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INVESTIGATING THE EFFECTS OF FILLERS IN SPONTANEOUS SPEECH ON FLUENCY PERCEPTION

Le Nha Uyen, Nguyen Thi Quyen*

*International University, Vietnam National University Ho Chi Minh City,
VNUHCM Township, Quarter 33, Linh Xuan Ward, Ho Chi Minh City, Vietnam*

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Abstract: Fillers have conventionally been regarded as speech disfluencies, reflecting uncertainty, anxiety, or lack of planning on the part of the speaker. However, emerging research has suggested that they may also signal cognitive effort and serve communicative functions. This exploratory study examined how different types and positions of fillers influence perceived fluency in spontaneous speech, focusing on three groups of raters: Vietnamese linguistics students, Vietnamese non-linguistics students, and native English speakers. Fifteen participants (five per group) completed a listening rating task, assessing fluency in speech samples containing silent pauses, unlexicalized filled pauses, and lexicalized filled pauses in varied positions. Given the small sample size, the analysis aimed to identify preliminary trends rather than produce generalizable conclusions. Results indicated that both the forms and positions of fillers affected fluency perceptions across L1 and L2 rater groups, with the form of the filler exerting a more pronounced effect than its position. These findings suggest a greater need for linguistics students, in particular, to be aware of the specific fillers they use in speech. Future research should expand the participant pool to increase statistical power and explore in greater depth how different listener groups interpret fillers in spontaneous speech.

Keywords: fillers, spontaneous speech, perceived fluency

* Corresponding author.

Email address: ntquyen@hcmiu.edu.vn

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NGHIÊN CỨU ẢNH HƯỞNG CỦA TỪ BỔ KHUYẾT TRONG LỜI THOẠI NGẪU NHIÊN LÊN CẢM NHẬN VỀ ĐỘ TRÔI CHẢY

Lê Nhã Uyên, Nguyễn Thị Quyên

*Trường Đại học Quốc tế, Đại học Quốc gia Thành phố Hồ Chí Minh,
Khu đô thị ĐHQG-HCM, Khu phố 33, Phường Linh Xuân, Thành phố Hồ Chí Minh, Việt Nam*

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Tóm tắt: Các từ bổ khuyết (fillers) thường bị coi là biểu hiện của sự không trôi chảy trong lời nói, phản ánh sự thiếu chắc chắn, lo lắng hoặc chưa chuẩn bị kỹ của người nói trong giao tiếp. Tuy nhiên, một số nghiên cứu gần đây lại xem hiện tượng này như một dấu hiệu của nỗ lực về mặt nhận thức thay vì khó khăn trong việc tổ chức lời nói. Giả thuyết đặt ra là cảm nhận của người nghe về sự trôi chảy, dù tích cực hay tiêu cực, có thể liên quan đến loại từ bổ khuyết mà người nói sử dụng, dựa trên hình thức và vị trí của chúng trong câu. Để làm rõ vấn đề này, chúng tôi thực hiện một nghiên cứu định lượng sử dụng một bài kiểm tra lắng nghe và đánh giá (listening rating task) nhằm khám phá cảm nhận về sự trôi chảy trong bối cảnh lời nói tự nhiên có chứa từ bổ khuyết. Các đoạn ghi âm được chia cho ba nhóm đánh giá: sinh viên chuyên ngành ngôn ngữ học, sinh viên không chuyên ngôn ngữ học, và người bản ngữ tiếng Anh. Kết quả cho thấy hình thức của các từ bổ khuyết ảnh hưởng lớn hơn đến cách người nghe cảm nhận sự trôi chảy so với vị trí của chúng trong lời nói.

Từ khóa: từ bổ khuyết, lời thoại ngẫu nhiên, độ trôi chảy

1. Introduction

Recent research on speaking has examined how fillers influence listeners' perceptions of fluency in spontaneous speech. However, the research community lacks a unified definition of fillers, which are variously referred to as *fillers* (Stenstrom, 1994), *filled pauses* (Rose, 1998), or *disfluencies* (Kosmala & Morgenstern, 2019; Wu, 2002). Despite these terminological differences, all three labels describe pauses that occur at the beginning, middle, or end of sentences when speakers have not yet organized their words in real time or when they serve other discourse purposes. Fillers have been interpreted either as markers of disfluency (Kosmala & Morgenstern, 2019; Wu, 2002) or as communicative tools with specific discourse functions (Tottie, 2014). The former view has been more widely adopted, framing fillers as signs of disfluent speech that negatively affect perceptions of communicative competence (Lennon, 1990). Consequently, research findings remain inconclusive regarding the impact of fillers on perceived fluency, and relatively few studies have explored their potential positive role in accounting for the cognitive effort involved in spontaneous speech.

Fillers, which signal either major or minor delays in speech, can undermine credibility and shape listeners' perceptions of fluency (Clark & Fox Tree, 2002). From this perspective, performance in second language (L2) speaking is often judged more on utterance fluency than on perceived fluency. The use of fillers in spontaneous speech has drawn considerable scholarly attention, whether viewed as a psycholinguistic phenomenon (Rose, 1998) or, as Kosmala and Morgenstern (2019) argue, as an inherent feature of human communication. Importantly, disfluent utterances are not exclusive to L2 speakers but are also common among native

speakers (Dinh & Tran, 2020; Erten, 2014; Wu, 2002). Recognizing this, recent linguistic research has increasingly shifted focus from traditional notions of eloquence toward “comfortable fluency” (Foster, 2020), aiming to understand how L2 speakers perceive fillers, pauses, and hesitations in speech. Despite this shift, the pedagogical relevance of fillers remains underemphasized and is frequently overlooked in L2 classrooms (Foster, 2020; Rose, 1998; Suzuki et al., 2021). Crucially, fillers should not automatically be interpreted as signs of weak communicative competence; rather, they can fulfill essential communicative roles, such as facilitating fluency and aiding listener comprehension (Rose, 1998). For this reason, language learners aspiring to become instructors should develop an awareness of fillers in order to refine their teaching practices and integrate them effectively into classroom instruction.

The impact of fillers on perceived fluency remains a contested issue in linguistics, as previous studies have yielded conflicting results. While early research characterized filled pauses primarily as signs of hesitation or speech breakdown (Corley & Stewart, 2008), several studies have shown that they play multiple roles, including organizing discourse and facilitating self-correction (Clark & Fox Tree, 2002; Götz, 2013; Tottie, 2014). These fillers are sometimes seen as markers of a speaker's cognitive processing, providing listeners with cues that the speaker is organizing their thoughts. In contrast, other studies argue that fillers, particularly unlexicalized ones like *um* and *uh* are detrimental to fluency perception, as they can be perceived as hesitations or lack of fluency. Additionally, the position of fillers, whether they occur within words, between phrases, or at sentence boundaries, has been variably interpreted, with some studies indicating that certain positions are more disruptive than others. This lack of consensus highlights a significant research gap, as the effects of different types and positions of fillers on listeners' fluency judgments across varied listener groups remain insufficiently understood. Therefore, this paper aims to address this gap by exploring the effects of fillers on the perception of fluency among Vietnamese linguistics students along with non-linguistics students and native English listeners via the assessment of communicative value of fillers in spontaneous speech.

This paper investigates how certain types of fillers affect the perception of fluency across three populations of speakers, namely linguistics students, non-linguistics students, and native English speakers. The theoretical and pedagogical implications highlighted in this study may support the appropriate use of fillers and inform effective language instruction that encourages the strategic use of various types of fillers in speech. This research, therefore, aims to answer the following research questions:

1. *How do different forms of fillers influence the perception of fluency in spontaneous speech among linguistics students, non-linguistics students, and native English speakers?*
2. *How does the positional placement of fillers affect the perception of fluency in spontaneous speech among linguistics students, non-linguistics students, and native English speakers?*

2. Literature Review

2.1. Fillers

Fillers can take various forms, including non-words, individual words, short phrases, or even silent pauses, which speakers employ either intentionally for a discourse function or unintentionally to occupy conversational gaps (Stenstrom, 1994). They are especially common

in the production of unplanned or spontaneous utterances, where their contribution lies less in semantic meaning and more in shaping the manner of delivery (Kharismawan, 2017). In other words, fillers emerge when a speaker momentarily suspends the flow of speech, whether to plan upcoming content, to retain their speaking turn and maintain conversational floor (Kharismawan, 2017), or to initiate self-repair of an utterance (Levelt, 1989). Beyond these functions, fillers can also serve as signals to listeners, indicating that the speaker is actively engaged in cognitive processing rather than abandoning the interaction. Thus, while fillers may seem superficial, they play a crucial role in managing the dynamics of spoken discourse and in reflecting the real-time constraints of speech production.

Concerning the types of fillers, Stenstrom (1994) and Rose (1998) classify them into three categories based on their forms: silent pauses and filled pauses, which can be either unlexicalized or lexicalized. Silent pauses are stretches of silence without any sound or utterance, and their duration can vary (Kharismawan, 2017). Early researchers established 200 milliseconds as the minimum threshold for a silent pause (Rose, 1998; Warren, 2013). Shorter silences fall into other categories, such as articulatory pauses which occur naturally in the production of plosive consonants, or physiological pauses needed for breathing (Rose, 1998; Warren, 2013). Silent pauses serve multiple functions depending on their placement: they may occur before an utterance to allow planning of a meaningful response (Brown & Yule, 1983) or within sentence constituents to reflect ongoing cognitive processing (Wu, 2002). On this basis, silent pauses can be further subdivided into four positional types. Those occurring within words or within phrases tend to signal disrupted discourse structuring (Suzuki et al., 2021), whereas those appearing at major grammatical boundaries, such as between phrases or between sentences, typically indicate strategic planning in discourse (Rose, 1998; Stenstrom, 1994; Wu, 2002).

Unlexicalized filled pauses are non-word vocalizations produced by speakers during discourse planning. Common examples include *ah*, *ehm*, *err*, *uh*, and *um* (Wu, 2002), which generally function as hesitation markers (Stenstrom, 1994). Clark and Fox Tree (2002) further investigate their role, focusing specifically on *uh* and *um* in spontaneous speech. They find that *uh* typically signals shorter delays, while *um* indicates longer delays, both demonstrating that the speaker is searching their mental lexicon for an appropriate word. Beyond their forms, unlexicalized filled pauses have also been analyzed according to their positions within discourse. When occurring at well-defined grammatical boundaries, such as between phrases or sentences, they can fulfill pragmatic functions like facilitating turn-taking or helping the speaker maintain the conversational floor. By contrast, word-internal or phrase-internal fillers more often reflect processes of lexical retrieval (Kosmala & Morgenstern, 2019). The functional distinction between unlexicalized and lexicalized filled pauses is relatively minor (Kharismawan, 2017; Tottie, 2014). Therefore, in this study, the same positional categorization applied to unlexicalized filled pauses will also be extended to lexicalized ones.

Lexicalized filled pauses are realized in the form of actual words or short phrases that occur at various points within an utterance. Common examples include *well*, *you know*, *I mean*, *like*, *how to say*, among others. Unlike unlexicalized fillers, which typically function as hesitation markers, lexicalized filled pauses are more versatile in their discourse roles. They can operate as time-gaining devices, allowing speakers to plan subsequent speech while maintaining conversational flow, particularly in contexts where lexical repetition or hesitation may otherwise disrupt coherence (Stenstrom, 1994). Beyond this, they can also serve corrective purposes: speakers may employ expressions such as *I mean* to modify or refine a previous statement, thereby clarifying intended meaning and minimizing potential misunderstanding (Kharismawan, 2017). In addition, lexicalized fillers frequently fulfill interpersonal and

pragmatic functions. For instance, *you know* may be used to appeal to shared knowledge or to seek listener alignment, while *like* often mitigates the force of an utterance or introduces exemplification. Similarly, *well* can signal a discourse boundary, marking the transition to a new idea, hesitation before disagreement, or a softening device in potentially face-threatening acts. In this sense, lexicalized filled pauses contribute not only to the temporal management of speech but also to the relational and interactive dimensions of communication.

Drawing on the literature reviewed above, this study classifies fillers into three forms: silent pauses, lexicalized filled pauses, and unlexicalized filled pauses. Each of these forms is further analyzed across four positional categories: within words, within phrases, between phrases, and between sentences. More specifically, pauses occurring at non-syntactic boundaries include silent pauses within words and within phrases, as well as filled pauses within words and within phrases. By contrast, pauses at syntactic boundaries comprise silent pauses between phrases and between sentences, along with filled pauses between phrases and between sentences. Taken together, this framework results in eight distinct types of fillers, which are illustrated in Figure 1. To further clarify the classification, model utterances are provided below, accompanied by a summary of the symbols representing each filler type in Table 1.

Figure 1

Classification of Fillers (From Kosmala & Morgenstern, 2019; Rose, 1998; Stenstrom, 1994; Suzuki et al., 2021; Wu, 2001)

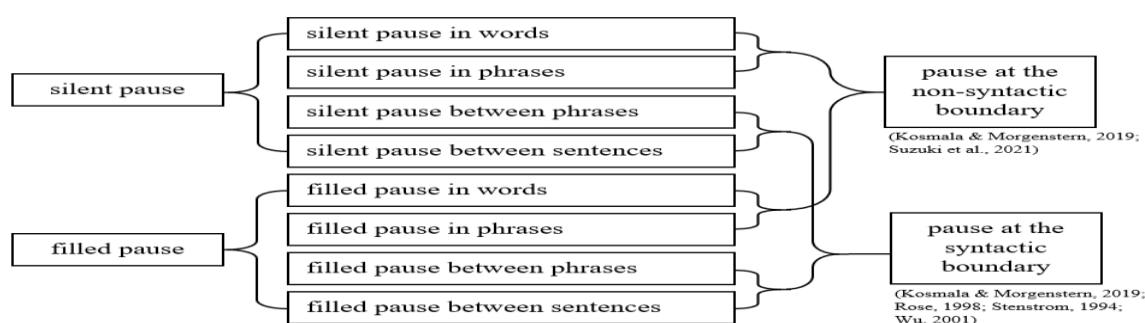


Table 1

Symbols for Each Type of Fillers

Types of filler	Symbol
Silent pauses in words (SPIW)	(.1.)
Silent pauses in phrases (SPIP)	(.2.)
Silent pauses between phrases* (SPBP*)	(.3.)
Silent pauses between sentences* (SPBS*)	(.4.)
Filled pauses in words (FPIW)	<<<< >>>> {{{{ }}}}
Filled pauses in phrases (FPIP)	<<< >>> {{{ }}}
Filled pauses between phrases* (FPBP*)	<< >> {{ }}

Filled pauses between sentences* (FPBS*)

< >

{ }

Note: * refers to pauses at syntactic boundary; < > indicates that the filler is lexicalized; { } indicates that the filler is unlexicalized

2.1.1. Silent Pauses in Words

The silent pauses in words (SPIW) are indicated by (..1..) where the pauses occur in the utterance. Given by its explanatory name, SPIWs particularly appear between a word, where this is relatively evident of a deficient communicator (Rose, 1998). That is, when the speaker faces difficulties in uttering a particular word.

1. Can you give me the purp- (..1..) green cup?
2. We could visit some near- (..1..) nearby parks.

The speaker is being hesitant about the correct word to describe the object in question in (1) where the cut off in the middle of the word *purple* is followed by a SPIW before the speaker repairs *purple* with *green*. Likewise, there is a SPIW when the speaker in (2) is indecisive of the specific location of the park. The speaker might have wanted to say that the parks are near certain places, but could not remember where, hence the generalized location being merely *nearby parks*.

2.1.2. Silent Pauses in Phrases

Silent pauses in phrases (SPIP) are symbolized as (..2..) in the examples, where they occur within phrases that are packages of information broken down in smaller meaningful units, or chunks (Monica, 2022). Speakers who have relatively good command of language are established with automaticity in using chunks according to their syntactic function.

3. The (..2..) girl is looking (..2..) for her parents.
4. They usually go to the amusement (..2..) park on the weekend.

For example (3), an eloquent speaker would have said the chunks *The girl* or *is looking for* without inserting any pauses in between them. Similar to that, *amusement* is followed by a SPIP in (4) since the speaker was unsure about the missing component *park* in the chunk before actually uttering it. Therefore, SPIPs are considered to be the culprit of absent automatic chunking, indicating a speaker who has difficulties in uttering the completed chunks.

2.1.3. Silent Pauses Between Phrases

Silent pauses between phrases (SPBP) appear as (..3..) before or after the phrases and clauses. In fact, pauses between phrases foster transparency among different ideas in discourse, helping listeners process the information better.

5. When I'm happy (..3..) I spend time with my family (..3..) or my friends.
6. They invited us to their party (..3..) even though we had a quarrel last time (..3..) but I guess everything turned out fine.

For instance, the SPBPs in (5) and (6) can be seen at significant grammatical locations, where a phrase or clause is fully conveyed. As a result, utterances that contain SPBPs are not confusing compared to ones with SPIPs thus act as a syntactic boundary.

2.1.4. Silent Pauses Between Sentences

Silent pauses between sentences (SPBS) are shown in the examples as (..4..). SPBSs are also regarded as markers of syntactic boundaries but with a greater level of fluency than SPBPs.

That is, when the speaker has already rendered the words in time to produce the next sentence without having to use pauses within discourse.

7. Dogs are his favorite animal so we are buying him one for his birthday. (..4..) He's going to be so surprised.
8. If I were you, I would consult a doctor. (..4..) It's not everyday that you wake up with a pink eye.

The speakers of (7) and (8) do not seem to have any disruption in their speeches apart from the SPBSs which pose no comprehension problem for the listeners.

2.1.5. Filled Pauses in Words

Filled pauses in words (FPIW) are enclosed with four angle brackets “<<<< >>>>” if the filled pause is lexicalized or braces “{{{ { }}}” if it is unlexicalized. The context of using FPIWs is similar to that of SPIWs but with the insertion of words or non-words when the speaker encounters certain kinds of issues with discourse planning.

9. Can you give me the purp- <<<<I mean>>>> the green cup?
10. We could visit some near- {{{ {uh}}} nearby parks.

In example (9), when the speaker realizes that the correct word to describe the cup is *green*, a lexicalized filled pause, or *I mean*, is used to repair the uncompleted uttering of *purple*. The same issue can be found in (10) but instead, the speaker uses an unlexicalized one.

2.1.6. Filled Pauses in Phrases

Filled pauses in phrases (FPIP) are captured by three angle brackets “<<< >>>” or three braces “{{{ { }}}” with rules that apply for the same as the previous type of filler. The difference between FPIPs and SPIPs is that FPIPs fill in the pauses with either vocalizations or words.

11. The {{{ {uh}}} girl is looking {{{ {um}}} for her parents.
12. They usually go to the amusement {{{ {er}}} park on the weekend.

This, as a result, reduces the opacity of the speaker's planning process in (11) and (12) compared to that from SPIPs in examples (3) and (4).

2.1.7. Filled Pauses Between Phrases

Filled pauses between phrases (FPBP) are shown in two angle brackets “<< >>”, for ones that are lexicalized, and two braces “{{ { }}”, for unlexicalized filled pauses.

13. When I'm happy, I spend time with my family or <<let me see>> hanging out with my friends.
14. They invited us to their party even though <<you know>>, we had a quarrel last time, <<but yeah>> I guess everything turned out fine.

Explicit speech-planning is portrait from the communicator in (13) and (14) rather than mere silence in examples (5) and (6) which use SPBPs.

2.1.8. Filled Pauses Between Sentences

Filled pauses between sentences (FPBS) are encapsulated in one angle bracket and brace. Unlike the implicit boundaries in examples (7) and (8), the syntactic borders from examples (15) and (16) are suggested orally by the speaker after or before a complete sentence.

15. Dogs are his favorite animal so we are buying him one for his birthday. <I mean> he's going to be so surprised.

16. {uhm} If I were you, I would consult a doctor. <You know> it's not everyday that you wake up with a pink eye.

2.2. Previous Studies on L2 Fluency Perception and the Role of Fillers

Research on second language (L2) oral performance has increasingly focused on perceived fluency, a construct closely linked to comprehensibility (Lennon, 1990; Segalowitz, 2010). Perceived fluency refers to listeners' evaluative impression of a speaker's fluency, reflecting inferences about the speaker's underlying psycholinguistic processing drawn from temporal features of speech. Segalowitz (2010) propose a tripartite framework comprising utterance fluency (observable temporal properties such as pauses, hesitations, and repairs), cognitive fluency (efficiency of underlying speech production processes), and perceived fluency (listeners' impressions of cognitive fluency inferred from utterance fluency).

Various elicitation tasks have been used in fluency research. Several earlier studies on L2 fluency used content-controlled picture narrative or description tasks (Dressler & O'Brien, 2017; Erten, 2014; Foster, 2020; Lennon, 1990). However, this approach raises methodological concerns, as the limited content of the prompts can restrict the amount and range of language that participants are able to produce (Suzuki & Kormos, 2020). To capture more authentic features of perceived fluency, open-ended or spontaneous speaking tasks have been recommended as they allow greater linguistic flexibility.

Empirical findings indicate that perceived fluency is influenced by multiple temporal factors, particularly articulation rate (speed fluency) and pausing behavior (breakdown fluency) (Segalowitz, 2010; Skehan & Foster, 2005). Both belong to the domain of utterance fluency (Segalowitz, 2010; Suzuki & Kormos, 2020). Within breakdown fluency, pauses may be silent or filled, with filled pauses (e.g., *uh*, *um*) often exerting stronger effects on fluency judgments than silent ones (Kirjavainen et al., 2021). The location of pauses has also been identified as an important cue in which certain positions of fillers can facilitate speech planning and be perceived positively, while others may disrupt listener perception (Suzuki et al., 2021).

Listener background further shapes fluency judgments. Differences in language experience and familiarity with L2 speech can lead to variability in ratings (Dressler & O'Brien, 2017; Suzuki et al., 2021). Some studies have shown that raters often attend to non-temporal features such as grammatical accuracy or lexical choice rather than solely temporal aspects (Dressler & O'Brien, 2017; Suzuki et al., 2021). Native raters, however, may place greater weight on temporal cues, rating more leniently than non-native raters (Dressler & O'Brien, 2017).

Despite these insights, the role of fillers in perceived fluency remains a point of contention. Early research portrayed filled pauses largely as indicators of hesitation or speech breakdown (Corley & Stewart, 2008), whereas more recent work has emphasized their discourse-organizing and self-repair functions (Clark & Fox Tree, 2002; Götz, 2013; Tottie, 2014). While some findings suggest that fillers provide valuable cognitive cues to listeners, others argue that they detract from fluency, particularly in the case of unlexicalized fillers such as *um* and *uh*. Furthermore, the impact of filler position, whether within words, between phrases, or at sentence boundaries, has yielded inconsistent results, with some positions perceived as more disruptive than others.

This lack of consensus underscores a significant research gap: the effects of different filler types and positions on listeners' fluency judgments, particularly across diverse listener groups, remain insufficiently understood. The present study addresses this gap by examining how fillers influence perceived fluency among Vietnamese linguistics students, non-linguistics

students, and native English speakers, with a view to understanding their communicative value in spontaneous speech.

3. Methodology

3.1. Research Design and Hypotheses

This exploratory study investigated how different types and positions of fillers influence perceived fluency across three rater groups: linguistics students, non-linguistics students, and native English speakers. The research was guided by the hypothesis that distinct filler types would elicit different perceptions of fluency, both positive and negative, among these groups. Specifically, silent pauses were expected to be perceived as reflecting the lowest degree of fluency, as they are often regarded as disfluencies in discourse (Tavakoli & Skehan, 2005; Wu, 2002). Unlexicalized filled pauses (e.g., *uh*, *um*) were hypothesized to be viewed more positively than silent pauses, as they may signal cognitive processing despite being non-lexical. Lexicalized filled pauses (e.g., *you know*, *I mean*) were predicted to be associated with higher perceived fluency, as speakers can employ them strategically to fulfill discourse functions. It was also anticipated that filler position, whether occurring at syntactic boundaries or within clauses, might significantly affect fluency perception.

3.2. Participants

The current exploratory study involved 15 participants, divided equally into three groups, namely Vietnamese linguistics students, Vietnamese non-linguistics students, and native English speakers, selected to capture potential differences in fluency perception stemming from linguistic training, general L2 learning experience, and native language background. Participants were recruited through university course announcements and personal academic contacts. While the relatively small sample size limits the extent to which findings can be generalized, it was deemed sufficient for identifying initial trends and informing future larger-scale studies.

As stated above, the study involved three groups of participants. Group A comprised five English Linguistics and Literature (EL) majors from IU, while Group B included five non-linguistics students from various majors at IU. Group C consisted of five native English speakers from different countries. Vietnamese was the mother tongue of all IU students in Groups A and B, whereas the first language (L1) of Group C participants was English. Proficiency levels varied across the three groups: IU students ranged from pre-intermediate (B1) to upper-intermediate (C1), while native English speakers ranged from intermediate (B2) to advanced (C2) according to the Common European Framework of Reference (CEFR). This participant composition (see Table 2) was selected to explore potential differences in how each group evaluates fluency in speeches containing fillers.

Table 2

Participant Characteristics by Groups

	Group A	Group B	Group C
Nationality	Vietnamese (5)	Vietnamese (5)	Australia (1) Canada (2) United States (2)

Level of English proficiency	Pre-intermediate (1) Intermediate (2) Upper-intermediate (2)	Pre-intermediate (1) Intermediate (3) Upper-intermediate (1)	Intermediate (1) Upper-intermediate (1) Advanced (3)
School year	Freshman (1) Junior (2) Senior (2)	Freshman (1) Sophomore (1) Junior (1) Senior (2)	N/A
Major	English Linguistics and Literature (5)	Information Technology (1) Industrial Engineering and Management (1) Economics, Finance, and Accounting (1) Biotechnology (2)	N/A

Note: The numbers in parentheses refer to the number of individuals

3.3. Data Collection Instruments

To collect data, participants completed a survey containing 28 speech stimuli, each rated for speaker fluency on a nine-point Likert scale (1 = not fluent at all, 9 = extremely fluent). Four versions of the survey, two in English and two in Vietnamese, were created using Google Forms. All versions contained the same stimuli, but the order of items was randomized in each version to reduce selection bias. After each rating, participants provided a brief explanation for their score. They were explicitly instructed not to base their evaluation on pronunciation, vocabulary, or grammar, but instead to focus on delivery features such as hesitation, pauses, and overall flow of speech. Each stimulus was looped twice within the recording, and participants could listen only once. To minimize rating fatigue, the 28 stimuli were divided across two pages. The collected survey responses were then analyzed to explore how the three participant groups perceived fluency in spontaneous speech containing fillers.

The speech stimuli consisted of original monologue recordings designed to incorporate eight types of fillers, as classified in the literature review, distributed proportionately across the dataset. For filled pauses, each type was represented by four distinct recordings that varied by speaker characteristics: native or non-native accent, gender, age range, and lexicalization (lexicalized vs. unlexicalized). For example, a set of stimuli containing filled pauses at a boundary position (FPBP) might include: (1) a young male native speaker using lexicalized fillers, (2) a middle-aged male non-native speaker using unlexicalized fillers, (3) a middle-aged female native speaker using unlexicalized fillers, and (4) a middle-aged female non-native speaker using lexicalized fillers. Silent pauses, in contrast, did not vary by lexicalization, so each type was represented by three recordings differentiated only by accent, gender, and age. In total, this design yielded 28 recordings for the survey.

To control for potential variables affecting fluency perception, all stimuli, eight AI-generated and 20 human-generated, were matched for lexical complexity, filler frequency, and duration, which ranged from 17 to 20 seconds. This length was considered optimal for evaluation while preventing listener fatigue (Dressler & O'Brien, 2017; Suzuki et al., 2021). A summary of the stimuli characteristics is provided in Table 3. Although both native and non-native accents were included to simulate authentic variation in spontaneous speech, the study's primary focus was on the effects of filler forms and positions. Participants were

therefore explicitly instructed to disregard accent, pronunciation, or other non-target features when rating fluency. This methodological control aimed to minimize confounding influences, thereby maintaining internal validity while still enhancing ecological validity through realistic speaker diversity.

Table 3*Descriptions of Stimuli*

Generated by	Age range	Gender	Accent	Fillers used in the sample	Number of fillers	Duration
Human	Young	Male	Native	FPBP* (lexicalized)	4	17s
Human	Middle-aged	Male	Non Native	FPBP* (unlexicalized)	4	20s
Human	Middle-aged	Female	Native	FPBP* (unlexicalized)	4	17s
AI	Middle-aged	Female	Non Native	FPBP* (lexicalized)	4	18s
AI	Young	Male	Native	FPBS* (lexicalized)	3	17s
Human	Middle-aged	Male	Non Native	FPBS* (lexicalized)	4	19s
Human	Young	Female	Non Native	FPBS* (unlexicalized)	4	18s
Human	Middle-aged	Female	Native	FPBS* (unlexicalized)	4	21s
AI	Middle-aged	Female	Non Native	FPIP (lexicalized)	4	18s
Human	Young	Male	Native	FPIP (lexicalized)	4	17s
Human	Middle-aged	Female	Native	FPIP (unlexicalized)	4	19s
Human	Young	Male	Non Native	FPIP (unlexicalized)	4	17s
Human	Middle-aged	Female	Native	FPIW (lexicalized)	4	20s
Human	Middle-aged	Male	Non Native	FPIW (lexicalized)	4	20s
Human	Young	Male	Native	FPIW (unlexicalized)	4	19s
Human	Young	Female	Non Native	FPIW (unlexicalized)	4	20s
AI	Young	Female	Native	SPBP*	4	18s
AI	Middle-aged	Female	Native	SPBP*	5	20s
Human	Middle-aged	Male	Non Native	SPBP*	4	21s
AI	Young	Male	Native	SPBS*	4	18s
AI	Middle-aged	Female	Non Native	SPBS*	4	18s
AI	Young	Female	Non Native	SPBS*	4	19s
Human	Middle-aged	Male	Native	SPIP	5	20s

Human	Young	Male	Native	SPIP	5	17s
Human	Young	Female	Non Native	SPIP	5	20s
Human	Young	Female	Native	SPIW	5	20s
Human	Middle-aged	Male	Non Native	SPIW	4	21s
Human	Young	Male	Non Native	SPIW	5	21s

Note: The asterisk * refers to pauses at syntactic-boundary

3.4. Data Collection Procedures

Participants from the three groups were given a consent form before completing the survey, as the data collected would be used for analysis. The survey instructions guided participants to listen to 28 speech recordings. After each recording, they rated the speaker's fluency on a scale from one to nine and provided a brief written explanation for their rating. This procedure was repeated for all 28 stimuli. While these qualitative comments were collected to gain supplementary insights into the reasoning behind the ratings, they were not systematically analyzed or reported in the findings due to the exploratory nature of the study and the focus on quantitative trends. However, they informed the interpretation of results in the discussion and will be more formally incorporated into future research with a larger participant pool.

3.5. Data Analysis

The survey employed a rating scale ranging from extremely disfluent to extremely fluent. After responses were collected, the ratings were converted into a numerical scale from 1 to 9. The researcher then calculated the mean scores and standard deviations of fluency ratings assigned by each group to each speech stimulus using Microsoft Excel. This analysis was conducted twice: first based on the forms of fillers (silent vs. filled) and then based on their positions (within words or phrases vs. between phrases or sentences). In doing so, the study examined how perceived fluency varied depending on both the form and the positional distribution of fillers across speech stimuli.

4. Results

4.1. Fluency Ratings by Forms of Fillers

The findings of perceived fluency on spontaneous speech using fillers are broken down into two aspects: the form and the position of fillers. Additionally, Table 4 indicates mean scores of fluency ratings among three forms of fillers, namely, silent, lexicalized, and unlexicalized.

Table 4

Means and SDs of Fluency Ratings for Each Filler Form by Each Group

Form of filler	Group		
	A	B	C
Lexicalized	6.70 (1.70)	6.00 (1.89)	6.42 (2.51)
Silent	5.87 (2.25)	5.10 (2.21)	5.80 (2.44)
Unlexicalized	4.70 (1.83)	4.08 (1.73)	4.78 (2.13)

Note: Standard deviations are in parentheses

From the table, it can be seen that the average fluency rating of lexicalized fillers from

group A was 6.70, followed by group C (6.42) and group B (6.00). Results from group A (SD = 1.70) and group B (SD = 1.89), having relatively low standard deviations, suggest that ratings were consistent within each group to some extent compared to the variability from ratings of group C (SD = 2.51). When considering silent fillers, the order of fluency ratings across three groups for this form of filler was also similar to group A (5.87) rated the highest score, then group C (5.80) and group B (5.10). However, standard deviations in this form of filler were higher than those of lexicalized fillers, specifically suggesting higher variability in ratings of group A (SD = 2.25) along with group C (SD = 2.44). Lastly, for unlexicalized fillers, group C (4.78) were the ones who generally gave the highest fluency ratings compared in comparison with that of group A (4.70) as well as the lowest ratings from group B (4.08). It can be seen that the fluency ratings from unlexicalized fillers had less variability within each group, with group B showing the least variability (SD = 1.73).

4.2. Fluency Ratings by Positions of Fillers

To further bolster the findings in positive or negative patterns extracted from perceived fluency towards the forms and the positions of the fillers. Table 5 provides the results of mean scores as well as standard deviations of fluency ratings across each group of participants for each position of the fillers.

Table 5

Means and SDs of Fluency Ratings for Each Filler Position by Each Group

Position of filler	Group		
	A	B	C
in words	3.89 (1.59)	3.51 (1.67)	3.29 (1.34)
in phrases	5.17 (1.79)	4.40 (1.70)	5.06 (1.91)
between phrases	6.51 (1.65)	5.66 (1.71)	6.60 (2.13)
between sentences	7.51 (1.46)	6.69 (1.89)	7.80 (1.62)

Note: Standard deviations are in parentheses

Fillers within words were perceived as most disruptive to fluency as speech stimuli containing these received the lowest ratings of fluency from group C (3.29), followed by group B (3.51) and group A (3.89). Additionally, recordings of spontaneous speech that had fillers within phrases were moderately perceived as group A (5.17) rated these to be more fluent than those from group C (5.01) and group B (4.40). The fluency ratings for fillers between phrases and between sentences were significantly higher than fillers at word-internal and phrase-internal positions. Particularly, the ratings of fluency for stimuli containing fillers between phrases ranged from the scale of 5 to 6 while those consisting of fillers between sentences received ratings from the scale of 6 to approximately 8. Group B ratings for these two positions were found to be the lowest compared to the ratings of the other two groups.

4.3. The Effect of Filler Types on Perceived Fluency

A mixed ANOVA was conducted to determine whether different filler forms and filler positions significantly affect perceived fluency. The results are summarized in Table 6, revealing a great deal of impact from both classifications of filler, of which the forms of filler have more substantial impacts on how fluency is perceived compared to where the fillers are positioned within spontaneous speech.

Table 6*Results of Mixed ANOVA*

Filler classification	F-value	p-value
Form	255.82	.001
Position	87.78	< .001

To specify, the three forms of filler had influenced perceived fluency to a substantial extent, $F(2, 4) = 255.82$, $p = .001$. In comparison, the effect of four various filler positions on how fluency was perceived by the participants, although also significant, was smaller in magnitude, $F(3, 6) = 87.78$, $p < .001$. This result suggests that raters pay relatively more attention to the form of the fillers when rating fluency to the speech stimuli. However, this is only the case for filled pauses that are lexicalized using verbal terms such as *you know*, *I mean*, *like* since the perceived fluency towards unlexicalized filled pauses was not as positive.

5. Discussion

5.1. Perceived Fluency on Fillers Based on Their Forms

The results reveal distinct patterns in how different types of fillers influence perceived fluency, with notable variation across listener groups. Across all groups, lexicalized fillers, such as *like*, *you know*, and *I mean*, received the highest fluency ratings. This finding is consistent with Clark and Fox Tree's (2002) argument that such fillers serve as communicative devices rather than mere disfluencies, signaling to listeners that the speaker is managing discourse or maintaining the conversational floor. It also aligns with Dressler and O'Brien's (2017) observation that some verbal fillers can even enhance perceived fluency when they occur at strong grammatical boundaries. The fact that this preference was observed among both native and non-native listeners in the present study suggests a shared perception of lexicalized fillers as less disruptive to speech flow.

Unlexicalized fillers (*uh*, *um*), however, were rated most negatively overall, particularly by group B (non-linguistics students). One interpretation is that non-linguistics students, unlike linguistics students (group A), may have less awareness of the communicative role of such fillers and may instead draw on socially embedded attitudes that associate these sounds with hesitation, lack of preparation, or weak speaking skills. This echoes Bosker et al.'s (2013) findings that listeners often perceive non-lexical hesitations as signals of low fluency, even when the overall speech rate remains constant. Cultural norms may also play a role: in Vietnamese educational and professional contexts, smooth, pause-free delivery is often idealized, and non-lexical hesitations are discouraged, which could explain the stricter judgments from group B. In contrast, group A's higher tolerance might reflect their linguistic training, which frames disfluency as a natural feature of spontaneous speech rather than a communicative flaw.

The results for silent fillers (silent pauses) are particularly noteworthy. While Kirjavainen et al. (2021) and Segalowitz (2010) report that silent pauses had minimal impact on listener judgments, the present study found relatively positive ratings for this filler type, consistent with Warren's (2013) argument that pauses at syntactic boundaries can facilitate comprehension and function as natural punctuation in speech. In this study, silent pauses were rated more positively than unlexicalized fillers, suggesting that listeners may differentiate between pauses that serve an organizational function and those that overtly mark hesitation.

Listener background also emerged as a possible factor influencing ratings. Suzuki et al. (2021) found that L1 listeners apply more uniform fluency standards, likely due to their linguistic and cultural familiarity with the target language. The present results align partially with this view: group C (native English speakers) demonstrated a relatively consistent tolerance for certain fillers, whereas the two L2 groups showed more variability in their judgments, possibly reflecting differing degrees of cultural exposure to English conversational norms.

Regarding the rating pattern on filler forms from linguistics students in this study, it was in line with that of the native raters. The high fluency ratings from the results suggest that linguistics students, with an understanding of fillers in speech to some extent, tend to be more tolerant, whereas the non-linguistics students find fillers more disruptive to fluency. In addressing the group of native speakers, they were considered to be a baseline for fluency judgments compared to non-native listeners. To specify, native speakers' evaluations provide insight into the natural perception of fluency without the influence of second language acquisition factors. Moreover, native speakers' familiarity with certain fillers and natural speech patterns may lead to higher tolerance for such features, thus influencing their fluency ratings differently from non-native groups. Nevertheless, the findings from this exploratory study suggest a potential divergence from those of Dressler and O'Brien (2017), who report that native listeners tended to assign more favorable fluency ratings to speech containing fillers compared to L2 listeners. Given the small sample size, this observation should be regarded as preliminary and not as a definitive challenge to previous findings. Interestingly, the linguistics student group consistently assigned higher fluency ratings than the other two groups, while the non-linguistics student group gave the lowest ratings across all forms of filler. This trend may be explained by the linguistics students' greater metalinguistic awareness and familiarity with the communicative functions of fillers, which could lead them to interpret such features more positively, whereas non-linguistics students may be more likely to associate them with hesitation or lack of fluency.

5.2. Perceived Fluency on Fillers Based on Their Positions

In terms of fluency perception across different filler positions, the current study found a consistent pattern: when fillers, whether silent or filled, occurred at major grammatical boundaries, speech stimuli tended to receive higher fluency ratings from listeners in all three groups. In contrast, fillers occurring within words or phrases (constituent-internal positions) were associated with lower fluency ratings, regardless of their form or lexicalization. This aligns with Suzuki and Kormos's (2020) finding that filler placement plays a crucial role in avoiding disruptions to speech comprehensibility.

Several L2 raters in this study explicitly commented that constituent-internal fillers created unnatural pauses, which significantly disrupted the speech flow. This is in line with previous research suggesting that listeners are generally more tolerant of end-of-clause pauses, as these are common in spontaneous speech (Skehan & Foster, 2005). By contrast, mid-clause pauses, especially those occurring within syntactic units, tend to be perceived as breakdowns in fluency and thus lead to more negative evaluations. The ability of raters to distinguish between syntactic-boundary fillers and constituent-internal fillers appears to have been a key factor in their more critical assessments of the latter.

L1 listeners in this study made similar observations, noting that pauses within words or phrases disrupted the coherence of the message and reduced overall comprehensibility. These perceptions closely mirror the conclusions of Suzuki et al. (2021), who emphasized the importance of filler position in shaping perceived fluency. Some native raters even mentioned

that they were less influenced by overall speech rate and instead focused on pausing behavior (breakdown fluency) when assigning ratings. In particular, they interpreted mid-clause verbal fillers as indicators that speakers were searching for words or reformulating ideas, an inference that reflects a nuanced awareness of speech processing.

Importantly, the spontaneous speech stimuli in this study were deliberately designed to include fillers in specific positions, thereby addressing limitations in prior methodologies. For example, earlier research using constrained elicitation tasks, such as picture narratives or descriptions, may have restricted speakers' lexical range and failed to capture naturalistic breakdowns (Erten, 2014; Foster, 2020). By contrast, the freer production contexts in the present study allowed for a clearer examination of how breakdown fluency, rather than speed alone, affects listener judgments. The results thus suggest that, in spontaneous speech, filler position is a critical determinant of perceived fluency across both L1 and L2 listener groups.

5.3. Pedagogical Implications

Speaking in a foreign language inevitably involves moments of hesitation, and fillers are a natural part of spontaneous speech. While often viewed as disfluencies, this study's findings, though preliminary, suggest that strategic use of certain fillers, particularly lexicalized fillers at strong grammatical boundaries, can contribute to more positive perceptions of fluency. Such usage may signal effective discourse management rather than a breakdown in speech production.

For teacher training, these results highlight the need for explicit instruction on the communicative functions of fillers. Linguistics students in this study, who consistently rated filler-containing speech more positively, may already possess heightened metalinguistic awareness that could be leveraged in teacher preparation programs. For example, micro-teaching activities could involve trainee teachers analyzing short audio clips containing different filler types and positions, discussing whether and why these contribute to or detract from fluency. They could then design classroom tasks that encourage L2 learners to replace disruptive silent pauses with communicatively appropriate fillers.

Some rater comments from this study could be used as teachable moments. For instance, a linguistics student noted, "The *you know* here made the sentence sound more natural and gave the speaker time to think". This contrasts with a non-linguistics student's remark: "The repeated *um* was distracting and made the speaker sound unsure". Such contrasting perceptions could form the basis of classroom debates or reflective journaling activities, prompting learners to consider both listener reactions and cultural expectations around filler use.

From an L2 learner's perspective, understanding that filler acceptability varies across languages is crucial. A filler considered neutral or even supportive in Vietnamese might be perceived negatively in English. Classroom activities could involve cross-linguistic comparison tasks where learners transcribe short speech samples from both languages, identify fillers, and discuss their perceived functions and acceptability.

Ultimately, while this study's small sample size means the findings should be interpreted cautiously, they suggest a valuable avenue for pedagogy: raising awareness of the nuanced role of fillers, training learners to use them strategically, and equipping future teachers, particularly linguistics students, to integrate this knowledge into communicative competence training.

5.4. Limitations and Recommendations

In spite of the afore-mentioned implications, this study still needs further review in terms of its limitations to establish opportunities for future research. The first limitation comes

from the small size of the rater group as this could reduce the chances of providing a comprehensive view as well as the variability in ratings. The next drawback of the current study was the brief specification from online raters for their fluency ratings. Due to inaccessibility of other advanced platforms, the survey was designed on Google Forms, which limited the way the researcher could organize the questions ideally. Consequently, some survey responses were not used for analysis due to the disqualified answers. Another limitation of this study is the duration of speech stimuli, given that the length of around 20 seconds can help raters combat fatigue, the researcher hopes that future studies can initiate the evaluation of a complete stimulus of spontaneous speech to determine a greater level of perceived fluency.

6. Conclusion

In conclusion, this study found that both forms and positions of filler in stimuli of spontaneous speech have effects on perception of fluency among the groups of L1 raters and L2 raters, of which the effect of filler forms is more pronounced, suggesting a greater need for linguistics students to be aware of the specific fillers they use in speech. Future directions regarding research in filler usage should involve an extended pool of participants to enhance the sensitivity in differences between ratings, exploiting deeper insights into the perceived fluency of spontaneous speech containing fillers. The research would also recommend an extension of qualitative judgments by interviewing raters to seize what features of speech raters observe when assigning fluency ratings to spontaneous speech that contains fillers. After all, fillers are ubiquitous in the nature of speaking, thus it is reasonable to assume that they play a notable role in communication. Especially the effects of fillers in spontaneous speech on fluency perception which can be significant based on certain types of fillers. Research in features of speech can be complex and underexplored, identifying fillers in speech is insufficient to understand the dynamics of communication. It is, therefore, of importance for those who have linguistics training to acknowledge the effective use of fillers to achieve positive fluency perception as well as how to employ this area in a language learning and teaching environment.

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