

Gender Variation in Sign Production by Users of American Sign Language

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American Sign Language (ASL), like any language, contains many types of linguistic variation, including regional, social, ethnic, age, and gender; according to Valli, Lucas, Mulrooney, and Villanueva (2011), variation that occurs between genders “is an area that still needs to be researched” (p. 163). To date, there have been few studies on gender variation in ASL. More research on gender variation can help interpreters become aware of sign production differences between genders, thus helping them to understand each gender better; this can lead to an improved understanding of exactly what the client is saying and with what intent.

ASL is complex and includes many components that may be unknown to those who are unfamiliar with it. To begin, ASL is a legitimate, recognized language with its own distinct grammar. Next, ASL is a visual language whose signs are represented in text using English lexical items called gloss. An English word that best represents the sign is chosen, the entire word is capitalized, and it is put into ASL grammar and syntax (Valli et al., 2011, p. 19). A few variations of signs between genders have been found, and an example is the sign AWFUL. According to Valli et al. (2011), a woman may produce this sign next to the ipsilateral or dominant side of her face with her palm either facing backwards or upwards. A man, on the other hand, would not likely produce this sign in this manner, but would probably sign it in front of his chest while having his palm forward for the duration of the sign (Valli et al., 2011, p.143). However, few gender variations, such as AWFUL, are known.

This study on variation between genders focuses on the lengths of the stories told, the location of sign production, the usage of pronouns, the usage of hand lists, and the amount of constructed action used. Although there are a lot of possibilities in variation, these aspects of ASL were included in almost all of the participants’ stories in this research study. Further, there

was a noticeable difference in these aspects between men and women and/or they were more prominent amongst one gender than the other. Noticing these attributes throughout multiple of the participants' stories gave me material to analyze. Aspects that I did not see or that were not used frequently enough across the participants were not studied, as I knew I would not have enough data to draw conclusions.

It is also unclear as to the explanation for the differences in the same sign between men and women. Understanding the nuances between how men and women sign can benefit students of interpreting as well as interpreters by helping them receptively understand how signs may be produced differently based on gender. Such knowledge can also help interpreters interpret the message into the target language more effectively because of an increased understanding of the source message. As such, my goals were to examine native ASL users and to further research on sign variances between genders.

Purpose of the Study

The purpose of this study was to examine and analyze gender differences in the production of ASL by native users of the language. Upon starting the study, I had hypothesized that (a) males would sign lower than females would sign, (b) females would use more pronouns than males would use, and (c) female participants would incorporate more constructed action into their stories than males would incorporate. These hypotheses were based on research conducted by Lucas, Bayley, and Valli (2003). Since I examined the frequency and use of signs, story length, and percentage of constructed action used, a quantitative approach to analyzing the data best fit this study. The participants included five D/deaf males and five D/deaf females local to Bloomsburg University¹. The participants volunteered their time after Deaf social events for this study. Each was asked to sign the same story in ASL, which was recorded and analyzed. In

my analyses, I examined individuals' production of specific signs, their incorporation of listing, and their use of personal pronouns (e.g. *HE*, *SHE*, and *IT*); I also measured the amount of constructed action used by individuals, the location of their sign production, and the length of their stories. I analyzed the lexical items and ASL features amongst all participants, specifically looking for notable variations existing between the genders.

The following terms are used throughout the study: *Listing*, or *hand listing*, is when one uses the fingers of his/her non-dominant hand to equate to any items in a list. For example, if one uses the 3 handshape, one could index one's thumb and sign DOG, index one's pointer finger and sign CAT, and index one's middle finger and sign FISH. This would be a list of three animals. Next, *personal pronouns* are what would be the English equivalent of he, she, it, I, etc. *Constructed action*, also known as *roleshifting*, is when the speaker takes on the actions of the character or person he or she is talking about. In English, most often people would say, *He said*, or *He did*. In ASL, the equivalent would be to "become" the person and actually say what he or she said or do what he or she did. When I was looking at sign production, I noticed location of the sign, or where the sign was produced, varied more than other features. To be specific, most of the differences I found were in the height of the sign, or the vertical location where the sign is being produced. Finally, I compared the length of the stories of each participant. This is the time from when they began their story, or when they raised their hands, until they put their hands down for the last time.

Variations found in previous research were not extensive (Valli et al., 2011). Lucas et al. (2003) conducted research on the use of pronouns between genders; they found that women were more likely to incorporate pronouns into their discourse than were men. This led me to believe it was possible that one gender might find a particular orientation, location, or movement more

natural than the opposite gender and/or that variations could exist within other ASL features such as hand listing or constructed action. I did find gender variations in the production of lexical items as well as hand listing and pronouns; all are discussed in more detail in the findings section.

Literature Review

In *What's Your Sign for PIZZA?*, Lucas et al. (2003) discuss the findings from their research done on ASL variation, which includes phonological, syntactic, and lexical variations. This book did not focus specifically on variation between the genders, but rather general variation, thus including gender variation as well. Their findings were influential to my research. Chapter four, "Phonological Variation," states that "[m]en tended to lower the signs more than women" (2003, p. 35) in their research. Location was something I observed in my own research to see if this claim would be supported. Further, chapter five, "Syntactic Variation," states that "[w]omen use more pronouns (41%) than men (29%)" and that "[c]onstructed action disfavors pronoun use" (Lucas et al., 2003, p. 45). These findings inspired me to examine the participants' pronoun usage.

Linguistics of American Sign Language: An Introduction explains the realm of linguistics as it applies to ASL. It provides definitions of linguistic terminology and examples of them within ASL. Although invaluable to my background knowledge, this book does not contain a lot of information on gendered variation. One part of this book does show an illustration of a female signing AWFUL and prompts the reader to imagine a male signing it the same way. Valli et al. (2011) assume that the reader cannot imagine it because the production of AWFUL in that image has a particular feminine appearance (p. 143). It is in this book that the authors claim that more research needs to be done on variation between the genders.

Last is *The Hidden Treasures of Black ASL: Its History and Structure*. McCaskill et al. (2011) executed research on Black ASL that divulged information about the Black Deaf community and their language. Although this book did not focus on gender, I looked to this book for guidance on how to perform my own research. It was my starting place for this research and gave me an idea on how the variations may appear.

Methodology

Participants

Due to the fact that ASL is a visual language, I video recorded the participants of this study. Doing such allowed for the review of the stories and the careful analysis of the signs used by all participants. I used an online video analysis software, Dartfish (Dartfish, 2013), and Excel in documenting my analysis. I compared the analyses across the individuals. There were a total of ten participants: five males and five females. These participants are D/deaf people involved in the Deaf community local to Bloomsburg University; they were people who were willing to donate their time after Deaf events. All the participants signed informed consent forms wherein they agreed to be recorded for the study and were able to decide a level of confidentiality for the use of screenshots from their recording. Each participant was given a code (e.g. M1, M2, F1, F2, etc.) to help keep his or her information confidential. One participant did not allow the use of his video in any means outside of the actual analyses of the data; all of the other participants signed in agreement to the use of screenshots for publications and educational purposes.

Collecting the Data

The ten participants were asked to tell the same story while being video recorded without anyone present. My mentor, Dr. Jessica Bentley-Sassaman, who is a certified interpreter with a Master of Arts degree in the Linguistics of ASL from Gallaudet University, and I carefully

selected the story to encompass a broad range of vocabulary and ASL features that most signers would choose to use. Having signs and features used by all of the participants is advantageous for comparing and analyzing the videos. We decided that *Goldilocks and the Three Bears* (Bret, 1990) would be the story that I would ask the participants to tell. The story had to be well known because I was not providing the written story or the gloss for the story, as doing such could cause a participant to incorporate vocabulary or certain features of the language that he or she otherwise would not utilize. After reading through many commonly told childhood stories, we decided that *Goldilocks and the Three Bears* (Bret, 1990) was the story that would elicit responses from the participants, a result of which would allow comparison of signs between the two groups.

In order to record the participants with the minimum amount of bias possible, I set up a video camera in an empty room. After each participant was seated, I explained what story they needed to sign, pressed the record button, exited the room, and then shut the door. I did not want my presence as a hearing student, or the presence of any individual for that matter, to influence the way in which the participants signed the story. After the participants finished their stories they exited the room they were being recorded in; I then entered the room, stopped the recording, and returned to the participants to thank them for their time.

Data Analysis

Program Used

All of the video recordings of the participants were uploaded to a video analysis program named Dartfish. This program enables the user to tag videos or segments of videos with labels of his or her choosing. It was important to begin my analysis of the videos with an open mind as to the types of variations or similarities that I would be seeing. As such, my mentor and I devised a

list of many possible variations that could appear in the stories told. Variations found in the research done by McCaskill, Lucas, Bayley, and Hill (2011) were used as a starting point for my analyses.

I recorded the lengths of the stories amongst participants and took the average of the lengths in each group to compare. I counted the number of times participants used pronouns within their stories and compared the amount of pronoun usage. The frequency with which signs were used and the height of those signs were also recorded and compared. Lastly, I recorded the amount of time in which the participants used constructed action; I divided that time by each participant's overall time to find the percentage of the participants' stories that consisted of constructed action. Then I compared the percentages. To keep track of the comparisons and analyses, I used Excel. These results are reported in the findings section.

Credibility

Periodically during this process I met with my mentor, who reviewed my analyses, the Excel document, and the judgments I made in order to ensure accuracy. Having her oversee my research and check my work contributes to the credibility of the findings of this research.

Findings

Length of Stories

The first aspect to address is the length of the stories that the participants signed, measured in minutes and seconds. The range in story lengths for males was from 0:50 to 4:50. The average of the male participants' stories was 2:35 with a standard deviation of 1:35. The range in story lengths for females was from 0:50 to 7:30. The average length of the female participants' stories was 4:26, with a standard deviation of 2:32. However, the shortest length in the females' time range is 0:50, a time shorter than the rest of the female participants' lengths.

The next shortest time length is 3:27. If the shortest time length is excluded as an extreme value, the average changes to 5:20 with a standard deviation of 1:46 for the female participants.

Females signed their stories on average for longer than males signed theirs.

Pronoun Usage

The second aspect of variation that I noticed between the genders is personal pronoun usage. Table 1 presents the results. Most of the participants who used personal pronouns used them while roleshifting as a character within the story to refer to other characters. Roleshifting is labeled RS in the corresponding table. None of the males used pronouns outside of roleshifting. One female did use a pronoun outside of roleshifting, but only once. Four of the five female participants used pronouns while roleshifting. The one female participant who did not use pronouns dropped them throughout the story. All of the females who used pronouns used them an average of six times. In comparison, three males used pronouns while roleshifting on an average of two times. Overall, females in this study used pronouns more often and with more frequency while signing their stories than males. This finding supports the research on variation within ASL done by Lucas et al. (2003). It is interesting to note that when the participants were not using pronouns, they repeated the signs BEAR or GIRL.

Table 1

Number of Pronouns Used by Males and Females

Participant	Pronouns Used	
	In RS	Other
M1	-	-
M2	4	-
M3	1	-
M4	-	-
M5	1	-
F1	6	-
F2	6	-
F3	-	1
F4	6	-
F5	6	-

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce a pronoun.

Hand Listing

A third difference between the genders is hand listing. Four of the five females used a hand list in their story while none of the males did.

Lexical Variations

The majority of the remaining differences are lexical variations. Within these variations, the majority are related to the location, particularly the height, of the sign being produced. It is important to be aware of the fact that people may use the same sign multiple times within one story and that they may not sign it exactly the same way each time. The sign produced prior to a sign may change the parameters of that sign, a process called assimilation (Valli et al., 2011). Below the section of each lexical item is a table corresponding to the figures discussed in the section. An appendix is also included in this paper that consists of six figures. Each figure is labeled with one of the lexical variations and has screen shots of the participants exemplifying

what was found. In this appendix one can see that, in general, females tend to produce their signs higher or in the citation form, while males tend to produce their signs lower or in a non-citation form.

BEAR. The first of the lexical variations is the sign BEAR. There were many variations of this sign, most of which were within the location parameter. The citation form location of BEAR is on the chest. Four males and five females signed it in the citation form location. One of the non-citation locations used was mid-torso, a lower location than the citation form location; three males and one female signed it there. The males who signed it in the lower location signed it on an average of three times, while the female who signed it in the same location only signed it once there.

Table 2

Frequency of the sign BEAR by Male and Females

Participant	Location of Sign	
	Mid-Torso	Upper Chest
M1	4	-
M2	-	8
M3	3	1
M4	-	2
M5	3	7
F1	-	2
F2	-	2
F3	1	5
F4	-	17
F5	-	4

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce the sign BEAR in that location.

HOUSE. The next sign that was commonly used by the participants and in which I noticed variation is HOUSE. The spread of the location where participants produced this sign

follows. Three males signed HOUSE at their chest, compared to one female. Three females signed it at their face, compared to two males. Equal numbers of females and males signed it in a location between their chest and their face. Although both genders signed it both high and low, overall, the males signed HOUSE lower more often, while the females signed it higher more often. The frequency with which the genders used this sign is worth mentioning as well. Two of the males signed HOUSE twice, while the other three signed it only once. The females, on the other hand, all signed it at least twice: Two females signed it twice, one female signed it three times, and one female signed it five times. One female in the study used the sign HOME instead of HOUSE and thus she was excluded from this analysis. Overall, the females signed HOUSE more frequently than the males did.

Table 3

Frequency of the Sign HOUSE by Males and Females

Participant	Location of Sign		
	Chest	Between	Face
M1	1	-	-
M2	-	1	1
M3	-	2	-
M4	1	-	-
M5	1	-	1
F1	-	2	1
F2	-	-	-
F3	-	-	5
F4	-	2	-
F5	1	-	1

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce the sign HOUSE in that location.

NOTICE. Next is the sign NOTICE. Four of the five female participants signed NOTICE and two of those four signed it more than once. Two male participants signed this sign

only once. Each female participant signed it by her eye. One female who signed NOTICE two times signed it once by her mouth, but she was the only one who lowered the sign. Each of the two males who signed NOTICE signed it by his mouth. It is interesting to note that the majority of the females chose to use this sign while few males did.

Table 4

Frequency of the Sign NOTICE by Males and Females

Participant	Location of Sign	
	Near Mouth	Near Eye
M1	-	-
M2	-	-
M3	1	-
M4	1	-
M5	-	-
F1	-	1
F2	-	-
F3	-	4
F4	-	1
F5	1	1

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce the sign NOTICE in that location.

ENTER. The sign ENTER was used by all but one female participant. This sign does not have stark variations, but the overall spread shows a pattern that supports females signing higher and males signing lower. One male signed ENTER by his belly button; no females did this. Three males and three females signed it at their mid-chest. Two of the five males signed it at their upper chest compared with three of the four females who produced it here. One female signed ENTER at her chin, while no males produced it there.

Table 5

Frequency of the Sign ENTER by Males and Females

Participant	Location of Sign			
	Belly Button	Mid Chest	Upper Chest	Chin
M1	1	-	-	-
M2	-	-	1	-
M3	-	1	-	-
M4	-	2	-	-
M5	-	1	2	-
F1	-	1	1	-
F2	-	-	-	-
F3	-	-	1	2
F4	-	2	-	-
F5	1	2	2	-

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce the sign ENTER in that location.

COMFORTABLE. The sign COMFORTABLE was used by two males and four females. Each male signed it at his mid chest compared with only one female who signed in the same location. Three of the four females signed COMFORTABLE at their upper chest or in front of their chin. Since few males opted to use this sign within their story, a firm conclusion cannot be stated. However, the majority of the females who signed COMFORTABLE signed it higher, while all of the males who used this sign produced it in a lower location.

Table 6

Frequency of the Sign COMFORTABLE by Males and Females

Participant	Location of Sign	
	Mid Chest	Upper Chest or Chin
M1	-	-
M2	4	-
M3	-	-
M4	-	-
M5	3	-
F1	-	4
F2	-	-
F3	-	4
F4	-	3
F5	2	-

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce the sign COMFORTABLE in that location.

BED. All participants signed BED during their stories. The female participants signed it with more frequency, averaging 5.8 times, while the male participants used the sign on an average of 1.6 times during their stories. Three of the females signed BED with their hand at their ear or on their cheek while only one male signed it like this. Three females signed it multiple times above their ears or at their forehead compared to one male who signed it once in that location. Three males signed it across their jaw line; two of the males signed it once there and one male signed it twice there. Three females also produced BED across their jaw line but with more frequency; one female signed it six times in that location, another female signed it three times, and the last female signed it once there. Two males signed BED by their mouth twice while none of the females signed it in that location. With this sign, the numbers are spread

and there are many variations in the location of the sign. The female participants signed it both higher and lower. All of the males signed BED at a lower location with only two males signing it at a higher location once each.

Table 7

Frequency of the Sign BED by Males and Females

Participant	Location of Sign			
	Jaw Line	Next to Mouth	Ear/Cheek	Forehead
M1	2	-	-	-
M2	1	-	-	1
M3	-	1	-	-
M4	-	1	-	-
M5	1	-	1	-
F1	-	-	3	5
F2	3	-	1	-
F3	-	1	-	5
F4	6	-	2	-
F5	1	-	-	3

Note. M1-M5 indicate male participants. F1-F5 indicate female participants. Dashes indicate that the given participant did not produce the sign BED in that location.

Use of Constructed Action

The last of my findings is the use of constructed action. I anticipated finding that the female participants would incorporate more constructed action in their stories, but my hypothesis was incorrect. I timed the length in which participants used constructed action within their stories and found a percentage from the total length. After doing so, I found that there was no significant difference between the genders when comparing the amount of constructed action used within a story. However, all of the participants used constructed action in their story for around the same amount of time. The average of all the participants' percentage of constructed action use is 47.68% with a standard deviation of 18.7 percentage points. There was one participant who used

constructed action for 3.75% of the story. If this extreme value is excluded, the average increases to 52.56% of the participants' stories used constructed action, with a standard deviation of 11.2 percentage points.

Discussion

Females signed their stories at a greater length than did their male counterparts; this could be a contributing factor to the increased repetition of signs by women. Further research could be implemented to discover whether females repeat signs more often than males do or whether the reason for this higher repetition was due to a longer story. Next, females seemed to be more likely than males to incorporate the linguistic feature of hand listing into their signing and storytelling. The lexical variations in my findings show that males tend to sign at lower locations or in non-citation forms of signs while females tend to sign at higher locations or in citation forms of signs. Although there were no noteworthy variations in the percentage of constructed action used between the genders, I found this important to incorporate into my findings as the lack of variation exemplifies how important the use of constructed action is for storytelling in ASL.

This study focused on the variations that exist within the language and not on divulging the reasons behind them. However, I would like to discuss possible explanations as to why these differences may occur. People who are grouped together and separated from the majority may develop their own usage of the majority language. Black ASL might be an example of this occurrence. Due to segregation Black people used signs unique to their school and community. The Black Deaf community maintains the use of these signs as part of their community and culture to this day. They have developed and continue to use a language that stemmed from the

majority language but contains its unique differences that have become a part of that minority group (Lucas et al., 2003).

As for ASL variation between genders, I considered residential schools for the Deaf, which were more prevalent in the past, as one of the primary potential explanations. Dormitories were separated by gender. Therefore, during the times that D/deaf students were not in classes, the males were most likely with other males while the females were most likely with other females. It is this type of separation between the genders and the unity felt between those who are of the same sex that differences probably began occurring. Without the frequent conversational intermix of the two groups, the variations could develop. When the groups did mix, such as during class time, it probably affected the starkness of the variation, but it would not have been enough to standardize the use of signs completely. Also, in many residential schools for the D/deaf, ASL was not taught as a formal language. As such, the students within the school would not have one model to learn from; rather, they probably learned from the peers whom they were with the most: those within their dormitories. Even as adults, many people have stronger friendships with people of the same sex thus enabling the continuation of such variation. These are just a few possible explanations for the causation of these phenomena.

Limitations of the Study

It is important to mention that the sample size is small, and that the participants are from the same general region, of the same relative age, and of the same race, as the Deaf community in this area is mostly comprised of older Caucasian adults. This means the findings of this study represent a particular region, age, and race in the United States and, as such, other research on this topic may yield different results. I acknowledge that using random selection and a larger sample size would have helped eliminated such biases; however, due to a lack of funding and

other resources, it was not possible to randomly select D/deaf participants who would be willing to donate their time and/or who would be within a reasonable distance to actualize the research. It is also important to acknowledge that one of the male participants in my sample is Deaf-blind. It is possible that the addition of blindness is an extraneous factor that skews the results. Despite this, notable variations do exist within the sample used and it is likely that these variations represent the variation between this age group in this region.

Furthermore, it is also important to point out that the participants were asked to tell the same story, *Goldilocks and the Three Bears* (Bret, 1990). In retrospect, it may have been better to pick a story in Deaf Folklore, such as “The Hitchhiker” (Mindess, 2006, p. 107) as having the original language of the story be ASL would incorporate many natural features of the language compared to a story originally written in English. However, *Goldilocks and the Three Bears* (Bret, 1990) has been translated into ASL on video and is something with which many hearing and D/deaf people are familiar. Regardless, as the participants were told which story to tell, the findings apply to sign production within narratives or monologues and not to dialogues or natural discourse. That being said, it is possible that sign production could be similar in both monologues and dialogues, but this study cannot make that conclusion. Finally, it is possible that the way I presented the title of the story to the participants could have had an impact on the word choices used in the story, though I did present the title in the same way to all participants.

Conclusion

Summation of Results

To summarize the results, when asked to sign a story, the male participants used less time to tell their story than did the female participants. The female participants used pronouns with more frequency during their stories in comparison to the male participants; this supports the

research done on pronoun usage by Lucas et al. (2003). Moreover, nearly all of the female participants used hand listing within their story while none of the male participants did. Overall, the female participants tended to sign at higher locations than did the men as well as sign more often in the citation form of the sign in comparison to men; this, too, supports the research on sign production location done by Lucas et al. (2003). In some cases, one of the groups, either the female participants or the male participants, produced the sign in all the locations while the other group leaned towards either higher or lower. The female participants as a whole produced the specific signs this study examined more frequently. This could relate back to the fact that their stories were longer than the male participants and therefore they had the need to reuse signs more often. The male participants used their signs with less frequency in general. With some of the signs I looked at, the usage was equal between the sexes. Lastly, around half of any story consisted of constructed action regardless of the gender of the individual signing; therefore, constructed action is an important aspect of storytelling to ASL. Understanding the differences in how males and females sign can assist students of interpreting and interpreters by allowing them to better recognize and comprehend signs when they are produced with variations.

Future Research

Sign production variations exist due to numerous factors such as age, region, social economic status, gender, and more. As ASL has only been formally recognized as a language since 1965, research on all aspects of the language needs to continue (Valli et al., 2011). The research I have conducted is a small contribution to the increasing knowledge about ASL. In order to understand the variation between genders of sign language users, more research needs to be done in various regions with larger sample sizes and looking at a variety of conversation topics.

Research on monologues could be conducted on how Deaf individuals sign Deaf Folklore stories, such as “The Hitchhiker,” to examine how the signs vary based on gender. Further research could be conducted in gender variation through dialogic interviews. Participants of the same gender could be in a room and given a topic, such as a current event, to discuss. Their conversation would be video recorded. Then it could be examined and analyzed for variation that occurs in spontaneous dialogue. More research into gender variation as well as variation in ASL needs to be implemented.

References

- Bret, J. (1990). *Goldilocks and the three bears*. New York, NY: Putnam Pub Group.
- Dartfish (2013). Dartfish: Video Analysis Software (Connect Version 7.0) [computer software].
Fribourg, Switzerland.
- Lucas, C., Bayley, R., & Valli, C. (2003). *What's your sign for PIZZA? An introduction to variation in American Sign Language*. Washington, DC: Gallaudet University Press.
- McCaskill, C., Lucas, C., Bayley, R., & Hill, J. (2011). *The hidden treasures of black ASL: Its history and structure*. Washington, DC: Gallaudet University Press
- Mindess, A. (2006). *Reading between the signs: Intercultural communication for sign language interpreters*. (2nd ed.). Boston, MA: Intercultural Press.
- Padden, C., & Humphries, T. (2005). *Inside deaf culture*. Cambridge, MA: Harvard University Press.
- Valli, C., Lucas, C., Mulrooney, K., J. & Villanueva, M. (2011). *Linguistics of American Sign Language: An introduction* (5th ed.). Washington, DC: Gallaudet University Press.

Footnotes

¹ The word Deaf with a capital *D* indicates affiliation and identification with the Deaf community and Deaf culture while deaf with a lowercase *d* indicates a hearing loss only (Padden & Humphries, 2005).

Appendix



A) M3

B) F5

Figure 1. Male and female participants signing BEAR.



A) M5

B) F3

Figure 2. Male and female participants signing HOUSE.



A) M3

B) F1

Figure 3. Male and female participants signing NOTICE.



A) M4

B) F5

Figure 4. Male and female participants signing ENTER.



A) M2

B) F3

Figure 5. Male and female participants signing COMFORTABLE.



A) M3

B) F1

Figure 6. Male and female participants signing B