Conversational Regulators in American Sign Language Students

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Amerikan İşaret Dili Öğrencilerinde Konuşma Düzenleyicileri

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Abstract
Language proficiency can be framed as grammatical, sociolinguistic and strategic competency. Historically, the grammatical strategies of hearing students who study American Sign Language (ASL) have been emphasized. To address this gap, a Discourse Completion Task was designed to look at a little explored area, conversational regulators, in 14 hearing students who had taken ASL 1 (one semester) as compared to 14 hearing students who reported taking no ASL classes. Participants watched and responded to 11 videotaped contexts in ASL. The findings indicate that the ASL1 students had learned various ASL conversational regulators, such as frowns (* p = .00) and hand waving (the HEY sign in ASL) (* p= .00). They followed Deaf culture norms for not talking and gesturing at the same time (* p = .00). They also demonstrated reduced use of miming compared to the non-ASL students (* p = .00). The findings are discussed within the context of existing literature, and recommendations are offered for future research and practice.

Keywords: *Conversational regulators, acquisition, American Sign Language, second language, L2*

Öz
Dil yeterliliği; dilbilgisel, sosyo-dilbilimsel ve stratejik yeterlilik olarak çerçevelendirilebilir. Tarihsel olarak, Amerikan İşaret Dili'ni (ASL) öğrenen işiten öğrencilerin dilbilgisel stratejilerine odaklanılmıştır. Bu boşluğu gidermek için, ASL 1 (bir dönem) dersi almış 14 işiten öğrenci ile hiç ASL dersi almamış 14 işiten öğrenciyi karşılaştırarak az araştırılmış bir alan olan konuşma düzenleyicilerini incelemek için bir Söylem Tamamlama Görevi tasarlanmıştır. Katılımcılar ASL'de 11 video bağlamını izlemiş ve yanıtlamıştır. Bulgular, ASL1 öğrencilerinin kaş çatma (* p = .00) ve el sallama (ASL'de HEY işareti) (* p= .00) gibi çeşitli ASL konuşma düzenleyicilerini öğrendiklerini göstermektedir. Aynı zamanda sağır kültürü normlarına uygun olarak konuşma ve jestleri aynı anda kullanmaktan kaçınmışlardır (* p = .00). Ayrıca, ASL dersi almamış öğrencilere kıyasla taklit kullanımında azalma göstermişlerdir (* p = .00). Bulgular, mevcut literatür bağlamında tartışılmış ve ileriki araştırmalar ve uygulamalar için öneriler sunulmuştur.

Anahtar Sözcükler: *Konuşma düzenleyicileri, edinim, Amerikan İşaret Dili, ikinci dil, L2*

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Introduction

American Sign Language (ASL) is a popular language of study, and it was ranked third in 2016 in American post-secondary institutions (Looney & Lusin, 2019). In 2005, it was taught in 701 public schools in the United States (Rosen, 2010). Students may take ASL as "a fun elective" (Jacobs, 1996, p. 200), and some believe it is very similar to English and easy to master (McDermid, 2017; Peterson, 1999). Others may take ASL because they believe it will lead to a job in interpreting or teaching (McKee & McKee, 1994). At the same time, ASL is considered a truly difficult language to learn (Jacobs, 1996; Kemp, 1998), and students' initial mastery may plateau, causing them to lose motivation to continue (Kemp, 1998). They may also realize that to become fluent, they must learn some of the communicative behaviors of the Deaf community (McDermid, 2017).

Concern has been raised about the lack of research into the acquisition of ASL by hearing signers and the efficacy of current curricula (Ackerman et al., 2018; Beal, 2020; Beal & Faniel, 2019; Ortega & Morgan, 2015; Quinto-Pozos, 2011; Tanner & Doré, 2019). These individuals are sometimes called second mode, second language (M2L2) learners. ASL is conveyed through vision and not auditorily, so there is a difference in mode between spoken and spoken languages (Beal, 2020).

Much of the focus in the research canon has been on grammatical fluency, such as vocabulary recognition (Mills, 1984; Radford, 2012; Scheetz & Gunter, 2004). More work needs to be done on sociolinguistic or strategic fluency, such as the ability to use conversational regulators to initiate turns or to interrupt (Ehrlich-Martin, 2006). To address this gap, this study was designed to look at conversational regulators in a mixed method, between-subjects design to compare undergraduate students who had taken an ASL 1 class to students who reported no knowledge of ASL.

Model of Language Fluency

To begin with, what is fluency in a language? Early on, Canale and Swain (1980) suggested a communicative competency framework comprising grammatical, sociolinguistic, and strategic competency. The Council of Europe (2001) proposed and utilized a similar model, adding pragmatic competency. Pragmatic competency is knowledge of logical but unstated relationships such as presuppositions and implicatures (Council of Europe 2001). Fluency can also include the concept of discourse competence, the ability to create cohesive texts beyond the sentence level (Celce-Murica et al., 1995).

Sociolinguistic and Strategic Competence

According to the model proposed by Canale and Swain (1980), grammatical competence is one aspect of learning a second language, and it is tied to knowledge of a language's phonemes, vocabulary, and grammar. A similar definition was followed by the Council of Europe (2001), which defined grammatical competence as "lexical, phonological, syntactical knowledge and skills" (p. 13). The American Council on the Teaching of Foreign Languages (ACTFL) (2012) defines a superior-level speaker as one who has mastered "the use of syntactic, lexical, and phonetic devices" (p. 5).

Of interest in this study, however, is sociolinguistic and strategic competence, in particular conversational regulators. Canale and Swain (1980) defined sociolinguistic competence as the ability to understand language functions and how to use them appropriately. The Council of Europe (2001) described sociolinguistic competency as "sensitivity to social conventions (rules of politeness, norms governing relations between generations, sexes, classes, and social groups, linguistic codification of certain fundamental rituals in the functioning of a community)" (p. 13). Earlier, Hymes (1972)

wrote that this level of competency included "linguistic routines" or the individual's ability to recognize and use language structures beyond the sentence level (p. 290). More recently Negoescu et al., (2019) described social competence, as premised on "the will and ability to engage in interaction with others" (p. 62).

Strategic competency was defined in the literature as the ability to deal with "breakdowns" in communication (Canale & Swain, 1980; Negoescu et al., 2019). Various behaviors were noted, including the ability to "backtrack and restructure," "correct slips and errors," "ask for confirmation," and "start again using a different tactic" (Council of Europe 2001, 65). Other frameworks included interactional strategies "that promote mutual understanding in meaning between participants, such as checking comprehension or asking for clarification" and indirect strategies, "for instance, maintaining the conversation flow or feigning understanding" (Seong, 2014, p. 16).

Lacking sociolinguistic or strategic competency in a language can lead to significant challenges in communication, relationships, and overall fluency. Misunderstandings and inappropriate language use in social contexts can result in communication breakdowns, which in turn can lead to strained relationships. The inappropriate use of sociolinguistic strategies could lead a speaker or signer to be perceived as rude or disrespectful, potentially causing social isolation or avoidance of language use. Additionally, second language learners might experience anxiety, frustration, and reduced motivation, further impeding their language learning progress.

ASL Conversational Regulators

For this study, strategic competency was limited to and operationally defined as gestures associated with ASL conversational regulators or back-channel feedback (Kurz & Taylor, 2008). There were some questions in the literature about whether these gestures were universal or tied to language proficiency (Seong, 2014).

The literature on ASL strategic competence noted how addressees may use signals to "let the Signer begin a conversation" or to "remain *silent* while the Signer continues his/her turn" and can signal comprehension or a desire to take a turn (Baker-Shenk & Cokely, 1981, p. 2). For example, when a conversation begins, the addressee typically maintains direct eye gaze on the signer. If the addressee looks away, perhaps due to a distraction or to perform some action, the signer typically stops and waits for the addressee to look back and establish direct eye contact again (Baker-Shenk & Cokely, 1981).

As described in the literature, gestures tied to conversational regulation in ASL included the following:

1. eye gaze (direct or averted) (Baker-Shenk & Cokely, 1981; Lieberman, 2015; Smith & Ramsey, 2004; Wilcox & Wilcox, 1991)
2. referencing (or pointing to) speakers or objects to identify turns or topics (Smith & Ramsey, 2004)
3. various non-manual markers (facial movements) (Smith & Ramsey, 2004)
4. a tactile tap on the shoulder to get attention (Baker-Shenk & Cokely, 1981; Coates & Sutton-Spence, 2001; Lieberman, 2015; Wilcox & Wilcox, 1991)
5. the use of waving, referred to as the sign HEY, where "the Signer may wave his/her hand up-and-down or sideways to attract that person's attention" (Baker-Shenk & Cokely, 1981, p. 4)
6. banging on a table or desk again to get attention (Lieberman, 2015)
7. flicking a light switch (Baker-Shenk & Cokely, 1981; Wilcox & Wilcox, 1991), or

8. the waving of a handkerchief to signal applause, referred to as the Chautauqua Salute, and which later was adapted to holding hands aloft and rapidly twisting or rotating them at the wrist (henceforth referred to as visual applause in this study) (Carbin, 1996).

Inappropriate conversational regulators and attention-getting behaviors include (Baker-Shenk & Cokely, 1981; Wilcox & Wilcox, 1991):

1. stomping on the floor
2. flicking the lights too rapidly to talk with one person
3. aggressive jabs or pokes at the desired interlocutor
4. waving a hand right in front of the person's face
5. grabbing the person's hands or face
6. clapping (especially outside of the interlocutor's gaze) and
7. throwing objects near or at the interlocutor

ASL Pedagogy

To contextualize how hearing students learn ASL, it is important to understand how they are taught it. Some common themes in the literature included a history of untrained or unqualified teachers (Ackerman et al., 2018; Lentz, 1994; Pfeiffer, 2004; Quinto-Pozos, 2011; Rosen, 2008; Smith,1988; Tanner & Doré, 2019). However, this has been addressed more recently with ASL teacher education programs at Western Maryland College (Wilcox & Wilcox, 1991) and Gallaudet University. Further, organizations like the American Sign Language Teachers Association (ASLTA) (n.d.) have worked to set standards in ASL instruction. The National Association of the Deaf (n.d.) has recognized the expertise of the ASLTA and directs readers of their website to the ASLTA for resources.

There is debate in the literature about who should teach ASL, native or non-native signers (Ackerman et al., 2018; Quinto-Pozos, 2011). It was suggested that native signers act as models for the different aspects of language learning, such as norms for behaviors and culture, and are better suited (Ackerman et al., 2018). Deaf native signers may have higher expectations for fluency in ASL, where in two studies, the Deaf raters ranked the hearing signers as lower in ASL fluency than how they were ranked by hearing professionals (Beal et al., 2018; McDermid, 2014). However, non-native signers have been employed to teach ASL, perhaps because they graduated from interpreter education programs (Rowley & Kovacs-Houlihan, 2014).

Another debate in the literature has been a prohibition against using spoken English in ASL classes, a no-voice policy (Ackerman et al., 2018; Ehrlich & Wessling, 2019; Pfeiffer, 2004; Rosen et al., 2014; Rowley & Kovacs-Houlihan, 2014; Quinto-Pozos, 2011; Smith et al., 2008; Thoryk, 2010; Traxler & Nakatsukasa, 2020). Such a policy means more reliance on gestures, at least in the initial classes (Quinto-Pozos, 2011). There is debate whether such a policy inhibits or promotes the learning of ASL (Rosen et al., 2014; Tanner & Doré, 2019). Limited research has shown mixed results, where in one study, students in no-voice classrooms did better learning ASL vocabulary (Rosen et al., 2014), while in another, there was no difference (Traxler & Nakatsukasa, 2020). In two studies, teaching signers the etymology of a sign in English seemed to help them remember the signs (Maynard et al., 1994), as did using English written glosses for ASL signs (Lupton & Fristoe, 1992).

Signing Naturally

To delimit the method of this study, only participants who had been instructed in ASL 1 through the *Signing Naturally* curriculum were included (Smith et al., 1988). This decision was made as *Signing Naturally* (Smith et al., 1988) was listed as the primary text by 83% of American public secondary instructors in one study (Rosen, 2010) and by 92% of

school divisions in Virginia (Pfeiffer, 2004). It was also noted that the text was used in a third study (Lee & Pott, 2018) and adopted by the state of Texas at one point as the standard curriculum (Wilcox & Wilcox, 1991). Given that the participants had completed one level of ASL, the *Signing Naturally Student Workbook Units 1-6* was reviewed, which is the text used in ASL 1 (Lee & Pott, 2018). There has been a shift in pedagogy when teaching ASL to a Functional-Notional approach (Rosen, 2010). *Signing Naturally* focuses on communicative competence and adopts an immersion philosophy (Rosen, 2010; Smith et al., 1988). It was originally designed with university students in mind (Lentz, 1994). Part of its design process included surveys and meetings with university students and Deaf community members to see how they used language and to determine a range of typical topics (Lentz, 1994).

As Smith (1998) explained, it does not focus on grammar per se, though grammar is taught when it comes up in the context of language functions. For example, students are taught about the phonology of ASL in a lesson on one- or two-handed signs and are told to raise their eyebrows as a form of transitioning between topics (Smith et al., 1988). Other lessons include establishing contrasting relationships between concepts by signing one object on one side of the body and then the contrasting object on the other (Smith et al., 1988).

There are also lessons on sociolinguistic strategies (Rosen, 2010), such as actions to begin and to clarify points, to interrupt, and to join conversations (Smith, 1988). For example, students are taught to tap the shoulder of a person they wish to sign with or their upper arm to get that person's attention. They can also ask an intermediary to tap someone's shoulder (Smith et al., 2008). They are taught to go around signed conversations or walk quickly between the signers (Smith et al., 2008). It is also "customary to press someone's shoulder or upper back" when squeezing between two signers (Smith et al., 2008, p. 83). Clear sight lines and "deliberate eye contact with your audience" while telling a story are stressed (Smith et al., 2008, p. 328)

There is a prohibition against using spoken English, referred to as "voicing," in class. The curriculum authors wrote, "Please don't speak in class," and characterized this behavior as disruptive (Smith et al., 2008, p. xiv). Later in the student workbook, it states, "Speaking in the presence of a Deaf person is considered impolite." (Smith et al., 2008, p. 152).

Strategic Competency Outcomes

According to Quinto-Pozos (2011), the American Sign Language Teacher's Association (ASLTA) has incorporated the "5 Cs" from the American Council on the Teaching of Foreign Languages (ACTFL). These include strategies to communicate and to make connections. Swaney and Smith (2017) noted how *Signing Naturally* references the ACTFL competencies. Kurz and Taylor (2008) also advocated for the ACTFL competencies and, to that end, listed various gestures and back-channel activities, such as head nods, tied to strategic competency as outcomes for ASL programs.

Grammatical Competence Focus

While the *Signing Naturally* curriculum focuses on language functions, much of the research into the acquisition of ASL by hearing students has been on aspects of grammatical competency and not sociolinguistic or strategic competency, which is the focus of this study. These studies looked at:

1. phoneme discrimination or reproduction (Baker et al., 2005; Beal, 2020; Beal & Faniel, 2019; Bochner et al., 2016; Chen Pichler, 2009; Crittenden, 1974; Geer, 2016; Lieberth & Gamble, 1991; Maynard et al., 1994; McKee & McKee, 1992;

McIntire & Reilly, 1988; Morford et al., 2008; Ortega & Morgan, 2015; Rudser, 1986)
2. classification of individual signs as iconic or non-iconic (Mills, 1984)
3. memorization of the manual alphabet (Hawes & Danhauer, 1980)
4. memorization of ASL verbs (Cochran et al., 1999)
5. utilization of classifiers (Lindert, 2001; Rudser, 1986)
6. overall vocabulary (Cochran et al., 1999; Hoemann & Keske, 1995; Lupton & Zelaznik, 1990; Mills & Weldon, 1983; Radford, 2012; Scheetz & Gunter, 2004; Vicars, 2003; von Pein, 2003; Williams et al., 2017)
7. parts of grammar (McKee & McKee, 1992), and
8. translation from English into ASL (Beal & Faniel, 2019; Cochran et al., 1999; Radford, 2012).

Assessments

There are a variety of ASL assessments, many of which focus on grammatical competency. These include the 51U assessment, where students must think of homonyms for ASL signs (other signs with different meanings but similar phonetic characteristics like identical handshapes) (Beal, 2020). The ASL-Discrimination Test (ASL-DT) looks at the receptive abilities of signers to distinguish two different sentences based on changes in phonemes (Bochner et al., 2011). The ASL Comprehension Test (ASL-CT) examines an individual's ability to distinguish between phonemes, such as role shifting and depiction (Hauser et al., 2016). In the ASL-Sentence Reproduction Task (ASL-SRT), signers must reproduce sentences in ASL verbatim (Supalla et al., 2014). The ASL-Receptive Skills Test (ASL-RST) examines receptive ASL fluency in different grammatical structures (Enns et al., 2013).

Another means of assessing a signer's fluency is through an interview process. These include protocols such as the ASL Proficiency Interview (ASLPI) or Sign Communication Proficiency Interview (SCPI), done with a native or near-native signer (Burch, 1997; Desrosiers, 2001; LaSasso & Lollis, 2003; Long et al., 1999; Maller et al., 1999; Madsen, 2001; Newell & Caccamise, 2007; McDermid, 2014; Stauffer, 2011). While these require using back-channel feedback or conversational regulators, a specific score or assessment is not given for these features.

Several rubrics have also been created to assess students' fluency in ASL (Ashton et al., 2013; Beal & Faniel, 2019; Beal et al., 2018; Beldon, 2012; Easterbrooks & Huston, 2008). One lists strategies such as "signing please and thank you" and attention-getting behaviors (Ashton et al., 2013, p. 15). However, the focus seems to be on grammatical competency.

Hearing Signers' Strategic Competency

Few studies have been done on the conversational regulators hearing ASL students learn in ASL classes (Ehrlich-Martin, 2006; Tigwell et al., 2020), and no evidence of an assessment for strategic performance was found. In one study, the researcher looked at a blended ASL class, with some students attending in person and some logged in synchronously (Ehrlich-Martin, 2006). The off-site students were concerned about turn-taking, interrupting each other, a lack of peer interaction, and problems establishing eye contact (Ehrlich-Martin, 2006). In a second, an autoethnographic study, the authors believed that videoconferencing negated or interfered with strategies such as tapping to get attention or the use of eye gaze as a conversational regulator (Tigwell et al., 2020).

Linguistic Transfer

As noted in the literature, there was some discussion around are conversational regulators taught or universal (Seong, 2014)? In the context of this study, are they simply being transferred from English to ASL? Some aspects of language, for example, can experience positive transfer, where the behavior is similar in both languages, or negative transfer, where the aspect is marked in one language and so not readily learned (Chen Pichler, 2009). For this study, waving to get someone's attention or tapping them on the shoulder may be transferrable abilities between signers and non-signers. However, as noted earlier, ASL and English are different in terms of modality, one spoken and based on sound (oral/aural) and the other produced manually and comprehended visually (Beal & Faniel, 2019).

There is evidence that non-signers who go on to learn ASL transfer some aspects. For example, when a group of students were asked to represent a story in gesture before learning ASL and then to repeat the story after taking ASL 1, correct facial expressions appeared in both renditions while creating first-person discourse (Taub et al., 2008). However, correct eye gaze when producing first-person discourse did not transfer from the gestured version to the signed version (Taub et al., 2008).

Discourse Completion Task

One method of examining strategic behaviors and the process chosen for this study is through a Discourse Completion Task (DCT). A DCT typically consists of "descriptions of speech act situations followed by incomplete discourse sequences that the respondents are requested to complete" (Labben, 2016, p. 70). Blum-Kulka (1982) is often credited with being the first researcher to use a discourse completion task with bilingual students, and such a protocol has been used with Deaf signers (Hoza, 2007). A DCT can be enhanced by providing information in the participant's native language (Blum-Kulka, 1982). The topics should be relevant to the participants (Hoza, 2004). Native or near-native analysts should be employed (Blum-Kulka, 1982; Hoza, 2004).

Several caveats have been noted about the use of a DCT. When more content is given (content enhanced), the tasks can become more cognitively demanding for the participants, and the variety of possible responses makes them more complex to assess (Labben, 2016). They may not represent authentic, spontaneous spoken discourse (Labben, 2016). Also, as Hymes (1972) noted, there occurs "sociolinguistic interference," the impact of the social experience as a participant in a study on the language user (p. 288).

Research Problem

Given the focus on grammatical competency in the literature, this study looked at strategies that may constitute competency in conversational regulators in ASL students. The following research questions were posed:

1. What conversational regulators do students who have completed an ASL 1 class demonstrate on a Discourse Completion Task?
2. What differences are there between hearing students who have completed an ASL 1 course and those who have yet to gain a background in ASL regarding their use of conversational regulators on the same Discourse Completion Task?

Method

The methodology for this study was a mixed methods design where a quasi-experimental between-subjects approach was used to collect quantitative data, and qualitative data was collected through a questionnaire with open-ended questions.

Participants

Two groups of post-secondary students were recruited using convenience sampling as they attended one post-secondary institution in the American southeast. Recruitment emails were sent to the ASL and Faculty of Education instructors. One group of participants consisted of 14 non-signers from the Faculty of Education who had not formally studied ASL and reported that they did not know the language. This group was given pseudonyms designated as "E" for English-only students. The first participant was assigned "E1" for example. Fifteen students were originally recruited, but one later reported having taken ASL 1 and was removed from the pool.

The second group consisted of 14 students from various disciplines who had completed ASL Level 1, most of whom were currently enrolled in ASL Level 2. Again, fifteen students were originally recruited, but when asked which textbook their instructor used in their ASL class, 14 of the 15 picked "Signing Naturally – the Vista Curriculum." One person chose "Master ASL" and was removed from the pool to control for the impact of curriculum design. The ASL 1 students were given pseudonyms with the designation "A, " so "A1" represented the first ASL student. Table 1 is a summary of the demographic characteristics of the two groups. Like other studies, the volunteers were predominately female (Peterson, 1999; Thoryk, 2010).

The ASL students reported high grades in their ASL 1 class, and scores ranged from "A" (11 students), a "B+" (2 students) and "B" (1 student). Most ASL 1 students (11) reported signing or having used ASL for a year or less, while three said they had used sign language for 2 years. When asked about Deaf relatives, 12 ASL students chose "no, none."

Table 1. Demographics

	ASL Students	**English-Only Students**	**Total**
Gender			
Male	2	3	5
Female	12	11	23
Age			
Mean age (Years)	22.5	24.1	23.3
Age range	19-38	19-43	19-43
First Language			
English first language	14	12	26
Other first language		Turkish (1) French (1)	2
Ethnicity			
White/Caucasian	10	6	16
African American/ Black	3	7	10
Latin X	1	0	1
Arabic	0	1	1
Total	14	14	28

At the same time, one individual reported a Deaf parent, and one reported an extended family member such as an aunt, uncle, or cousin. As a group, most had no signing relatives and about one year or less of language experience with ASL. Thirteen English-only students also reported "no, none" when asked if they had Deaf relatives. Only one reported an extended family member, such as an aunt, uncle, or cousin. All reported no fluency in ASL. Ethical approval for the study was granted by the University of North Carolina Greensboro Human Research Ethics Committee (19=0391). Participants were consented prior to their participation in the study.

Instruments

Data was collected through three instruments: a demographic questionnaire, an ASL Discourse Completion Task (DCT) created for this experiment, and an open-ended questionnaire at the end about the process. An ASL DCT was designed with a total of 24 short videos. In 11 of the 24 contexts, receptive ASL abilities were not required, and so given that half of the participants did not know ASL, only these 11 contexts were analyzed. One researcher was a native signer and identified as culturally Deaf. The other was a nationally certified interpreter who had been signing for over thirty years at the time of the study. He had a rating of Advanced Plus to Superior Plus on a Sign Communication Proficiency Interview and Level 4 out of a possible 5 on an ASL Proficiency Interview.

The DCT began with a demonstration of the process, where a student in a video was shown watching a computer monitor. This actor read over a context on the screen and then replied to the context in gestures and/or signs. The instructions were provided onscreen in written English, the first language of most of the participants (Blum-Kulka, 1982). To increase the spontaneity of responses, as suggested (Labben, 2016), the participants could respond while watching the context play out and were given 5 seconds at the end of each context before the next set of instructions appeared.

Figure 1 next (Context 5: Peer on Phone) is a snapshot of one of the discourse completion tasks Context 5. In this context, the participant is given the following instructions:

> "Pretend you are a student in a college level ASL class. You are working with a peer to review some basic signs, like TEST, STUDY and HOMEWORK. He will not pay attention but is instead on his phone. Demonstrate how you would get his attention."

Then, the participant is shown a short video in which the actor ignores the camera and only looks at his phone.

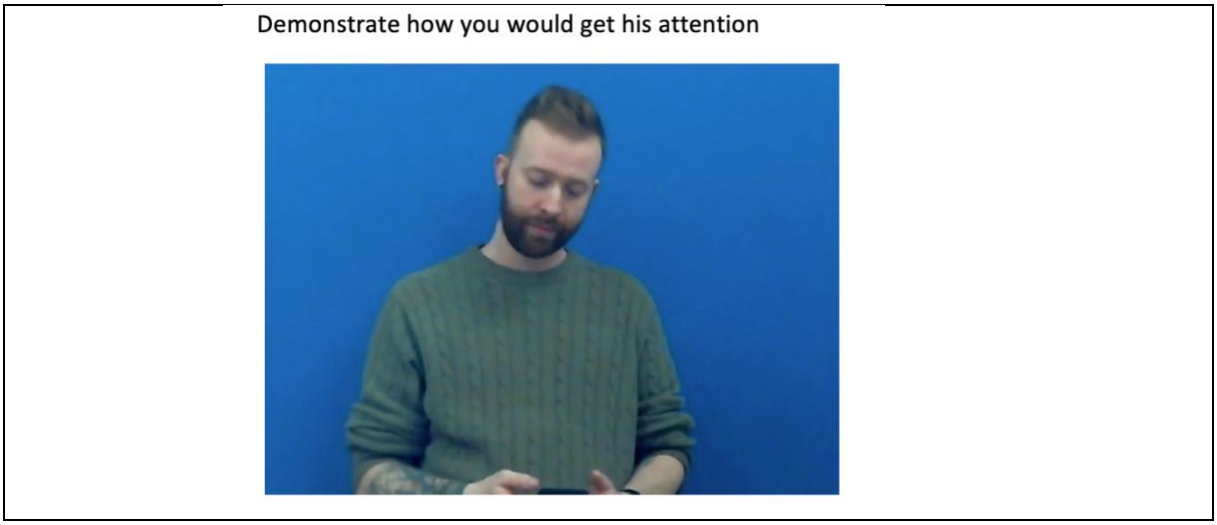

Figure 1. Context 5: Peer on Phone

Table 2. Context 5: Peer on Phone

Context	Potential Behavior
5 Peer on Phone	Sign HEY Tap on the shoulder Bang on the table

Table 2 next outlines potential behaviors that could be coded as present. For this context, the participant could have demonstrated a number of attention-getting behaviors, such as waving at the screen (designated as the sign HEY), banging on the desk or table, or attempting to tap the shoulder of the student on the screen.

Once the participants had completed the DCT, they were asked to complete a short questionnaire. It included three open-ended questions: "What did you think of the videos?" "Were there any specific contexts that you wanted to comment on and why?" and "What would you change in this process and why?" The ASL students responded to an additional two open-ended questions: "What did you learn about Deaf culture in your ASL course that applies to this video?" and "What did you learn about ASL in your ASL course that applies to this video?"

Procedure

The participants were brought in individually and asked to complete the informed consent and demographic questionnaire. Then, they were instructed to respond to the contexts in the ASL DCT. They were recorded while completing the DCT for later analysis. Then, they were given a link and instructed to complete the online questionnaire.

Analysis

From the literature review, specific behaviors were predicted *a priori* and coded. They included actions such as using the sign HEY (waving a hand in the direction of a person) and "flick lights" to gain attention. However, grounded coding was also used, and some codes were found in the data, such as "English mouthing," "frown," and "hand up." As advised in the literature, the responses were analyzed by native or near-native analysts (Blum-Kulka, 1982; Hoza, 2004).

The 11 contexts were assessed by two different raters. Whether a behavior was demonstrated once or multiple times during a context, it was coded as one instance and "present" or absent. Fischer's Exact test was then used to detect significant differences between students who had taken ASL 1 and those who had not, given that the data was categorical (present or not present) and where some cells had less than a minimum of 5 observations.

Two researchers coded Participant A1 independently and met to compare their results. They then coded the remaining 27 participants independently. Inter-rater agreement for the final coding was high at 98.66%, and where the codes differed, the researchers again met to discuss and agree upon a similar code. The follow-up questionnaires were analyzed and coded qualitatively through Atlas TI. Grounded theory was used to identify the major categories, properties, and sub-properties.

Findings

Table 3 next lists the 11 behaviors that were noted in the DCT. This became the codebook for the study.

Table 3. Coded Behaviors

Behaviors	Descriptors
1. Visual Applause (Carbin, 1996)	The individual waves both hands above their head to indicate praise
2. Flick lights (Baker-Shenk & Cokely, 1981; Wilcox & Wilcox, 1991)	The person mimes flicking a light switch
3. Frown	The person overtly lowers his/her eyebrows, and looks puzzled
4. Hand up	A hand is raised as if to ask a question
5. HEY (Baker-Shenk & Cokely, 1981; Coates & Sutton-Spence, 2001)	Similar to the sign HEY, waving forward or side to side to get attention
6. Mime	The individual mimed some action without using ASL signs or by using invented signs.
7. Pointing or Reference (Smith & Ramsey, 2004)	The individual points to the signer or an object that was established by the signer in the video
8. Shrug	The individual overtly shrugs their shoulders
9. Tap shoulder (Baker-Shenk & Cokely, 1981; Coates & Sutton-Spence, 2001)	The person mimes tapping a shoulder
10. Thumb up	The person gestures with a thumb-up movement.
11. Thumb down	The person gestures with a thumb-down movement.

Table 4 provides a contingency table for each potential behavior. Given 28 individuals and 11 contexts, there was a potential total of 308 behaviors, where either the behavior was present or absent, with a total of 154 expected for each group.

Table 4. Contingency Table

Group	Present	Absent	Total
ASL students	77	77	154
English-only students	77	77	154
Total	154	154	308

Table 5 provides a breakdown of the 11 behaviors identified in the ASL DCT and assessed using Fischer's Exact test to compare the ASL 1 students to the English-only group. The behaviors are listed in terms of their total frequency, from highest to lowest. A significance level of $p < 0.5$ was used, and a two-tailed distribution was assumed with one degree of freedom.

The findings indicate that the English-only students mimed more often (*p = .00) and either spoke or mouthed English words without the use of a co-occurring sign more frequently than the ASL students (*p = .00). Approaching significance was the production of more overt shrugs by the English-only students (p= .05). The ASL students, on the other hand, made more use of overt frowns (*p = .00) and the HEY sign (hand waving) (*p = .00). They also made more use of visual applause where both hands were raised and rotated or twisted repeatedly (*p =.01).

Table 5. Strategic Behaviors Fischer's Exact Test Analysis

	Total	ASL Total	English-only Total	*p*
Mime	102	11	91	.00*
HEY (hand wave)	98	65	33	.00*
Spoken English or Mouthing	86	12	74	.00*
Pointing	68	31	37	.50
Thumb Up	27	10	17	.23
Frown	19	16	3	.00*
Tap Shoulder	18	10	8	.64
Flick Lights	14	8	6	.60
Shrug	14	3	11	.05
Hand Up	12	5	7	.58
Visual Applause	10	9	1	.01*
Thumb Down	2	0	2	.25

Note. df = 1, $p < .05$

Follow-up Questionnaire

Two major themes were identified in the ASL 1 students' and the English-only students' comments in the follow-up questionnaire. These concerned the testing procedure and how the overall process was seen as a learning experience (see Table 6).

Within the theme "Testing Process," some concerns were noted. Student A1 "was a little nervous," and A6 wrote, "I was afraid that I would forget a lot of the signs that I've already learned." Six students included the word "confused" about what to do (A3, A11, A12, E8, E10, E14). A sub-theme was the desire for a longer response time to the contexts by 9 ASL students (A1, A4, A5, A6, A7, A8, A10, A11, A13) and 2 of the English-only students (E7, E10). One participant, A4, wrote, "I would maybe give a little more time for reading the instructions before each section of the video because I read fairly slowly." Another sub-theme was tied to the perception that the instructions were vague (A1, A2, A3, A9, A11, A14, E1, E8, E10). Two participants suggested adding instructions (A2) or headings in the videos (E8). A third sub-theme was identified as a lack of strategies. Here, both the English-only (8 of 15 participants) and ASL students (6 of 15 participants) talked about not knowing how to respond. E4 wrote, "I just felt like I didn't really know what to do during a fire if the teacher was deaf."

Within the theme "Learning Experience," twenty-three shared some positive responses to being in the study. This was an *in vivo* code from a comment by E14, who shared, "I love the fact that it was a learning experience that kept me engaged." ASL students wrote comments like, "Overall, it was well organized, quick, and easy" (A2), and the English-only students wrote comments like "The process was simple and straight to the[m] point" (E14) and "I felt really good." (E3). Two ASL students (A10, A12) used various terms that implied they believed the process mimicked real situations. Student A10 wrote, "…because it helped me to experience what it would be like to be around a Deaf person." Ten of the 15 English-only students wanted to study ASL as a result of having participated in the study, a sub-theme under "Learning Experience."

Table 6. All Students' Experience

Theme	Sub-theme
Testing Process	Longer Response Time
	Vague Instructions
	Lack of Strategy
Learning Experience	Desire to Study ASL

Turning to the responses of the ASL students to the open-ended questions, they identified a number of conversational regulators, and some also emphasized that they were taught these in their ASL class. Table 7 next outlines the ones they mentioned in the questionnaires.

Table 7. ASL Students' Comments

Theme	Sub-themes
Conversational Regulators	Back-Channeling
	Attention-Getting
	Eye Gaze
	Talking Prohibited
	Walk Through Conversations
	Facial Expressions
	Taught Deaf Culture

Several sub-themes were associated with the ASL student's knowledge of conversational regulators in ASL. The first was "Back-Channeling." One ASL student wrote, "While watching a person sign a story, you should give them feedback occasionally and let them know you understand what they are saying." (A4). A second shared, "Also when someone finishes signing in front of the class, you wave your hands for celebration instead of clapping like you would in a hearing classroom." (A13). Ten of the ASL students (A1, A2, A3, A5, A7, A8, A9, A10, A11, A13) described or mentioned attention-getting techniques, for example, to get a Deaf person's attention in the event of a fire by flicking the lights on and off (A1, A2, A5, A9) or by tapping them on the shoulder (A5, A10, A13). Another property was eye gaze, which was mentioned by three ASL students, and how breaking eye contact to make a phone call was impolite (A1, A4, A12). Two ASL students wrote that talking was prohibited when in the company of Deaf people (A3, A15). Eight mentioned that walking between two people signing (A1, A2, A4, A8, A9, A11, A12, A13) was not rude. As explained by A2, "They don't find you walking through rude or consider it as an interruption." Five (A3, A5, A9, A10, A13) noted the importance of facial expressions in ASL. Another sub-theme was "Taught Deaf Culture." As the students discussed the various behaviors, they wrote that they had learned at least one or more of them in a Deaf culture or ASL course. One student, A9, shared, "I learned how to get someone's attention, how to 'clap' for them, how to walk through deaf talkers, and how to introduce myself."

Discussion

Turning to the first research question, what conversational regulators do ASL 1 students demonstrate on an ASL Discourse Completion Task, ten were noted in the codes (excluding Thumb Down). In terms of triangulation, in addition to being coded by the researchers, most were described in the literature and later mentioned by the students in

their responses to an open-ended questionnaire. For example, several attention-getting techniques were listed in the literature. They included a tactile tap on the shoulder (Baker-Shenk & Cokely, 1981; Coates & Sutton-Spence, 2001; Lieberman, 2015; Wilcox & Wilcox, 1991), and this was coded 10 times in the ASL DCT and mentioned by the participants (A5, A10, A13). The students demonstrated the use of the sign HEY (waving their hand) as another attention-getting technique, which was also mentioned in the literature (Baker-Shenk & Cokely, 1981). Another attention-getting technique in Deaf culture is flicking a light switch (Baker-Shenk & Cokely, 1981; Wilcox & Wilcox, 1991). This was coded in the data 8 times and mentioned by the participants (A1, A2, A5, A9).
Other conversational regulators included non-manual behaviors (Smith & Ramsey, 2004), such as shrugging (coded 3 times) and frowning (coded 16 times). Students also mentioned the need to use non-manual behaviors coded as "Facial expressions." Referencing someone by pointing to them was noted in the canon (Smith & Ramsey, 2004) and coded 31 times in the data. Visual applause was another example of a conversational regulator note in the literature. In Deaf culture, it involves raising the hands and twisting the wrists (Carbin, 1996). It was coded 9 times in the data but mentioned only once by the students in the follow-up questionnaire (A4). Students also mentioned that it was not rude to walk between two signers while they signed to each other (A1, A2, A4, A8, A9, A11, A12, A13), which was supported in the literature (Smith et al., 2008).

There were some behaviors that authors dissuaded ASL students from using in Deaf culture contexts. These included a prohibition against talking while signing or while interacting with Deaf people (Ackerman et al., 2018; Ehrlich & Wessling, 2019; Pfeiffer, 2004; Rosen et al., 2014; Rowley & Kovacs-Houlihan, 2014; Quinto-Pozos, 2011; Smith et al., 2008; Thoryk, 2010; Traxler & Nakatsukasa, 2020). This was supported by the ASL students' lack of English mouthing while completing the ASL DCT and was mentioned by two students later (A3, A15).

Regarding the second research question, how do ASL 1 students differ from students who have not studied ASL in terms of their conversational regulators, this study found some significant differences on the DCT they were asked to complete. The ASL students demonstrated more frowns (*p= .00) and used hand waving (the HEY sign) more often (*p= .00). They did this to get attention, to signal confusion, or to elicit a repetition or repair. They also made more use of visual applause (*p= .01), where they raised both hands into the air and rapidly and repeatedly twisted or rotated their wrists. On the other hand, the English-only students mimed more often (*p = .00) and either spoke or mouthed English words without the use of co-occurring signs (*p = .00). Their use of shrugging also approached significance (p =.05).

Due to the differences in behaviors between the ASL 1 students and the non-signing students, it would seem the *Signing Naturally* curriculum was effective for teaching ASL students how to use facial affect (frowns, for example), how to get attention (HEY or handwaving), and how to signal applause. The ASL 1 students also demonstrated an aversion to English mouthing during the various contexts. Surprisingly and counter-intuitive to the goals of *Signing Naturally,* the ASL 1 students also stopped using miming to communicate compared to the English-only students.

There was evidence of transfer or gestures that were not unique to the ASL 1 students (Chen Pichler, 2009). The use of "Thumb Up," or "Thumb Down", "Pointing," and "Hand Up" did not vary between the groups. The English-only students also made use of several behaviors that were taken from the literature on ASL, such as tapping a person's shoulder or flicking the lights in a room to get someone's attention (Baker-Shenk & Cokely, 1981;

Coates & Sutton-Spence, 2001). These may be gestures or behaviors that transferred from their first culture, as noted in the literature (Seong, 2014), or ones they believed were appropriate with Deaf people or had seen used in other contexts. Due to the lack of difference, for these students these behaviors were not good indicators to differentiate ASL students from students who have not formally studied the language.

Implications for Practice

The findings from this study have some implications for ASL instructors teaching introductory-level courses. First, the reduction of miming among ASL 1 students may indicate a shift towards more authentic ASL communication. However, instructors should emphasize that miming, when strategically employed, can be a valuable tool for enhancing clarity and should not be entirely abandoned. Additionally, only 8 out of 14 ASL 1 students used light-flicking as an attention-getting strategy, and 9 out of 14 employed visual applause. These results suggest that more targeted instruction and practice are needed in teaching these two culturally appropriate attention-getting techniques. Addressing these areas can ensure students are better equipped to engage with Deaf culture and community norms.

Recommendations for Further Research

Based on the findings of this study, several recommendations can be made to enhance future research on the acquisition of conversational regulators by ASL learners. First, increasing the sample size and incorporating participants from a broader range of institutions would improve the generalizability of the results. The current study focused on 28 participants from one institution, limiting the scope of its conclusions. Expanding the sample to include students from multiple universities and colleges, as well as those enrolled in ASL courses beyond Level 1, could provide a more comprehensive understanding of how conversational regulators are acquired at different stages of learning and across diverse educational contexts.

Second, future research should collaborate more extensively with Deaf ASL instructors. Deaf educators bring unique insights into cultural norms, linguistic strategies, and the nuanced behaviors associated with proficient ASL communication. Their expertise would be invaluable in identifying the conversational behaviors and strategic competencies exhibited by upper-year ASL students, which could serve as benchmarks for evaluating progress in ASL acquisition. By addressing these areas, future research can deepen the understanding of how hearing students acquire ASL and inform the design of instructional strategies that foster sociocultural competencies in second-language learners.

Third, in terms of the overall design of the discourse completion task used in this study, the instructions could be reviewed towards making them clearer, with the inclusion of instructions or headings in the videos and with more time to read the directions. Also, a longer response time could be considered between each of the scenarios.

Limitations

There are a few limitations to this study that should be noted. As different instructors potentially taught the ASL students, they may have learned about different strategies related to Deaf culture. To address that, ASL students from one institution were specifically targeted. However, by attempting to control for different teaching strategies by selecting only one institution, the behaviors demonstrated by these participants may not reflect those of students taught with a different pedagogy and curriculum.

Additional limitations included the sample size and the use of a convenience sample. For example, this study only included 14 signers and 14 non-signers, and a larger sample size may have found different behaviors. Also, the focus of this study was only on ASL 1 students who had learned ASL through *Signing Naturally*, instead of a range of ASL learners.

The participants, predominately the ASL students, were concerned about a short response period after each context. However, all were able to respond to the contexts in some way or identified issues with the contexts in the later survey, indicating they could handle the speed of presentation. Also, a longer response time may lead to less spontaneous reactions (Labben, 2016).

The ASL DCT is a performance-based assessment where students were asked to sit and watch a video and interact with it. The ASL students' total knowledge of strategic behaviors may not have been elicited. In different contexts, their behaviors may change (Hymes, 1973; Labben, 2016). Also, aspects of their competency can only be indirectly inferred from their behaviors in the limited contexts of this discourse completion task (Labben, 2016). So, while eye gaze was mentioned by three of the students and also listed in the literature (Baker-Shenk & Cokely, 1981; Lieberman, 2015; Smith & Ramsey, 2004; Wilcox & Wilcox, 1991), it was not possible to test for that given the need for them to focus on a computer screen. Eight of the students also mentioned how it is polite to walk through two signers while they are signing (A1, A2, A4, A8, A9, A11, A12, A13), again supported by the literature (Smith et al., 2008), but only four attempted to mime walking between the two signers in one scenario of the DCT (A1, A2, A4, A6). Again, the nature of this ASL DCT where the students were seated watching video samples made it difficult to test for this behavior.

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