Stance in Three-minute Thesis Presentations in Social Sciences: Time and Gender as Influencing Factors

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Abstract: This study investigates how stance — the speaker's attitudinal and epistemic positioning — is expressed in Three-Minute Thesis (3MT) presentations within the social sciences, focusing on changes over time and gender-based differences. We analyzed a balanced corpus of 60 English-language 3MT presentations delivered by PhD students in 2012–2013 (Time 1) and 2022–2023 (Time 2). Drawing on Hyland's (2005) metadiscourse framework, we identified and categorized stance features into four main types: hedges, boosters, attitude markers, and self-mentions, with a particular focus on distinguishing between singular and plural self-mentions to capture collaborative positioning. Our diachronic analysis reveals a 12.7% increase in stance markers over the decade, with the most notable rise observed in the use of attitude markers (44%), indicating a shift toward more expressive, evaluative, and audience-engaged communication. At the same time, the increased use of hedges and reduced use of certainty boosters reflect growing caution in presenting knowledge in 3MT, likely influenced by the genre's communicative demands for clarity and accessibility to non-specialist audiences. Gender-based analysis shows that female presenters employed more stance markers overall, particularly plural self-mentions ("*we*," "*our*"), suggesting a greater emphasis on collaborative research. While male speakers showed little change in stance use over time, female speakers increased their stance marker use by 27%, alongside a 7.7% rise in speech length. These findings suggest gendered strategies in academic self-presentation and audience engagement potentially implying that female speakers tend to explain their findings in a more extensive manner. This study contributes to the understanding of academic spoken discourse by highlighting evolving rhetorical practices in 3MT. It underscores how speakers adapt their stance-taking strategies in response to institutional norms and audience expectations. Future research may extend this research to hard sciences or larger datasets.

Keywords: Stance; Three-Minute Thesis (3MT); Metadiscourse; Academic Speech; Gender Differences; Diachronic Analysis; Social Sciences

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1 Introduction

Academic presentations play a crucial role in enabling researchers to effectively communicate their knowledge and engage with their audience [1]. Traditionally, this discourse has been primarily conveyed through written

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forms which have been extensively studied. In recent years, however, the importance of spoken academic discourse has grown significantly. As researchers face increasing demands to communicate their work to broader, non-specialist audiences, oral presentations have emerged as a vital academic tool. Formats such as conference presentations, public lectures, and academic competitions challenge scholars to distill complex ideas into accessible narratives. While written academic discourse continues to dominate research, spoken academic genres are becoming equally crucial for knowledge dissemination, particularly in the era of science popularization. Spoken discourse presents unique challenges for researchers, requiring them to present ideas effectively, manage audience interaction, maintain engagement, and simultaneously convey expertise and authority.

Within this context, the significance of spoken academic genres such as the Three-Minute Thesis (3MT) becomes evident. The 3MT, a genre of academic spoken discourse requiring researchers to present their work in just three minutes, exemplifies the growing demand for concise, audience-adapted communication [2]. Therefore, its effectiveness greatly depends on the stance — the linguistic strategies speakers use to position themselves, their research, and their relationship with the text [3]. In recent years, stance is becoming the growing focus in academic research [4]. Stance markers allow presenters to balance certainty with openness to dialogue [4]. In social sciences, where interpretations are often contested, stance-taking becomes particularly critical for persuading diverse audiences [3].

Despite its professional significance, the stance in 3MT remains underexplored, particularly in comparison to written genres of academic discourse. [3]. Moreover, no work until now investigates how stance in 3MT has evolved since the genre's inception, despite its rapid global adoption since 2008. However, recent studies have shown that, between 2011 and 2021, academic writing shifted from being predominantly writer-oriented to reader-oriented in many disciplines [5]. And as some scholars believe that academic spoken presentations often originate from written academic texts, there might be certain similar patterns between these two discourse modes [6]. It is expected that the expression of stance in 3MT has also changed over time.

Another important factor influencing the use of stance in academic speech is the speaker's gender. Gendered communication styles have been widely studied, with research indicating that men and women may employ different strategies for expressing stance [7-10]. Nevertheless, no sociological study has yet explored the role of gender in stance within 3MT presentations. Addressing this gap could offer valuable insights into how gender dynamics influence academic communication in this genre.

This study seeks to fill these critical gaps by examining stance-taking in 3MT presentations through two key analytical lenses: temporal evolution and gender differences. These findings will contribute to three key aspects: enhancing the theoretical understanding of stance in spoken academic genres, examining the impact of gender on communicative strategies, and exploring how time constraints shape the delivery of time-limited presentations.

As academic institutions increasingly emphasize scientific popularization, understanding these dynamics becomes crucial for developing equitable and effective communication practices. This study, first, conducts a diachronic analysis of presentations from 2012-2013 (Time 1) and 2022-2023 (Time 2) that will reveal how stance markers have adapted to the changing academic communication norms. Second, a gender-based comparison will uncover whether linguistic patterns are persistent for male and female researchers in social sciences. Focusing on these variables is particularly significant because they illuminate how academic communication adapts to both institutional pressures (e.g., demands for public engagement) and social dynamics (e.g., gender expectations in expertise performance). Guided by Hyland's framework of metadiscourse [11], we will answer two research questions:

1) What changes has the stance undergone in 3MT presentations in social sciences over 10 years (since Time 1 to Time 2)?
2) What differences are there in the use of stance features across genders in 3MT presentations in social sciences?

2 Literature Review

2.1 Three-minute Thesis

3MT competition was initiated by the University of Queensland in 2008, and is now held as an annual competition for PhD students in 86 countries and over 900 universities worldwide. Several countries also hold national competitions with finalists from higher education institu-

tions. In the UK, for example, it is hosted by the education professional development company Vitae.

3MT was established as a tool to improve the skills of postgraduate students to effectively present their research. Students from various disciplines are welcome to participate in this competition. It is emphasized that 3MT encourages students to consolidate their ideas and crystallize their research discoveries to engage a non-specialist audience in science [12]. The participants are restricted to spoken words and can display only one static slide (animations, music, and electronic media are not permitted). This type of presentation is different from the traditional academic talks that a PhD student has experienced as part of their candidature, which typically include progress talks, departmental seminars, conference talks, etc. But unlike other academic genres, 3MT presenters address a disciplinarily heterogeneous audience, which becomes a challenge for the speakers who do not specialize in public speaking [12]. Thus, they have to employ certain rhetorical tactics to deliver clear and accessible information about complex scientific concepts to the diverse groups of listeners in the spirit of science popularization. To effectively construct meaning through 3MT presentations, presenters are inevitably pushed to transform their language. The idea of 3MT shares similar characteristics with TED talk [12-15]. However, 3MT is less time-consuming since the average TED talk length is 18 minutes. To sum up, the appropriate length, a wide range of topics, high-quality new content, organization of speech, language use, delivery, and targeting to a non-expert audience make 3MT stand out among other academic genres.

Existing studies have explored various aspects of 3MT, including several major directions – recontextualisation [16], engagement strategies [2, 17-18], and the study of the discipline-specific differences [3, 19-20] or a combination of those. The study of the evolution of stance in 3MT and gender-specific differences in 3MT are in the periphery of the research, i.e., there is a limited research on 3MT from the point of view of stance employment.

Being able to speak to people outside of the discipline is a valuable skill. And it is a matter of linguistic investigation to determine what strategies the speakers employ in their 3MT speeches to convey their expertise in an accessible and persuasive way. Needless to say, there is little attention given to the rhetorical language that PhD students use to build their speeches in 3MT [3, 12]. Moreover, examination of stance in 3MT presentations contributes to the broader scope of knowledge on effective information communication and public involvement in the research. Analyzing how presenters navigate the balance between technical expertise and accessibility for non-experts can stimulate the emergence of pedagogical approaches to training future researchers in effective presentation skills. Thus, investigating stance in academic spoken presentation on the example of 3MT holds significant implications for enhancing both the practice of this academic genre and the pedagogy of academic communication.

2.2 Hyland's Metadiscourse Model

The scope of knowledge on stances in discourse analysis has gained several stance classifications. Among them are John Du Bois' stance triangle, the stance model by Scott F. Kiesling [21, 22], Goffman's stancetaking model [22], and Hyland's metadiscoursal model [11]. This research will employ Hyland's classification of stance devices to analyze the scope. Hyland's model of stance and engagement is a widely used model that allows us to search for academic interaction in a large collection of data [12]. While originally designed for written texts, the model has been successfully adapted to spoken academic discourse, including 3MT presentations [3]. Though this model is essentially concerned with writer-reader interaction in written texts, it is also applicable to studying academic spoken discourse, since academic speech greatly relies on the written academic sources [6]. Also, according to Biber [23], stance is overtly marked in spoken academic discourse than in written. Additionally, Qiu and Jiang [12] also believe that this model is applicable for studying academic spoken discourse, since academic speech also extensively involves speakers negotiating a balance between authority and solidarity with their audience, although spoken interaction features much more direct contact and immediate response. Overall, the application of the framework for studying 3MT is believed to be justified.

Hyland's stance framework has been successfully applied in studies by Hyland & Zou [3, 24] for the analysis of spoken academic discourse, and Xie et al. [25] for the analysis of written academic discourse. While this framework thoroughly addresses key elements of stance and their subcategories, this study will also explore the role of self-mention in 3MT presentations, specifically distinguishing between singular forms (e.g., "I," "my") and plural forms (e.g., "we," "our"), which are not in-

cluded in the original framework. The successful application of this combination is presented in the research of Hyland and Zou [3], where they have investigated stance in 3MT and concluded that further categorization of self-mention into singular and plural categories can reveal certain trends in academic discourse and research patterns. Therefore, this distinction is significant because it may reveal additional nuances of stance expression that extend beyond the scope of the existing framework.

3 Methods

3.1 Corpus

The primary aim of this research is to study meta-discoursal stance feature analysis in order to identify how they are employed in the 3MT presentations. The analysis will be conducted based on the corpus of 3MT presentation recordings and scripts. In total, our corpus contains 60 videos and video scripts of 3MT presentations, taken equally from 2012-2013 (Time 1) and from 2022-2023 (Time 2) from social sciences. The videos of competitions under analysis were posted online with free-of-charge access on public websites such as YouTube, threeminutethesis.org, and university websites. The corpus is largely representative of disciplines in the social sciences, containing examples from diverse sciences/disciplines including psychology, history, art, philosophy, business, education, literature, and linguistics. Upon collecting the corpus of 3MT presentations, we ensured a balanced sample size across time periods and gender, resulting in 4 subcorpora consisting of 26163 words. It was ensured that the selected presentations exemplified the key features of the 3MT genre, such as the time limit, live audience, and the use of only one static slide. The presentations were selected based on the following criteria:

1) 3MT was presented in the Time 1 or the Time 2;
2) 3MT was presented in the English language;
3) 3MT was presented by PhD students (one video per author);
4) 3MT belongs to the field of social sciences.

The two periods were selected to examine possible diachronic changes in the use of stance in 3MT. This interval is closer to modern days than the previous studies [3].

3.2 Analytical Framework

This study employs the stance framework by Hyland [11], who has conducted extensive research in academic discourse. The four primary linguistic devices adopted in the stance model include hedges, boosters, attitude markers, and self-mentions. In this work, we provide a detailed insight into this theoretical framework and illustrate it with examples from our corpus.

3.2.1 Hedges

Hedges function is to show to what extent the statement can be perceived as valid. These linguistic devices are used to allow authors not only to be less committed to the statements they issue, but also to present their propositions as opinions rather than facts by offering a negotiable dialogue with the academic community. In other words, the undeniable importance of hedges lies in the fact that they convey information about the relevance or certainty of the statement. At the same time, of course, hedges function to recognize the speaker's concern for the alternative views. This can be considered an awareness of the audience's presence and the speaker's desire to refer to the possible existence of alternative views in the audience. It is expected that soft sciences employ a large number of hedges in academic communication due to the non-linear development of the knowledge scope. Unlike hard sciences, soft sciences allow alternative opinions and views, which lead to the emergence of multiple schools of thought [26]. Among all the hedging devices, there are three main types:

1) Downtoners are largely adverbs and are used to mitigate the intensity of a statement (e.g., slightly, barely, quite, etc.);
2) Rounders are associated with a lack of precision and indicate an (often numerical) approximation (e.g., about, around, etc.);
3) Plausibility hedges are mainly lexical verbs and modals, used to signal that a claim is based on plausible assumptions rather than evidence (e.g., could, may, suggest, etc.).

Downtoners are linguistic devices that serve to diminish the intensity of the statement by downplaying its significance or reducing the radical character of the proposition. Downtoners can take various forms, including adverbs, adjectives, or phrases, etc.

(1) Felling native forests might not always be a solution we should aim for (Time 2; male).

(2) What I found was it's not so much positive humour leading to better fit, or negative humour leading to worse fit (Time 2; male).

Rounders are linguistic devices used to convey an im-

precise characterization of a quantity or data. Unlike downtoners, which lower primarily the intensity of the statement, rounders lower the precision of the information (e.g., about 5 a.m., around 1%, around Boston, etc.).

(3) So, according to the 2021 census, nearly one in four Canadians are immigrants or permanent residents (Time 2; female).

(4) Parks like these are common across Perth and watering them requires about 1/6 of urban water consumption (Time 2; female).

Plausibility hedges are linguistic devices used to qualify the certainty or reliability of a proposition. They serve to hedge or soften assertiveness or the statement, acknowledging the possibility of alternative views. These markers are very common and necessary in academic discourse. They can be expressed by adverbs (e.g., perhaps, possibly, etc.), adjectives (e.g., possible, probable, expectable, etc.), verbs (e.g., seem, might, etc.), or phrases (e.g., to be likely, etc.), etc.

(5) This is the possible lived reality for so many seniors in Canada (Time 2; female).

(6) Why do young girls seem to have a better vocabulary than boys at the same age (Time 1; female)?

3.2.2 Boosters

Boosters can be called the opposites of hedges. They, on the other hand, express certainty, seeking to assert claims, shut down different opinions, or highlight the value of the topic. By employing boosters, we can enhance communicative effectiveness and convey nuanced shades of meaning. In other words, they literally "boost" the importance and success of the message.

Boosters are also common in the speaker's attempts to convey the value of their methodic. Especially in an academic environment where its efficacy may not be immediately clear to an audience lacking the necessary specialized knowledge, it is necessary to highlight the main points and to interpret the significance of results. Boosters, for example, can highlight not only the significance of this work but also signify the personal involvement of the speaker. Boosters typically perform these three functions:

1) Intensity boosters amplify the emotive strength of a statement (e.g., extremely, amazing, etc.);
2) Extremity boosters emphasize the upper edge of a continuum (e.g., highest, greatest, most, always, etc.);
3) Certainty boosters indicate the writer or speaker's epistemic conviction (e.g., definite, prove, truly, show, etc.).

Intensity boosters serve to estimate the degree of magnitude of a particular quality, action, or state. They operate by enhancing the semantic prominence of the proposition. These boosters contribute to the amplification of the speaker's stance towards the proposition.

(7) The collection and use of consumer data online and consumer privacy concerns is a paramount issue for marketers (Time 1; female).

(8) We are living in a highly unsettled time (Time 2; female).

Extremity boosters intensify the degree of a situation, feeling, or state, emphasizing the absolute extent of the proposition. These boosters are often expressed by the employment of the adjectival superlative degree, or such adverbs as *completely, totally, always*, etc. These linguistic devices enhance the rhetorical force of the utterance, accentuating the highest degree of the described scenario.

(9) Why? Because everything you say on Facebook can be used against you in the court of social approval (Time 1; female).

(10) And most importantly, this would allow for medical intervention the day a person is marked at risk (Time 2; female).

Certainty boosters function to bolster the speaker's conviction or assurance regarding the validity, or likelihood of the statement. Just like other boosters, they aim at suppressing other opinions and highlighting the one of the speaker. Certainty boosters stand out among others because they express the speaker's assertion in the most straightforward way.

(11) It means that people actually prefer parks that use less water (Time 2; female).

(12) In fact, Canada's senior population is growing (Time 2; female).

(13) And this is exactly what happens in offline settings (Time 1; male).

3.2.3 Attitude Markers

Attitude markers are most directly related to the author's stance, agreement, or disagreement about the presented material [27]. The use of attitude markers allows the speakers to join the discussion by pointing out their presence and contribution, expressing an opinion that contains a clear stance. This stance-taking device is more prominent in the texts in the social sciences [3].

The difference between attitude markers and intensity boosters might not be quite clear. Functioning almost

like attitude markers, intensity boosters add affective color to their claims, raising the volume rather than expressing an attitude. On the other hand, attitude markers function directly to express the author's estimation of the research and highly rely on the author's emotion and excitement. Attitude markers can appear in the forms of attitudinal verbs (e.g., prefer, agree), adverbs (e.g., only, dramatically, essentially, unfortunately, importantly), adjectives (e.g., important, problematic, remarkable, difficult), attitudinal nouns (e.g., importance, significance, lack, issue, limitation). Some examples from the corpus include:

(14) Unfortunately, by the time obvious symptoms emerge, significant cognitive impairments have already started to impact everyday life and only get worse (Time 2; female).

(15) This exciting research gives an interesting view for us neuroscientists into how we can better help people with neurodegenerative diseases (Time 2; female).

3.2.4 Self-mention

Speakers may also choose to frequently display their voice by inserting self-mentions such as *I, my,* and *we*. Self-mention refers to the use of first-person pronouns, and possessive adjectives, that project writers' explicit presence and identity [27]. Researchers might use the pronoun *we* in their speech if they are referring to collaborative research. The use of *we* as a self-mention can be seen as an explicit reference to the author [27]. However, we cannot claim any usage of *we* to be a stance-taking device, since *we* can perform a function of the stance or engagement devices depending on the context. This is well-explained in Yang's work [28], shedding light on the difference between stance and engagement. As an engagement device, *we* includes both reader and writer, which is a very frequent engagement feature. In the example (18) *we* refers to the team of researchers, including the author herself, which is a stance. On the other hand, in the example (19) *we* functions as an engagement feature because the author includes both the speaker and the audience into what is expressed by *we*.

(16) We found that the more acculturated a person is, the lower their first language skills are (Time 2; female).

(17) Being recognized for what we are is an essential human need (Time 2; female).

Together, all these stance features reveal how writers elaborate their positions and project an authorial stance to their audiences, soliciting support, expressing collegiality, and displaying expertise.

3.3 Data Coding

Based on Hyland's model [11] and the results of the stance investigation in the works of Hyland & Zou [3] and Shen & Tao [29], we generated a list of the most common stance markers in English. The list is based on the previous studies on stance in different genres. Then, by using the concordancing program AntConc [30] there was conducted a targeted search for the four stance categories by examining the frequency of each word or phrase drawn from our list. After the corpus was searched for the most common metadiscursive devices automatically, all the hits were manually examined to verify that each item was realized in the target meaning. After this review, additional items were marked and added to the corpus of stance-taking devices. The manual disambiguation was necessary for two reasons. Firstly, most English words are polysemantic, and the same form of the word does not always carry the same meaning. Secondly, our corpus also contains stances that are not typical of academic discourse.

3.4 Data Analysis

Data analysis involves both quantitative and qualitative methods to capture patterns and variations in the use of stance markers. Quantitatively, the frequency of stance markers is statistically analyzed across variables such as time period and gender. For both variables Log-Likelihood (LL) test is used to assess the statistical significance of these variations and to determine whether certain stance markers are used more frequently in specific contexts. In this study, calculations for LL between author-designed corpora were carried out using Lancaster University Online Log-likelihood and effect size calculator, as well as manual LL calculations.

For the qualitative analysis, all video recordings were subjected to systematic viewing to assess potential congruity or discordance between linguistic markers and extralinguistic features (prosody, kinesics, and facial expressions). This verification process served to validate that the textual analysis accurately captured the speakers' intended epistemic and affective positioning, while accounting for potential multimodal reinforcement or modulation of stance.

4 Results

4.1 Time-specific Investigation

In total, there were identified 707 linguistic devices in the Time 1 corpus and 797 linguistic devices in the Time 2 corpus, with an average of 24 and 27 stance features per presentation found in the corpora accordingly. The overall increase in the use of stance in 3MT is 12.7%. The average word count of 3MT in the corpus has also increased from 430 to 441 words. The overall results of the analysis of the time-specific changes in the use of stance in 3MT, regardless of gender, are presented in Table 1.

Table 1 Time-specific distribution of stance-taking devices

	Total number		Overall change	LL
	Time 1	Time 2		
Hedges	169	182	7.7%	0.20
Boosters	181	201	11%	0.59
Attitude markers	64	92	44%	4.36
Self-mention	293	322	9.9%	0.72
Total	707	797	12.7%	3.31

In total, 351 examples of hedging devices were found in the corpus. The results prove the prevailing use of plausibility hedges, which account for 84% of all the hedges in the corpus (Table 2). Rounders prove to be the least popular hedging device in the social sciences.

Table 2 Distribution of the hedging devices types in the corpus

	Total number		Overtime change	LL
	Time 1	Time 2		
Downtoners	25	17	-32%	1.75
Rounders	4	8	100%	1.26
Plausibility hedges	140	157	12.1%	0.58
Total	169	182	8.4%	0.20

Table 3 shows that extremity boosters that used to be the least dominant type of boosters become the more frequently used ones in the presentations from Time 2. On the other hand, certainty boosters become the least frequent over 10 years in the 3MT presentation.

Table 3 Distribution of the boosters types in the corpus

	Total number		Overall change	LL
	Time 1	Time 2		
Intensity	78	86	10.3%	0.21
Extremity	45	73	62.2%	6.00
Certainty	58	42	-27.6%	3.00
Total	181	201	11%	0.59

The vast majority of the self-mention devices were expressed by the first-person singular forms of pronouns (Table 4). The frequency of all pronouns that were used in a function of self-mention is presented in Table 5. Pronouns as *ours* and *ourselves* were not found in the corpus, hence they were not included in Table 5.

Table 4 Distribution of pronouns as self-mention devices

Pronouns	Time 1	Time 2	Overall change	LL
Plural form (we/us/our/ours/ourselves)	7	22	214%	7.77
Singular forms (I/me/my/mine/myself)	286	300	5%	0.07
Total	293	322	9.9%	0.72

Table 5 Frequency of pronouns as self-mentions devices

Pronoun		Frequency		Overall change	LL
		Total number			
		Time 1	Time 2		
	I	168	178	6%	0.09
	my	97	98	1%	0.01
singular	me	20	16	33.3%	0.47
	myself	0	8	--	10.88
	mine	1	0	-100%	1.41
	we	7	15	114%	2.77
plural	us	0	4	--	5.44
	our	0	3	--	4.08
Total		293	322	14.6%	0.72

4.2 Gender-specific Investigation

The second focus of this research is gender-specific differences in the 3MT. The results of the analysis are shown in Table 6 and Figures 1-2. The gender-specific analysis revealed that male speakers in 3MT have not significantly changed the overall frequency in the expression of stance over time. On the other hand, female speakers showed a 27% increase of the overall employment of stance in 3MT over 10 years (Figure 1).

Table 6 Gender-specific distribution of stance-taking devices

	Hedges	Boosters	Attitude marker	Self-mention			Total
				Singular	Plural	Total	
Male	166	171	75	291	4	295	707
Female	185	211	81	302	18	320	797
LL	0.38	2.66	0.05	0	9.05	0.23	2.23

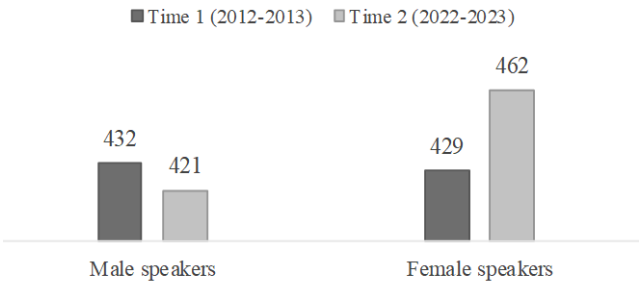

Figure 1 The diachronic gender-specific change in the average word count of 3MT presentations

One of the major findings of the research is the discovery of the growing collaboration in the academic community, which is especially frequent for female speakers. The collaborative character of research is characterized by the use of personal pronouns plural form *we* (as "we discovered", "our research", etc). Female speakers are more likely to highlight the collective efforts. This is supported by the evidence that women utilize plural forms of self-mention more often than men in the corpora (Table 6). Moreover, nowadays female speakers highlight group work in an even higher number of cases. The results show that in Time 2, four female speakers used this kind of self-mention to indicate team collaboration, compared to only 1 in Time 1. Regarding the use of plural self-mention by male speakers, there was found only one speaker registering this stance feature 4 times (Figure 2).

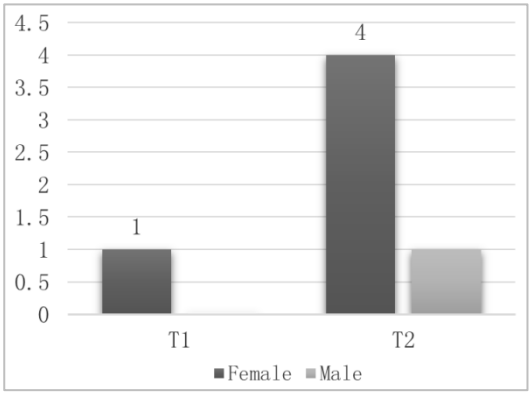

Figure 2 Number of speakers using plural forms of self-mention in 3MT in Time 1 and Time 2

5 Discussion

5.1 Time-specific Investigation

The analysis of linguistic devices employed to convey stance in 3MT presentations across the two time periods (2012–2013 and 2022–2023) reveals significant shifts in

academic communication practices. These changes align with broader trends in academic discourse.

The use of hedges and boosters can be analyzed in relation to each other, as both serve to convey caution but operate at opposite ends of the spectrum. The observed increase in hedging devices and decrease in certainty boosters suggest a shift toward more cautious and nuanced language in 3MT presentations. This trend mirrors findings in written academic discourse [31-35].

Hedges are often used to mitigate claims and acknowledge alternative viewpoints [36]. The predominance of plausibility hedges underscores the interpretative nature of social sciences, where propositions are frequently framed as tentative or context-dependent. Conversely, the decline in certainty boosters may reflect a growing awareness of the need to balance assertiveness with academic humility, particularly when addressing non-specialist audiences. Among the hedging devices, rounders prove to be the least popular hedging device in the social sciences, which can be explained by the nature of the social science characterized by employing qualitative and explanatory approaches rather than quantitative. The low use of rounders can also be the effect of the 3MT brief format that discourages numerical approximations, as presenters prioritize rhetorical impact over statistical detail. Hyland & Zou [3] found similar trends in 3MT, where statistics are also often omitted for audience accessibility.

The major rise in extremity boosters (LL = 6.0) highlights presenters' efforts to emphasize the significance of their research, according to Azher et al [37], who also highlighted the increase in the use of extremity boosters in their interdisciplinary study of stance in academic discourse. The increase in the use of extremity boosters could be induced by the communicative goals of 3MT, where speakers must quickly capture audience attention and highlight the importance of the research [2]. In this setting, the need for boosters in 3MT can hinder the findings from further generalization to the other genres of spoken academic discourse.

The analysis of attitude markers in the corpus showed that this is the least numerous group of stance (Table 1). This can indicate that PhD students tend to draw on the significance of the topic, rather than their individual opinion. However, we could identify a substantial increase in attitude markers (LL = 4.36), which signals a move toward more expressive and evaluative language. This trend may reflect the influence of public-facing genres like TED Talks, where emotional engagement is prioritized. By employing adjectives like *exciting* and *important*, presenters not only convey their personal investment in the research but also seek to evoke shared responses from the audience. The abundant use of attitude markers in the social sciences can also be characterized by the peculiarities of the field, as social scientists might take a more involved and visible position on matters of the research [3].

A rise in the use of self-mention coincides with a growing trend towards self-referential discourse and the foregrounding of one's personality in academia, claiming a right to be heard [26]. As was mentioned before, 3MT shares similar features with another genre of science popularizations – TED talk, where the tendency for overloaded use of first-personal pronouns has also been found [12, 14]. The use of this stance-taking device is a phenomenon reflecting the state of the academic community. Nowadays, academia is highly competitive and forces authors to use more self-references, highlighting the personality of the author. Academia is becoming less formal and impersonal [38]. This may reflect a broader trend toward self-promotion and academic recognition in modern scholarly communication— regardless of the genre they are producing—which may be overtly manifested in the form of self-mentions.

The special attention should be given to the analysis of the use of plural forms of self-mentions, as this rise is the most evident among them. This surge underscores the growing emphasis on collaborative research in social sciences [39]. The use of plural pronouns also reflects a strategic alignment with the values of teamwork and collective achievement, which may enhance the perceived credibility of the research. Previous research states that career pressures toward collaborative research and co-authorship might be one of the reasons for the increase in the proportion of multi-authored articles in social sciences [36]. It can be supposed that this tendency is also applicable to the spoken genres of academic speech, such as 3MT. Zhou et al [39] also found that social sciences have a tendency of becoming more interdisciplinary over the last decades, fostering collaboration. Recent studies also account for the drastic increase in the use of self-mention from 1996 to 2016 in applied linguistics, one of the social sciences [40].

5.2 Gender-specific Investigation

Regarding the gender-specific difference in the use of stance, the female speakers from the field of social sci-

ences showed a slightly more active expression of stance in the 3MT. Female speakers in social sciences dominate in the use of all the types of stance – hedges, boosters, attitude markers, and self-mention. These results align with the study of gender-induced differences in the expression of stance in TED talks [41]. The most striking difference in 3MT is found in the employment of boosters.

Female presenters used slightly more self-mentions than males. Particular interest should be paid to the use of self-mention plural forms (we, our, us, etc.), which are much more frequent in the female presenters (LL = 9.05). The use of 1st person plural pronouns as a self-mention, i.e., reference to the team, suggests that women are more likely to be involved in collaborative work than men, which aligns with the previous research [10, 42-43]. The prevailing use of self-mention by female speakers might also reveal the need to highlight their contribution more directly due to the systematic underrecognition of female scientists, also known as the “Matilda effect” [44-45]. The overall trend reflects a growing emphasis on collaborative research and teamwork among female academics, fostering collective academic research in social sciences.

Surprisingly, female speakers were found to use more boosters than men (LL = 2.66). This finding contrasts with the belief that female speakers might be expressing a more cautious and tentative stance, suggested by linguists’ and psychologists’ research on gender differences in the expression of epistemic stance [7-10]. However, while female presenters used more boosters, this difference failed to reach conventional significance thresholds ($LL \geq 3.84$, $p < 0.05$). Therefore, the controversial finding might indicate a trend, rather than conclusive evidence.

Another noteworthy finding concerns the word count of 3MT presentations. Our analysis shows that female speakers have significantly changed their preferred word length of the 3MT. It is especially evident in the comparison to the male speakers. Females increased the word count of the speech by 7.7%. On the other hand, male speakers roughly maintain their average word count of the 3MT throughout the time, with a slight decrease from 432 to 421 words (2.5% decrease). The 7.7% increase in word count among female presenters may also signal a strategic response to gendered expectations in academic communication. Prior research suggests women often face higher scrutiny when asserting expertise [46], potentially necessitating more elaborate explanations to the challenges. While this observation falls outside the primary scope of our stance-focused investigation, it represents an intriguing avenue for future research into gender-mediated communication patterns in academic spoken discourse.

6 Conclusions

This study's analysis of 60 3MT presentations from social sciences reveals three key findings about stance-taking in academic spoken discourse. First, presenters in 2022-2023 employed 12.7% more stance markers than their 2012-2013 counterparts, with attitude markers showing the most dramatic increase (44%), reflecting a shift toward more expressive, audience-engaged communication. Second, female presenters demonstrated a pronounced preference for collaborative language, using plural self-mentions ("*we*," "*our*") more frequently, indicating moves toward teamwork for women. Third, while all speakers increased their use of both hedges and boosters over time, the balance tilted toward cautious expression, likely reflecting the 3MT genre’s need to address non-specialist audiences while maintaining academic credibility.

This research contributes to the understanding of stance in spoken academic discourse, particularly in the understudied 3MT genre. It highlights how linguistic strategies evolve in response to changing academic norms and audience expectations. The findings also offer insights for training researchers in effective science communication, emphasizing the importance of stance markers in engaging diverse audiences.

This study has several limitations that warrant consideration. Firstly, the data set is limited to 3MT presentations from two specific time periods, 2012-2013 and 2022-2023, which may not fully capture the broader trends and shifts in communication practices across different disciplines and time frames. Therefore, we cannot talk about the progressive character of the change. Secondly, the study is limited by the corpus size due to the need for semi-manual methods of retrieving data.

Future research can expand diachronic analysis to hard sciences in order to assess the generalizability of these findings to the spoken academic discourse regardless of discipline. Such work could further illuminate how academic communication adapts to evolving norms of public engagement and inclusivity. Ultimately, as 3MT competitions proliferate globally, understanding these dynamics becomes essential for fostering effective, equitable science communication across genders and disciplines.

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