. The most deaf and hard-of-hearing-centric areas in the United States are cities in which deaf schools reside, therefore, this questionnaire will be specifically dispersed in the following areas where deaf schools exist:

Philadelphia, Pennsylvania--Philadelphia school for the deaf

Santa Rosa, California--Santa Rosa Junior College

Fulton, Missouri--Missouri School for the Deaf

Atlanta, Georgia--Atlanta Area School for the Deaf

Washington D.C--Gallaudet University

Rochester, New York--Rochester Institute of Technology

Colorado Springs, Colorado--Colorado School for the Deaf and Blind

Danville, Kentucky--Kentucky School for the Deaf

Table 1. Demographic Profile of Respondents

Sex		**n-108**
Male	35	31.8%
Female	72	67.3%
Prefer Not to Say	1	0.9%
Age		**n=106**
19-30	19	17.9%
31-40	23	21.7%
41-50	22	20.8%
51-60	24	22.6%
61-76	18	17.0%
Education		**n=108**
Some High School, High School Diploma, or Equivalent	10	9.3%
Some College or Associate's Degree	24	22.2%
Bachelor's Degree	38	35.2%
Graduate Degree	36	33.3%
Annual Household Income		**n=106**
$0 - $19,999	21	19.8%
$20,000 - $39,999	17	16.0%
$40,000 - $59,999	14	13.2%
$60,000 - $79.999	27	25.5%
$80,000 - $99,999	13	12.3%
$100,000 +	14	13.2%
Employment Status		**n=108**
Employed	66	61.1%
Unemployed	42	38.9%
Hearing Status*		**n=108**
deaf	28	25.9%
Deaf	43	39.8%
hard-of-hearing	27	25.0%
Hard-of-Hearing	30	27.8%
Primary Method of Communication		**n=95**
ASL	39	41.1%
Other	56	58.9%

* Respondents were permitted to select multiple answers

n=108

Online platforms where there is a high population of individuals with hearing impairments have also specifically been targeted. Over ninety Deaf Facebook groups and Deaf organizations throughout the United States were contacted and asked to disseminate the survey instrument, and many agreed to do so.

As mentioned, one hundred and forty-one individuals responded to the survey instrument. Of these respondents, six were hearing, and twenty-seven respondents did not indicate their hearing status. As a result, data from one hundred and eight respondents were usable for the analysis of the results.

Results

Table 1 provides the demographic profile of the one hundred and eight responses that were used in the analysis of these data. Table 2 presents the binary logistic regression results predicting hotel choice with respect to primary method of communication, age, sex, highest level of education, annual household income, and employment status. The Nagelkerke R^2 statistics were 0.12, 0.16, 0.36, 0.03, 0.08, 0.11, 0.36, and 0.14 in Scenarios 1-8 respectively.

Tables 3 and 4 demonstrate the difference in means for lone versus companion travelers and one-night versus multi-night travelers respectively.

Hypothesis 1, which proposed that a deaf or hard-of-hearing person whose primary method of communication is ASL will be more likely to choose more accommodations, was not supported. No regression coefficients were significant at any level.

Hypothesis 2, which proposed that the older a deaf or hard-of-hearing individual is, the more likely they will be to choose more accommodations, was not supported. No regression coefficients were significant at any level.

Hypothesis 3, which proposed that deaf or hard-of-hearing women will be more likely than deaf or hard-of-hearing men to choose more accommodations, was not supported. No regression coefficients were significant at any level.

Hypothesis 4, which proposed that the lower the level of education that a deaf or hard-of-hearing individual has, the more likely they will be to choose more accommodations, was not supported. No regression coefficients were significant at any level.

Hypothesis 5, which proposed that the higher a deaf or hard-of-hearing individual's income is, the more likely they will be to choose more accommodations, was not supported. No regression coefficients were significant at any level.

Hypothesis 6, which proposed that a deaf or hard-of-hearing individual whose employment status is not full time is more likely to choose more accommodations, was partially supported. The regression coefficients of 1.254 in Scenario 6, 3.201 in Scenario 7, and 1.097 in Scenario 8 were significant at the .05, .05, and .10 levels respectively. However, in Scenarios 1-5, no regression coefficients were significant.

Hypothesis 7, which proposed that a deaf or hard-of-hearing person traveling alone (versus with a companion) is more likely to choose more accommodations, regardless of whether a premium cost is charged, was partially supported. The difference in means of -0.079 in the comparison of Scenarios 6 and 5 and -0.113 in the comparison of Scenarios 8 and 7 were significant at the .05 and .01 levels respectively. However, in the comparisons of Scenarios 2 and 1 and 4 and 3, no differences in means were significant.

Hypothesis 8, which proposed that a deaf or hard-of-hearing person traveling for more than one night is more likely to choose more accommodations, regardless of whether a premium cost is charged, was partially supported. The difference in means of 0.072 in the comparison of Scenarios 7 and 5 was significant at the .10 level. However, in the comparisons of Scenarios 3 and 1, 4 and 2, and 8 and 6, no differences in means were significant.

Table 2. Binary Logistic Regression Predicting Hotel Choice

	Scenario 1				Scenario 2				Scenario 3				Scenario 4			
	B	**S.E.**	**Exp(B)**	**p-value**	**B**	**S.E.**	**Exp(B)**	**p-value**	**B**	**S.E.**	**Exp(B)**	**p-value**	**B**	**S.E.**	**Exp(B)**	**p-value**
Primary Method of Communication	-1.096	0.994	0.334	0.270	-0.998	0.875	0.369	0.254	0.378	1.333	1.459	0.777	0.311	0.933	1.365	0.739
Age	-0.034	0.039	0.967	0.388	-0.009	0.035	0.991	0.796	0.067	0.053	1.069	0.204	-0.008	0.033	0.992	0.805
Sex	-1.080	1.173	0.340	0.357	-0.480	0.936	0.619	0.608	0.881	1.275	2.413	0.490	0.173	0.929	1.189	0.852
Education	0.290	0.240	1.336	0.227	0.319	0.232	1.376	0.169	0.520	0.336	1.681	0.122	0.168	0.251	1.183	0.503
Income	0.003	0.016	1.003	0.865	-0.013	0.014	0.987	0.364	-0.002	0.021	0.998	0.942	0.004	0.015	1.004	0.777
Employment Status	0.214	1.057	1.238	0.840	1.406	0.988	4.078	0.155	1.598	1.423	4.944	0.261	0.241	0.994	1.272	0.809
Intercept	1.194	3.917	3.299	0.761	-0.929	3.772	0.395	0.805	-8.131	4.795	0.000	0.090	0.018	3.843	1.018	0.996
Model X^2	4.229				7.406				10.352				0.992			
-2 log likelihood	39.858				46.587				22.375				43.095			
Nagelkerke R^2	0.12				0.18				0.36				0.03			

	Scenario 5				Scenario 6				Scenario 7				Scenario 8			
	B	**S.E.**	**Exp(B)**	**p-value**	**B**	**S.E.**	**Exp(B)**	**p-value**	**B**	**S.E.**	**Exp(B)**	**p-value**	**B**	**S.E.**	**Exp(B)**	**p-value**
Primary Method of Communication	-0.437	0.573	0.646	0.446	0.487	0.534	1.627	0.361	0.550	0.947	1.733	0.561	0.787	0.632	2.197	0.213
Age	-0.008	0.025	0.992	0.759	0.011	0.022	1.011	0.613	0.017	0.036	1.017	0.638	0.006	0.025	1.006	0.824
Sex	0.223	0.594	1.249	0.708	0.322	0.536	1.381	0.547	0.891	0.911	2.438	0.328	0.747	0.613	2.111	0.223
Education	-0.284	0.227	0.753	0.212	-0.064	0.189	0.938	0.735	0.137	0.278	1.146	0.623	0.105	0.202	1.111	0.603
Income	0.005	0.010	1.005	0.603	-0.003	0.009	0.997	0.747	0.011	0.016	1.011	0.500	0.004	0.010	1.004	0.692
Employment Status	0.675	0.651	1.964	0.300	1.254**	0.616	3.506	0.042	3.201***	1.211	24.569	0.008	1.097*	0.658	2.996	0.095
Intercept	5.227	3.384	186.142	0.122	0.250	3.058	1.284	0.935	-3.249	4.599	0.039	0.480	-2.296	3.356	0.101	0.494
Model X^2	4.144				6.513				16.173				7.545			
-2 log likelihood	80.475				94.338				39.861				75.117			
Nagelkerke R^2	0.08				0.11				0.36				0.14			

n=108 *p<.10
**p<.05
***p<.01

Table 3. Difference in Means for Companion Travelers

	Difference in Means	Std. Dev.	S.E.	95% Confidence Interval		t	df	p-value
				Lower	Upper			
Scenario 2 - Scenario 1	-0.010	0.227	0.023	-0.056	0.035	-0.445	97.000	0.657
Scenario 4 - Scenario 3	-0.011	0.230	0.024	-0.057	0.036	-0.445	94.000	0.657
Scenario 6 - Scenario 5	-0.079**	0.345	0.037	-0.151	-0.006	-2.153	88.000	0.034
Scenario 8 - Scenario 7	-0.113***	0.318	0.036	-0.183	-0.042	-3.165	79.000	0.002

n=108 *p<.10
**p<.05
***p<.01

Table 4. Difference in Means for Multi-Night Visits

	Difference in Means	Std. Dev.	S.E.	95% Confidence Interval		t	df	p-value
				Lower	Upper			
Scenario 3 - Scenario 1	0.010	0.270	0.027	-0.044	0.065	0.376	96.000	0.708
Scenario 4 - Scenario 2	0.021	0.204	0.021	-0.021	0.062	1.000	95.000	0.320
Scenario 7 - Scenario 5	0.072*	0.376	0.041	-0.010	0.154	1.754	82.000	0.083
Scenario 8 - Scenario 6	0.050	0.352	0.039	-0.028	0.128	1.270	79.000	0.208

n=108 *p<.10
**p<.05
***p<.01

Discussion

Implications

Prior to this study, no research had been done regarding the desired accommodations in hotels for deaf and hard-of-hearing individuals. As a result of this previous lack of literature on the matter, this study sought to develop an understanding of deaf and hard-of-hearing individuals' desire for accommodations in hotels. The results of this study posit valuable information for hotel operators as they seek to develop inclusive service offerings for people of all abilities. From the perspective of the guest, more services will be available to them in hotels; from the perspective of the organization, these services are likely to increase revenue by way of supplemental offerings that deaf and hard-of-hearing guests desire and are willing to pay premium prices for. Hypotheses 1-6 of this study aimed to explain what demographic factors predict deaf and hard-of-hearing individuals' desire for accommodations in hotels. Hypotheses 7 and 8 looked to unpack what elements of traveling scenarios—namely traveling alone versus with a companion and traveling for one night versus multiple nights—impact deaf and hard-of-hearing individuals' desire for accommodations in hotels.

With respect to Hypotheses 1-5, no significant data were found to either support or discount the hypotheses. As a result, no conclusion can be drawn regarding the effect that primary method of communication, age, sex, highest level of education, or annual household income have on deaf and hard-of-hearing individuals' hotel choices and their desires for accommodations in this context. Due to the inconclusiveness of these data with regard to these hypotheses, no practical implications can be denoted at this time.

The data did, however, provide significant evidence to partially support Hypothesis 6: statistically significant data were found in Scenarios 6, 7, and 8 but not in Scenarios 1-5. As a result, it can be concluded that there is some evidence to support that deaf or hard-of-hearing individuals whose employment status is not full time are more likely to choose more accommodations. The practical implications of this finding can be primarily applied to the marketing efforts of hotels and the demographics of the individuals to which they are advertising their hotel. Of the 42 respondents who indicated that they were not employed full-time, 19 of them also indicated that they are retired. Understanding this perspective, it would be advantageous for hotels advertising to retirees to include options for additional accommodations in their packages. The scenarios in which this relationship was significant were that which included additional accommodations above standard ADA requirements at a premium price. This implies that hotels marketing to individuals who are not working full-time, and in particular to retirees, could create premium packages with additional accommodations and offer more services that these individuals would likely be willing to pay for—driving revenue for the organization.

The data were also significant with respect to Hypothesis 7 in Scenarios 6 and 5 as well as Scenarios 8 and 7. This finding indicates that deaf or hard-of-hearing persons traveling alone (versus with a companion) are more likely to choose more accommodations—this relationship being statistically significant in scenarios where additional accommodations were offered at a premium price. This indicates that hotels advertising specifically to individuals traveling alone could offer packages in which value is added to the consumer through additionally accommodating services. Furthermore, and vitally important to any organization with the

intention of carrying out a marketing campaign of this nature, the hotel would be able to charge a premium price for these services—driving revenue for the organization.

Regarding Hypothesis 8, data were significant to partially support that deaf or hard-of-hearing persons traveling for more than one night are more likely to choose more accommodations. Hotels could use this finding in their reservations systems to increase their average daily rate. Additional accommodation packages could be integrated into hotels' reservations systems such that: when a guest selects multiple room nights, the option for rooms with additional accommodations could appear at the top of the room rate list. Since data were significant in one of the scenarios that offered additional accommodations at a premium price, it would be logical that the hotel could offer these ADA+ room rates at a premium price--driving revenue for the organization.

Limitations and Future Research

The findings from this study should be interpreted in the context of its limitations. One limitation is that this study focused on a limited subset of hearing-impaired individuals, and as a result, the process by which the survey instrument was dispensed could have skewed the data that were collected. The survey instrument was disseminated through channels of deaf schools, clubs, and associations throughout the United States. As such, the results are generalizable only to deaf and hard-of-hearing individuals who are a part of these groups and do not take into account hearing-impaired individuals who are not members of such organizations. There is no research to suggest that these schools, clubs, and associations are in any way representative of the whole of deaf and hard-of-hearing individuals in the United States. Future research that

encompasses a more representative subject pool would be valuable in further developing understanding of the accommodations in hotels that are desired by individuals with hearing impairments.

A second limitation of this study is that the respondents were heavily female-skewed: 67.3% of respondents were female while only 31.8% of the respondents identified themselves as male (0.9% of respondents indicated that they preferred not to say). According to the most recent edition of the National Health and Nutrition Examination Survey--created, dispensed, and analyzed by the Centers for Disease Control and Prevention--American men are nearly twice as likely to have a hearing loss than American women are (*National Health and Nutrition Examination Survey*, 2012). Future research should be conducted with this information in mind, making sure to include an appropriate ratio of men and women so that the results are representative of the population of deaf and hard-of-hearing Americans.

A third limitation of this study is evident in the structure of the scenarios that were presented to respondents. Respondents were given eight scenarios in which their hotel options were presented to them side-by-side. Since the options were given to respondents at the same time, there is a potential that the amount of variance that existed in the responses was not representative of the true intentions of the sample. Future research could take the form of an experimental manipulation in which respondents would see each hotel option individually and be asked to rate each individual option on some constant scale that could then be compared and analyzed against each other.

In addition to the recommendations articulated with respect to the limitations of this study, several areas of future research could be explored. Since the data did not produce significant results to either support or disprove Hypotheses 1-5, additional research could be

conducted in different formats to see if these variables—primary method of communication, age, sex, highest level of education, and annual household income—have an impact on deaf and hard-of-hearing individuals' hotel choices. Furthermore, additional factors such as geographic location of travel, distance from home, and travel experience could be explored as additional predictors of hotel choice for individuals with hearing impairments.

Conclusion

There are many variables that could potentially influence the hotel choices of deaf and hard-of-hearing individuals. This study sought to verify which of these variables concretely predict how individuals with hearing impairments will choose to select their hotel room on the basis of accommodations that exceed what is required by the ADA. The results of this study found that employment status is a predictor of hotel choice in that deaf and hard-of-hearing individuals who do not work full-time are more likely to select a hotel room with accommodations greater than ADA requirements, regardless of whether there is a price premium. Additionally, it was found that individuals traveling alone and individuals traveling for more than one night are more likely to select additional accommodations—also regardless of whether a price premium exists. Hotels can take advantage of this knowledge by developing accommodation packages tailored specifically to deaf and hard-of-hearing travelers and advertising them to retired individuals, single-travelers, and individuals whose hotel stay will extend past one night.

Appendix A: Pilot Test Instrument

Block 4

The purpose of this survey is to determine the accommodations that are desired by deaf and hard-of-hearing individuals in hotels.

Your participation in this survey is voluntary; you may choose not to participate. If you decide to participate in this survey, you may withdraw at any time. If you decide not to participate in this survey or if you withdraw at any time, you will not be penalized in any way.

The procedure involves filling out this online survey that will take approximately 5 minutes. Your response will be confidential. No identifying information, such as your name, email address, IP address, etc. will be collected.

Your information will remain confidential. All data is stored in a password-protected electronic format that is only accessible to the primary investigator. The survey does not ask any question that may personally identify you. The results of the survey will be used for scholarly purposes only.

This research study has been reviewed according to the Penn State University IRB procedures for research involving human subjects.

If you have any questions, please contact Courtney M. McDowell at courtneymmcdowell@psu.edu.

Clicking "Agree" indicates that

- you have read the above information

- you voluntarily agree to participate
- you are at least 18 years of age

If you do not wish do participate and would like to decline participation, please click "Disagree."

- ○ Agree
- ○ Disagree

Default Question Block

What is your current age?

What is your sex?

- ○ Male
- ○ Female
- ○ Prefer not to say

What is your highest level of education?

- ○ Some high school
- ○ High School Diploma or Equivalent
- ○ Some College, no degree
- ○ Associates Degree
- ○ Bachelors Degree
- ○ Graduate Degree

Do you have a professional certification?

- ○ Yes (please indicate specific certification)

- ○ No

Are you currently in school?

- ○ Yes
- ○ No

What is your average annual household income?

- ○ $0,000-$19,999
- ○ $20,000-$39,999
- ○ $40,000-$59,999
- ○ $60,000-$79,999
- ○ $80,000-$99,999
- ○ $100,000+

What is your employment status?

- ○ Employed (1-39 hrs/week)
- ○ Employed (40+ hrs/week)
- ○ Not Employed--Not able to work due to a disability
- ○ Not Employed--Looking for work
- ○ Not Employed--Not looking for work
- ○ Retired

What is your current job?

How long have you been at your current job?

Block 1

Rank the methods of communication that you use by dragging the items from the left, "Items," into the box on the right, "My Methods of Communication," and listing them in the order of use (top: most frequently used; bottom: least frequently used). If you do not use one of the methods of communications listed on the left, do not drag it into the box. If there is a method that you use that is not listed, enter it into one of the "other" boxes, and drag and rank it accordingly.

Items	My Methods of Communication
American Sign Language	
Written English	
Spoken English	
Lip-Reading	
Other	
Other	
Other	

Block 2

Fill in the blank: I am _____. (Select all that apply).

- ☐ deaf
- ☐ Deaf
- ☐ hard-of-hearing
- ☐ Hard-of-Hearing
- ☐ Hearing

When did your hearing begin to diminish?

- ○ Prior to age ten
- ○ After age ten

Block 4

Rank the accommodations that you would prefer to have access to while staying in a hotel by dragging the items from the left, "Items," into the box on the right, "My Preferred Accommodations," and listing them in order of preference (top: most preferred; bottom: least preferred). If you do not prefer one of the accommodations, do not drag it into the box. If there is an accommodation that you would prefer that is not listed, enter it into one of the "other" boxes, and drag and rank it accordingly.

Items	My Preferred Accommodations
Front Desk Texting Service	
ASL Interpreter	
Flashing Light Doorbell	
Closed Captioned TV	
Other	
Other	
Other	

Please rate the following accommodations according to your preference.

	Extremely Unpreferred	Unpreferred	Moderately Unpreferred	Neither Preferred Nor Unpreferred	Moderately Preferred	Preferred	Extremely Preferred
Front Desk Texting Service	○	○	○	○	○	○	○

	Extremely Unpreferred	Unpreferred	Moderately Unpreferred	Neither Preferred Nor Unpreferred	Moderately Preferred	Preferred	Extremely Preferred
ASL Interpreter	○	○	○	○	○	○	○
Flashing Light Doorbell	○	○	○	○	○	○	○
Closed Captioned TV	○	○	○	○	○	○	○

If all of your desired accommodations were provided, what percent of additional value do you feel would be added to the original price of the hotel room night?

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Appendix B: Survey Instrument

Block 12

The purpose of this survey is to determine the accommodations that are desired by deaf and hard-of-hearing individuals in hotels.

Your participation in this survey is voluntary; you may choose not to participate. If you decide to participate in this survey, you may withdraw at any time. If you decide not to participate in this survey or if you withdraw at any time, you will not be penalized in any way.

The procedure involves filling out this online survey that will take approximately 5 minutes. Your response will be confidential. No identifying information, such as your name, email address, IP address, etc. will be collected.

Your information will remain confidential. All data is stored in a password-protected electronic format that is only accessible to the primary investigator. The survey does not ask any question that may personally identify you. The results of the survey will be used for scholarly purposes only.

This research study has been reviewed according to the Penn State University IRB procedures for research involving human subjects.

If you have any questions, please contact Courtney M. McDowell at courtneymmcdowell@psu.edu.

Clicking "Agree" indicates that

- you have read the above information

- you voluntarily agree to participate
- you are at least 18 years of age

If you do not wish do participate and would like to decline participation, please click "Disagree."

- ○ Agree
- ○ Disagree

Default Question Block

What is your current age?

What is your sex?

- ○ Male
- ○ Female
- ○ Prefer not to say

What is your highest level of education?

- ○ Some high school
- ○ High School Diploma or Equivalent
- ○ Some College, no degree
- ○ Associates Degree
- ○ Bachelors Degree
- ○ Graduate Degree

Do you have a professional certification?

- ○ Yes (please indicate specific certification)

- ○ No

Are you currently in school?

- ○ Yes
- ○ No

What is your average annual household income?

- ○ $0,000-$19,999
- ○ $20,000-$39,999
- ○ $40,000-$59,999
- ○ $60,000-$79,999
- ○ $80,000-$99,999
- ○ $100,000+

What is your employment status?

- ○ Employed (1-39 hrs/week)
- ○ Employed (40+ hrs/week)
- ○ Not Employed--Not able to work due to a disability
- ○ Not Employed--Looking for work
- ○ Not Employed--Not looking for work
- ○ Retired

What is your current job?

How long have you been at your current job?

Block 3

How many nights per year do you travel *for business, by yourself*?

- ○ 0 nights/year
- ○ 1-3 nights/year
- ○ 4-6 nights/year
- ○ 7-10 nights/year
- ○ 11-13 nights/year
- ○ 14-17 nights/year
- ○ 18-20 nights/year
- ○ 21+ nights/year

How many nights per year do you travel *for business, with one or more companion(s)*?

- ○ 0 nights/year
- ○ 1-3 nights/year
- ○ 4-6 nights/year
- ○ 7-10 nights/year
- ○ 11-13 nights/year
- ○ 14-17 nights/year
- ○ 18-20 nights/year
- ○ 21+ nights/year

When I travel for business, my companion(s) are usually...

- ○ hearing
- ○ deaf
- ○ hard-of-hearing
- ○ N/A--I do not travel for business with companions
- ○ other

How many nights per year do you travel *for pleasure, by yourself*?

- ○ 0 nights/year
- ○ 1-3 nights/year
- ○ 4-6 nights/year
- ○ 7-10 nights/year
- ○ 11-13 nights/year
- ○ 14-17 nights/year
- ○ 18-20 nights/year
- ○ 21+ nights/year

How many nights per year do you travel *for pleasure, with one or more companions*?

- ○ 0 nights/year
- ○ 1-3 nights/year
- ○ 4-6 nights/year
- ○ 7-10 nights/year
- ○ 11-13 nights/year
- ○ 14-17 nights/year
- ○ 18-20 nights/year
- ○ 21+ nights/year

When I travel for pleasure, my companions are usually...

- ○ hearing
- ○ deaf
- ○ hard-of-hearing
- ○ N/A--I do not travel for pleasure with companions
- ○ other

Block 1

Rank the methods of communication that you use by dragging the items from the left, "Items," into the box on the right, "My Methods of Communication," and listing them in the order of use (top: most frequently used; bottom: least frequently used). If you do not use one of the methods of communications listed on the left, do not drag it into the box.

Items	My Methods of Communication
American Sign Language	
Written English	
Spoken English	
Lip-Reading	
Other	
Other	
Other	

Block 2

Fill in the blank: I am _____. (Select all that apply).

- [ ] deaf
- [ ] Deaf
- [ ] hard-of-hearing
- [ ] Hard-of-Hearing
- [ ] Hearing

When did your hearing begin to diminish?

- ○ Prior to age ten
- ○ After age ten

Block 4

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a one-night trip for pleasure and you will be traveling alone. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low

- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

Block 7

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a one-night trip for pleasure and you will be traveling with a companion. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

Block 9

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a four-night trip for pleasure and you will be traveling alone. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

Block 10

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a four-night trip for pleasure and you will be traveling with a companion. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

This is an attention check question. Please select "Extremely high."

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

Block 11

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $89/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a one-night trip for pleasure and you will be traveling alone. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low

○ Extremely low

Block 12

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $89/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a one-night trip for pleasure and you will be traveling with a companion. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

○ Extremely high
○ Moderately high

- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

Block 13

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $89/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a four-night trip for pleasure and you will be traveling alone. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

Block 14

Hotel Type: Select Service
Rate: $79/night
Style: Comfort
Accommodations:
- Standard ADA Accommodations

Hotel Type: Select Service
Rate: $89/night
Style: Comfort
Accommodations:
- Closed Captioned TV
- Flashing Light Doorbell
- Front Desk Texting Service
- Vibrating Alarm Clock

Please consider the following hypothetical scenario: You planning a four-night trip for pleasure and you will be traveling with a companion. If these are your two hotel options, which would you likely choose?

Slide the bar below to indicate your preference of the two above hotels.

What level of service do you expect to receive at this hotel?

- ○ Extremely high
- ○ Moderately high
- ○ Slightly high
- ○ Neither high nor low
- ○ Slightly low
- ○ Moderately low
- ○ Extremely low

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Education

The Pennsylvania State University
Schreyer Honors College

Major: Hospitality Management
Minors: Sociology; Deafness and Hearing Studies
Certification: Meetings and Events Management

Thesis Title: Silent Selection: The role that Deaf and Hard-of-Hearing individuals' method of communication plays in their hotel choices
Thesis Supervisor: Dr. Anna Mattila

Other Academic Research: Pay and benefits satisfaction perceived organizational support, and turnover intentions: The moderating role of job variety.
Coauthors: Dr. Phillip Jolly, Dr, Jeanna Abbott, Dr. Mary Dawson

Professional Experience

Special Projects Manager at Ellington Events
August 2018 – May 2020
Remote

Day-of Communication Director at The Wedding Expo
September 2019 – January 2020
Remote

Front Desk Agent at St. Petersburg Marriott Clearwater
June 2019 – July 2019
St. Petersburg, FL

Site Manager and Event Coordinator at Ellington Hall
August 2016 – August 2018
Santa Rosa, CA

Awards

NetJets Scholarship - 2020
Edith Pitt Chace Award - 2020
Penn State delegate at the International Young Hotelier Summit - 2020
Slep Honors Scholarship in Health and Human Development - 2019
Academic Excellence Scholarship - 2018, 2019
Louis E. and Patricia Harvey Silvi Trustee Scholarship - 2018, 2019
Provost Award - 2018, 2019
Virginia L Mayers Memorial Scholarship - 2018
T.S. Mincemoyer Scholarship – 2018

Certifications

Cvent
ServSafe Management
ServSafe Unconscious Bias for Managers
RAMP
CHIA
Microsoft Excel

Leadership and Community Engagement

Eta Sigma Delta: International Hospitality Honor Society
- President, March 2020 - Present
- Secretary, January 2020 - May 2020
- Director of Service, August 2019 - May 2020

The Navigators
- Student Leader, August 2020 - Present
- Worship Team, January 2019 - Present
- Leadership Development Trainee, June 2019 - July 2019