Doctoral Degree Thesis

Procedural monologues in hands-on demonstrative contexts: Comparing communicative function and linguistic form in how-to videos by L1 English speakers and Japanese university undergraduates.

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Chapter 1: Introduction

In a wide variety of contexts in our daily lives, we may be called on to give how-to instructions to others. We might be asked by a stranger, for example, for simple directions on how to purchase a train ticket from a vending machine or by a friend on how to crop a photograph on a smartphone application. Some tasks may require a longer sequence of steps, like changing a tire on a bicycle or threading a sewing machine. Explaining a how-to task may also be part of professional or occupational contexts that call for more complex and detailed instructions, such as a safety supervisor in a factory explaining proper use of specialized machinery or a ceramic artist demonstrating the correct way to load a kiln for firing.

In one-to-one situations, this type of spoken discourse is more than likely to be interactive, especially if the listener is engaged in the task. In such a case, the discourse may include clarification or confirmation of procedures as well as the asking and answering of questions needed to successfully achieve the goal. However, in many cases, especially those related to training in professional contexts, how-to instructions are primarily delivered as a monologue while the task is demonstrated to a group of listeners. In these situations, instead of an interactive dialogue, the speaker perhaps faces a heavier burden of delivering a comprehensive text that will provide listeners with a full account of the procedure.

Much like written instructions that you might find in a manual or other printed materials, these monologues are centered on a series of sequential steps needed to complete the task. In contrast to written instructions, however, spoken how-to texts are usually not limited to a simple list of directives. Instead, they encompass a wider range of communicative functions that guide a listener through a task and highlight important aspects as procedures unfold in a real-time

demonstration. This show-and-tell type of situation allows the speaker to give advice, warnings, hints, signals to pay attention, and alternative or optional steps to the procedure. The speaker is free to go off script from the sequential series of procedures and place emphasis on their own personal perspectives or experiences. This characteristic may explain the popularity of the *how-to* genre of videos available on the world wide web. Consumer behavior research shows that more than half of YouTube viewers in the United States regularly watch how-to videos to gain knowledge of tasks they have never done before (Pew Research Center, 2018). This reflects the effectiveness of procedural monologues as a tool to transfer knowledge of practical hands-on skills.

1.1 Background

My interest in exploring procedural discourse stems from observations over the more than 30 years that I have taught English as a foreign language (EFL) in Japan. I have noticed that many learners struggle when giving procedural instructions compared to other situations. This phenomenon was particularly noticeable among students that I taught at a university of the arts who majored in traditional crafts. Often when visiting exchange students sought technical help with equipment or materials, the Japanese students lacked the linguistic resources to navigate the parameters of a sequential series of procedural steps. Such interactive procedural discourse was the focus of my master's degree thesis in the field of teaching English to speakers of other languages (TESOL).

This observation brought awareness to the general lack of learning materials focused on delivering spoken instructions for procedural tasks, and more specifically, the complete void of any studies of English for specific purposes (ESP) for craft practitioners. To develop a pedagogical approach that I thought could help students majoring in craft, I began a research

project (for a summary see Hammond, 2016) that focused on interactive procedural discourse between craft-artists and English-speaking tourists. The underlying goal was to provide artists with a simple guide to use English, at a very basic level, to navigate an interactional exchange of procedural knowledge with visiting tourists participating in hands-on workshops aimed at appreciating basic technical procedures. Although the theoretical underpinnings of the project were primarily concerned with the interactive exchange structure of the workshops, the investigation presented an opportunity to observe the relationship between linguistic characteristics and communicative function in the workshop discourse. Subsequently, I started a second project (currently on-going) to analyze monologues in demonstrative artist talks as practiced by the international community of the ceramic arts (see Hammond, 2019). This project focuses on genre characteristics and aims to prepare Japanese ceramic artists to exchange technical knowledge and give hands-on demonstration in English to fellow ceramic practitioners.

Initially, my investigation of these demonstrative artist talks seemed to be a viable theme for a doctorial project. However, after discussion with my advisor and sub-advisors, it seemed more reasonable to expand the scope of the inquiry and examine spoken procedural texts as a linguistic register, regardless of the context or discourse community producing them. By focusing on the fundamental characteristics relevant to demonstrative how-to situations in a general sense, findings may be relevant not only to the genre of artist talks, but also to a wider range of contexts. Thus, the fundamental core of my dissertation has become what I will henceforth refer to as *procedural monologues*, which is defined in detail in the following section.

1.2 Definition of procedural monologue

As no precise term has been found in the existing literature, *procedural monologue* will be used in this dissertation to represent the variety of spoken texts that: are produced by a single speaker,

focus on giving a set of sequenced instructions for a clearly defined predetermined task, involve the physical manipulation of objects or materials, and are delivered with a simultaneous demonstration of the task. Procedural monologues may be given to either an individual or group of listeners and may be delivered either in person or by recorded video.

The predetermined task of procedural monologues can generally be described as *how-to-X*, with the completion of *X* representing the end of the monologue. For example, tasks such as *how-to make a paper airplane* or *how-to remove ink from a carpet* meet this criterion. In contrast, a task with a loosely defined *X* or one that is not completed by the last sequential step given by the speaker are not considered as a procedural monologue. For example, *how-to find a buyer for your house* or *how-to dress for spring* are not hands-on procedural in nature but more in line with general tips or direction towards a desired future goal.

1.3 Statement of the problem

Surprisingly, there are very few studies that explore aspects of procedural monologues produced by users of English as a first language (L1)[1]. This gap in the literature reflects that we still do not know much about the linguistic characteristics, communicative functions, and rhetorical structure of this variety of spoken discourse. This creates a problem from a pedagogical standpoint in that course designers and language instructors are left to their intuition when forming an approach to incorporating procedural monologues into lesson plans or learning materials. As was the case with my own goal to help craft practitioners to use English to give demonstration of their

[1] Some readers may be more familiar with or prefer the term *native-speaker* of a language as an alternative to *L1 user* of a language. Although not the focus of this dissertation, there is some debate concerning which of the two terms is most appropriate (see Dewaele, 2018 for a full account). Except for referring to past research, the term *L1* will be used throughout the dissertation.

technical skills, the current landscape of research offers very little for ESP course designers to build on.

Moreover, because of a lack of knowledge of the target situation, the assessment of the needs of a specific group of learners also becomes problematic. Without an understanding of how L1 speakers linguistically construct procedural monologues or the key communicative functions that are embedded within, it is difficult to see the disparities between what Japanese university undergraduates typically can and cannot do in EFL when producing this type of spoken discourse.

1.4 Conceptual framework for the study

The theoretical base of this study has evolved in several stages. Initially, I had envisioned procedural monologues as a speech genre and conceptualized a framework of rhetorical structure that could represent some type of standard model, which could then be taught to EFL learners. Towards this vision, I surveyed studies of genre analysis, primarily in the ESP tradition rooted in the work of John Swales. However, it became apparent that although there are some aspects of procedural monologues that are certainly part of a recognizable generic structure, there are also many patterns of language usage that seemed more in line with a register analysis perspective. Guided by research centered around the works of Douglass Biber and his associates, I started to conceptualize procedural monologues as a spoken register.

The project accommodates two threads of inquiry. The first focuses on an originally compiled corpus of spoken texts from 100 publicly posted (on the YouTube platform) how-to videos by L1 speakers. Towards this end, an existing reference corpus of written procedural discourse is employed as a comparative tool to identify unique characteristics of the spoken texts from the videos. The second is centered on an analysis of a corpus of 50 originally collected texts

by Japanese undergraduates, from my own institution (a Japanese national university) using the L1 speaker corpus as a reference.

The research design encompasses both qualitative and quantitative methods. Qualitative coding at the utterance level is used to initially identify salient communicative functions in each data set; quantitative analysis focuses on frequency and collocation of lexical items and relies on data extracted by tools embedded in concordance analysis software. Considering both qualitative and quantitative results, the relationship between function and linguistic form can be interpreted to understand how language is uniquely used in the situational contexts of procedural monologues.

1.5 Purpose and research questions

The purpose of the study is two-fold. The first is to conduct a target-situational analysis aimed at better understanding how L1 speakers of English construct procedural monologues when giving spoken instructions in hands-on demonstrative contexts. The second centers on an analysis of the key differences in the way that first-year Japanese university students approach the same contexts. Specifically, the project attempts to answer four research questions:

1. What are the salient communicative functions associated with procedural monologues produced by L1 speakers of English?

2. What are the pervasive linguistic features of procedural monologues produced by L1 speakers of English and how are they related to communicative function?

3. What are the differences in communicative functions in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates?

4. What are the differences in linguistic features in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates and how are they related to communicative function?

1.6 Significance of the study

Although the significance of the study will be further elaborated in the dissertation's results and discussion chapters, in summary the project may contribute to three areas. First, since there is a gap in the literature concerning spoken procedural discourse, my study may bring awareness to this niche and provide grounds for further research. Secondly, although my motivation is rooted in teaching and learning of EFL in Japan, the analysis of the L1 speaker texts may also be useful to compare present situations in other language learning contexts. Thirdly, and most importantly, the project may be relevant to stakeholders of EFL teaching and learning at the tertiary level in Japan. By providing a point of departure to include procedural monologues into existing pedagogies, a process may begin that overtime contributes to preparing Japanese students for practical language-in-use encountered by human resources in a global society.

1.7 Organization of the dissertation

The dissertation, in Chapter 2, presents a review of academic literature on a variety of relevant topics. This includes past research that has, to some degree, addressed aspects of procedural discourse, in both spoken and written modes. The literature review will then emphasize two theoretical perspectives: register analysis and genre analysis. Although the study primarily approaches the investigation with a register perspective, procedural monologues also have some generic features that shape a predictable rhetorical structure. In addition, a summary of studies is presented to provide a theoretical base to understand key linguistic features that were identified in the analysis. Moreover, since the study takes a corpus-driven approach, a general review of

corpus linguistics concepts and methods is also included for readers who may not be familiar with such analysis. Finally, research concerned with data collection of learner language is also included to address the method of compiling an original corpus of student texts.

Following the literature review, detailed descriptions of the quantitative and qualitative methods employed in this dissertation are presented in Chapter 3. This includes the compilation and treatment of two sets of data: a corpus of L1 speaker monologues transcribed from YouTube videos and a corpus of monologues by 50 Japanese university first year students, originally collected for the study. The methods chapter also contains a description of the qualitative coding scheme used for preliminary analysis of communicative function.

Results of key findings are the focus of Chapter 4, which is organized into four major sections. The first two report on the results of qualitative coding of communicative function in both L1 speaker corpus and the student corpus. The third and fourth sections offer a register analysis of both corpora, which comprises a wide range of lexico-gramatical characteristics and the relationship they have with communicative functions.

After answering the research questions, a discussion of how the study's results and key findings may be applied to specific language learning contexts is presented in Chapter 5. This is illustrated by showing how results could be used to in the classroom and includes examples of ideas for materials suitable for my project to support Japanese university students majoring in ceramics to give demonstrative artists talks in English. Although the scope of the dissertation does not cover a full analysis of the effectiveness of materials, prototypes are shown to demonstrate how the study's findings may be significant for English for specific purpose type contexts.

Conclusions are offered in Chapter 6 to address limitations of the study, summarize the answers to the core research questions, and suggest possible future directions for additional studies. Finally, the dissertation's appendices provide a more detailed account of the data, with sample transcripts from both the L1 speaker corpus and the student corpus, as well as a list of task descriptions of example utterances that are used in each specific section of the register analysis.

Before moving on to the literature review, I would like to conclude this introduction by noting that the traditions of the Human and Socio-Environmental Studies division of Kanazawa University Graduate School allow doctoral candidates to take a flexible and multidisciplinary approach to exploring unfamiliar phenomena. It is with that spirit that I have pursued my inquires and completed the thesis presented here.

Chapter 2: Literature Review

In the following chapter, research literature from a wide range of relevant fields of study are summarized to provide a theoretical base for this dissertation. First, the concept of procedural discourse is overviewed by highlighting research from both within and outside of the general field of applied linguistics. The chapter then moves on to a longer review of the two theoretical perspectives, register analysis and genre analysis, that are most central to the study. Afterwards, focus shifts to the research of several linguistic features to provide clarity for discussion in the dissertation's results chapter. This is followed by a general review of fundamental elements of corpus-based research, which is offered to readers who may not be familiar with such analysis. Lastly, topics related to data collection are reviewed to provide perspective for how the learner language corpus of Japanese undergraduates was compiled, which is explained in the methodology chapter.

2.1 Procedural Discourse

Reviewing previous studies of procedural discourse is not such a straightforward task. Unfortunately, there is a lack of consistent keywords to identify relevant studies. Particularly in searches of the research of language learning and teaching, the terms *instruction, direction, how-to,* and *procedure* become ensnared in the large body of literature related to pedagogy and classroom practice. In the following sections, research from a range of academic fields is offered, so that a distinction may be made between procedural discourse and procedural monologue, as previously defined in the introduction (see section 1.2).

2.1.1 Procedural discourse in applied linguistics

In the field of genre and register analysis, there seems to be no term consistently used to describe the varieties of text concerned with spoken procedural instructions. Focusing on cultural and

social aspects, Martin and Rose (2008) use the phrase *procedures and procedural recounts* to describe a group of genres that include those that focus on giving verbal instructions for procedures. They offer this definition:

> Procedures are pedagogic texts in that they teach the reader how to perform a specialized sequence of activities in relation to certain objects and locations. … Some procedures can in principle be demonstrated without a verbal text, simply by performing each step as the learner watches. But, in practice, demonstrations are almost always accompanied by verbal instruction…. Written procedures go a step further than this to mediate the author's expertise, directing the learner what to do at each step, in relation to explicitly named objects and locations. Oral procedures accompanying an activity need not be so explicit, as processes, objects, locations, and the sequence itself can be indicated with reference items, 'now do this here'. (p. 182)

Martin and Rose's definition casts a wide net and includes texts such as tourist itinerary descriptions, tips for studying, and standard operating procedures for industrial systems.

From a linguistic register perspective, Biber and Egbert (2018) prefer *how-to/instructional* when referring to procedural texts in their study of the varieties of written registers on the searchable World Wide Web. These are described as having "explicit step-by-step instructions for achieving a particular task" (Biber & Egbert, 2018, p. 136), and can be found on a wide range of websites from personal blogs to institutional, governmental, or commercial entities. The researchers point out that instructions for accomplishing almost any conceivable task are available on the internet, but that many of them take the form of the how-to video. Since their study focused on written texts on the world wide web, they acknowledge that the documents classified as how-to/instructional "focus primarily on procedures used to address technical difficulties on computers" (Biber & Egbert, 2018, p.155). Additionally, the how-to/instructional classification was given to shorter FAQ format texts that were part of other

documents. A full account of Biber and Egbert's project will be given in section 2.2.7, as it has relevancy to the analytical method employed in this dissertation.

From a second-language acquisition perspective, Dickson (1982) and Yule (1997) place procedural instructions in the category of *referential communicative task*, with a particular emphasis on communicative competency needed for task completion rather than the linguistic resources used to do so. Dickson (1982) describes these tasks as "the type of communication involved in such activities as giving directions on a map, telling someone how to assemble a piece of equipment, or how to select a specific object from a larger set of objects" (p. 1). Yule (1997) puts forth that, from a linguistic perspective, these tasks rely heavily on semantics and pragmatics more than on morpho-syntactic features (p. 5).

2.1.2 Procedural discourse in other fields

There is some attention to giving instructions and directions in the field of computational linguistics and natural language processing. Fontan and Saint-Dizer (2008) use both *procedural text* and *instructional text* to describe written discourse that replies to "How-to-do-*X*? Questions" (p. 116), with the *X* representing the main goal of the procedure. A wide range of texts are included in this classification, such as cooking recipes, maintenance manuals, medical notices, itineraries, do-it-yourself guides, and assembly directions. They make a distinction between what they call *rational structure* (the actual instruction at the core of any such text) and the *explanation structure* (advice, conditions, preferences, evaluations, and other elements that may create a cohesive and coherent text). These distinctions support their claim that a complex set of communicative functions may be embedded in procedural texts.

From the field of ergonomics, which is centered on the scientific study of people and their working conditions, Eiriksdottir and Catrambone (2011) distinguish three separate types of

instruction giving. The first type, *procedural instructions*, involves the necessary sequential steps (e.g., when getting gas you need to pay and insert the nozzle before pumping), the actions to take (e.g., pulling on the handle of the gas pump), and the consequences (e.g., when the gas starts to flow, the counters – cost and quantity – will increase) that can be expected if steps are followed correctly (Eiriksdottir & Catrambone, 2011, p. 750). Procedural instructions do not offer any insight to the inner workings of the systems or situations associated with the task, nor are they concerned with any functional relationships other than that the immediate results of the action performed by the user. Such characteristics are found in the second type, *principles* or *system-oriented instructions*, which can contain descriptions of concepts and theories related to the procedure. For example, when explaining how to send a fax to a different country, principles may include details about how the international telephone access code works, even though this is not necessary to complete the steps of the procedure (Eiriksdottir & Catrambone, 2011, p. 751). Finally, the third type of instructions are *examples,* which are specific instances of how to perform the task. Thus, in the case of sending an international fax, an example would use a specific country (e.g., Japan's country code is 81) and could be used in an actual demonstration. Although procedural instructions and examples are similar, the difference between the two is that the former tells the user what to do by describing the action needed to compete the steps, while the latter both tells and *shows* the user what to do by demonstrating the steps.

Moreover, from the perspective of occupational training in the field of technical and vocational training, Gamble (2016), describes a type of "procedural work logic" in vocational education "where problem-solving is standardized and the end result predefined" (pp. 222 – 223). Gamble puts forth that such logic can manifest in both unwritten *how-to knowledge* that is gained via daily work routines and in *systems knowledge* of formally coded work rules or

procedures that are usually written down. Similar constructs are found in studies of vocational trades (plumbing, carpentry, and automotive repair) from New Zealand-based researchers (Coxhead et al., 2020; Coxhead & Demecheleer, 2018; Parkinson et al., 2017). In their work, the term *procedural knowledge* represents discourse that "provides specific step-by-step advice about how to do a task" (Coxhead et al., 2020, p. 41) and was found in spoken instructional exchanges at trade schools; instructors embedded real life examples into classroom discourse when the lesson involved procedures such as using specialized equipment. Moreover, in a corpus-based investigation of analogical discourse in spoken texts collected at vocational schools in Switzerland, Filliettaz et al. (2010, p. 125) showed a wide range of phenomena reoccurring in training instruction, including exemplifications, comparisons, metaphorical reasoning, or analogies (e.g., consistency of cement as "cheese fondue" and working with it as "playing ping-pong").

Although exclusively focused on written discourse, the literature of the discipline of technical writing includes topics related to instruction giving. McMurray (2016) describes these texts as "step-by-step explanations of how to do things: assemble something, operate something, repair something, or do routine maintenance on something" (p. 1). A distinction is made between a *task* (an independent group of actions) and a *procedure*, which can involve more than one task. For example, a task could be simply setting the clock on a microwave oven, while a procedure could be unpacking and setting up a microwave oven for full operation. A complex procedure may have several independent tasks, while a complex task may have many steps, which could be further grouped into *phases*. Also in the same field, Flemming (2019) uses the term *process texts* to categorizes instructions into three types: descriptive, prescriptive, and a blend of the two. Descriptive instructions are centered on the question of "How is this done?" so

that a user of the text will understand the process, while prescriptive instructions address the question “How can I do this?” so that the task can be completed.

Surprisingly, the term procedural discourse is found most frequently in the literature of neurology and speech pathology. Often used to determine the extent of brain injuries or neurological disorders, procedural discourse is one of several registers used in clinical assessments. Discourse completion tasks (DCT) can be employed to elicit samples of spoken procedural texts with questions that require the patient to visualize the sequential steps of a predetermined task. For example, to diagnose impairments caused by aphasia, a commonly used DCT is the task of making scrambled eggs (Ulatowska et al., 1990). Assessment can be based on three separate elements of the rhetorical structure of replies: essential steps, target steps, and optional steps. Essential steps are crucial for completion of the procedure, such as in the example of the making scrambled eggs, heating the pan is an essential step. Target steps show that the procedure is complete, for example taste the eggs and add salt if needed signals the last step. Optional steps “clarify, add or give more detail beyond the essential steps” (Ulatowska et al., 1983, p. 321). Thus, an utterance such as *This may be a good time to make toast because eggs are best when served warm* could be considered an optional step.

An additional niche of procedural discourse, as mentioned in the introduction section, are hands-on workshops and demonstrations associated with traditional craftwork (see Hammond, 2017, 2018a, 2018b). In the international community of ceramic artists, the *demo* genre is an important component of guest lectures, artist-in-residency programs, and conferences. Delivered to large audiences, this spoken genre involves a procedural monologue accompanied with a simultaneous live hands-on-clay demonstration of technique. The cognitive scheme of *demo* talks is more recursive than traditional genre in that many communicative moves are interwoven

through the discourse (see section 2.3.3 for further discussion of move analysis). Five thematic categories of this scheme were identified by Hammond (2020): technical procedure, creative process, general practice, personal narrative, and metadiscoursal functions. Although the study was limited to procedures of the craft of ceramics, it is a useful starting point to conceptualize a qualitative analysis of communicative function in other contexts.

2.1.3 Procedural discourse vs. procedural monologue

As stated in section 1.2, the term *procedural monologue* is being used here to refer to the specific variety of spoken text at the core of this dissertation. Coining this term was necessary after surveying the literature and seeing two major shortcomings of the term *procedural discourse* to represent the phenomenon that I wish to investigate. One is that it lacks any distinction of mode and spans all written, spoken, or multimodal texts that have some connection to a pedagogic goal of giving instructions. That is to say, the term groups all instructional texts together, whether they are a set of directions that rely only on illustrations (e.g., those that show how to assemble IKEA™ furniture), the methods sections of an academic article in a science journal, the spoken text of a policeman giving directions to a tourist, a cooking show script, or an in-car lesson at a driving school course. A second problem is that since the term procedural discourse covers both static and interactive texts, it is difficult to characterize the relationship between those giving instructions and those receiving them. For example, instructions for IKEA™ furniture are produced with the company's international market in mind, and take a universal-design approach that, in a sense, treats all users of the text as the same. In the case of a driving instructor's lesson, however, such a one-size-fits-all stance is impossible, since learning to drive on the road involves paying attention to a constantly changing environment. The

discourse must be fluid, as driving instructors have no way of knowing what their next utterance may be while interacting with students in real time.

Considering these two points, the term *procedural monologue* is more fitting for this dissertation. *Procedural* was selected over other options (instructional, how-to, directional) as it suggests a step-by-step sequence to complete a task. *Monologue* was chosen for the dual benefits that it specifies a spoken text and that it is produced by a single speaker who is not necessarily obligated to interact with those listening. With this distinction made, the literature review shifts focus to analytical perspectives that may be taken to examine procedural monologues: register and genre.

2.2 Register

As the concepts of the "English language" or "general English" are abstract in nature, it is fruitless to use such generalizations when examining a variety of text (Lee, 2001). To stand on firm theoretical ground, language-in-use must be more specific in classification. Analyzing text variety is commonly approached via three perspectives: register, genre, and style (Biber & Conrad, 2009). Taking a register perspective requires examining core linguistic features and their relationship to communicative functions. On the other hand, a genre perspective is centered on how linguistic features may form the conventional rhetorical structures of a complete text. In contrast, a style perspective is concerned with core linguistic features as a reflection of the aesthetic characteristics of a particular writer or period in history. An overview of register is offered in this section, followed by the genre perspective in section 2.3. As it is outside the scope of this dissertation, the style perspective is not included in this review.

2.2.1 Register perspective of analysis

As the term *register* evolved (as noted by Anthony, 2018; Biber & Conrad, 2009; Hunston, 2002; Bhatia, 1993; Swales, 1990), it lacked clarity and was used synonymously with *text type, discourse type, functional variety, rhetorical style* and *genre.* Thus, the term was "used in a less theoretically precise way to mean simply discourse occurring in a particular context" (Hunston, 2002, p. 160). Bhatia (1993) points out that early studies of register (e.g., Barber, 1962; Halliday, McIntosh and Stevens,1964, and others) primarily took a linguistic orientation that did not make a distinction between register and genre; thus, a scientific research article was treated the same as a chemistry lab report as texts that represented a register labeled "Scientific English" (p. 17).

Early efforts towards a more distinct theoretical understanding of register are often credited to the work of Michael Halliday during the 1960 and 1970s. Halliday (1976) clearly pointed towards the link between situational context and variation in texts, stating that what "register does is to attempt to uncover the general principles which govern this variation, so that we can begin to understand what situational factors determine what linguistic features" (p. 32). Halliday's work is largely credited as the foundation of the systemic functional linguistics (SFL) tradition, now associated with the Sydney School researchers, notably J.R. Martin and David Rose. The SFL approach defines register as the combined characteristics of Halliday's three social functions of language or "register variables" of a text: *field*, *tenor*, and *mode* (Martin & Rose, 2007, p. 297). Field encompasses the elements involved in what is happening in the social action taking place as the text is being produced or used and how that action depends on language use. The element of tenor focuses on who is involved and is centered on the interpersonal nature of those participating in the discourse of a given register, such as their status, role, and a "whole cluster of socially significant relationships" (p. 297). Mode is

concerned with the actual discourse and how participants form and organize language to suit the register's purpose. In written texts, language is most often the only component, but mode may also include activities that do not involve language, such as illustrations or physical items needed to achieve the purpose of the text (Deignan et al., 2013).

Since the late 1980s, Douglass Biber and associated researcher Susan Conrad have contributed a large volume of literature concerning the theory and practice of register analysis. Theoretically, their perspective is described as:

> The register perspective combines an analysis of linguistic characteristics that are common in a text variety with analysis of the situation of use of the variety. The underlying assumption of the register perspective is that core linguistic features (e.g., pronouns and verbs) serve communicative functions. As a result, some linguistic features are common in a register because they are functionally adapted to the communicative purpose and situational contexts of texts from that register. (Biber & Conrad, 2009, p. 2)

Additionally, Biber and Conrad's perspective conceptualizes three components of a register: (1) the situational context, (2) the linguistic features, and (3) the functional relationship between the first two components (Biber, 1994). The situational context encompasses the primary communicative purpose as well as factors such as: the mode (spoken or written), participants and aspects of their relationship, the circumstances of how the texts are processed or produced, the physical location, and the topic found in the texts. The linguistic features are always considered to be functional when taking a register perspective and their occurrence is assumed to suit the primary communicative purpose of the given situation associated with the text. To illustrate this point, take the register of sports announcer talk, which Ferguson (1983) claims has a higher frequency of inversion structures that place the predicate before the subject,

as in *Holding up at third is Murphey* (p. 160). A possible interpretation, offered by Ferguson, is that the function of this linguistic characteristic allows the announcer to report the play as it happens before identifying the player committing the action. In other registers inversion occurs but not nearly as frequently since there is generally no need to report real time events so expeditiously. For example, imagine how unnatural the utterance *Getting off the bus is Mary* would sound in a casual conversation with a friend. More than likely, the friend would wonder why you were speaking like a sports announcer, since this linguistic characteristic is associated with that register.

An approach to register analysis requires a focus on pervasive linguistic characteristics that may occasionally occur in other textual varieties but are typically more frequent in the target register. Therefore, it is not possible to analyze a register based on a single text (Biber & Conrad, 2009). The investigation of multiple texts (or parts of texts) is needed to determine if indeed the characteristic is pervasive and to ensure that analysis is not skewed by any anomalies attributed to a single text. Identifying these pervasive elements may be facilitated by comparing text of different registers; for example, it is easy to imagine that personal pronouns as subjects are pervasive in casual conversation, but such a case can only be made when the register is compared to another, such as academic prose (Biber & Conrad, 2009, p. 94).

Once the key linguistic characteristics are identified, the next step is to interpret what communicative function they might serve. It is important that analysis considers the situational context in order to make the connection between the linguistic and functional factors of a text (Biber & Conrad, 2009). In many ways, these functional interpretations are at the core of any register analysis.

There is also a wide range in how specific a register may be identified. For example, newspaper writing could be considered a register, but as Hunston (2002) points out that "variation is found wherever it is sought" (p. 161), therefore headlines, obituaries, classified advertisements, or editorials could also be approached as distinct registers. Moreover, any of these could be further categorized by parameters of the country of publication, the range of their coverage, or political affiliations, which could yield a specific register, such as editorials in local newspapers with a conservative bias. Generally, texts selected from specific categories will yield a more precise picture of the relationship between function and form (Biber & Conrad, 2009). A possible problem, however, as pointed out by Barton (2007) is that classification of registers can be made at finer and finer distinctions. Barton points out investigating the variety of language used by secondary school teachers, for example, could include distinctions such as how they interact in staff room meetings, teacher-parent meetings, or the science classroom.

2.2.2 Situational characteristics of registers

As mentioned in the previous section (2.2.1), one of the three components of register analysis is the situational context of the text. Biber and Conrad (2009) offer four sources to draw from when compiling both general and specific characteristics of a register (pp. 38 – 40). The first is personal experience and observation by the researcher. In a register such as casual conversation, it is easy to identify situational characteristics, such as the spoken mode of communication or the expected interactive exchange between the parties, because most people engage in conversation throughout their lives. However, in the case of the register of published academic articles, someone without experience in academia may not understand the specific differences between the situational characteristics of, for example, a book review, a book chapter, or a peer-reviewed article. To someone without experience, all of these may appear to be simply published articles.

Hence, the second source, expert informants, may be needed to fully comprehend the specific situational factors. Bhatia (1993) emphasizes that to go further than mere descriptive analysis of language, expert informants are especially insightful when the register being investigated is culturally situated outside of the familiarity of the observer. A third source, previous research, may also be drawn on to identify situational characteristics. Finally, a fourth source can be found in preliminary analysis of texts from the target register. As pointed out by Biber and Conrad (2009), looking at the actual texts in the initial stage is instrumental in identifying the typical and most salient communicative purposes. They also suggest that revisiting the texts more than once can contribute to a rich situational description. Returning to the text, they argue, is vital to one conducting a register analysis because: "…when you have completed your linguistic analysis, you might discover unanticipated linguistic patterns and realized those patterns must correspond to situational characteristics" (p. 39). Whether at the initial investigation or post-linguistic analysis stage, Biber and Conrad (2009) offer a specific framework, as shown in Table 1, for determining situational characteristics, based on seven factors: participants, the relations among participants, channel, processing circumstances, setting, communicative purposes, and topic.

Table 1

Situational characteristics of registers

General Characteristics	Specific Attributes
I. Participants	A. Addressor
	B. Addressee
	C. Onlookers
II. Relations among participants	A. Interactiveness
	B. Social roles
	C. Personal relationship
	D. Shared knowledge
III. Channel	A. Mode (spoken/written)
	B. Specific medium
IV. Processing circumstances	A. Production
	B. Comprehension

V. Setting	A. Shared time/place
	B. Place (private/public)
	C. Time
VI. Communicative Purpose	A. General purposes
	B. Specific purposes
	C. Purported factuality
	D. Stance
VII. Topic	A. General domain
	B. Specific topic
	C. Social status

Note: Adapted from Biber and Conrad, 2009, p. 40

The characteristics of *participants* is primarily divided into two distinctions: the person producing the texts and those to whom it is addressed (Biber and Conrad, 2009, p. 41). The former being the addressor(s), that is the speaker or author, and the latter is the addressee(s), or listener or reader. In many situations involving spoken registers, the addressor is clearly identified, but in written texts it may not always be so apparent. It is also possible that an institution or group can be an *addressor*, such as a news article with no by-line for the author or a university brochure that is offered to potential students. More specifically, the participants social characteristics may influence the language in the register, which may vary in accordance to age, sex, level of education, occupation, and/or social class. Even just being a visitor in a non-English speaking country may influence the way L1 participants engage in a simplified register, *foreigner talk*; or when adults talk to infants and engage in the register of *baby talk* (Ferguson, 1981).

Like the addressor, the addressee may be either an individual (e.g., conversation with a friend) or a group of individuals (a dinner-table conversation). It could be possible to identify the characteristics of an addressee group such as the U.S. congress, or students listening to a commencement speech. However, this may be impossible for an “unenumerated set of

addressees" (Biber & Conrad, 2009, p.41), such as the listeners of a radio or television broadcast. Also listed in the framework's branch of participants are "onlookers" (p. 42), implying those who observe but are not the direct addressee of the register. Biber and Conrad offer an example of actors on stage who are addressing each other but only for the purpose of being observed by the audience. They also point out that in many cases, the boundaries between onlooker and other roles may be fuzzy in nature but should still be considered in a situational analysis.

A second component of the framework is the *relations between participants*. Here, the key focus should be on "interactiveness" of participants" (p. 42). Registers such as conversation have a high degree of interactiveness as participants can freely decide the structure of the exchange through turn-taking. Interestingly, the researchers point out that it may be possible to post a comment to a news story published on a website, but in many cases, such interaction is not with the original addessor (the author of the report) but with other addressees who have also made comments. This creates an entirely different sub-register of online comments that has a different set of linguistic characteristics and communicative functions.

The framework also acknowledges that social roles and personal relationships may influence the situation of any given register. Participants could have equal social roles, such as being friends, or there could be more of a power distance, such as in the case of talking with one's boss. Moreover, Biber and Conrad (2009) state that the participants may have some shared or specialist background knowledge, both of which could be present at different degrees. For example, recounting a busy day at work to friends or family would surely differ from how you might do so in a conversation with a stranger who sat down next to you on an airplane. A doctor would use different language when explaining a medical procedure to a patient than he/she

would with nurses before a surgery, which may even differ from the linguistic resources used to address attendees at an academic conference.

The framework's third component is referred to by Biber and Conrad as *channel*. The core of this component is mode of communication, which in most cases fits into either written or spoken classification. In addition to mode, channel also concerns specific mediums of communication with speech or writing, such as telephone or radio for spoken texts or in the case of written mode, handwritten, electronic text based, or printed publications. In some situational contexts, the medium could influence the linguistical resources employed by participants, particularly in registers and genres involving electronic communications, like blogs, email, text messages, and the realm of social media (p. 174).

A fourth branch of Biber and Conrad's framework is labeled *processing circumstances* that relate to both production and comprehension of the text. One aspect of this may be seen in situations such as conversation, when language is produced in real time without much planning, so the only remedy for miscommunication is to offer more text. There is no chance to edit or somehow delete the spoken text that the addressee has received. However, in delivering a speech, the spoken text may have gone through numerous revisions and rehearsed in detail prior to actual production. There may also be cases where spoken language can be edited, in such mediums that permit electronic editing of audio or video, as in a recorded radio interview. Secondly, in terms of comprehension, the situational contexts associated with speech and written modes vary since a listener has no control over the speed or sequence of the text. In contrast, a reader of a text can completely control the pace and order of comprehension.

Continuing to the fifth component of the framework, *setting* covers both the physical place and the time associated with the register or genre. Perhaps the most important aspect is the

degree to which time and place are shared between participants. Settings in spoken mode may dictate the situational dependency of lexical items that reference place and time, such as *here* or *yesterday* (Biber & Conrad, 2009, p.44). In most written registers, these items are absent as the author and reader do not share the same setting. It is possible, however, for some written text, such as a news report or an email, to use a temporal reference like *yesterday*, as long as there is an assumption or expectation that the text will be read on a given day. Other aspects of setting that are useful to characterize a register's situational context are the criteria of private or public place, although the boundaries are not always clear, and that time can be considered as contemporary or limited to some historical reference.

The sixth element of the framework is *communicative purpose*, which can be complex and considered at multiple levels. Most registers or genres have general purposes such as:

> …narrating or reporting past events, describing some state of affairs, explaining or interpreting information, arguing or persuading, providing procedural information about how to perform certain activities, entertaining the addressee, and revealing personal feelings or attitudes. (Biber & Conrad, 2009, p. 45)

Biber and Conrad point out that there are also specific purposes that may be embedded in a register or genre. These may occur in the divisions of sub-registers, as is the case in academic research articles that have communicative functions to navigate the rhetorical structure of the text. In other words, writers have different linguistic tools for creating introductions, literature reviews, methods sections, results, and conclusions. It is also feasible that a register may serve a hybrid of communicative purposes that are not clearly separated. In the case of textbooks, for example, there could be a mix of descriptions and explanations, or in some scientific fields even some procedural instruction to perform tasks such as experiments. Moreover, communicative purpose may suddenly shift to a different register. For instance, during a conversation, one might

switch into a narrative register to tell a story or into a persuasive stance if an argument breaks out. It is also possible to blend multiple communicative purposes so that the text is not divided into a section dedicated to one purpose, but instead several purposes are interwoven together, even at the sentence level. For example, a text could serve as both entertaining and informational.

Additional qualities to describe communicative purpose include "purported factuality" and "expression of stance" (p. 47). Purported factuality concerns the primary intent of the addressor, which may range from presenting information, opinions, speculations, or creating fictious texts. In written registers, such distinctions are useful to differentiate between literary fiction and factual biographies. In spoken mode, the distinction may not always be so clear cut. Biber and Conrad argue that "no personal account can be truly factual" (p.47), as illustrated in the recent label of *fake news*, when the facts are not always separated from fiction in spoken news reports. On the other hand, expression of stance involves both personal attitudes and epistemic stance to address the degree of certainty or indicate a source of information. In the general register of news reporting, for example, epistemic stance is one of just presenting the facts as they are, while in scientific texts, it would not be uncommon to encounter phrases such as *it is possible that*…or *the findings suggest*...or *in general*… as epistemic stance markers (p. 47).

The final category of the framework, *topic*, is usually described at various levels. A "general topic domain" (e.g., science, religion, politics, sports) is possible, but almost all texts also have "specific topics" (p. 47). For instance, baseball reporters do not write about sports as an abstract topic, they report on specific games, players, or other aspect of the sport. Biber and Conrad (2009) argue that topic has the most bearing on the choice of vocabulary suitable for any

given situation, regardless of topical domain, which in some languages may extend to the social status of the people being talked or written about. For example, in Japanese, the researchers point out, honorific language may be required for some topical situations. They also propose that the topic of a text has less influence on its grammatical characteristics compared to other elements, such as the physical situation and communicative function of a text.

2.2.3 Linguistic features of registers

Linguistic (or lexico-grammatical) features of a text play a key role in understanding a variety of registers. These features are defined by a combination of elements of vocabulary, grammar, and syntax (Sardinha, 2020). Items such as action verbs, pronouns, gerunds, relative clauses, ellipsis, and stranded prepositions could all be considered under the linguistic features umbrella (Biber & Conrad, 2009, p. 65–68).

Linguistic features are central to any valid analysis of text variety as they have a key relationship to communicative function and situational context. Accordingly, taking a register perspective requires the researcher to determine what linguistic features are typical of the collection of texts being investigated. This might involve three aspects of analytical method: the need for a comparative approach, the need for quantitative analysis, the need for representative texts (Biber & Conrad, 2009, p. 51). The first aspect, taking an empirical comparative approach, requires not only analysis of the linguistic feature in the target register but also at least one other register to get an accurate picture of what may be typical. For example, to hypothesize that past tense verbs are typical of broadcast news reports, it is essential to compare past tense verbs in some other register, such as talk-show interviews, to make a valid claim. This is where the second aspect of quantitative analysis is crucial. Since a claim must be comparative, a method of counting how frequently a feature occurs is needed. In small collections of text, this may be done

manually, but usually such counting is done by analytical software tools associated with corpus linguistics (see section 2.5.1). The final aspect, the need for representative texts, implies that if we want to know typical linguistic features, the collection of texts in a study needs to be an accurate sample. Biber and Conrad (2009) point out that there are no clear-cut answers to how many texts or how many words are required to achieve meaningful representation. They do stress, however, that it is important not to over-generalize based on a few texts. A representative sample will "capture the range of linguistic variation that exists in the register, with a majority of the texts having the linguistics characteristics that are typical of the register" (pp. 58 – 59).

2.2.4 Quantitative analysis of register features

One of the most important tasks of quantitative analysis of linguistic features in a text is deciding on what features to count. In principle, almost any linguistic feature may have a connection to a communicative function. Biber and Conrad (2009) suggest that a common approach for deciding which ones to include in analysis includes reviewing previous studies and corpus-based resources. They describe 15 categories, shown in Table 2, of linguistic features (p. 65).

Table 2

General categories of linguistic features for register analysis

Vocabulary features	Coordination
Content word classes	Main clause type
Function word classes	Noun phrases
Derived words	Adverbials
Verb features	Complement clauses
Pronoun features	Reduced forms/dis-preferred structure
Word order choice	Special features of conversation
Prepositional phrases	

Biber and Conrad (2009) emphasize, however, that it is important to be consistent with the application of how features are coded since some may not be "fit tidily into the textbook

categories" of lexicogrammar (p. 60). They give the example of the lexical item *sea creature*; it is possible to count *sea* as an independent noun or as a pre-modifying adjective to *creature*. Moreover, issues with transcribed speech with utterances that consist of fragmented sentences may cause problems to count certain features, such as length or number of sentences.

Once the features have been decided, the next step is to determine the rates of frequency of occurrence in both the target register and the one being used as reference. Because the two sets of texts will most likely differ in size, a simple raw counting is meaningless and a "normed" rate of occurrence must be considered (Biber & Conrad, 2009, p.63). This can be calculated by the simple formula: *Normed rate = (raw count / total word count) x the fixed amount of text.* The formula yields a normalized count (e.g., per 1000 words) that allows the frequency of features to be compared with those from other registers. Frequency reporting is discussed further in section 2.5.2.

2.2.5 Qualitative interpretation of communicative function

The last phase of analysis is to make qualitative interpretations of communicative functions of a register. To do so, an analyst must have a well-grounded understanding of the linguistic features and situational characteristics associated with the register. It is only then that "it is possible to formulate functional explanations for the linguistic differences" between the reference and target registers (Biber & Conrad, 2009, p.69). It is at this stage that revision of the situational analysis is a organic process, as new linguistic patterns may emerge during quantitative investigation.

Although they acknowledge that making functional interpretations does not adhere to a one-size-fits-all approach, Biber and Conrad offer a list of "major functions" that may distinguish a register from others. Summarized in Table 3 (for full list see Biber & Conrad, 2009, p.73), the list suggests starting points for interpretation.

Table 3

Major communicative functions found in registers

Major functions	**Example of associated linguistic feature**
interactivitiy	1st/2nd pronouns
personal stance	possibility adverbs
referring to time and place	demonstrative pronouns
sharing personal knowledge	vague language
sharing expert knowledge	technical words
General communicative purpose	
narrative	past-tense verbs
description	stative verbs
directive	imperatives
procedural (how-to)	ordinal numerals
explanatory/expository	relative clauses
Presenting information	
elaborating	adverbial clauses
condensing	prepositional phrases
making logical relations	linking adverbials
Production circumstances	
real time	vague language
careful production/revision	complex noun phrases

Biber and Conrad also point out that in a final written analysis of a register, it is impractical to include all possible features or characteristics. The important points should be covered first and more extensively than the more peripheral interpretations (p. 74).

2.2.6 Approaches to register analysis

As mentioned in the previous sections, taking a register analysis perspective involves three key components: situational characteristics, pervasive linguistic features, and the interpretation of communicative functions. There are, however, several ways that a researcher may go about designing a method of analysis. In Biber and Conrad's reporting of major studies, a column designated for "approach and methods" comprise a wide variety of descriptions (pp. 318-349). These include basic method descriptions such as: corpus-based, qualitative, quantitative, ethnographic, and descriptive as well as reference to analytical tools from discourse analysis,

conversation analysis, genre analysis, and move analysis. In addition to these, a more dynamic methodology is listed: multi-dimensional analysis (MD).

In general, MD is used to collectively compare many different registers and aims to identify "linguistic parameters" which are referred to as "the dimensions" of a register (Biber & Conrad, 2009, p. 268.). Dimensions are determined by latent patterns of co-occurrence of linguistic features that are identified via statistical factor analysis and are assumed to have some common shared functions. The authors provide the example of registers that share the same pervasive features of pronouns, direct questions, and imperatives co-occur because they are all related to interactiveness" (p. 269). Due to its complexity, a full review of MD is beyond the scope of this literature review, but it is useful to mention Biber's (1988) seminal work that yielded six universal dimensions. These dimensions, listed in Table 4, have since been applied to numerous studies:

Table 4

Six universal dimensions of MD analysis

Dimension 1	Involved vs. Informational discourse
Dimension 2	Narrative vs. Non-Narrative Concerns
Dimension 3	Context-Independent Discourse vs. Context Dependent Discourse
Dimension 4	Overt Expression of Persuasion
Dimension 5	Abstract and Non-Abstract Information
Dimension 6	On-line Informational Elaboration

In addition to these universal dimensions, which are determined by a set of 67 linguistic features, MD methods can also be applied to an original set of factors. This was the case in a very large study to investigate the variety of registers on the world wide web in a study to be reviewed in the next section.

2.2.7 Biber and Egbert's CORE project

Biber and Egbert's 2018 study takes a comprehensive view of register variation found on what they refer to as the "searchable web" (p. 7), which are websites and documents publicly available using search engines. Their research focuses on registers found in a near-random sample of documents taken from the searchable web used to comprise the 58 million-word Corpus of Online Registers in English (CORE). The corpus is based on 48,571 documents selected via Google searches on highly frequent three-word n-grams (e.g., *is not the*). These n-grams helped to eliminate any algorithms that could create bias designed by Google.

After this selection process, each individual document was then coded by register category by multiple trained raters using a hierarchical framework that led to the identification of eight general registers. Three of these were discovered to be dominant (Narrative, Informational Description/Explanation, and Opinion) and were treated as general classifications. The remaining five registers (Interactive Discussion, How-to/Instructional, Informational Persuasion, Lyrical, and Spoken) were designated as a sub-register of one of the three dominant registers. For example, Personal Blogs were placed in the Narrative category, while Encyclopedia Articles were Informational Description/Explanation. An additional category, Oral, was also included to cover interactive discussion and other documents that may have originally been produced as spoken text. As shown in Table 5, other distinctions were identified resulting in a total of 21 sub-registers.

Table 5

Register categories and sub-registers of the C.O.R.E. project

Register category	Sub-registers
Narrative	News Report, Personal Blog, Sports Report, Historical article, Travel Blog, Fictional Short Story/Novel, Other Narrative
Opinion/advice/persuasion	Opinion Blog, Review, Description-with-intent-to-sell, advice, Religious Blog/Sermon, Other Opinion/Persuasion
Informational descriptions, explanations, procedures	How-to/Instructional Documents or Blogs, Recipes, Academic Research Articles/Abstracts, Encyclopedia Articles, Descriptions-of-a-person, FAQs, Informational Blogs, Other Informational
Oral	Interactive discussion, Lyrical, Interview, Other Spoken

The study employs a MD methodology to determine the difference between the identified sub-registers. For this purpose, the researchers began with 150 specific lexico-grammatical features which were extracted with the Biber tagger POS software (Biber & Egbert, 2018, p.46). Many of these features overlapped each other, and after considering redundancies, combining similar variables, so eliminating those with low frequency, a total of 57 variables remained for use in final analysis (p. 217). A factor analysis of these variables yielded nine dimensions, shown in Table 6:

Table 6

Dimensions of the C.O.R.E. project

Dimension 1	Oral involved versus literate
Dimension 2	Oral elaboration
Dimension 3	Oral clausal narrative versus literal nominal informational
Dimension 4	Reported communication
Dimension 5	Irrealis versus informational narration

Dimension 6	Procedural/explanatory discourse
Dimension 7	Nominal/literate stance
Dimension 8	Description of humans
Dimension 9	Non-technical explanation or description

The first three dimensions are similar in that they make distinctions between oral and literate web registers. Other dimensions focus on more specific discourse functions. Reported Communication (D4) reflects a higher likelihood of communication verbs (e.g., *say*, *announce*, *inform*) and proper nouns. Irrealis Discourse versus Informational/Narrative Discourse (D5) centers on comparing "various conditions of possibilities, obligations, and eventualities" that are common to conditional situations (Biber & Egbert, 2018, p. 65). Procedural/Explanatory Discourse (D6) is concerned with features needed "to tell readers what to do and how to do it" (p. 67) including causative/facilitation verbs (e.g., *cause*, *result in*) and process nouns (e.g., *procedure*, *process*). The remaining three dimensions appear to be narrower in scope and comprise less features: Nominal/Literate Stance (D7) that relies on stance nouns such as fact or claim; Descriptions of Humans (D8) focuses on "human nouns" (e.g., *boy*, *father*, *attorney*) and 3rd person pronouns; Non-technical Description (D9) shows high use of concrete nouns (e.g., *sugar*, *milk*, *dirt*) as well as common abstract nouns.

In addition to the MD analysis, a keyword analysis for each sub-register was also conducted to identify what words were statistically more frequent. As a reference corpus is required for this type of analysis, Biber and Egbert treated the sub-register being investigated as the target corpus and all the other texts in the CORE as the reference corpus. Although Biber and Egbert's study is concerned primarily with written text, their findings can provide some insight into what linguistic features may be worth exploring in spoken procedural discourse. Their general category of *Informational Descriptions*, *Explanations*, and *Procedures*, includes the sub-

register *How-to/Instructional Documents or Blogs*, which encompasses 1,392 texts that are described as providing step-by-step procedural information found on websites or blog formats. In some ways similar to procedural monologues, these how-to texts are written by an individual or institution with an appeal to those wanting to learn a certain specific task. Instructional FAQ documents were also included in this sub-register. It is worth noting, however, that the how-to documents in the CORE are "primarily focused on procedures used to address technical difficulties on computers (p. 155)." The researchers acknowledge that there are numerous searchable web texts that give instructions for any conceivable task, but that many of them are presented as videos, and not written text.

Biber and Egbert concluded that the how-to/instructional sub-register has strong connections to three dimensions: Irrealis vs Informational Production (D5), Procedural/Explanatory Discourse (D6), and Non-technical Description (D9). These dimensions rely heavily on the use of a few key grammatical features. Most notably, there is a strong reliance on second-person pronouns since the reader is often referred to directly as *you*. Conditional adverbial clauses and modals of possibility are also frequent, as they serve to address problems or options that may be encountered when following step-by-step procedures. In addition, because how-to texts are concerned with doing things in the "here-and-now rather than the past-time narrative" (p. 154), activity verbs are common and tend to be used in the present tense or infinitive form.

The keyword analysis showed that there is a significant degree of word specialization in how-to texts. This is especially true for words that refer to using computers or software, for example *directory*, *file*, *folder*, *header*, and *setting* (p. 155). In many cases, such words employed a deictic function of referring to nouns that the reader of the text would directly see on a

computer screen, for example, *button*, *tab*, *menu*, and *edges* (p.155). The relation to computers is also seen in the frequent activity verbs with specialized meaning, as in *double-click*, *download*, and *right-click*, but also in general words that have taken on contextual meaning, such as *copy*, *install*, and *paste*. Other general activity verbs included *add*, *choose*, *create, make*, *try*, and *use* (p. 155). Moreover, the keyword analysis illuminated a large semantic class labeled as Advice/instruction words, such as *example*, *help*, *note*, *recommend*, and *remember*.

In summary, taking a register perspective requires the researcher to focus on the pervasive linguistic features and communication functions that are associated with the situational factors and purpose of the texts. This allows for an interpretation of the relationship between these two elements. Analysis can be conducted on a large body of sample texts as some registers, like telephone conversation or sports announcing, do not have a predictable structure. Such rhetorical structure of a text is usually associated with genre, which is the focus of the next section.

2.3 Genre

In layman's terms, genre is frequently used simply to describe the different types of artistic creations, such as movies, plays, books, magazines, and poems. For example, *horror films* could be considered one of the many genres found in cinematic creations. In the field of discourse analysis, the term is not limited to creative works and can be used widely to include practically any variety of text. For example, as pointed out by Candlin et al. (2017), all the following could be considered as individual genres: letters, reports, PowerPoint presentations, agendas for business negotiations, minutes of meetings, formal records of speeches, transcriptions of panel discussions, and countless others. These examples can be considered as "textual/semiotic objects which are associated with different types of communicative performances" and may vary in

purpose, authorship, audience, and most certainly in terms of grammatical characteristics and frequency of lexical items (Candlin et al., 2017, p.57).

A clear illustration of these variables, offered by Hyon (2017, p. 3), is the wedding invitation genre. All wedding invitations are associated with the same context of two people who plan on getting married. In addition, invitations share a common function of asking the addressee to be present at a social event. Moreover, the text of invitations has distinct linguistic characteristics: tendencies of formal language, elevated syntax, and word choice. Hyon's example reminds us that, apart from wedding invitations, there are very few situational contexts that phrases such as *request the honor of your presence on Saturday, the seventh of May* would be appropriate. In contrast, an informal invitation to a dinner party could be phrased as *come over this Saturday*, whereas language such as *you are hereby summoned to appear* might be found in a subpoena to testify in a court of law.

2.3.1 Genre theoretical orientations

Research concerning genre can be found in a vast range of fields in the humanities. A full review of all perspectives is a substantial undertaking that would exceed the scope of this dissertation. Even within the general realm of applied linguistics, discourse analysis, and sociolinguistics, the body of literature dedicated to genre is too vast to overview here. From a general view, however, genre has been approached by three major theoretical orientations (Hyon, 2017). Two of these, systemic functional linguistics (SFL) and rhetorical genre studies (RGS), primarily take a "situational approach" to genre as social actions found within specific contexts (Hyon, 2017, p.20). The SFL researchers of the Sydney School founded by M.A.K Halliday subscribe to the idea that genres are "a recurrent configuration of meanings" that "enact the social practice of a given culture" (Martin and Rose, 2008, p.6). Representing the RGS viewpoint, in a seminal work

by Miller (1984), genre is described as part of "the conventions of discourse that a society establishes as ways of acting together" and that it is "a rhetorical means for mediating private intentions and social exigence" (p. 163). The sociological nature of genre emphasized in these theoretical perspectives and research tends to focus more on how a text may be situated within a specialized group or culture, and less on purely linguistic characteristics (Bhatia, 1993, p.19).

A third approach is oriented around English for Specific Purposes (ESP) as situated in the field of teaching English to speakers of other languages (TESOL). Research of genre in ESP contexts accordingly takes a "linguistic approach" to analysis (Hyon, 2017, p. 20). More and more in the field of TESOL, genres have become a key component in teaching and learning objectives that aim to prepare students to use English in a wide range of target contexts. The ESP approach is most relevant to this study and will be further described in the following section.

2.3.2 Genre in the ESP tradition

Although ESP currently represents a very big tent that covers both EOP (English for occupational purposes) and EAP (English for academic purposes), historically it was almost exclusively focused on English for Science and Technology (EST). During the "pre-genre" period of the 1960s and 1970s when sentence-level grammar was considered most important, EST was practically synonymous with ESP (Hyon, 2017, p.5-6). With the growth of English as the international language of scientific research, articles published in scientific journals became a key element of ESP pedagogies. Focus on such published articles led to an increasing emphasis on going beyond the sentence-level structure and including discourse and genre into teaching and learning objectives.

Analysis of the rhetorical structure of the research article genre is rooted in the work of John Swales. His early studies centered on the rhetorical structure of the introduction section as a

sequence of rhetorical "moves" (Swales, 1981). In the Swales tradition, a move is a "discoursal or rhetorical unit that performs a coherent communicative function in written or spoken discourse" (Swales, 2004, p.229). This concept was refined in his seminal move analysis approach (to be discussed in detail in section 2.3.3) that proposed a paradigm of "create a research space" (C.A.R.S.) to identify patterns of generic structure in the introduction sections of research articles (Swales, 1990). The C.A.R.S. model showed that article introductions written in academic journals in various disciplines generally followed a predictable three-move structure.

In addition to the rhetorical structure of the text, Swales' 1990 work also steered the ESP perspective towards the relationships between a *discourse community* and *a common communicative purpose* when engaged in *communicative events* as expressed in his often-cited description:

> A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constrains choice of content and style. Communicative purpose is both a privileged criterion and one that operates to keep the scope of a genre as here conceived narrowly focused on comparable rhetorical action. In addition to purpose, exemplars of a genre exhibit various patterns of similarity in terms of structure, style, content and intended audience. If all high probability expectations are realized, the exemplar will be viewed as prototypical by the parent discourse community. The genre names inherited and produced by discourse communities and imported by others constitute valuable ethnographic communication, but typically need further validation. (p. 58).

The centrality of communicative purpose as a component of genre classification was subsequently revisited by Swales to acknowledge that some genres may not be limited to a single purpose. For example, Askehave and Swales (2001) point out that a shopping list, in addition to

serving as an aid to memory, could also function as a prevention of impulse buying or even to impress other shoppers of one's "fitness as a domestic partner" (p. 201). Returning to the example of wedding invitations, although an obvious purpose is to seek attendance of potential guests, it is also feasible in some situations that an invitation could be a means of soliciting a gift or providing practical information such as a map to the venue. Drawing on experience of my own wedding, several invitations were sent to relatives overseas who had already expressed regret that they could not attend the event. However, my communicative purpose was to convey a sense of inclusion to these relatives and provide an artifact to represent the important day.

Addressing this problematic nature of a single communicative purpose, Aksehave and Swales (2001) proposed two alternatives. One is a *text-first* approach centered on the linguistic characteristics and features used to structure content; a second is a *context-first* approach that is more in line with an ethnographic perspective because it begins with the social context of those engaged with the text. The authors argue that treating communicative purpose as a fixed starting point, in either approach, could limit a richer and more inclusive analysis to be made at a later stage when the text or content was understood at a deeper level.

An additional essential component of the ESP genre perspective according to Swales is the concept of *discourse community*. With intent to distinguish the term from the sociolinguistic concept of *speech community*, Swales (1990, pp. 24 – 27) initially proposed six characteristics of those who engage in a genre. These encompass attributes related to common public goals, mechanisms of intercommunication, providing information and feedback, utilizing/possessing one or more genres, specific lexis, and the discoursal expertise of members.

As was the case with communicative purpose, Swales (2016a) later reconceptualized this idea of discourse community, which he came to see as "overly static" (para. 10). He

acknowledged that additional factors may also define a discourse community such as the location of where members live or work or the interest that bind them together. As an example, Swales describes what he calls a *local discourse community* at the University of Michigan where he has spent a large part of his career. Like most institutions, this community uses abbreviations and acronyms that the public would not understand. This contrasts with *focal discourse communities* that formed around common interests that could be either professional or recreational in nature. Swales cites his membership in a bird watching group to illustrate this type. Moreover, there may be hybrids of these two types, or '*folocal' discourse communities*, that have a dual or split relationship with members in other groups. This is illustrated in the example of the blend between the relationship of Swales' local community at his university and his focal community of an international network of specialized scholars who meet at conferences and publish in the same academic journals.

From Swales' theories of genre, the landscape of researching and teaching ESP drastically changed, especially in two areas (Hyon, 2017). The first is the contribution of his move analysis, which was first brought to light with the C.A.R.S. model. This provided the necessary tools for ESP researchers to investigate a broad spectrum of genre from various situational contexts and academic disciplines. The second was that Swales brought awareness of how moves may reflect communicative purposes by the communities of those engaged with a genre.

2.3.3 Swales' Move analysis

Swales' move analysis has become an essential method in ESP research. Initially developed as a way to help learners of English as a second or foreign language to read and write research articles, move analysis subsequently has been applied to unpack other types of genres, in both

written and spoken modes. The analytical scheme is based on two functional units: moves and steps. Swales (2004) describes a move as:

> A 'move' in genre analysis is a discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse. Although it has sometimes been aligned with a grammatical unit such as a sentence, utterance, or paragraph…, it is better seen as a flexible unit in terms of its linguistic realization. At one extreme, it can be realized by a clause, at the other by several sentences. (pp. 228-229).

Communicative function is a key element to determine a move. Accordingly, each move "serves a typical communicative intention which is always subservient to the overall communicative purpose of the genre" (Bhatia, 1993, p.30). Thus, it is important to consider what the writer or speaker is trying to accomplish in terms of function, rather than the actual content found within. Hyon (2017) goes even further than Swales in arguing that a move could even be realized in a single word, such as "Sincerely" which marks a move to end a business letter (p. 29). Ending with "Love", as one would do in a personal letter, would not be appropriate in professional contexts, but both words represent the same function of signaling that the letter is finished, and that the author's name will follow.

Within moves, the smaller unit of step may also be part of the rhetorical structure. Steps are multiple text fragments that contribute to realizing a move (Moreno & Swales, 2018, p.40). For example, in Swales' (1990) C.A.R.S. model, the first move of the introduction section in research articles is typically *establishing a territory*, in which an author usually takes steps such as *claiming centrality*, *making topic generalizations*, and *reviewing items of previous research* (p.141). In many genre studies, however, steps are left out of analysis since moves can vary in complexity. As in the case of closing of a business letter, even a single word can realize a move, so there is nothing else left to further divide into fragments units for analysis.

2.3.4 Swales' levels of treatment

Although it is not typical of an ESP genre analysis, Swales et al. (2001) conducted "an extensive discoursal analysis" of the *critique* format common to students studying architecture. Despite stating that the study drew on "the tradition of genre analysis" and "on what discoursally might be contributing to particular rhetorical outcomes", the paper stops somewhat short of labeling critiques as a full-fledged genre (p. 445). Although moves are firmly established in genre theory, a suggestion was put forth that: "Overall, analysis of the critiques establishes some major moves (or perhaps more accurately levels of treatment) that orchestrate the genre-like initial presentation of a design model" (p. 445).

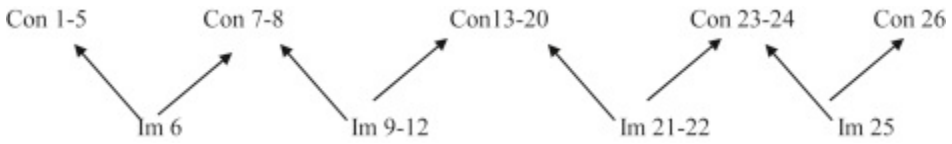
These "levels of treatment" are named by function, as if they were moves or steps, and include "description of the site", "architecturally contextualized description/rational of the site", and "depiction of design details" (p. 445). The theoretical differences between moves and levels, Swales acknowledged, was "left hanging in the wind" but that the original intention was to highlight that "[a]rchitectural students in defending their models have to move adroitly between high-level theory and low-level architectural detail" (personal communication, April 4, 2022).

Moreover, Swales "similarly discovered this kind of oscillation" when investigating the written descriptions of works of art (personal communication, April 4, 2022). As described in a later paper (Swales, 2016b), this idea of switching between levels of recursive features was the main thrust of his exploration of the written genre of single image accounts (SIA) that describe pictures or photographs of single artwork in the context of fine art criticism. Swales found that such texts often "oscillate between the micro image and the macro context" (p. 24). In his study, Swales qualitatively coded each sentence into the categories of image and context. The former focused on the individual picture and its notable visual elements, while the latter was concerned

with the broader context of the artist and period of history when the work was created (Swales, 2016b). Although he observed a highly salient pattern that SIAs started with context, what proceeded was less predictable. Writers frequently switched between the two levels and did not follow a predictable sequential structure as what may be expected in other written genres (e.g., general-specific, specific-general, or problem-solution). Swales offered a representation of how a typical SIA may oscillate as seen in Figure 1 (from Swales, 2016b), which shows the number of sentences used at each level and the referential patterns of how the shift was executed.

Figure 1

Swales' alternating pattern of single image accounts



Note: Con=Context; Im=Image

This alternating pattern, which was found in 14 of the 15 SIAs in Swales' study, usually started with focus on content but varied greatly in terms how often and for how long the text shifted to each level. Even though the number of sentences "devoted to each polarity" is similar, the structural patterns were not predictable.

Unlike the established theory of a move in genre analysis that represent a single structure of the text (e.g., the closing of a business letter), or the pervasive characteristics of register analysis (e.g., ellipsis used in sports announcer talk for brevity), *levels of treatment* may be a useful term to describe recursive move-like features. In some ways it straddles the sometimes-

grey area between register and genre. This idea will be expanded on in the discussion chapter of this thesis.

Having reviewed both the register and genre perspectives of analysis, the review of literature shifts to wider scope of research that covers several linguistic features that will be included in both the results and discussion chapters.

2.4 Linguistic features relevant to procedural monologues

As recommended by Biber and Conrad (2009) past research is a rich resource to compile a list of possible linguistic features to support a register analysis. The How-to/Instructional sub corpus of the CORE (see section 2.2.7) is useful as a starting point towards investigating pervasive linguistic features in procedural monologues, but it is important to point out that Biber and Egbert's focus is on the variety of registers available on the World Wide Web and not on deeply exploring any one sub register. Thus, the following section includes a review of literature relevant to linguistic characteristics that emerged after becoming familiar with the corpora central to this thesis. Acknowledging that the scope provided here is in no way a comprehensive survey of the literature in any of these topics, my purpose is to offer a theoretical base for reference in following chapters dedicated to both methods and results.

2.4.1 Pronouns

The fundamental distinctions of personal pronouns (first, second, and third person) can be generally conceptualized in spoken language as speaker inclusion, addressee inclusion, and speaker and addressee exclusion. To illustrate this at a very basic level, consider the example *I will ask him to call you tomorrow*. The first person singular (*I*) represents the speaker, the second person (*you*) refers to the addressee, and the third person singular masculine (*him*) excludes both

the speaker and listener. Rounds (1987) points out that: "Whereas *I* and *you* must refer to the participant-roles in the speech event, the third person has no such distinction" (p. 14).

These basic distinctions, however, by no means encompass the full spectrum of meaning that any given pronoun may represent. In her study of personal pronoun use in American university classroom discourse, Rounds (1987) illustrates the complexity of pronouns in the following example produced by a mathematics teacher:

> Now, the way I'm going to define my trig functions, and these are definitions…is I'm going to call the sine of *t*…I'm going to say that sine is associated with this height *y*… (p. 17)

In this example, the first person *I* and *my* cannot represent the teacher exclusively, as trigonometry has been defined and named for hundreds of years. Rounds argues that in some situations, teachers "seem to overtly take on the role of spokesperson for mathematicians by mapping the usual discourse function of *they* onto their *I* "(p. 17). In such a way the teacher empowers his/herself by alignment with the authority of one who is qualified to teach math, which comes with the rights to name and define (p. 22).

Rounds (1987) also argues that there may be up to five sets of "discourse defined semantic mappings" that can be derived from the pronoun *we* (pp. 14-19). These include two traditional mappings of an inclusive *we* (*I* + *you*) and the exclusive *we* (*I* + *they*). To illustrate these distinctions, consider the utterance *We need to go home now.* Imagine in the context of a dinner party, a man whispers this to his wife and son who accompanied him to the event; this would be considered the inclusive *we* (*I* + *you*). If said to the party's host, however, it would be a case of the exclusive *we* (*I* + *they*). A third mapping involves *we* occurring in contexts when *I* would be the most logical choice, as in these two examples: *We said that…*; *Let's write this thing*

on the bottom the way we originally wrote it (p. 18). Logically, since the teacher was the agent of both *say* and *write*, the first person (*I*) could have used. According to Rounds, the *we* in these utterances could "denote an expanded 'authorial we' or even a 'royal we' but that could also potentially be interpreted by the addressee an inclusive sign" (p. 18). In contrast, a fourth type of *we* identified by Rounds is when the teacher shifts from the logical second person (*you*), as in *I want to look at some of the problems we had for today*, in reference to homework only assigned to students and obviously not to the teacher. This shift may allow the teacher, in a sense, to become part of group that is cooperatively working together. The final mapping designates *we* as a referent of an exclusive group that goes beyond the present participants, such as mathematicians at large, as in Rounds' example: *We [mathematicians] call that number, that number we get, that function that we get here, the derivative* (p. 19).

Similar conclusions were made by Kuo (1998), in an investigation of personal pronouns in scientific journals. The study showed that first-person plural pronouns (*we, us, our*) occur far more frequently (89%) than other pronouns in leading scientific journals. Interestingly, as Kuo points out, this first-person narrative may have historical roots to a time when scientific articles were in the form of letters that were interactive and inclusive of scientific peers. Even now in the case of single-authored scientific articles in current literature, the writer may still refer to himself/herself as *we* as well as using *we* to represent both the author and the assumed reader. In Kuo's study, results show that the most frequently occurring discourse function of *we, us,* and *our* is to explain how procedures were carried out, as in the example*: First, we use synthesized texture to demonstrate our approach* (p. 131). In addition, the pronoun *us* (often collocated with *let*) was frequently used in sentences with the communicative goal of "seeking agreement or cooperation", as seen here: *In this work, let us restrict ourselves to three-dimensional*

distributions of deposited ions only (p. 134). Moreover, the pronoun *our* was slightly associated with discourse function of "showing results or findings", such as in*: Our calculations indicate that device performance is also virtually unaffected* (p. 135).

Tang and John (1999) propose a taxonomy of possible identities embedded in first-person personal pronouns in academic writing of first-year undergraduates at the University of Singapore. They devised a continuum of six roles. Although their classification is inclusive of all first-person pronouns (I, me, my, mine, we, us, our, ours), they label each role as "*I* as the…." (pp. 27–28). The first role, *'I' as the representative*, is a generic use of the pronouns, absent of any information about the writer but instead stands as a proxy for people in general or a specific group or discourse community. This role is illustrated in the following: *It resulted in the English we know today*. The second role, *'I' as the guide*, is akin to a tour guide showing the readers around the text, as illustrated in a phrase such as *Let us now look at some examples*. A third possible role is *'I' as the architect*, which often employs the first person (*I*) to "foreground the person who writes, organizes, structures, and outlines the materials in the essay" (p. 28), as may be seen in a phrase such as *In this essay I will….* A fourth classification is *'I' as the recounter of the research process*, which also tends to use the singular *I* to describe steps taken during research, as in *The data I collected included…* The fifth role is '*I' as the opinion holder,* in which the writer expresses (or shows agreement or interest in) an opinion, view, or attitude. The final role is *'I' as the originator*, which is taken on when the writer's conception of ideas or claims to knowledge are presented. Sentences produced under this role exhibit a sense of ownership of ideas, such as in the example *To me, the phrase embodies the whole evolution process of language.*

2.4.2 Vague Language

As described by Cutting (2007), vague language (VL) is associated with lexical items that are "inherently and intentionally imprecise" and aspects of grammar "that may refer either to specific entities or to nothing in particular" (p. 4). Channell's (1994) often cited framework of VL includes three categories: 1. Vague additives, which may be word(s) added to a precise quantity to signal a vague reading (e.g., *about, around, approximately*) or tags referring to vague categories (e.g., *stuff like that*) ; 2. Vagueness by intentional choice of vague words or phrases (e.g., *or something, and such, or anything, thing, thingy, whatsisname, whatnot*); 3. VL by scalar implicature (e.g.; *most, many, some, few, often, sometimes, occasionally, seldom*). Scalar implicature, as pointed out by Jucker et al. (2003), is always intended when quantifying expressions are substituted for numbers and occupy the determiner slot in a noun phrase (e.g., *a few times, some guys, many cars*).

Drave (2002) argues that primarily VL is used to deal with the informational needs of the discourse participants to maintain interpersonal relationships. His functions of VL include filling lexical gaps, filling knowledge gaps, emphasizing (or de-emphasizing) certain information, withholding certain information, conveying tentativeness, conveying an evaluation, expectation, or proposition, and maintaining an atmosphere of friendliness, informality, or reference (pp. 26–27).

Zhang (1998) describes four classifications of VL. The first is *fuzziness*, which implies "referential opacity" as in *about 20 students* (p. 15). While this may mean 20 plus-or-minus, 14 students may be stretching the fuzzy semantic boundary too far. The second classification, *generality*, is marked by a lack of specific details. For example, *my friend*, could be considered general because it could mean just about any human being on the planet. The third, *vagueness*, is defined as a word or expression that is considered polysemous (i.e., has more than one possible

interpretation). For example, the word *good* may be considered to be as vague since a *good student* is a hard-working one, but a *good guy* is one who is morally correct. The final category, *ambiguity*, is defined as "expressions which have more than one semantically unrelated meaning," as in Zhang's example *Flying planes can be dangerous* (p. 17). The ambiguity lies in the phrase *Flying planes*, which could be either an actual aircraft in flight or the act of piloting a plane. Moreover, VL can be semantically "stretched or shrunk," for example *She is very young* stretches the meaning of young, *She is rather young* shrinks it, while *She is about 20 years old* could either stretch or shrink the boundary of 20 years depending on the strategic needs of communication of the speaker/writer (Zhang, 2013, p. 88).

Phrases such as *sort of*, *kind of*, or *a bit* are also classified as VL. Referred to as *downtoners* (Jucker et al., 2003), these expressions indicate that "there is a mismatch between the prototype and the item being described" (p. 1746). For example, consider an utterance *You just kind of push it all in there*. This could suggest some wiggling or perhaps even some pushing and pulling to complete the task. In contrast, the downtoners *a bit* or *a little bit* decrease the effect or scale of a word, as in *a little bit hard*, which can be presumed to be slightly on the easier side of the unmodified *hard*.

Overstreet and Yule (1997) describe the inexplicit nature of "adjunctive general extenders" (e.g., *and stuff*, *and things*, *and everything*, *and that*) and "disjunctive general extenders" (e.g., *or something*, *or anything*) as forms that may have some functional value as a way for speakers to "indicate solidarity, an assumption of shared experience, and social connection" (p. 250). In their study of spoken English found in data from telephone conversations and face-to-face interactions, they observed that general extenders may reference an assumed common ground that the participants share and become "a marker of invited

solidarity" (p. 256). The researchers give the example of friends going on a camping trip; they can convey the meaning of essential gear and necessary items as "clothes and tents and stuff". In this case the clothes and tent are exemplars that *stuff* extends.

2.4.3 If-conditionals

Although a variety of subordinators (e.g., *unless, providing, assuming, supposing, as long as*) may be used to construct a conditional adverbial clause, by far, those that employ *if* are the most commonly occurring in all registers of English (Biber et al., 1999). Moreover, there is wide agreement among researchers that if-conditionals occur more frequently in spoken language than in written texts (Biber et al., 1999; Ferguson, 2001; Ford & Thompson, 1986).

Terms used to describe the structure may vary, but two essential parts of if-conditionals are the adverbial *if-clause*, also known as the *conditional clause*, *antecedent*, or *protasis*, and a main clause referred to as the *consequent* or *apodosis* (Bhatt & Pancheva, 2017). For example, in a conditional such as *If you click on the arrow, the drop-down menu will appear*, the protasis is the clicking on the arrow and the apodosis is the drop-down menu appearing. The syntactical arrangement and the relationship of the protasis and apodosis is not necessarily fixed. Although the most common is the *clause initial* pattern with the if-clause coming first, the *clause final* position is also possible (e.g., *The drop-down menu will appear if you click on the arrow)* as well as the *clause medial* position, as in *The drop-down menu, if you click on the arrow, will appear* (Lasersohn, 1996, p. 154–55).

As pointed out by Ferguson (2001), there is a large and historical body of research on conditionals that extends from the perspective of logic and philosophy to the field of applied linguistics. Traditionally in pedagogical grammars, if-conditionals are presented based on verb forms (Carter-Thomas & Rowley-Jolivet, 2008; Ferguson, 2001). These may include

combinations such as present + future (e.g., *If you click the arrow, the menu will appear*), past + past (e.g., *If you clicked the arrow, then the menu appeared*), and past perfect + past participle (*If you had clicked the arrow, the menu would have appeared*). A more descriptive overview of the types of conditionals generally found in the literature is offered by Bhatt & Pancheva (2017, pp. 2–3) in three possible classifications. One is the *hypothetical conditional*, the most commonly occurring type, that is defined as the proposition embedded in the protasis being one possible situation in which the apodosis is realized as true. Taking the example above, clicking on the arrow will hypothetically make the drop-down menu appear. A second type, the *relevance conditional*, is one which the protasis does not specifically contribute to a true apodosis, as in the example: *If you are thirsty, there is beer in the fridge.* If the protasis is true or false (thirsty or not), the apodosis is still true (beer in the fridge). The information is relevant to a person who may be thirsty, but it does not represent a cause-and-effect type of relationship. A third type are *factual conditionals* (also referred to as *premise conditionals*), which are somewhat harder to distinguish. This type starts with a protasis that is assumed to be true, as in the example: *If Fred is so smart, why didn't he get the job?*

Carter-Thomas and Rowley-Joilivet (2008), in an investigation of if-conditionals in medical discourse (both spoken and written texts), identified three possible macro-functions. Their *factuals* category, often found in scientific discourse, are conditionals that aim to make "statements about the natural world, by observing regularities and correlations, and by carefully defining the conditions under which the facts hold" (p. 194). This is illustrated in their example, *If 10% or more of the malignant nuclei were stained, the slide was scored as a negative.* Such conditionals were pervasive in the method sections of medical research articles as devices to describe procedures and processes. A second category, *refocusing* conditionals, comprised if-

clauses that created “the argumentative space, in some speculative or hypothetical world” (p. 200). These were often found in editorials in medical discourse, as in the example clause: *Even if health care providers are diligent in keeping current with genetic medicine…* A third category is labeled *discourse management*, which concerns if-clauses that focus on showing the author or speakers intention to develop the text by topic-marking or topic-shifting. If-conditionals of this type accounted for 31% of all occurrences in data of conference presentations in their study, and included utterances that directed the audience towards visual elements by protasis such as *if you look at the number of patients that were treated…* or *If I could have the next slide please*.

2.4.4 Wh-clefts

Wh-clefts, especially used with personal pronouns, are frequently found in procedural or instructional discourse by L1 speakers. As defined by Biber et al. (1999. p. 959), *wh*-clefts consists of these parts: (1) a clause introduced by a *wh*-word, usually *what*, with its own point of focus; (2) a form of the verb *be*; (3) the specially focused element, which may be a noun phrase, an infinitive clause, or a finite nominal clause. An example provided by Biber et al. (1999, p. 963) shows the focused element in bold and the *wh*-clause in brackets: [*What I really need*] *is* ***another credit card***. Within the literature, *wh*-clefts are also referred to as *pseudo-clefts*, and a variety of labels have been given to the two halves joined by the copula: cleft clause/clefted constituent (Weinert & Miller, 1996), backgrounded/foregrounded (Huddleston & Pullum, 2002), the variable/the value (Halliday & Matthiessen, 2006), *wh*-clause/highlighted element (Deroey, 2012).

In terms of communicative function in spoken *wh*-clefts,Weinert and Miller (1996) argue that a central concept behind this construction is a neutral sense of focus. The speaker or writer may use *wh*-clefts as a syntactical device to make information “cognitively salient for the

addressee" (p. 179), as in their example taken from spoken text of giving directions on a map: *What you're doing is you're going down the side of the allotments* (p. 181). The presupposed information embedded in the *wh*-clause (i.e., the listener wants to get to a specific place) sets up the more important information that follows. This syntactical organization is also pointed out by Rowley-Jolivet and Carter-Thomas (2005) in their investigation of native/non-native spoken English in academic presentations in the field of science. They found that despite a lack of *wh*-clefts in published articles, native speaking scientists often employed the construction as a device to ease the processing burden on the listener by putting "end-weight" (p. 43) on the information that comes at the end of an utterance. For example, a *wh*-clause such as *Well, what we are talking about here is…* encourages the listener to pay attention to the important new information that will follow. Interestingly, when the end-weighted information in *wh*-clefts in spoken presentations were compared to the same information in passages from the papers being presented, there was a lack of highlighting or focusing devices.

This sense of focus is also in line with Biber et al. (1999), as seen in the following description of the relationship between the wh-clause and the highlighted focus:

> The association between *wh*-clefts and conversation has probably to do with the low information content that we frequently find in the *wh*-clause. A speaker may use a *wh*-clause as a springboard in starting an utterance: *what I think…, what I want to say…, what we need…, what this means…*" (p. 963.)

Wh-clefts, especially when used with personal pronouns, may allow the speaker to communicate some shared aspect of the discourse with the listener. In a study focused on the discourse function of *wh*-clefts in 160 university lectures (1.18 million words) from the British Academic Spoken English (BASE) corpus, Deroey (2012) reported that most often *wh*-clauses contain pronominal subjects (*I, we, you*). Of these subjects, *we* is the most frequently occurring

at 24.2%. Deroey suggests that as a general substitute for *one* and *you*, the use of *we* contributes to creating a sense of shared context, endeavor, and discipline orientation. Moreover, the study showed that *wh*-clause were modified by modal verbs in roughly a fifth of all occurrences, and expressed intention or prediction (*will*, *be going to*) and to some extent possibility (*can*), often with adverbials (*actually, really*) to "increase the rhetorical force of the utterance" (p. 117).

Wh-clefts can also be devices to clarify or express what Prince (1978) describes as "metalinguistic antecedents" (p. 890.) in order to confirm that the listener understands the intended meaning of a previous utterance as in the example phrase: *What I mean….* Such a phrase signals a clarification but can also be a chance for the speaker to "remake" (p. 891) a previous assertion.

Another possible function of *wh*-clefts is that they may serve as an interactive strategy to engage the listener in a questioning process (Thompson, 1994). Consider an example from Rowley-Jolivet and Carter-Thomas' (2005) work with conference presentations: *So what do I mean by pulse sharpening using non-linear ferroelectric dielectrics? Well, <u>what we're talking about here is</u> pulses in the voltage range of…* (p. 57). Even though he is delivering a monologue, the speaker is questioning himself as if he is anticipating such a question from the audience. This dialogic dimension, the authors suggest, could explain why *wh*-clefts are generally only found in spoken data. Similar characteristics may be seen in the second half of canonical *wh*-clefts frequent to spoken language, which according to Hopper and Thompson (2008), can be placed in three categories based on verbs used in the antecedent: events (clefts with *happen*), action (clefts with *do*) and paraphrase (clefts with *say* or *mean*).

With several linguistic features reviewed in this section, the overview of relevant literature continues by describing the most effective way to quantify occurrence of such features when conducting a register analysis by using methods from corpus linguistics.

2.5 Corpus-based methods relevant to the study

Originating from the Latin word for body, a corpus, or its plural form *corpora*, is a body of texts that is usually collected for the purpose of investigating varieties of language. Sinclair (2005) states that in the digital age, a corpus is made up of a data base of computer readable files that has been compiled "according to external criteria to represent, as far as possible, a language or language variety as a source of data for linguistic research" (p. 16). Sinclair adds that a corpus is often confused with other types of databases, such as the world wide web, archives of texts, collections of quotations or citations, or individual texts. He argues that: the world wide web is not a corpus because it does not represent any specific variety and is in constant state of change; an archive of texts is primarily for preservation and not for research purposes; collections of short quotes cannot represent full texts; and individual texts fail to represent any variety of texts.

Corpus linguistics, as a field of study, can be traced back to early significant work of Quirk's 1959 one-million-word corpus of British English, which was produced on paper file cards and the 1961 Brown Corpus of American English which was the first major electronic data base (McIntyre and Walker, 2019). Although the scope of this literature review does not permit a full account of what has happened since these early works, it is remarkable how easy it has become to compile an original corpus. Some technical tasks that in the 1960s would have required a visit to a university equipped with a massive IBM mainframe processing system can now be done on a smart phone while sitting in a café.

As a very broad and general review for readers from other disciplines, the following sections are limited to the aspects of corpus-based research that may be relevant to the methodology and result chapters of this study. These include the general types of corpora, comparing frequency, collocation, parts of speech tagging and corpus query language.

2.5.1 General attributes of corpora

As described by Weisser (2016), there are several general characteristics of corpora. Firstly, a corpus may be synchronic or diachronic. The former is a collection of contemporary texts that tries to represent how language is currently in use, while the latter is concerned with a specific historical period. In addition, corpora are often classified by mode (i.e., spoken, written, or a mix of the two). A corpus may also be created for researching language in a broad context or limited to a specialized domain. Finally, corpora may be classified as being static (fixed in size and will not change over time) or dynamic (updated and increased in size to reflect the constantly changing nature of the text that it represents).

Hunston (2002) offers a concise description of common types of corpora, four of which are relevant for this review. First, a *general corpus* is usually very large in volume and may be comprised of written, spoken, or both modes of text. Volume is usually characterized as the number of tokens in a corpus. A token can be a single word separated by spaces or a non-word, such as a number or abbreviation. General corpora often attempt to represent a comprehensive profile of texts produced in a country, for example, the British National Corpus (BNC), which is approximately 100 million tokens or the Corpus of Contemporary American English (COCA) at more than 560 million tokens (Davies, 2019). Because of such a large volume and variety of texts, general corpora are often segmented into smaller divisions of sub-corpora.

Large general corpora are often used a *reference corpus* to make comparisons and support analysis concerning the unique characteristic of another corpus, known as the target or study corpus. Reference corpora are essential, especially in studies focused on developing a list of key words in a corpus. Sardinha (2000) suggests that ideally, a reference corpus should be much more than five times larger than the study corpus for reliable results on key lexical items. Moreover, in a large corpus that is divided into sub-corpora, such as Biber and Egbert's (2018) investigation of register variation of the world wide web in the C.O.R.E. project (see section 2.2.7), each sub-corpus may be treated as a target corpus with the other sub-corpora collectively serving as a refence corpus.

In contrast to general or reference corpora, a *specialized corpus* focuses on one genre or register, such as newspaper editorials, academic lectures, journal articles, or casual conversations. There is no limit to how specialized a corpus may be, thus a corpus of newspaper articles, as Hunston (2002) points out, could be compiled of ones that focus on politics, or even more specialized and limited to the single topic of the European Union. An even more specific example is the 900,000-word corpus of Donald Trump's social media posts on Twitter (Schneider, 2021). Moreover, as a reflection of the current times, a specialized "corona virus corpus" has been compiled to provide a linguistic record of the pandemic (Davies, 2019).

Finally, a *learner corpus* is one compiled of texts produced by learners of a language. This type of corpus is often used to identify the difference between text produced by L1 users and LX (i.e., non-L1) users, or to compare LX users from different countries or educational contexts. The International Corpus of Learner English (ICLE) and the Cambridge Learner Corpus are well known examples.

2.5.2 Frequency

The most obvious benefit of working with a corpus is that it facilitates a quantitatively expressed account of the frequency of occurrence of lexical items or linguistic features. For example, it can be quickly determined that the word *research* is found 27,567 times in the BNC, but only 5,179 times in the British Written Academic Corpus (BAWE). However, as the former is compiled of roughly 112.3 million tokens, while the latter only 3.4 million, comparing these two figures is not possible as they represent *absolute frequencies*. For comparison, most corpus-based studies rely on *normalized frequency* to show how often the word may appear per *x*-words (McEnery and Hardie, 2011), as was described in section 2.2.4. Using the same example with normalized rates of frequency, it is possible to present data in a way that clearly shows the word *research* occurs far more frequently in the BAWE at 6.21 times per 10,000 words, compared to only 2.45 in the BNC. It is also possible to state *relative frequency*, based on the percent of the whole corpus. In the BAWE, *research* represents 0.062% of the corpus, while in the BNC it is 0.024%.

2.5.3 Collocation

Collocation is the notion that some words tend to occur within proximity of each other. This is a statistical tendency that "can indicate pairs of lexical items, such as *shed+tears*, or the association between a lexical word and its frequent grammatical environment" (Hunston, 2002, p.12). There may be a logical explanation for collocation, as in the word *toys* co-occurring more often with *children* than with *women* or *men* because children use toys more often (Hunston, 2002). However, in other cases, there may be no clear motivation for a speaker to describe *strong tea* but not *powerful tea*, or *powerful car* but not *strong car* (Halliday,1976).

Collocation is useful for qualitative analysis of concordance lines, which the *key word in context* (KWIC) is displayed and highlighted in the center of lines of text taken from the corpus

(Davies, 2019). This allows the researcher to better interpret the relationship between the KWIC and the words or grammatical features that are associated with it. Hunston (2002) gives the example that observing concordance lines with a KWIC of *leak* allows for a clear identification of two semantic categories: physical meaning with the collocates of *oil, water, gas,* or *roof*, and metaphoric meaning with collocation of *document*, *memo*, *press*, *lette*r, or *report* (p. 76).

Quantitative analysis of collocation can be conducted via numerous statistical methods. In addition to descriptive expressions of frequency as mentioned in section 2.5.2, there is a range of statistical tools (e.g., MI-scores, T-scores, Z-scores, and LogDice) that go beyond simple description and focus on statistical significance (McEnery and Hardie, 2011). Such statistical tests measure the strength or certainty of collocation and provide a way to avoid interpreting a randomly occurring collocation as a significant one (Hunston, 2002). For example, MI-scores, a commonly used test, "measure the non-randomness present when two words co-occur" (Hunston, 2002, p.71) by comparing the observed occurrence of a word to how many occurrences could be statistically expected. For example, returning to the example of the word *research*, in the BAWE corpus, if we look at absolute frequency, the word *and* occurs 65 times after *literature* while *based* occurs only four times. However, since *and* is a highly frequent word (207,623 occurrences), the chances that it randomly occurred after *literature* are greater than this happening with the word *based* (3,103 occurrences). Accordingly, the MI-score for *based* is higher at 3.22 while *and* only scores 1.18. The scope of this review does not permit a full account of the range of significance tests that may be used to quantify collocation. Fortunately, however, most corpus management software programs are embedded with tools that offer a wide range of statistical tests that can be incorporated into collocation analysis.

2.5.4 Part of speech tagging

The development of *morpho-syntactic annotation*, which is commonly called *part-of-speech* (PoS) *tagging*, was a breakthrough in corpus linguistics (Weisser, 2016). PoS tagging is now a complex part of computer-assisted linguistic analysis. In short, such tagging allows for searches of specific grammatical usage of parts of speech or other annotations within a corpus. Although it may be possible to manually annotate a small corpus, most PoS tags depend on computer software applications that automatically tag each word in accordance to an annotation scheme. For each token in a text, a tagging program assigns a label to indicate the most likely part of speech based on syntactical algorithms. Many corpus management platforms or software programs use established tag sets, such as the Penn Treebank tag set from the University of Pennsylvania (see Marcus et al., 1993) and Constituent Likelihood Automatic Word-tagging System (CLAWS) developed at the University of Lancaster (see Leech et al., 1994). However, even the best tagging programs are not perfect; Martinez (2011) estimates that 95% accuracy is exceptional.

When working with tagged data, it is possible to search a corpus for specific syntactical constructions by employing *corpus query language* (CQL), which is a system of codes that can be used to mark-up the parameters of a search. As an example, consider how to investigate the phrase *mind your own business*, which is used in the teaching tutorial of the corpus management platfrom *Sketch Engine* CQL tutorial (Kilgarriff et al., 2014). Using the Penn Treebank PoS tag set for verb (V) and pronoun (PP), a CQL search may appear as:

[lemma="mind"&tag="V.*"] [tag="PP.?"] [word="own"]? [word="business"]

The first set of brackets contains code for a lemma (i.e., any form of the word) of *mind* as a verb (tagged as: V.*); the second set represents any personal pronouns (tagged as: PP.?); the third is

the exact word *own* as an option, and the fourth is the word *business*. In conducting such a search, results yield a richer reflection that may include *minding her business*, *minded their own business*, or *minds its business*.

PoS tagging allows for quick investigations of collocation in large corpora. For example, assisted by the tools embedded in the *Sketch Engine* corpus management platform, one can easily determine that in the BAWE corpus, adjectives are about twice as frequent as noun phrases to the left of *research*; the verb *has* is about seven times as frequent as *shows* as the predicate in sentences with *research* as the subject, and that the adjective *qualitative* occurs approximately six times as much as *quantitative* when modifying the word.

In conclusion, this fundamental review is intended as a basic primer to readers unfamiliar with corpus-based methods. I am by no means attempting to situate this dissertation in the field of corpus linguistics but am trying to show how I have applied corpus-based methods to my own specialized corpora. In the following section, a review of the relevant literature concerning the collection of learner language data that I employed to compile the learner language corpus is presented under the same intentions.

2.6 Collecting data of learner language

As pointed out by Lüpke (2009), several academic fields, such as anthropology, sociology, psychology, and philosophy depend on a variety of methods for language documentation and description (LDD). Approaches for collecting LDD should serve the specific aims of a research project and, in some contexts, represent a record of authentic linguistic practices of a defined discourse community or group of language users. According to Biber (1993), collecting data in the field to be used in a corpus may at first require a flexibility of looking at a broad comprehensive approach that is not limited to a specific research question. In

a cyclical approach to building a specialized corpus, a researcher may start with pilot-study analyses in the early stages, followed by further collection of texts, then deeper empirical investigations, and revision of the corpus design. An important first step is to define the target discourse community and identify the genres or registers that will be documented. Even in small samples, high frequency linguistic features are generally reflected in a corpus, but to get an encompassing view of less occurring features, a larger sample is usually needed. The observation of authentic communicative events can be supplemented by carefully chosen texts that were obtained either by simulating or staging a target situation or by elicitation instruments that focus on features that are difficult to collect.

2.6.1 Discourse completion tasks

To understand language in use, naturally occurring speech represents the most desirable type of data to be collected for a specialized corpus. However, simply recording video or audio does not give the researcher much control over numerous contextual variables. To some degree, data collection must find a practical way to set parameters to limit data to the specific aims of a study. At a very basic level, control may be achieved by using discourse completion tasks (DCT), which have been widely employed as a method in applied linguistics, especially concerning speech acts and speech events (O'Keeffe et al., 2011). DCTs consist of a situational prompt that is read by the participant who then produces an original response. Although DCTs may elicit spoken language, the instrument is most often used for written replies, as a device to facilitate the collection of large numbers of participants, when resources are not available for other methodologies, such as interviews or extensive recording of audio or video (O'Keeffe et al., 2011). DCTs allow the researcher to narrow focus to investigate specific situational use of language, instead of searching through existing sources or collecting data at a broader scope with

the hope of catching what they are interested in. Prompts are often used to collect language samples in situations that rarely occur or are difficult to predict for recording, or when comparing two groups of users or languages (Boxer & Cohen, 2004). For example, if a researcher was interested in the language of marriage proposals, it would perhaps be an impossible, or at the very least intrusive, task to collect authentic field recordings of such an intimate moment. Likewise, attempts to record authentic instances of the use of imperative verbs in directive speech acts, although they are not particularly rare, may be very difficult without providing some type of prompt.

A downside to DCTs is that they may not always elicit natural use of language, as participants may write what they think is the correct answer or what they are expected to say (O'Keeffe et al., 2011). Additionally, the written form of most DCT do not allow for spontaneous production, since replies can be revised or edited as they are written (Yuan, 2001). Another issue is that DCTs call for the participant to imagine how they would verbalize a response to an unreal situation that may include some type of exchange with an unfamiliar interlocutor, which could put into question if they are a measure of pragmatic ability or just a symbolic action (Golato, 2003).

2.6.2 Types of collectable communicative events

Himmelmann (1998) uses the term communicative event to describe the contextual factors of where and when data is collected. In field-based data collection, communicative events may be classified into three categories. One is observed communicative events (OCE) in which the researcher has little or no influence on the event and simply collects data as it naturally occurs. For example, video of a plenary speaker at an annual academic conference may be considered an OCE since it is not particularly uncommon for such events to be recorded and data

collection would not particularly interfere. A second type of communicative event involves elicitations (Es) designed by the researcher specifically for the purpose of data collection, such as in the case with testing instruments that incorporate established paradigms or word lists in order to judge the acceptability of linguistic characteristics. Thirdly, researchers may employ a staged communicative event (SCE), which Lüpke (2009) describes as a "middle ground" between the authenticity of an OCE and the synthetically created Es. This may involve some type of non-linguistic prompt, such as illustrations, photographs, or video segments that require participants to engage in a situational use of the target linguistic characteristics. Although SCEs are not a true substitute for OCE, they do provide a wider parameter for the collection of data that is not directly influenced by the researcher.

Since data resulting from these three different types of communicative events varies, a corpus that includes a combination of the three may allow for a richer analysis than treating each one separately. Lüpke (2009) notes that as an analytical method, triangulation is well accepted as a common practice in the social sciences and that within a corpus, OCE, Es, and SCE can complement each other. With a variety of prompts, the use of similar lexical items and linguistic structure is predictable, especially with large numbers of participants. SCEs can be a compliment to OCEs, but they should be used only to collect specific data that may be difficult to find in naturally observable events.

As they are staged only for the purpose of collecting data, SCEs should be designed with prompts that have as little direct linguistic influence as possible. Lüpke's (2009) example of a verbal prompt, "Tell me how you pick Mangoes," provides an open question that allows a reply in the participant's own words. Non-verbal static stimuli, such as photographs, illustrations, or picture books are useful as prompts since they do not have any linguistic influences on replies. In

a cross-linguistic comparison study of basic topological relations, prompts designed by Bowerman and Pederson (1992) consisted of 71 illustrations of two objects that participants must describe in relationship to each other, for example, “The cherry is in the bowl,” or “The dog is next to the doghouse.” As a tool to gather a wider scope of data, the wordless picture book *Frog, where are you?* (Mayer, 1969) has long been used as a prompt for data collection, since it offers a main story that is organized around 13 embedded episodes (Berman and Slobin, 2013). The book has been used to elicit children’s narratives (Cameron & Wang, 1999), language impairments (Norbury & Bishop, 2003), storytelling in English as a foreign language (Kang, 2004), verbs of motion (Pasanen & Pakkala-weckström, 2008), and a wide range of other topics.

The use of video or animation can also be an effective prompt, especially when used in comparative studies since it allows for a consistent semantic or situational focus. An often cited example is *The pear film* created by Chafe (1980) to collect data for a cross-linguistic study of how speakers verbalize knowledge. The six-minute film, set in a pear orchard, presents only a visual story of people and events. Since there is no audio, participants in the study used their own linguistic resources to construct a narrative account of what unfolds in the film. Another example is the investigation of *cut and break* verbs by prompting responses to a set of 61 video clips of people engaged in some activity associated with the target lexical items, such as tearing cloth into pieces, chopping carrots, or cutting fish (Majid et al., 2007).

The advancement of technology has made the production of more dynamic video or animation prompts a viable option in many data collection contexts. Lüpke, (2009) also points out that researchers may use “ad hoc” stimuli, which are developed from data collected in the field, for example videos of everyday events such as working in the fields or doing laundry can then be shown to participants who describe the event unfolding in the video. He also suggests

that when shown a video, as opposed to a verbal prompt of "how do you X?," participants may give longer and more semantically dense replies since they are not responsible for constructing or organizing the narrative of the discourse.

Another elicitation tool that may be incorporated into a study's data collecting method is the role playing of social interactions in which participants pretend or act out specific situations, by either keeping their own identity or assuming a different one (Kipper, 1988). This type of data collection to some extent provides a more natural production of language than simple DCTs since turn-taking, spontaneous input, and negotiation of meaning may find their way into the discourse. Generally, role playing can be put into two categories: closed role playing that focus on a single turn by the participant, and open role playing involving a more dynamic task that may require numerous interactive turns between the participant and the interlocutor. Since participants are pretending, however, role playing may ignore sociolinguistic variables that would most likely occur in naturally occurring discourse. For example, if a participant is asked to imagine that they are speaking to a friend, to what extent does rudeness or directness play while talking to a stranger with whom there will be no future encounters (Golato, 2003).

Like role playing, recall protocols can also be used to elicit situated language use. In such tasks, subjects are asked to remember a specific situation, for example the last time they gave a compliment to someone (Golato, 2003). Although such tasks aim to collect natural as opposed to imaginary language of role plays, they are limited by human memory.

2.6.3 Collecting data via videoconferencing platforms

With advances in communication technology, researchers have new opportunities to interact with study subjects. Especially through the use of video and conferencing technologies known as Voice over Internet Protocol (VoIP), it is now possible to achieve data collection that

comes close to traditional face-to-face interaction, such as interviews and focus-groups. In the forefront of videoconferencing platforms is *Zoom*. In a study (Archibald et al., 2019) that examined the perceptions and experiences resulting from using *Zoom* as a method of collecting qualitative interviews of 16 nurses in Australia, both researchers and participants expressed a high degree of satisfaction. Survey results suggested that Zoom may be preferable to alternative mediums, such as face-to-face interviews, written email replies, telephone, or other video platforms for several reasons. For example, the platform permits non-verbal communication since all parties can see each other, which allows for rapport to develop. Additionally, interaction can take place at a convenient time and location, such as at one's home, which reduces the expense and inconvenience of traveling. This quality allowed for data collection in the study, which was originally planned to be limited to a region of Australia, to take place in a broader scope of geographical locations around the country that may not have been within the means of the research project. With practically no budget, wide scale collection and interaction at the international level is also possible. Moreover, unlike other videoconferencing platforms, Zoom is unique in that sessions can easily be recorded and stored without the use of third-party software, which is essential for the protection of privacy and for sensitive subject matters. Another benefit of Zoom is that it does not require invited users to register for an account, which makes it a simple tool for study subjects who are not interested or confident in using computer technology. Finally, Zoom's storage function permits cloud-based sharing of sessions with other researchers who may be on a project's team.

2.7 Chapter Conclusion

To conclude this chapter, which covered a wide range of literature from several disciplines, it is worth restating that my goal here was to establish a theoretic base to frame the phenomenon of

procedural monologues. As no previous studies have taken a register or genre approach to this type of spoken instructional discourse, the review extended further into these areas than others. Additionally, the review comprised a broad scope of linguistic features so that a connection could be made to results of the analysis, which will be the focus of Chapter 4. Moreover, a brief overview was provided of fundamental tools used in corpus-based research and of data collection issues relevant to this dissertation to provide context for the following chapter that describes the methods used in collecting and analyzing the data most central to this thesis.

Chapter 3: Methodology

As a general approach, the methodology employed to answer the research questions of this dissertation can be described as one that takes a linguistic register analysis perspective. As mentioned in section 1.4, the conceptual framework of this study has evolved throughout the project. At first, a genre perspective seemed to be the most logical point of departure to investigate procedural monologues as found in demonstrative artists' talks. After expanding scope to other how-to type demonstrations and conducting a pilot study (see Hammond, 2021), it became apparent, however, that Swales' move analysis was useful to identify genre features at the start and finish of monologues, but the main body of spoken text was not as straightforward. In other words, most speakers begin a monologue with moves of self-introduction and a clear statement of the task, but what comes next is much less predictable in terms of generic structure. The pilot study suggested that the structure of a monologue is not always linear but more recursive in nature, much like the *levels of treatment* that Swales found in architecture student critiques as described in section 2.3.4.

This shift towards a register analysis perspective came about after reading Biber and Egbert's (2018) work concerning the How-to/Instructional register identified in the C.O.R.E. project. Although their study involved written discourse and primarily focused on overall variety of texts on the world wide web, it supports the idea that procedural how-to texts can be approached as a register. To avoid confusion with any association with the C.O.R.E. project, it is important to clarify that I am not employing the same multi-dimensional (MD) methods, as my goal is not to situate procedural monologues within the same dimensions of other registers. Instead, I am examining a single register by taking a descriptive perspective that employs a mix

of two methods: extracting quantitative data using corpus-based tools and making qualitative interpretations of communication functions.

As previously mentioned in the introduction chapter, the study centers on two originally compiled corpora of spoken texts. The first is concerned with monologues by L1 speakers, while the second is made up of texts by first-year Japanese undergraduate students. Henceforth, the former is referred to as the Hands-on Procedural Instruction Corpus (HandPIC). The latter is named TePIC, which plays on the Japanese word for *hand* (手), pronounced as *te*.

The following sections cover three main areas of the HandPIC and TePIC: data collection, corpus compilation, and analytic methods. Also included in this section is the treatment of the study's reference corpus, the Hands-on/Instruction sub corpus of the C.O.R.E, which, for brevity, will be referred to here as the HI-CORE.

3.1 Data collection of the HandPIC

The HandPIC is compiled of transcribed spoken texts from 100 videos publicly posted on the YouTube platform. After preliminarily screening parts of approximately 500 videos, selection for inclusion in the corpus was based on the following criteria: a single speaker with L1 proficiency (as determined by the researcher), three to five minutes in length, primarily live-recorded (i.e., without scripted voice-overs or heavy reliance on text titles or post-production elements), and having a clearly stated step-by-step hands-on task that can be defined in a statement starting with: *How to* [*X*].

Of the 100 adults giving instructions in the videos, 77 are male and 23 are female, which generally reflects the observed gender ratio of the how-to video genre on YouTube. Although the study is not concerned with any aspects of regional dialects, for consistency, speakers with North

American accents were selected, based solely on my intuition as a L1 speaker of American English.

Audio transcription of the videos was facilitated by the auto-generated text feature embedded in the YouTube platform. All auto-generated text was reviewed for accuracy, corrected, and punctuated to represent a spoken utterance. In a few cases, utterances unrelated to the task at hand were deleted from the transcript, such as lengthy self-promotion or appeals for the listener to subscribe to the speaker's YouTube channel. In total, the 100 texts comprised 48,321 words (55,369 tokens). To some degree, transcription was naturalized in that pauses, short self-corrected instances of misspeaking, one-word false starts, and fillers such as *um* and *ah* were not included. Transcripts do not include any annotation of pauses, gesture, or non-verbal communication. In addition, utterances were marked by a full stop based on my intuitive interpretation of a speaker's pause. Samples from the transcripts are available in the appendix.

3.2 Data collection of the TePIC

The TePIC texts (7,480 words, 9,051 tokens) were specifically produced for the project by 50 Japanese undergraduates and collected via video uploaded to the YouTube platform. The initial goal was to collect 100 videos to match the number of the HandPIC. However, since some videos were either poorly recorded, too short, or covered the same task, this target became difficult to meet. In addition, once data collection began, it became clear that student videos would take longer to transcribe; the auto-generated text application in YouTube was far less accurate than it was for the L1 texts and required more time to correct errors.

Students (25 male and 25 female) were recruited from three TOEIC examination preparation classes that I teach as part of a required curriculum for first year students at a Kanazawa University. A wide range of majors was represented, including science, engineering,

law, humanities, international studies, medicine, and health care. In accordance with requirements of the university's guidelines for ethical research, all participants were given both a written and oral (In Japanese and English) explanation of the purpose of the research and gave written consent for the use of transcripts of videos. All names of participants were removed from transcripts and replaced with *XXX* in the corpus. As an added precaution, the project explanation was also posted on the online portal of each class and students were asked to check a box to indicated they fully understood that the project would have no bearing on classroom assessment and that participation was voluntary. All participants belonged to the 2021 incoming student body, which averaged a TOEIC score of 592 by the end of their first year. In terms of the CEFR (the Common European Framework of Reference for Languages), such a score can be interpreted as between the upper stage of basic user (A2) and the (B1) threshold of independent user (for correlation tables, see Educational Testing Service, 2019).

The prompt used for student data collection elicited a staged communicative event (SCE) as described by Lüpke (2009) in section 2.6.2. This was posted on the class online portal, as shown below:

> Please make your own "How-to Video". Any topic is OK, for example how to cook something, how to use software, how to throw a baseball, how to juggle, how to put air in a bicycle tire...really any topic is OK.
>
> Your video should be about 3 minutes long. Please do not worry about making mistakes. Think of this as a fun activity and make your video by just talking and showing how to do something with your hands. It is OK to make your video outside (for example if you are going to do a how-to about sports), but you can also just do a simple how-to video in your room or kitchen.

In addition to the prompt, students were also provided with internet links to three examples of publicly posted videos by L1 speakers, with tasks of how to tape a box, wash your hands, and peel an avocado.

Students submitted videos by uploading them to the YouTube platform with a private URL link. Videos were then downloaded onto an external hard disc for archival and security purposes. As was the case with the HandPIC, the auto-generated text application was used as a starting point, but in many cases a direct transcription was more efficient, due to either poorly recorded video or mispronunciations.

3.3 Types of how-to tasks: HandPIC

Regarding the content of the HandPIC videos, there are12 thematic categories of tasks, as listed in Table 7. These categories were used to avoid oversaturation of any one context and emerged after browsing approximately 500 videos during the selection process.

Table 7

Thematic categories and examples of HandPIC texts

Category (number of texts)	**Examples** (*How to…*)
Hand/Power Tools (15)	*Start a chain saw*
Sport Technique (10)	*Throw a football*
Food Preparation (10)	*Cut pineapple*
Computer Software (10)	*Copy/paste on an iPad*
Computer Hardware (5)	*Remove a hard drive*
Scientific Equipment (5)	*Prepare a petri dish*
Emergencies (5)	*Use a fire extinguisher*
Repairing Items (5)	*Mend an extension cord*
Assembling Items (5)	*Assemble a saxophone*
Hair/Skin Care (5)	*Trim a beard*
Nursing Practice (5)	*Tape an ankle*
Miscellaneous (20)	*Load a film camera*

Acknowledging that these categories do not necessarily represent the full spectrum of the how-to genre posted on YouTube, in general they cover the variety of content that emerged during the preliminary selection process and met the desired criteria.

3.4 Types of how-to tasks: TePIC

In total, the how-to tasks in the TePIC fit nine categories as seen in Table 8. As stated in the prompt, students were permitted freedom to decide on what task to demonstrate.

Table 8

Thematic categories and examples of TePIC texts

Category (number of texts)	**Examples** (*How to*…)
Food preparation (18)	*Make miso soup*
Using tools (6)	*Use a knife sharpener*
Drawing (5)	*Draw Mickey Mouse*
Beverage preparation (3)	*Drip coffee*
Using electronic products (3)	*Use a cassette recorder*
Making paper items (3)	*Make a paper box*
Sports technique (3)	*Lift a soccer ball*
Beauty tips (3)	*Apply make-up*
Miscellaneous (6)	*Fold laundry*

After all videos were collected, it was observed that there were more monologues about food preparation than any other topic. This may have been caused by the reference in the prompt to record a video in *your room or kitchen*, and by a cooking task included in the example videos. Considering that the aim of the study is to investigate procedural monologues in a general sense for a familiar task, this slightly unproportionate distribution of topics does not seem to be problematic.

3.5 Method of analysis

As stated in the introduction of this chapter, two methods contributed to the analysis: extracting quantitative data using corpus-based tools and making qualitative interpretations of communication functions. This is not to suggest that these methods were stand-alone in nature. In a mixed method tradition, the two were used in parallel and not in separate stages. It was often the case that qualitative analysis of a single utterance raised questions about quantitative characteristics of linguistic features in the entire corpus. Likewise, extracting latent quantitative data from the corpora helped to identify patterns needed to make or confirm qualitative interpretations of function. For purposes of this description, however, the two will be treated independently in the following sections.

3.5.1 Corpus-based analysis

For the analysis of the HandPIC, the HI-CORE (see section 2.2.7) was used as the reference corpus. Although all sub registers of the C.O.R.E are publicly accessible online, a limited range of analytic tools are available. By a direct request to Jesse Egbert (personal communication, August 12th, 2021), one of the principal researchers of the C.O.R.E. project, I obtained all 1,146 text files (1.4 million words) of the HI-CORE. This allowed me to use the same software to compare both sets of data.

The corpora management platform *Sketch Engine* (see Kilgarriff et al., 2014) was used for corpus-based quantitative methods. The default tag set, TreeTagger PoS tagset, was used for CQL searches. After preparing files for each video transcript, the HandPIC and TePIC, and HI-CORE were all uploaded to the cloud-based platform, resulting in the profiles shown below in Table 9.

Table 9

HandPIC, TePIC, HI-CORE Corpora profiles

Corpus	Tokens	Words	Sentences	Total files
HandPIC	55,369	48,321	3,696	100
TePIC	9,051	7,480	1,019	50
HI-CORE	1,859,351	1,574,450	93,725	1,392

As the HandPIC was compiled before the TePIC, I first worked with this corpus and extracted normalized rates of frequency (per 10,000 words) for all forms of the four key linguistic features in the HandPIC: personal pronouns, conditional adverbial clauses, modal verbs, and present tense verbs. These key features were selected as a starting point, as they were the four most common in Biber and Egbert's (2018) study involving the HI-CORE. Subsequently, frequency rates were also determined for three additional linguistic features that I noticed by observation when transcribing texts: vague language, spatial language, and *wh*-clefts. In addition, since two common features in the HI-CORE were related to verbs, I also determined frequency for all verb tenses recognizable by PoS tags.

Observed frequency data was extracted by either a specific word inquiry (e.g., *if* to determine conditional clauses) or by POS tagging as was the case for verb forms. Identical searches were used with the HI-CORE, which allowed for comparison of the two to determine which features were more frequent in each corpus. Once the data from students had been collected and transcribed, the TePIC was also uploaded to Sketch Engine and the same process was followed with results stated in normalized rates of frequency. In turn, the most common collocations of each feature were determined. This was achieved via the embedded collocation tools that permit searches based on a combination of criteria, such as the range of the KWIC

(from -5 to 5), POS tags, and parts of speech. For example, after determining that the possessive pronoun *your* occurred at a rate of 114.32 per 10,000 words in the HandPIC, compared to 97.21 in the HI-CORE, I then looked at collocations and determined that the lemma *foot* was the most frequently occurring collocate with a one-word range to the right at a rate of 3.43.

As both the HandPIC and TePIC are relatively small sized corpora, collocation lists based on normalized frequency compared to those based on statistical significance (such as MI-scores), proved more instrumental to the qualitative analysis of patterns of communicative function. To illustrate with the same example of *your foot* in the HandPIC, this collocation was ranked first in observed frequency, but 12th in terms of MI-score, behind words such as *snowshoes*, *tires*, and *beards* which, once investigated, were only relevant to a single video.

In addition to collocation tools, in some cases the CQL function was employed to search for observed patterns. To illustrate again by the example of *your foot* in the HandPIC, I wanted to explore if there was any relationship to other pronouns (i.e., *my, our*) and modal verbs with this collocation, so the following CQL formula was used:

[tag="PPZ"][lemma="foot"][]{0,2}[tag="MD"]

This string of code starts with a search for personal pronouns (PPZ) that precede all forms of the lemma *foot* (i.e., *foot, feet, footing*), within a two-word range of a modal verb (MD). Such an inquiry, for example, shows that the pattern occurred at a rate of 0.9 per 10,000 words, which represents 20% of all occurrences of the collocations of *foot*. It also shows that three different modals (*can, should, will*) proceed *foot* or *feet* and that the 2nd person pronoun was exclusively used.

3.5.2 Qualitative analysis

Qualitative analysis took place at two levels. The first was based on observation and note-keeping made during early stages of the project. Although in an unstructured manner, this began with transcription as I first became familiar with the texts of the HandPIC and TePIC and noticed certain situational features, especially those that I had previously identified in artist talks and in the pilot study. I annotated some texts with functional descriptions that could be referenced at further stages. The second level was a more systematic way of assigning a qualitative code to individual utterances that represented a specific communicative function. At this stage, as more than 3500 utterances were coded, computer software (NVIVO) was used to manage data, develop a coding scheme, and revise and aggregate codes. A set of 15 codes was used for analysis, which is described in the following chapter.

To economize time, video in the miscellaneous task category were left out of the coding analysis of the HandPIC, as sufficient coverage of tasks had been covered by the other videos. In the case of the TePIC, time permitted for all texts to be coded, as the corpus was smaller, and I had become more familiar with the coding scheme.

Chapter 4: Results

In this chapter, which is the dissertation's longest and most extensive, both qualitative and quantitative results are presented. Keeping in mind that linguistic features and communicative functions are at the core of the research questions for this study, results shown here will facilitate discussing and answering these questions in Chapter 5 and provide support for a valid conclusion in Chapter 6.

The chapter starts with focus on results from qualitative coding at the utterance level of both the HandPIC and TePIC. In the early sections, codes are described, and examples are given to illustrate the communicative function that they represent. Additionally, salient differences in the corpora are compared with support from quantitative data of overall frequency of codes and the percentage of speakers who employed them at least once in their monologue.

In the latter half of the chapter, focus shifts to corpus-based register analysis. These sections are primarily organized by first describing salient linguistic features in the HandPIC by using the HI-CORE as a reference. Subsequently, these same features are used to compare the HandPIC to the TePIC to determine the key differences between the two.

4.1 Qualitative coding of the HandPIC

By coding the observed communicative functions found in the HandPIC texts at the utterance level, 15 categories emerged as listed in Table 10.

Table 10

Qualitative codes in HandPIC analysis

Procedural Activity	Reasons
How-to Statement	Advice/Warning
Ending	Confirmation
Opening	Options

Item description	Situational Description
Results	Metalanguage
Step Marking	Anecdote
Clarification	

In the following sections, a description of each code is given (in descending order of most frequently coded) and example texts are provided to illustrate communicative function. In addition, quantitative descriptions are provided for two aspects of the data. The first is the total overall frequency of the code in the entire corpus. The second is the percentage of speakers whose monologue contained at least one coded reference.

4.1.1 Procedural Activity

By far the most frequent of all codes is procedural activity, which was assigned to any utterances describing or directing an action being demonstrated as an essential step towards completing the how-to task. In the HandPIC, this code represents 37% (n=1009) of all utterances. In addition, it is the only function found in 100% of the monologues.

In many instances, procedural activities were communicated by short utterances, (e.g., *Flip it over*) and spoken at the same time the action was being performed. In other cases, utterances came just before an activity, for example*, So we'll start by removing the dust cap.* These were coded as procedural activity if the speaker immediately performed the activity. If the speaker only referenced a new stage of the monologue, but did not then immediately perform the described action, the utterance was given a different code. For example, *The next step is to seal your petri dish shut* was assigned an alternative code (Step Marking) because the speaker followed with a description of items needed to make a seal, and did not actually seal the dish shut until several utterances later.

4.1.2 Advice/Warning

Second only to procedural activity, utterances coded as *advice/warning* represent 12% of the corpus (n= 312) and were found in 88% of monologues. The code was assigned if a suggestion was made to make a part of the task easier or focused on avoiding a potential problematic situation. The category encompassed three general types. The most often found were warnings or emphasis on paying attention to avoid a negative outcome, such as *If you do short chops, you might end up taking the risk of cutting too much off.* A second type was advice that suggested a more efficient approach, such as *And the easiest way to do it is to use the sum formula*. A third type concerned a personal preference of the speaker that could be interpreted as a recommendation or endorsement of a particular technique, tool, or materials, as in the example: *And what I like to do is, I like to use my other hand*.

4.1.3 Item description

An additional frequent code, *item description* accounts for 8% of the HandPIC (n=228) and is distributed over 76% of the videos. In general, the code was assigned to text that focused on the physical items to be used in the task but did not imply any type of procedural activity. For example, an utterance such as *You all have a graduated cylinder in your drawer* was coded as Item Description, while *We'll collect it into the graduated cylinder* was coded as procedural activity. Speakers in the HandPIC referenced items in several ways. In some cases, items were simply acknowledged or introduced, such as *These are the scissors*. In other cases, items, or part of items, were described with locational reference, as in *There's a switch in the back that turns it on.* In addition, some items were introduced with descriptive details, such as *We have this plastic piece which allows us to adjust the length of the strap.* Moreover, speakers acknowledged some variance may exist between different item types or models, such as: *On this model right here, this is called the canister valve assembly, and on the side of this thing you'll notice there is a*

water level line. Lastly, item reference also includes alternative lexical items that may not be familiar to listeners, as in *This particular corkscrew is called a double pull*.

4.1.4 Reasons

The *reason* code was given to discourse that centered on justification for a technique or offered further explanation of procedural activity. This code was assigned to 6% of the HandPIC (n=167) and present in 84% of its monologues. In many cases, reasons occurred in proximity to an activity to provide further details of why the speaker was doing something in a particular way, such as this example from a video about how to cut glass: *This is a thick piece of glass, so I'm gonna push good and hard*. In other cases, the speaker focused more on the principles or process, as when making drip coffee: *This is called blooming. And what it does is let some of the gases release*. This information is not needed to complete the task of making coffee. It does, however, allow the listener an opportunity to better understand why the step is important. There are also some occurrences of explaining that a certain technique is done to avoid potential negative outcomes, for instance, in a video on how-to remove a cast: *The reason why we do that is if a patient starts to swell we can take off the ace bandages.* Moreover, speakers also provided a reason of a certain method being easier, as in: *This makes it a lot easier to put into the vertical position*.

4.1.5 Results

Occurring at 6% (n=157) and in 63% of the HandPIC texts, the code of *results* was designated for utterances that described what occurred as an immediate effect of a procedural activity. For example, in a video about setting up an email group, the procedural activity of *click on new* was followed by: *When you do that, you will get a pop up menu appearing*. Such utterances direct the listener to notice that some change has occurred as a result of the procedure. This may just be

clearly stated as *And look what happened* or *So it should end like this*. In other cases, it is a simple description of items or materials used in the task, such as *They'll come right out,* when talking about fishbones; or *And boom! The flame has been created* in a video about using a Bunsen burner. Some short utterances were also coded as results, like *Perfect*, *Pretty flat*, or *Looks pretty good*, since they imply that the procedural activity was performed properly.

4.1.6 Options

Another commonly occurring code at 5% (n=145), distributed over 69% of texts, is *options*, which concerns some aspect of the task that the listener may choose to perform slightly different than the speaker. An example from a video on setting up tents described an option for hammering tent-steaks into the ground with a mallet with *You can also use your foot.* Many options addressed choices of tools or materials, for example, a power drill or screwdriver, asking Google-assistant or going to device settings, or using a patch or superglue to fix a puncture. Options also included situations that the speaker was clearly pointing out that the listener had a choice, for example, when explaining how to gift wrap a box, an option was given as: *Now if you wanted to add a little treat or something fun in there… You could place a piece of candy a pencil a little flower or something like that.* The option code was also assigned when speakers highlighted potential variation in the characteristics of items and materials used in the task. For example, in a monologue on how to lift weights with a barbell, the speaker pointed out: *Now with the bar, you have different choices. There's an easy curl bar, which is the zig zag bar, or you can use the straight bar.* In addition, some options acknowledged that the demonstration was only showing one possible situation and that the listener may encounter different ones, as illustrated by a nurse who uttered: *It's really easy when your patient has four sutures. A little bit of a different story when they have 20 or such.*

4.1.7 Clarification

The HandPIC's clarification code was assigned to 5% (n=126) of the entire corpus and found in 66% of coded videos. This code was made when speakers added a clarifying statement to an utterance, as in this example from assembling SCUBA diving gear: *Tighten the yoke screw. Just hand tight*. The first utterance is clearly a procedural activity, but the second offers clarification of the degree of tightness. In some cases, clarification was made for lexical items such as for the Greek letter Sigma (… *it's the universal symbol in math for summation*), hard keys (*when I mean hard keys it's the power as well as the volume down*), or the padding on a bandage (*the stockinet I should say*). Moreover, some clarification offered a more specific range or measurement, such as *About 8 or 9 inches*, *Five of them in total*, or *One, two, three shots totaling six ounces*

4.1.8 Situational description

Representing 5% of the corpus (n=125) and employed by 53% of the HandPIC speakers, the *situational description* code refers to utterances that provide information about what is typical of the nature of the task itself or the environment associated with it. For instance, when showing how to pull weeds, the speaker describes that *it's one little weed that has spread over a large area*. In this example, the utterance is not meant to clarify, explain, or give any reason; it simply describes what one would expect to find when engaged in weeding. The code was also assigned when the speaker described the task in general terms. This was done in several ways such as comparing the task to similar situations (e.g., *Now this process is going to be similar for any USB 3 card that you add*), describing time requirements (e.g., *This whole process should take between three and a half to four minutes*), and acknowledging that a certain state or condition has been achieved (e.g., *So at this point we've turned it on and there's pressure in the tank*).

4.1.9 Confirmation

After a procedural activity, speakers in the HandPIC often produced utterances, coded as *confirmation*, that declared the activity was properly executed. Such a code was given to 4% of the total utterances (n=119) as found in 52% of texts. In many cases these were short utterances that declared the activity was completed, such as: *Like this*; *Like that*; *Like so*; *That's it*; *Ready to go*; or *There we go*. Speakers also confirmed more specific aspects of activities, especially concerning spatial reference, such as: *They just pop in there*; *That's all the way up*; and *See how it's all sealed top and bottom*. Moreover, some confirmation utterances centered around adjectives as in these examples: *Pretty simple*; *They look great*; and *Looks good*.

4.1.10 Step marker

Especially in monologues that covered multiple phases of a task, speakers sometimes produced *step markers* to signal a new segment of the rhetorical structure. Such markers were not as frequent as other codes and account for 4% of the entire corpus (n=95), yet they appear in 55% of the monologues. As mentioned in the description of procedural activity, a distinction between procedures and step marker was made based on proximity of the action. For example, step marking in a video explaining the use of a soldering tool to connect two wires, the speaker uttered: *Now we're ready to apply solder*. However, she did not immediately commence to actually use the tool, but instead, followed with a series of explanations about the process of soldering.

An additional observation was that in some step marking, a general declaration was made, such as *So let's jump right into it* or *So I'm going to demonstrate that right now*. In other cases, the specific step was identified, as in *So here's another technique that's called the S*, when describing how a window washing technique using a squeegee.

4.1.11 How-to Statement

Just about all speakers in the HandPIC (95%) produced a *how-to statement* that defined the task being demonstrated in the video. However, unlike other communicative functions, these statements only occur once per video and are found very early in the monologue, usually as one of the first utterances. Thus, the how-to statement only accounts for 3% (n=83). Often, the statement included *Today* and the verb *show* as in: *Today I'm gonna be showing you guys how to reconnect a cut extension cord*. Additionally, reference to the video format was frequently part of the how-to statement, such as: *And in today's video we're going to go over how to apply a tourniquet.* Although two texts were missing how-to statements, more than likely the title of the video served as a substitute for a spoken utterance. There were also cases when the how-to statement included a rationale or need for the monologue, as seen in the example: *I find a lot of people don't know how to use one of these so I decided to make a short video*. Moreover, sometimes there were how-to statements comprised of two sentences, as in: *I'm going to teach you some basic coffee-making skills. I'm going to show you how to make pour over coffee using this Chemex brewer.* Finally, some how-to statements often suggest an informal exchange with the use of *guys* or *everybody* to address the speaker's perceived audience.

4.1.12 Opening

As the name suggests, utterances coded as *opening* came at the start of the text, usually just before the how-to statement and were employed by 60% of HandPIC speakers. Like the how-to statement, openings were not recursively found throughout the discourse, but only present in the first few utterances. Therefore, only 2% (n=62) of codes were assigned to this function. In most cases, openings included the name of the speaker and any affiliation with an organization, such as in the example: *Hi, I'm Patti Page, cookie cutter designer and owner of Baked Ideas in New York City.* Some openings also encompassed utterances that set up the how-to statement by

introducing the general context of the task, such as: *Snowshoeing is a ton of fun, but it's even more fun when your snowshoes stay on your feet.* It is only after the opening that the speaker delivers the specific purpose of the monologue embedded in the how-to statement.

4.1.13 Ending

Like openings, utterances coded as *ending* were not a recursive characteristic. They came in the last few sentences of a monologue on 64 occasions, representing only 2% of the corpus, although they appeared in 73% of the HandPIC texts. Functionally, endings were employed to formally bring the monologue to a close by saying goodbye or thanking the viewer for watching. In many cases, the ending restated the task declared in the how-to statement, which constructed a conclusion like utterance, such as: *And there you have it, good to go, an Ethernet cable nicely crimped;* or *And now you've got your clean shrimp you're ready to go ahead and cook a great recipe.* There were also some endings that reference the video format, for example, *I hope you enjoyed the video tutorial*; or *See you on the next video.*

4.1.14 Metalanguage

Metalanguage, along with the following code (anecdote) was one of the rarely occurring functions coded in the HandPIC, which combine for less than 1% of the corpus. About 12% speakers in the HandPIC produced a total of 14 utterances that could be considered metalanguage (as defined by Ädel, 2010) that functioned to confirm the status of listeners' comprehension or to check that communicative channels were not hindered by the technical limitations of the video recording. For example, this utterance was found in a monologue about using a microscope, as some items were too small to see: *And this is gonna be hard to see in the video, so kind of listen to how I'm describing this.* These types of utterances focus on the way

information is being conveyed and have no direct relationship to the procedural activity being demonstrated.

4.1.15 Anecdote

There were six utterances that were coded as *anecdote* in the HandPIC videos. These occurred when speakers added short comments, which had no direct bearing on the procedures being demonstrated, but instead offered some memory or personal connection to the task. These included such topics as attributing working in chocolate shop in high school to the speaker's love of gift wrapping, having relatives coming over to visit and needing to sleep on the air-mattress featured in the video, and a recount of how the speaker and his wife were frightened by the loud sound made by a floor sander when first used.

4.2 Qualitative coding of the TePIC

After coding the HandPIC corpus to better understand the situational characteristics of hands-on demonstrative contexts, the same codes were applied to the TePIC. All the underlying communicative functions, to some degree, were identified in the corpus. However, three codes have been omitted from the analysis: options, situational descriptions, and metalanguage. The paucity of occurrence of these codes hindered meaningful interpretation.

4.2.1 Procedural activity

Predictably, directing procedural activity was found in all texts of the TePIC and was the most frequently occuring function, accounting for 42% (n=350) of the 809 assigned codes. Although slightly higher than the 37% in the HandPIC, this is not to imply that students gave more instructions for activities than L1 speakers, only that they did so at a higher proportion of total coded utterances. Given that the TePIC is a much smaller corpus and comprised of shorter texts than the HandPIC, this is also a predictable result.

It appears that students often approach procedural activities much like a list of written directions. That is, they tend to use more imperative forms and less alternative grammatical patterns than the study's L1 speakers. In some cases, students favored an ellipse of imperatives by only uttering nouns, such as *milk*, for example, to communicate the procedural activity of *Add the milk*. In contrast to speakers in the HandPIC, students generally did not signal when they were just about to perform a procedural activity with additional linguistic resources such as the modal *will*, or semi-modal *going to*. Moreover, they did not use any *wh*-clefts or the present continuous verb tense when describing an activity that was being simultaneously performed.

4.2.2 Item description

The second most occurring function in the TePIC is item description, which was identified in 9% (n=74) of the coded utterances. Much like the HandPIC, this function is typical of TePIC texts as 64% of students had at least one instance of an utterance that focused on the physical items used in the demonstration. Most often students simply listed items (e.g., *First, have to prepare a kitchen knife and grindstone and bowl*) or only identified a single item such as: *This is ginger*. In some cases, adjectives or clauses were included to describe characteristics of the item, such as: *Today's coffee is fire roast.*; or *This is a three-speed control fan.* Descriptions also included how much an item may cost (e.g., *We can, we can buy it in Morinosato Aeon, about 500 yen*) or estimates of quantity (e.g., *Egg and this is about 100 gram*). Notably missing were the functions employed by L1 speakers: locational reference of where an item may be situated, variation of item type, and definitions for specialized lexical items.

4.2.3 Step markers

The code of step marker was given to 6% of utterances (n=52), but only found in 50% of the monologues in the TePIC. In many cases, students marked steps in a very direct manner with a

sequential adjective (*first, second, third*, *next, final,* etc.) and nouns such as *step*, *point*, or *part*, as in these examples: *This is final part; The next step is to make ears*; and *Ok, second point*. In addition, students often marked steps of preparing, as in *Okay, first we should prepare the necessary calligraphy tools*, as well as using general markers to commence the actual procedure activity after the opening and how-to statement. These include utterances such as *Let's start*, *Let's check it out*, or *Let's try.*

4.2.4 How-to Statement

How-to statements were identified in 100% (n=50) of the monologues in the TePIC and accounted for 6% of the entire corpus. The statements were always the first or second utterance in the video. As was the case in the HandPIC, students included the temporal reference of *Today* and demonstrative verbs like *show*, *explain*, *introduce*, or *teach*. However, in contrast to L1 speakers, none of the TePIC how-to statements included any rationale for why the specific task was selected for demonstration, nor did any encompass more than one utterance.

4.2.5 Ending

Concerning the ending of a monologue, all but three students (94% in total) produced some type of formal ending, accounting for 6% (n=47) of all coded utterances. Endings were similar to the HandPIC in that they usually thanked the viewer and stated the task was completed with utterances like *That's all* or *Finished!* There were some instances of rephrasing the how-to statement, as was also seen in the L1 texts, as in the example: *This is a shaped baseball glove; Thanks for watching.* In contrast, however, students often placed emphasis on a final recommendation or plea to actually try the task, with language such as *So please try to make it*, or *I recommend you to use iron pan for these many advantages*.

4.2.6 Results

Reporting results made up 5% (n=42) of codes in the TePIC, which were distributed in 50% of student monologues. In some cases, this function was facilitated with the use of a phrase starting with the preposition *by*, such as: *By doing so swelling of your face will go down* or *By doing this you can put this part smoothly.* In other cases, a temporal reference was included, for example, *After 10 minutes later the cooking is finished*, or *After that the soba will be like this*. Students also tend to express results by using short descriptions of the characteristics or properties of an item after a procedural activity, as in *Smells good,* when dripping coffee or *Disaster!* when spilling hot water.

4.2.7 Confirmation

Utterances coded as *confirmation* also accounted for 5% of utterances (n=41) produced by students but was less typical than other functions and only found in 36% of TePIC monologues. Almost exclusively, students used the phrase *Like this* when they wanted to confirm that a procedural activity was understood or completed, such as *First, spoonful of cocoa in glass. Like this*. Unlike the L1 speaker texts, there were no utterances that confirmed spatial locations or specific parts of an object. Although a few students produced a descriptive account of what was specifically being confirmed, as in *The rice is okay*, most confirmation was limited to short utterances such as *Like this*, *Ta-da*, *Great*, or *This is okay*.

4.2.8 Reasons

Also representing 5% (n=39) of the TePIC, the *reason* function was distributed over 42% of the monologues. Functionally, students employed such utterances much in the same way as speakers in the HandPIC. However, students tended to be more direct, using phrases like *The reason is* or *This is because*. In some instances, students focused on avoiding negative outcomes such as getting bad skin, health problems with too much smart phone use, and hurting your back by

lifting incorrectly. There is also some explaining of potential benefits of the recommended technique, as in using an iron frying pan will give you an intake of iron, using a digital paint tool will make drawing comfortable, or stuffing wool tightly makes it stronger. Moreover, the difficulty level of a procedural activity was also given as an explanation that a technique is *easy*, *simple, or difficult*.

4.2.9 Opening

Openings were very common in the TePIC as 68% of students included them in their monologue. Concerning the way students constructed the 4% of (n=38) utterances coded as opening, there was a stark difference to the HandPIC. Understandably, students did not have a need to establish any type of authority or identity, so there were no affiliations with a profession or organization. However, in the entire TePIC corpus, there were no attempts to contextualize the task, nor was there any sort of preamble to foster interest or relevancy to the listener. Students simply began with *Hello* or *Hi* and in some cases stated their name, but then soon delivered the how-to statement. In a few cases, students provided some personal reasons why they selected the task, such as *I bought a new electric fan last week*; *I love to drink it every morning*; or *It was my Friday dinner*.

4.2.10 Clarification

Less than half (46%) of students in the TePIC produced the 4% (n=33) of the corpus coded as clarification. These most often focused on measurement such as millimeters or minutes. Although there was some clarification of specialized terms as was the case in the HandPIC, students also clarified the limits of their own lexicon by statements such as *I don't know katakuriko* (片栗粉) *in English* when code-switching to Japanese. Moreover, clarification by the

students often focused on hand or body positions, such as *Lower back here…This lower back;* or *Please don't use other fingers…like index fingers*.

4.2.11 Advice / warning

Unlike the HandPIC, where it is the second most frequent code, giving advice or warnings is far less emphasized in the TePIC as it represents only 3% (n=26) of the total utterances, and is only found in 28% of student monologues. There were some warnings about negative outcomes, especially those concerning safety (e.g., *And because if we don't, it be broke a shoulder or elbow)*, but compared to L1 speakers, there is considerably less advice, recommendation, or personal perspective in way of a better approach to aspects of the task.

4.3 Salient differences between the HandPIC and TePIC

Stepping back from the micro-level of each code, the following section takes a more macro-level view of the collective codes in both corpora. It is important to clarify, however, that such a view does not reflect any characteristics of the actual linguistic resources the speakers used to produce the coded language. For example, utterances coded as an opening could be as short as *Hello* or as long as:

> *It's your boy, Coach Anthony, here with a speed bag video for you guys. Man, a lot of people been requesting it. I'm typically teaching techniques and different fundamentals and stuff like that. But you know this is a tool in the gym and a tool that a lot of people want to learn.*

The question of what linguistical features are most frequently found in each code will be addressed in the register analysis presented in section 4.4.

A broad perspective is applied in the following two sections and takes two directions. The first is to look at the overall frequency of codes and consider how the collective texts of HandPIC are different from those of the TePIC in terms of the percentage of utterances used for each code. This may help to shed light on the recursive communicative dynamics that make up each

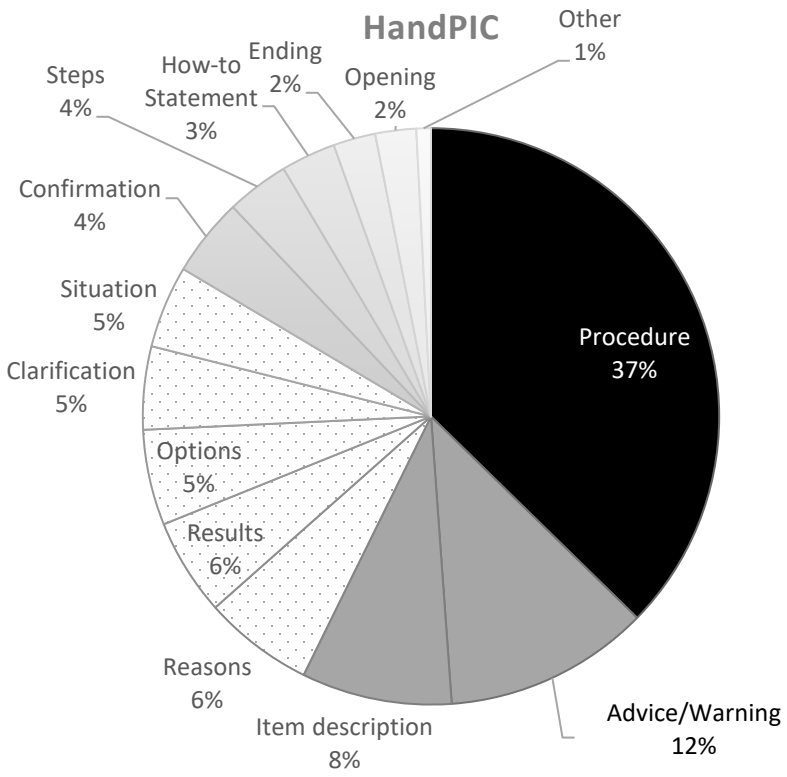
respective corpus. The second is to step back and look at the way codes are distributed across the corpus to determine how many speakers employed the coded function at least once in their monologue. This may provide insight as to what is typical in terms of generic structure in monologues produced by L1 speakers and those of students. Accordingly, in section 4.3.1, the total overall frequency is described to highlight differences in what typically accounts for the content of a monologue, or what Biber and Conrad (2009) would describe as communicative functions in a situational analysis. In section 4.3.2, codes that may occur just once in a monologue are discussed to show difference in how speakers use orthodox genre moves in the Swalian tradition of ESP genre analysis as described in the literature review in section 2.3.3.

4.3.1. Total frequency of codes

Starting with the HandPIC, as shown in the Figure 2, predictably, the largest number of utterances focused on procedural activity, which accounts for 37% of all codes. Putting this large procedural chunk of the discourse aside, the remaining functions can be placed into three groups. The first is the comparatively high group of advice/warnings (12%) and item descriptions (8%). The second is a mid-level group (5 to 6% each) that includes: reasons, results, options, clarification, and situational descriptions. The third is a lower group of codes (less than 5%) and comprises: confirmation, steps, how-to statements, endings, openings, and others (metalanguage and anecdotes).

Figure 2

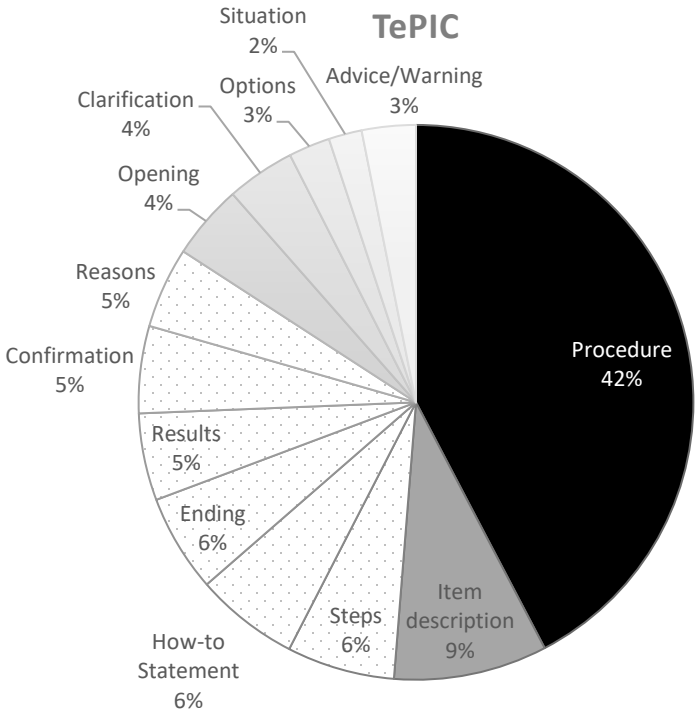
Overall frequency of codes in the HandPIC



Turning to the TePIC, as shown in Figure 3, procedures predictably account for the largest percent of total occurrence of codes, even higher than the HandPIC, with 43% of all utterances. Looking at the functions other than procedural activity, item description at 9% is the second most occurring code in the TePIC. A mid-level grouping can be made with the six codes at the 5% to 6% level (step marking, how-to statements, endings, results, confirmation, and reasons). A third, lower-level group of less than 5% comprises openings, clarification, options, situations, and advice/warnings.

Figure 3

Overall frequency of codes in the TePIC



Comparing results, several difference can be observed. In general, L1 monologues are made up mostly of procedures, advice/warnings, and item description. These three functions account for a total of 57% of all codes. On the other hand, the monologues by students are primarily concerned with procedural or item description, which account for 51% of functions.

As we can assume that procedural activity is the most essential function, it may be more useful to put that code aside and compare what is typically high, medium, or low in terms of what percent of codes were found in each set of data, as show in Table 11.

Table 11

Three ranges of frequency of codes (excluding procedural activity)

	Typical HandPIC Speaker	Typical TePIC Speaker
High frequency	Advice/Warning Item description	Item description
Mid-range frequency	Reasons Results Options Clarification Situations	Step marking How-to Statement Ending Results Confirmation
Low-range frequency	Confirmations Step marking How-to Statement Ending Opening	Opening Clarification Options Situations Advice/Warning

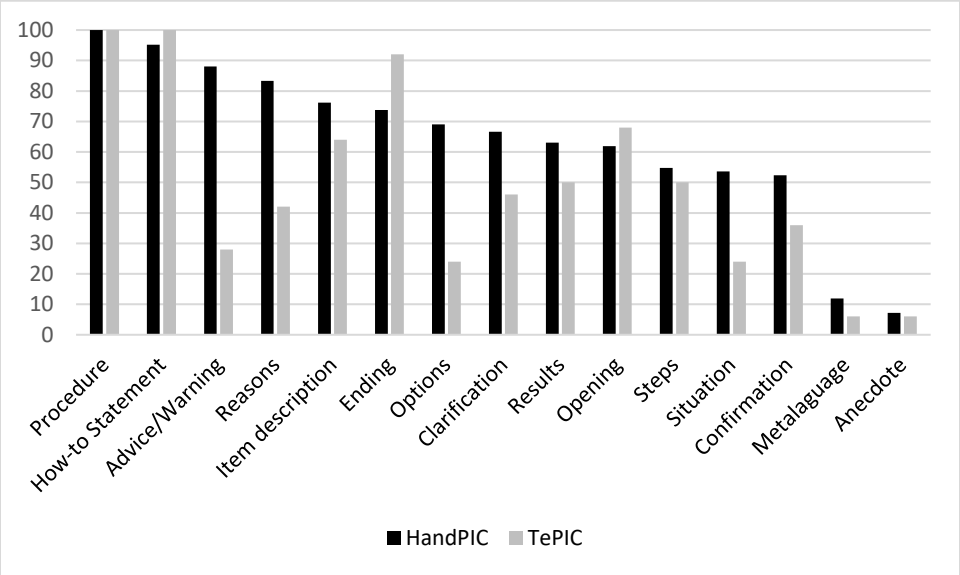
An obvious difference is that L1 speakers produce a significantly larger number of utterances that give advice or warnings. Surprisingly, this communicative function is one of the least occurring codes in student texts. A second difference is that many of the mid-level group codes in the HandPIC are in the lower group in the TePIC, including clarification, options, and situational descriptions. This suggests that the students assume that they are being understood and that the listener may not be interested in any alternative procedures. The third difference is that students spend a large proportion (18% in total) of their utterances on the top three functions in the middle group: how-to statements, endings, and step markers. All these functions may be considered as genre moves or rhetorical structure devices. If openings (4%) are also added to these three, then 24% of the monologue is used to structure what students feel fits the how-to video genre. As many of these codes occur just once in the monologue, they appear to be functioning as a genre move, which is further discussed in the following section.

4.3.2 Distribution of codes

Since a single occurrence in a text may constitute a genre move or step, an overall look at how codes were distributed within each monologue may illuminate the rhetorical structure employed by speakers. Figure 4 shows the percentage of texts in the corpus that have at least one occurrence of each code.

Figure 4

Distribution of codes (at least one utterance)



This look at the data shows that procedural activity and how-to statements are always part of a monologue. As pointed out in section 4.1.11, five of the videos in the HandPIC lacked a clear how-to statement perhaps due to title of the video substituting for a spoken utterance. This is not particularly surprising given that the corpus selection criteria (see sections 3.1 and 3.2) specifies videos that have one procedural task.

Looking at the other codes, however, a few differences are evident. As far as what is typical in a monologue, even if it occurs only once, students almost always have an ending (92%), while this is less typical (72%) for L1 speakers in the HandPIC. Openings are found at

about the same rate of 68% in the TePIC and 62% in the HandPIC. Item descriptions, in both corpora are also fairly typicial, although slightly more expected by L1 speakers (74%) than by students (64%). Salient differences become more apparent when considering the remaining codes. There are eight functions that a majority of speakers in the HandPIC include in their monologues: advice/warnings, reasons, item descriptions, options, clarification, results, steps, and situations. In fact, there are only two codes that rarely occur in the HandPIC: metalanguage and anecdotes. In stark contrast, there are only five codes that more than 50% of students included in their monologue, as shown in Table 12 (using the same data as Figure 4) .

Table 12

Codes occuring in more than 50% of monologues

Code	**HandPIC**	**TePIC**
Procedure	✓	✓
How-to Statement	✓	✓
Ending	✓	✓
Opening	✓	✓
Item description	✓	✓
Results	✓	
Steps	✓	
Clarification	✓	
Reasons	✓	
Advice/Warning	✓	
Confirmation	✓	
Options	✓	
Situation	✓	
Metalanguage		
Anecdote		

As will be addressed in the discussion chapter, such results suggest that the typical student is producing discourse that is far less communicatively dynamic than that of L1 speakers.

To conclude this section, it is worth returning to the clarification made at its start; qualitative coding of utterances was based only on interpretations of communicative function. These results are insightful to the situational characteristics needed to understand a register, but this approach does not yield a register analysis as it lacks quantitative data of pervasive linguistic features to support the interpretations made here. In the next section, the data will be approached quantitatively by using corpus-based tools to identify frequently occurring lexico-grammatical features in the HandPIC (as compared to the HI-CORE) and then to determine how pervasively those features are found in the TePIC.

4.4 Register Analysis of HandPIC

The following section builds on the findings from the qualitative coding of communicative function by incorporating quantitative results of frequency of key linguistic features to take a register perspective to interpret the relationship of function and linguistic form. The numerous sub-sections describe specific features with comparison to the HI-CORE as a reference corpus. These include pronouns, modals, vague language, conditional adverbial phrases, verb forms, spatial reference language, and *wh*-clefts. Throughout these sections, all numerical data concerning normalized frequency is expressed at a rate of occurrence per 10,000 words. Since there are many references to this numerical data in the analysis, for readability purposes, the specific labeling of this rate has been omitted. Thus, the reader should assume that unless otherwise noted, all frequency is expressed at the per 10,000 words rate.

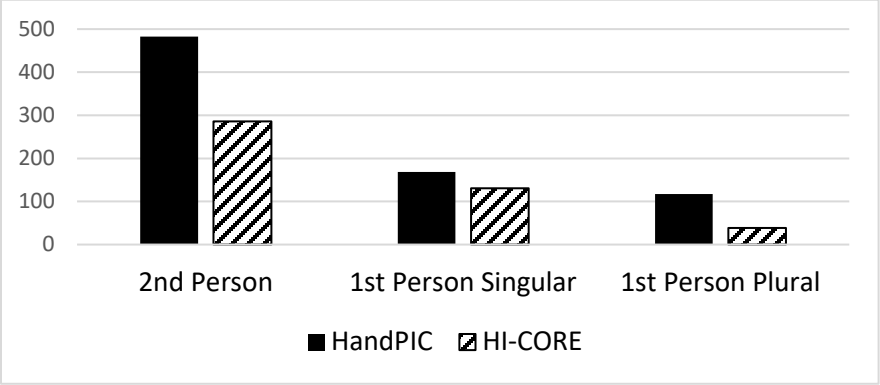
4.4.1 Pronouns in the HandPIC

Compared to the HI-CORE, personal pronouns are used more frequently in the HandPIC. Although 1st person singular pronouns show only a slight difference, the use of 2nd person pronouns is significantly more frequent in the HandPIC (482.93) than in the HI-CORE (286.16).

Moreover, Figure 5 shows that 1st person plural pronouns occur more than three times as frequently in the HandPIC (117.38) than in the HI-CORE (38.67).

Figure 5

HandPIC: Frequency of personal pronouns by grammatical person (per 10,000 words)



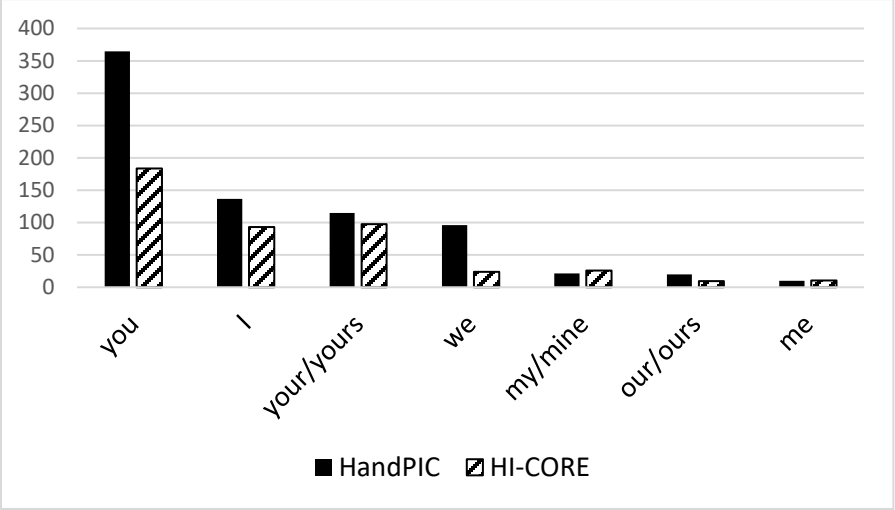
There is practically no occurrence (0.9) of 3rd person singular pronouns in the HandPIC, which, as Rounds (1987) points out (see section 2.4.1), may be attributed to the distinct participant roles of the speaker and addressee. Because most procedural monologues involve two participants, the speaker and the assumed listener, it is not surprising that the 3rd person hardly ever occurs. The few cases of HandPIC monologues that contained *he* or *she* included situations that required a person other than the speaker to demonstrate the task (an eyebrow care client and a mock choking victim) or ones that personified objects (a cookie shaped like a dog named Julia, hence *she*, and a reference to a *he* for an illustration of a stickman figure).

These differences in frequency of personal pronouns may be interpreted in several ways. Like the observations reported in the preliminary study to this dissertation (Hammond, 2021), it appears that pronoun usage in the HandPIC does not always follow the logical personal perspective of the speaker. It is common practice for speakers in the YouTube how-to videos to use both the first and second person in a way consistent with the results that Kuo (1998) and Rounds (1987) found in scientific and mathematics discourse (see section 2.4.1). It was not

always clear, however, if the shift between personal stance served a distinct communicative purpose. As a hypothetical example, an imperative form typical to the HandPIC, such as *Cut the string in half*, could also be expressed as any of the following: *You cut the string in half*; *I cut the string in half;* or *We cut the string in half.* Functionally, all these utterances serve the same purpose of highlighting procedural activity. To fully explore the HandPIC at a more specific level, Figure 6 shows a breakdown of 1st and 2nd person forms.

Figure 6

HandPIC: Frequency of Pronouns (per 10,000 words)



In the HandPIC, the nominal forms (*you, I, we*) and the 2nd person possessive (*your*) are all more frequent when compared to the HI-CORE. The biggest differences occur with *you* and *we*, while 1st person possessives (*my/mine*) and reflective forms (*me*) are generally about the same. Considering general patterns of collocation with pronoun forms, the following sub-sections describe specific linguistic features that were observed in the HandPIC texts.

4.4.1.1 PRONOUN + going to

Several salient patterns were observed in the HandPIC concerning the use of pronouns collocated with *going to* as in these examples:

So next you're going to grab the screwdriver. And then you're going to scrape the top to get a good outline of the board

I'm just going to swivel that top piece so that I can take the saddle off.

We're going to have the total and we're going to enter in a formula.

This construction occurs at a high frequency of 33.77 in the HandPIC, compared to only 1.85 in the HI-CORE. Like the occurrence of *we* and *us* found in procedural accounts in Kuo's (1998) investigation of scientific discourse, the PRONOUN + *going to* construction appears to function as a device to bring attention to a soon-to-follow procedural activity that the speaker is about to perform. Such utterances come just before the activity is demonstrated and are often used with adverbs like *just, now*, or *next*. In some cases, verbalizing the procedure may not be necessary as the action can clearly be seen by the listener, thus the pattern may also function in a somewhat think-aloud protocol to overview all steps of the procedures.

Verbs that follow the PRONOUN + *going to* pattern often involve some type of physical manipulation by using the hands or body, such as: *put, pull, click, grab, hold, push, turn, wrap, tap, roll, screw,* and *move*. Collectively, these occur at a rate of 14.08, as seen in these examples:

So you just keep wrapping it around and you're going to hold the tip in your hand.

So here I'm going to pull this dandelion here.

So we're going to put that foot up into a neutral position.

An additional pattern concerns communicative verbs collocated with PRONOUN + going to. At a rate of 6.50 in the HandPIC, the construction is followed by a group of four verbs (*show, teach, demonstrate, make*), as seen in utterances such as these:

Today, I'm going to show you how to use a curling iron.

And today we're going to teach you how to pair a Bluetooth speaker with an iPad.

As seen here, *today* plus the construction is used when presenting a how-to statement. Of the 100 videos in the HandPIC, 32 speakers produce such utterances. Both the pronoun *I* (60%) and *we* (40%) are used, but there is no occurrence of the 2nd person *you* as the subject of these four verbs. This is in line with Kuo's (1998) description of first-person plural pronouns in single authored scientific research articles (see section 2.4.1). Of course, since a how-to video cannot be expected to start with *Today you are going to show X*, this finding is not surprising. However, an additional pattern with the construction is illustrated below:

But I'm going to show you a much quicker way of doing it.
And I'm going to show you two methods on how to get the cover back on.

In these utterances, the construction supports step marking or as presenting options, as the speaker is offering more than one method to accomplish the task or advance to the next step.

Moreover, The PRONOUN + *going to* pattern is also frequently (7.76) followed by the verb *do*, which is usually embedded in a *wh*-cleft construction such as *The first thing you're going to do is pour just enough water to wet all the grounds*. This use of *Wh*-clefts will be discussed further in section 4.4.7.

4.4.1.2 PRONOUN + want

In monologues by L1 speakers, nominative pronouns (*I, we, you*) occur frequently in collocation with *want*. In the HandPIC, such collocation takes place at a high rate of 59.60, while only 11.71 in the HI-CORE. This pattern is used in several communicative functions. One is to give advice or offer clarification about a particular aspect of the procedure. This can be expressed with a negation (*don't want*) or followed by *to be sure* or *to be careful*, as shown below:

Don't loosen it too much. We don't want it to fall out.
And we want to make sure the velcro is in good condition.

And when putting it on you want to be careful to make sure it's centered.

Additionally, PRONOUN + *want* is used much like the modal *should* when communicating procedural activity. To some extent, parallels may be drawn to what Tang and John (1999) call the "I as the recounter of the research process" (see section 2.4.1). In these situations, the speaker may reference physical locations, as seen in these examples:

You want to pour it pretty slowly starting in the center.

And we want this about halfway up.

Then I want to tuck this part diagonally up and over.

A third function of the construction is found when it is used in a conditional phrase (to be discussed further in section 4.4.1.4), to offer optional or additional methods.

Obviously the card, a driver CD, which you probably don't need to use, but you can use it. If you want windows will use a driver

And if we want to make it longer, we hold onto this plastic piece and we pull the strap this way.

All right, so if I want to completely replace this saddle, I'm just going to swivel that top piece so that I can take the saddle off.

In most cases, such conditionals address the possibility of options embedded in the antecedent, but the options themselves are not actually demonstrated. For example, as illustrated in the first utterance above, the speaker did not actually insert the driver CD or give any installation instructions; it was only mentioned as an alternative.

4.4.1.3 PRONOUN + have + NOUN

An additional communicative function associated with pronouns in the HandPIC is how it is used in utterances to introduce objects used in the demonstration of a task. This takes the form of PRONOUN + have + NOUN, as in these examples:

We have the strap and then we have this plastic piece.

As you can see right here I have a pair of wire strippers.

Once you have your replacement bulb, we're gonna pop our hood and identify where our headlight housing is.

By a CQL search of nouns within a 3-word range to the right of PRONOUN + have, this pattern was found at a rate of 15.71 in the HandPIC, but was extremely rare in the HI-CORE at 0.02. Often at the start, speakers used this construction to clarify and describe physical objects needed to complete the how-to task. The first-person plural (*we*), which was found in 38% of such occurrences, may be considered an "authorial we" as described in Round's (1987) semantic mappings, since the speaker could have logically used *I* to convey the same meaning.

4.4.1.4 Let + PRONOUN

The construction let + PRONOUN was frequently found in the HandPIC at 16.25 compared to only 1.43 in the HI-CORE. The pronoun *us*, in the contracted form *let's*, occurred most often at a rate of 12.46 and let *me* at 3.79. Two general patterns of use were found with collocation of *let*. The first involves a function of framing or organizing the rhetorical structure of the monologue by marking a new procedural step or stage. This is illustrated in the following examples of occurrences of *let's*:

Looks like we've got a full tank. Let's get ready to dive.

But let's go ahead and show you how to use the copy and paste.

Then while that guy's chilling, let's go ahead and make the rest of the martini.

In about 38% of cases (4.69) *let's* is found in utterances that served as step markers with no specific details. This is achieved by short utterances such as *Let's go ahead*; *Let's get ready*; *Let's get started*; and *Let's take a look*. This step-marking function was also found in utterances

such as *So, let's make the cookies*, which just introduced the stage in a general sense without any specific direction.

Moreover, this framing of the rhetorical structure function is also achieved with *let me*, which is also more frequent in the HandPIC (3.79) than the HI-CORE (0.45). Collocated with *show* and *give*, these utterances mark a transition to a new group of directions. Words such as *tips*, *method*, *example*, and *remedy* are often found, as seen in the examples below:

Let me give a couple of tips on how to use a fire escape ladder.
So let me show you a secondary method on how to put that on there.
Let me show you a bad example so you know what not to do.
Let me show you a little remedy for getting this red wine out of a shirt.

An additional communicative function of *let* + PRONOUN in the HandPIC is to signal a forthcoming action, much like the the PRONOUN + *am/are going to* construction described in section 4.4.1.1, as illustrated in these examples:

And let's shut the refrigerator door.
Now let's clip the ends.
Let me take off the lid.
Actually, let me get a better grip on it.

These utterances could all be expressed using an imperative form as they are specific procedural activities needed to complete the task, such as (in the examples above), shutting the refrigerator door, clipping the ends, taking off the lid, or even a spontaneous action like the ad hoc adjustment of *get a better grip* in the final example.

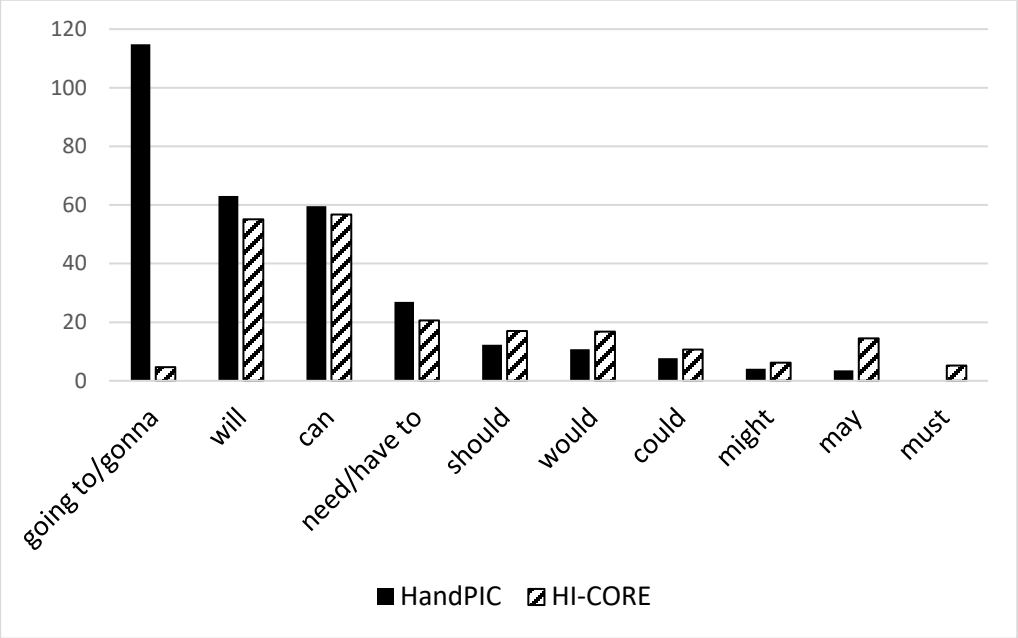
4.4.2 Modals and semi-modals

Turning to modals and semi-modals, the biggest contrast between the two corpora is the frequency of *going to* and its contracted form *gonna*, which occurs far more in the HandPIC (114.95) than in the HI-CORE (4.67). Overall, however, the HandPIC has less variety, as three

items (*going to*, *will*, and *can*) account for about 80% of all modals or semi-modals. Unlike the HI-CORE, *might*, *may,* and *must* were rarely found in the HandPIC, as reflected in Figure 7.

Figure 7

HandPIC:Frequency of modal verbs (per 10,000 words)



The following sections focus on salient patterns associated with the most frequently occurring modals: *going to*, *will*, and *can/could*, *have/need to*, and *should*. In addition, the section describes patterns of modal collocation with spatial reference language, the phrase *go ahead*, and the personal hypothetical *I would* (Tuccio and Garcia, 2020) associated with giving advice.

4.4.2.1 Going to

As was described in section 4.4.1.1, *going to* was frequently (33.77) collocated with nominal pronouns (*I*, *we*, *you*) to signal a forthcoming action. However, additional patterns of collocation (5.93) were observed with *it* and *that* as the subjects of utterances, as illustrated in the following:

Pull that sheathing off. It's going to expose the twisted pairs.

You want to twist it towards you. And that's going to send your needle up and down.

Go to apps or apps and notifications and then tap on see all to see all of your apps. Now it's going to give you a complete list of all the apps that you have on your device.

Although the semi-modal *going to*, according to Biber et al. (1999), belongs to the volition/prediction classification, in these contexts it may be serving a different function. In contrast to utterances with the personal pronouns, the examples above have a pronominal subject (*it* or *that*) referring back to a completed action. Thus, the speakers are not signaling or predicting actions to come but are instead confirming expected results and/or offering justification or benefits for the completed action. In some case, this is done after the action. For instance, in the first example above, from a video that explains how to crimp an ethernet cable, the twisted pair have already been exposed when the speaker claims that they are going to be. He is not predicting, as much as he is reporting that this situation is due to his pulling off the sheathing. The speaker could have used the present perfect (*It has pulled off the sheathing.*) or simple past (*It pulled off the sheathing*) to express the same meaning. In the other examples, the results of the previous action (twisting a sewing machine control and tapping on 'all apps') are happening simultaneously as the utterances are made. Such information supports the logic of the speaker performing the previous step, but do not appear to be predictive in nature.

Although not as frequent (2.88), an additional pattern was observed of *going to* collocated with *step* or *thing* in phrases to mark procedural steps, as in the following:

So the next step is going to be putting the bearings in to the wheels.

And the first thing we're going to do is we're going to connect one end of the red jumper cable to the positive terminal on the stalled battery.

These utterances come before the procedural activity is performed. They communicate the speaker's deliberate plan, which is often framed with sequential markers such as *first, next, second,* or *last*.

4.4.2.2 Will

A somewhat frequent pattern in the HandPIC (7.12, while only 1.32 in the HI-CORE) is *will* collocated with verbs associated with sensual perception (i.e., *notice, see, hear, feel*), as seen in the following:

> *So we're going to keep our knife right behind that line and go ahead and slice. And you'll notice that we don't have any extra parts or anything that we have to take out after the fact.*
>
> *And then you're going to scrape the top to get a good outline of the board. And then you'll see where you need to cut.*
>
> *Alright so as we're doing this what we're doing is, the saw itself is just oscillating very quickly, so we're gonna punch. And you'll feel it cut through and you lift right away.*
>
> *Now a lot of cases, you'll hear a little snap and the cover will be back on. Now in this particular watch, it did not go on.*

Speakers in the HandPIC often made such utterances to either point out details as a preface to the next procedural step or to confirm that the previous step was carried out correctly. In the first example, the speaker wants the listener to understand that by following the previous step (cutting a pineapple along the suggested line) the desired effect of no extra parts can be achieved. The final example, interestingly, is one in which the speaker did not achieve the expected outcome when putting the cover of a watch back on (*hear a little snap)*, yet described what would typically be expected.

The negative *won't* is found in the HandPIC (3.25), but slightly less than in the HI-CORE (4.13).

> *And that's where you're gonna start making your other cut you want to slightly overlap your lines or they won't actually complete the cut through.*

This won't work because your flux burns away and you're not ensuring that your work pieces get hot enough for the solder to properly adhere.

Try not to hold the chopsticks too close to the end here. Because then you're choking it off. And you won't be able to articulate it properly.

In many cases this negative *won't* conveys advice or warnings. The speaker describes what to do to avoid an undesirable situation, as illustrated in the utterances above: not cutting properly, burning away of flux while soldering, or not being able to use chopstick correctly.

4.4.2.3 Can and could

An additional modal pattern in the HandPIC involves *can* and *could* (within a two-word range) with the verb *use*. This occurred at a rate of 5.23 in the HandPIC while just 2.56 in the HI-CORE. As both are modals of possibility/ability category (Biber et al., 1999), this pattern often functions to state options available to the listener. It can imply flexibility to adjust or modify the speaker's instructions to best suit the listener's own on-hand resources, tools, or materials, as shown in these examples:

This project mat works great but you could also use cardboard.

I recommend starting with index cards. You could use a stack of post-it notes or a note pad.

The pattern was also found in utterances that provided clarification or alternatives for technique that involved using one's hands or other parts of the body, such as seen in the following:

We can use the thumb to make sure we don't get any wrinkles.

Now take both of your thumbs and push as hard as you can, downwards. You can use all of your bodyweight.

Now sometimes it can be hard to push in so you may need to grab a mallet. You can also use your foot.

Additional patterns using the modal include *can do*, which was often (3.43) employed in utterances to present options or alternatives:

> *Now there's three different ways you can do this.*
>
> *One of the ways you can do it is with the skate tool.*
>
> *And see how it brings the select, select all, paste highlight, and comment? So this is kind of how you can do a couple different things.*

Moreover, the adverb *just* often (3.07) followed *can* in utterance conveying procedural steps, such as these examples:

> *Anyway, after a little bit of work, you want to back off the plane a little bit just to get it smooth again. There we go. You can just smooth it out.*
>
> *And I like to go a little bit past where I started just to be sure I get it cut all the way off. And then you can just lift that right off.*

In the above examples, the *can just* utterances come after a more complex procedure (i.e., working with wood plane or properly removing the foil from a bottle of wine) and seem to offer a simple final action or detail to complete the step.

4.4.2.4 Have to / need to

The semi modals *have to* and *need to* occur at a rate of 26.91 in the HandPIC, slightly higher than the HI-CORE at 20.56. A few collocation patterns were observed. One is that when they are used in the negative, these semi-modals function as a way to give advice for situations that the listener might intuitively assume the opposite position, such as in these examples:

> *You shouldn't have to be pushing too hard.*
>
> *It doesn't have to be super tight. Just tight enough that the neck won't move around.*
>
> *So it doesn't need to be a huge arm motion.*

In these cases, it could be reasonable for the listener to think that they should be pushing hard, tightening strongly, or making a rather large arm motion, but the speaker is advising against

doing so. This contrasts with a second pattern of collocation with lexical items associated with paying attention, such as *make sure, be careful*, *keep in mind*, and *keep your eye on* as illustrated below:

You also need to be careful in patients with diabetes because they have poor healing ….

Just keep in mind that you have to make sure that you give it a couple minutes to warm up.

So the technique that I teach my guys is I'm training them, is you need to keep your eye on the end that you're leading with so your highest part of your squeegee.

Moreover, at a rate of 2.16, the adverb *all* is used to modify *need/have to*. This may be found in utterances that simplify or end a procedural step as well as ones that address a contingency situation, as seen below:

When I'm done adding members, all I need to do is come here and click save.

So all you have to do in that case, is to use your hand wheel on the side.

And all we have to change about it is to have the other condenser.

4.4.2.5 Should

Although *should* was not as frequent as other modals, one pattern (1.26) of functional use involved *you should* followed by language concerned with status of readiness such as *able to, good to go, all ready*, or *fine to*, as in these examples:

One or two wipes on a paper towel and you should be good to go.

You should be able to just run it over the wood, quickly and easily one handed…

You might want to make sure your trucks are all tight. Wheels are good. Check for any air bubbles. Other than that, you should be all ready to go skate.

4.4.2.6 MODAL + location reference

Although not limited to one specific modal or semi modal, a frequently occurring pattern in the HandPIC involved collocation with lexical items related to locational reference, such as the adverbs *here* and *there* as well as more specific points of reference like in *the middle*, to *the left of*, or *next to*. This was found in the form of two constructions. The first is MODAL + *see* + LOCATION. Of all collocation of modals and *see* in the HandPIC (14.62), more than half (8.12) of occurrences have some type of locational reference in contrast to the 0.17 rate of occurrence in the HI-CORE. This is illustrated in these examples:

At this point you can see we have a really hot fire going on right in the middle.

You'll see the diagram come up on the right-hand side of your screen momentarily.

If you go about halfway down the body you should see a metal loop sticking out.

A second pattern takes the form of MODAL + be + LOCATION, which occurred at the rate of 2.70 in the HandPIC:

The fitted end should be to your right.

All the keys should be facing away from you.

Therefore, if you cut on the backside, the tear out will be on the bottom…

The topic of spatial reference language in a general sense, as well as how they are used with modals, will be addressed in section 4.4.6.

4.4.2.7 MODAL + go ahead and

Modals were also collocated with the phrase *go ahead and*, which occurred at a rate of 5.96 in the HandPIC, in contrast the rare appearance in the HI-CORE at 0.11. The construction functions as a signal of progression or approval to advance to the next procedural step, as seen in these examples:

And let's give this a good shake. We'll go ahead and pour.

At this point we can go ahead and start to open up the back panels on your laptop computer.

As soon as the hair feels warm, I'm going to go ahead and let it down.

This pattern was also used with demonstrative pronouns (this/that) such as *So we're just going to go ahead and do that for our entire pineapple*, to indicate that the next action is a repeat of a previously explained step.

4.4.2.8 Would/could in personal hypotheticals

The *I would* personal hypothetical described by Tuccio and Garcia (2020) accounted for about one third of all occurrences of *would* at a rate of 3.79 in the HandPIC and slightly more frequently in the HI-CORE at 3.93. In the HandPIC, these personal hypotheticals were sometimes prefaced with a conditional, as in these examples:

All right, so if I wanted the nose up a little bit I would loosen off the one in the front.

And then if that didn't work, I'd go to the next smaller hole.

Moreover, *I would* hypotheticals were also framed as advice by antecedent verbs such as *suggest*, *recommend*, or *say*, as in the following examples:

I would suggest as long as you have a free port that you go ahead and put power to it.

So normally I would recommend that you probably lay it down to go ahead and give you the most flexibility and control.

What I would say is the best practice, is hit the power button first.

As described by Strong and Barron (2004), the possibility modal *could* is often concerned with giving advice. Such usage is found in the HandPIC at a rate of 3.43 compared to 2.05 in the HI-CORE, as seen in the following:

If you're on a phone like the Google pixel, <u>you could</u> simply ask Google assistant to get you to the apps section of the settings.

<u>You could</u> place a piece of candy, a pencil, a little flower, or something like that.

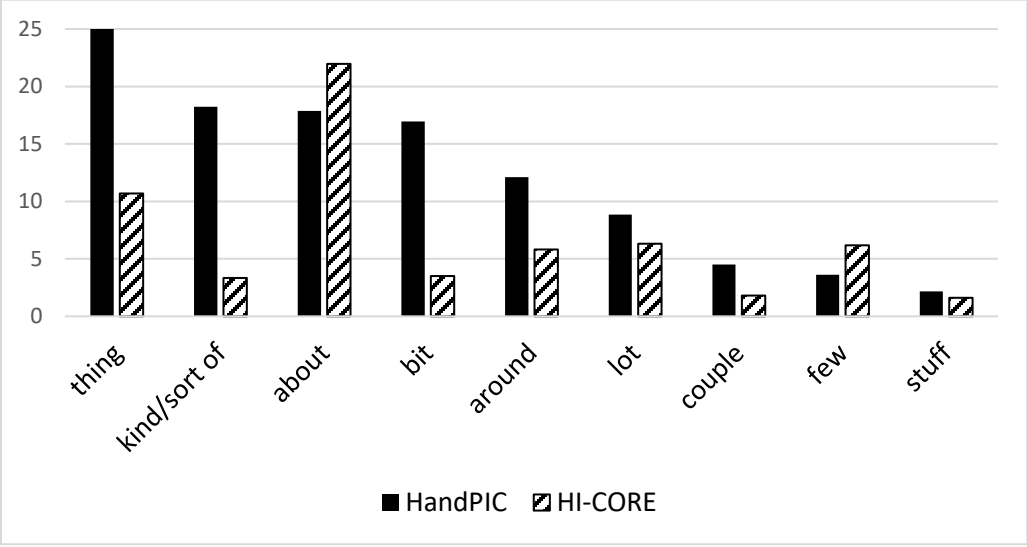
As was the case with *I would* hypotheticals, *you could* functions as a signal that the action being prescribed is not a procedural step as much as it is advice. This is even more distinct when followed by adverbs such as *could even*, *could simply*, *could probably*, and *could also*. All these collocations suggest that these are possible options, but not required steps.

4.4.3 Vague Language

Salient patterns of vague language (VL) observed in the HandPIC will be discussed in the following sections. Overall, as seen in Figure 8, VL is often found in both corpora, but at a higher frequency in the HandPIC.

Figure 8

HandPIC: *Frequency of Vague Language (per 10,000 words)*



The largest discrepancies are found with the items *thing, kind/sort of*, and *bit*, which occur more often in the HandPIC, while *about* is slightly more frequent in the HI-CORE. In the HandPIC,

six lexical items (*thing*, *kind/sort of*, *about*, *bit*, *around*, and *lot*) occur more than eight times per 10,000 words, compared to only two (*thing* and *about*) in the Hi-CORE.The following sections report on patterns of VL usage, with studies from the literature review (section 2.4.2) included for reference.

4.4.3.1 Thing

The most frequently occurring vague language item in the HandPIC is *thing*, which is found at a rate of 25.1 compared to only 10.7 in the HI-CORE. Collocation to the left of *thing* includes a wide variety of 18 modifiers: *first, same, other, this, that, these, only, whole, next, last, second, little, nice, important, simple, complicated, entire*, and *good*. The most frequent of these collocations is *first*, which accounts for 23% of all occurrences at a rate of 5.96. Speakers featured in the videos of the HandPIC use *first thing* within a three-word range of the verb *do* to mark steps or a new phase of the procedure, as seen in these examples:

So the first thing you're gonna do is bring up the cursor.
The first thing to do when lighting a Bunsen burner is to turn the gas on.
The very first thing you do after taking it out of the dryer is to shake it out.

Even in cases where *do* is not present, it seems to be assumed in ellipsis form, often with a pause, as in: *So first thing… make sure the blocks are straight*.

Although Cutting (2007) places *thing* in the category of intentional vagueness, a case could be made that using ordinal numbers with *thing* (i.e., *the first thing, the second thing*, etc) is more an idiomatic device to mark a procedural step than it is an intentional expression of vagueness. This certainly seems to be true with the phrase *so first things first*, which occurs somewhat frequently (1.08) in the HandPIC, while practically nonexistent in the HI-CORE

(0.01). The idiom is used by L1 speakers as a signal that the introduction of the monologue is complete and the actual procedural steps will commence, as in the following example:

> *Today we're gonna talk about how to put your snowshoes on and make sure they're secure and comfortable. So first things first, figuring out left versus right.*

Less frequent collocations include *things like this/that* (1.44), as in the example from a video on how to use a microscope:

> *They kind of mess you up when you're trying to look for something especially if you're looking for little cells or different things like that.*

Such occurrences clearly imply a sense of "referential opacity" (Zhang, 1998) that *things* could mean any number of objects or activities that the listener may be looking for with a microscope.

A second pattern is *other thing* (2.26), which is used in the HandPIC to highlight alternative methods, techniques, or some additional information, such as:

> *Now the other thing that you guys can do to make your lashes look thicker, in addition to applying mascara, is to apply just a little bit of eyeliner.*

In some cases, this type of use may be considered a general extender (as described by Overstreet and Yule, 1997), in that it implies that the technique is one of several available options. Additionally, it may serve as a device to frame advice or warning,

4.4.3.2 Kind of/Sort of

The second most frequently (18.24) occurring vague language item in the HandPIC is *kind/sort of*. In 40% of occurrence, *kind/sort of* modifies a verb, as shown in the following examples:

> *And then you just kind of flatten out your cushion until it gets kind of flat.*
>
> *It kind of just goes over top of this piston until it comes down and sort of sits on top of there, right there.*
>
> *Sometimes you can't get it quite level, so you have to kind of play around with it.*

Such utterances describe actions that may not be precisely conveyed as a single verb, much like the downtoner description provided by Jucker et al. (2003) that implies a discrepancy between a standard prototype meaning and what the speaker wishes to convey. In other words, *kind of flatten out* implies that a perfect state of flatness is not required; *sort of sits on top* could mean a state somewhat less than sitting; *kind of play around*, shows that the speaker lacks a specific verb to describe an exact procedure.

An additional function associated with *kind/sort of* is found in collocations of nouns, such as in the utterance *Any kind of soap will work.* This use is found in 11% of all occurrences and refers to a more general meaning of the noun, for example, *kind of repair, kind of tape, sort of USB,* and *sort of oil*. In some cases, this use of *kind/sort of* may serve to let the listener know that the items used in the demonstration can be substituted for something more readily available.

4.4.3.3 About

Although *about* is significantly frequent in both corpora, not all occurrences are expressions of vagueness. Consider the two following examples:

So those are my tips about how to curl your hair.

Just filling in about a quarter inch opening there.

The first example cannot be considered vague language, as *about* is synonymous to "with regard to" or "concerning." This type was found in the HandPIC collocated with *worry*, as in this example: *Don't worry about the flour because this dough, you can roll it a couple of times and it'll still be great.* The *worry about* pattern comprises 5% of occurrence of *about* in the HandPIC and is used to clarify or reduce doubts that the procedure is not being completed correctly. The second example is clearly what Cutting (2007) classifies as a vague additive that approximates a

unit of measure (i.e., *a quarter inch*). A key difference between the two corpora is that 62% of occurrence of *about* can be considered vague language in the HandPIC, while this is only true for 9% in the HI-CORE.

In both corpora, numbers are the most common lexical items that are approximated by collocation with *about*, such as *about 2-3 times, about 2 weeks*, or *about 300ml*. However, in the HandPIC, there is more frequent collocation of *about* with adverbs or adjectives (e.g., *about there, about here, about halfway, about equal, about this much*) that approximate locations, positions, or amounts. Such utterances, as illustrated below, occur at a rate of 4.69 in the HandPIC, while only 1.30 in the HI-CORE.

Completely soak the sponge about half.
You know, just get about finger tight, maybe a little bit more than finger tight.
The blade will be about shoulder length.

4.4.3.4 Bit

An additional downtoner found in the YouTube videos is *bit*, which occurs much more frequently in the HandPIC (16.97) than in the HI-CORE (3.25). In 85% of occurrences, *bit* is collocated with *little* as in *Let's start by loosening the screw a little bit*. Common lexical items that follow *little bit* are *better, more, easier*, and *like that*, as seen in these examples:

If things loosen up a bit again, tighten down the thumbscrew a little bit more.
That way when you tune it up to pitch, it'll stay in tune a little bit easier.
It looks like an alcohol swab and that just makes the stay a little bit better.
They should look a little bit like that.

Verbs often found to the left of *little bit* include *add, apply, pull, push, loosen, tighten, tilt, spread, tug,* and *clamp*, which are actions that can be done at various levels of intensity.

Used with *little bit,* these verbs direct the listener to be aware of the amount of a substance or the degree of action, for example, *Now when you do the bottom lashes you need to tilt your head forward a little bit*.

The construction *little bit of* + NOUN is also frequent (3.97) in the HandPIC, as in the example: *With a little bit of water we're gonna do the same thing with this, just to make sure we get it nice and clean*. These utterances imply a small amount or degree of how a noun is used in the procedure.

4.4.3.5 Around

In the HandPIC, *around* occurs frequently (12.01) and is found in two patterns. The first is when *around* semantically implies a circular or looping type of situation. This may occur as a compliment to a phrasal verb, which accounts for about a third (4.15) of instances of *around*. Most notable of these is *wrap around* (3.79), but other verbs (*pull, spray, move, swirl, swish, change, swing, shake, flip,* and *wiggle*) are also collocated with *around* to describe the physical manipulation of objects. Moreover, *around* can stand on its own as a single utterance, such as this example from a video of how-to tie a bowtie: *Make my first loop. Around. Make my second loop. And pull my bow tight.* In this example of the ellipsis form of an imperative command, *Around* directs the listener to manipulate the bowtie so that it completely circumferences the neck.

The second use associated with *around* is one that fits Channell's (1994) description of vague additives attached to a precise lexical item. This accounts for about a third of occurrences (2.98) and most often in reference to a specific location as seen in these examples:

> *So when you get to around this area, sometimes you have to comb it down because of the way the hair grows.*

It should just be slightly pink around here.

So I'm going to try and loosen the ground around the root.

Surprisingly, there were very few instances of such vague additive use with numbers or units of measure. In the entire HandPIC there were only two, *around 12 and a half ounces* and *around a quarter inch.* Instead of *around*, the preferred vague additive to approximate a specific number is *about* (as mentioned in section 4.4.3.3).

4.4.3.6 Lot

Although not as frequent as other vague language (8.84), *lot* is used to some extent in the HandPIC. In almost a third of occurrences (2.88), *a lot* is found in utterances that explain common mistakes made by inexperienced performers of the task and functions as an emphasizer (as described by Drave, 2002) of the amount of people, such as: *a lot of people*, *a lot beginners*, and *a lot of guys*, as illustrated below.

A lot of people make the mistake and they over inflate.

A lot of beginners make the mistake of dropping and swinging at the same time.

You see a lot of guys with bad habits, throwing the bar up, letting the bar drop doing nothing for themselves.

An additional pattern in the HandPIC, occurring less often (1.44), is one of *lot* collocated to the left of the adverbs *easier, better, less,* more, and *farther*, as in the following:

Again because the swivel allows me to have a lot more freedom with my hand position when I'm working with the shear.

I've always got two hands on the rod. It makes it a lot easier to cast a lot farther.

These utterances serve the function of presenting a reason for the speakers' choices or methods, especially for activities that involve hand positions or ways to improve technique or get better results from an action.

4.4.3.7 A couple/few

In the HandPIC, *a couple/ few* occurs at a rate of 8.12 and a salient pattern of collocation is found with *a couple/few* to the left of nouns such as *tips*, *things*, *steps*, or *processes*. Utterances with these collocations usually introduce at least two aspects of the procedure, as seen in these examples:

> *Let me give a couple of tips on how to use a fire escape ladder.*
>
> *A few basic steps before you ever want to put a curling iron to your hair*
>
> *Now a few other things to keep in mind, as you're making a cast with a spinning rod here, is how much line that you have from the top.*
>
> *So there's a couple different processes.*

Moreover, *couple/few* is used with *times* (1.26) in utterances that give directions that involve repeating the same action more than once (i.e.*, tap*, *do*, *roll*, *push down*, *go back and forth*, and *run*), as in *So you'll push it down a few times until you get a nice steady even spray*. There are, in addition, some occurrences of *couple/few* collocated with *seconds/minutes/hours* to approximate a length of time.

4.4.3.8 Stuff

Although *stuff* is found less frequently (2.16) than other items, more than half of occurrences come in collocations such as *all of that stuff, the rest of that stuff, stuff like that,* or that *kind of stuff*. Some of these phrases reflect the characteristics of adjunctive general extenders (Overstreet & Yule, 1997), as seen in these examples:

> *I'm typically teaching techniques and different fundamentals and stuff like that.*
>
> *For the most part, they have the same adjustments and all that kind of stuff, if it's a normal non toe-kick edger.*

These utterances act like a hedging device in that they leave the door open for the exemplars (i.e., *fundamentals* and *adjustments*) to be widely defined. In other words, the speaker

assumes that the interlocutor understands what the exemplars represent. For instance, in the first example above, from a boxing coach, there is some assumption that the listener understands the other possible things that may happen in a boxing gym; in the second, an assumption is made that the listener is familiar with a *non-toe-kick edger*. This contrasts with the following two examples:

> *And then what we'll do is as our stuff distills we'll collect it into a graduated cylinder.*
>
> *Once you do that on one side, as long as there's no residual pieces like here, should be able just lift that whole thing up just like that. Okay and then just remove the rest of that stuff in it.*

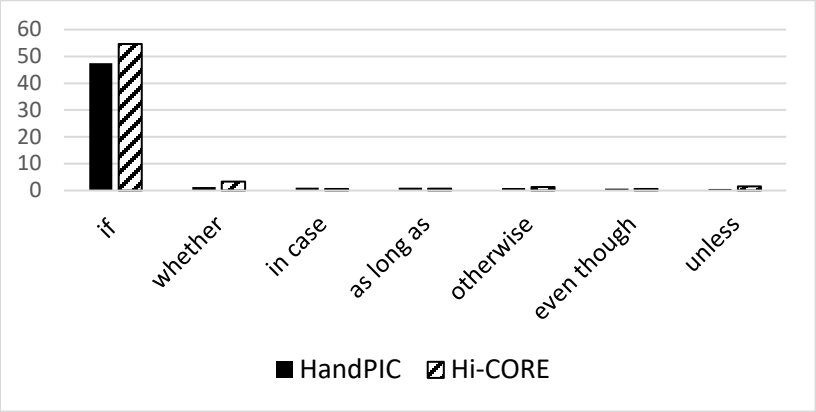
In these examples, there is no exemplar, and *stuff* represents a more specific item. This usually occurs with some anaphoric reference to items that were mentioned earlier in the monologue. In these cases above, this is seen with the modifiers *our stuff* (a chemical mixture) and *that stuff* (residual pieces of plaster left when removing a cast).

4.4.4 Conditional Adverbial Phrases

In both corpora, clauses starting with *if* are by far the most frequent expressions of a conditional sentiment. In total, *if*-clauses are found at a rate of 47.49 in the HandPIC and slightly higher in the HI-CORE at 54.65. As Figure 9 shows, all other lexical items associated with conditional adverbial clauses occur at much lower rates of frequency in both corpora.

Figure 9

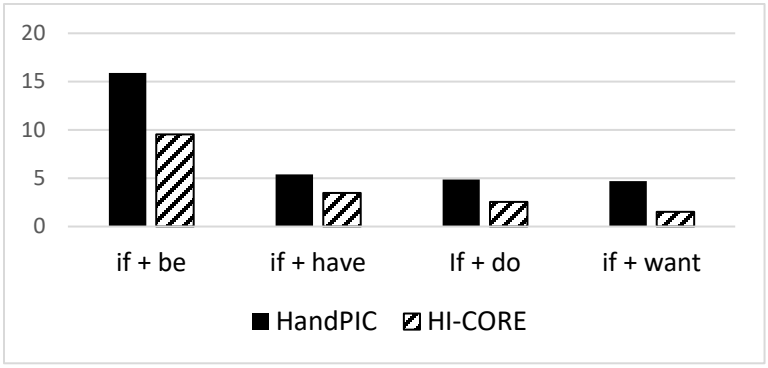
HandPIC: Frequency of conditional adverbial clauses (per 10,000 words)



In general, four verbs are commonly collocated with *if* conditionals: *be, have, do*, and *want*. Figure 10 shows the frequency of such collocation, within three tokens, based on the lemma of each verb.

Figure 10

HandPIC: Frequency of if *by verb collocation (per 10,000 words)*



The following sections examine these four verbs by employing Bhatt and Pancheva's (2017) three terms of classification of *hypothetical*, *relevance,* and *factual* (see section 2.4.3).

4.4.4.1 If + be

Starting with *if*-conditionals that precede lemmas of the verb *be*, about a third of utterances (3.07) generally depict less than desirable situations, such as:

So if your shirt sleeve is too long, take the outermost button on the shirt cuff and close the diameter of the cuff so that it does sit at your wrist.

But if it's muddy, you're gonna be able to go down in like a minute flat.

Or if there's a lot of wind, your tent isn't blowing away.

In these utterances, the speaker is anticipating a possible problem (i.e., sleeves that are too long, water that is too muddy, or a lot of wind) and bringing awareness to possible solutions or outcomes (cutting the cuff, waiting a minute, tent won't blow away). Clearly, these can be classified as true *hypothetical conditionals*. However, not all *if + be* conditionals fit this hypothetical classification. Consider these examples:

But this is just going to be a quick put together guide for you because if you're like me you don't like reading directions and would much rather watch a video.

So, if you aren't sure how to get that right effect of full lashes with mascara, I'll give you some great pointers today.

Now it's pretty simple but just like anything else if you're learning it for the first time a few tips can go a long way.

In the utterances above, *if + be* is used to form *relevance conditionals*, which facilitate a logical deduction based on the relevance of someone who may be watching the video (i.e., one who is like the speaker, one who isn't sure about the task, one learning for the first time). Because the speaker is visualizing a typical listener, these types of utterances are often part of the opening moves of a text prior to the how-to statement.

4.4.4.2 If + have

Turning to *have*, this verb is often (5.41) used in the antecedent in *factual conditionals* that describe conditions that may be optimal or desirable, but not necessary. This pattern is found in utterances that suggest or give advice, especially for a specific item or tool, as seen in these examples:

So the first thing you do is start off with 23 grams of coffee, if you have a scale.

A skate tool, a poker, a screwdriver, a razor blade, and a power drill, if you have one.

So if you have a piece of paper towel you want to make sure to get that cleaned off.

Taking the first example above, from a video on how to drip coffee, the 23 grams of coffee is not a condition of the listener having or not having a scale. The *if*-clause is added to suggest that having a scale will facilitate getting the right amount. In this monologue, the speaker follows with *I definitely recommend getting one. It makes brewing at home a lot easier*, so the conditional frames the context of giving advice for the most desirable situation.

4.4.4.3 If + do

Moving on to the verb *do,* when collocated with *if*-clauses, the result is most often a *hypothetical conditional* in the negative (*don't* or *do not*) that serves to preface the speaker's offering of advice or options. These are employed when the listener faces a different situational context than the one that is being demonstrated, as seen in the examples below:

If you do short chops, you might end up taking the risk of cutting too much off.

And if you don't get the whole root that's okay. You'll get it the next time.

Now if you don't know the gauge or the thickness of the wire that you're working with, you're going to want to start at the thicker hole and then work your way down to the thin hole.

Functionally, such utterances acknowledge possible trouble that may be encountered and suggest ways to overcome them.

4.4.4.4 If + want

Finally, *if*-clauses with the verb *want* may be used to describe the range of options available to one performing the task. These include different outcomes, or a slight variation of the task being demonstrated, and are clearly *relevance conditionals*, as seen in these examples:

Okay, so that's three of each cookie and if we wanted to make some more, we could .

Now if you wanted to add a little treat or something fun in there…I might be giving this as a gift to my friend who loves to cook so I'm gonna give her a little wooden spoon…place it right there in the middle.

All right, so if I wanted the nose up a little bit I would loosen off the one in the front.

In most cases, these conditionals present information slightly outside of the primary task and are accompanied with modal verbs, such as in the examples above with *could, might,* and *would*.

4.4.5 Verb Forms

Using the *English Tree Tagger* POS tag set, the frequency of verb forms was determined for both the HandPIC and HI-CORE. Tag abbreviations are shown in Table 13 below:

Table 13

Tree Hugger POS tag set for verb forms

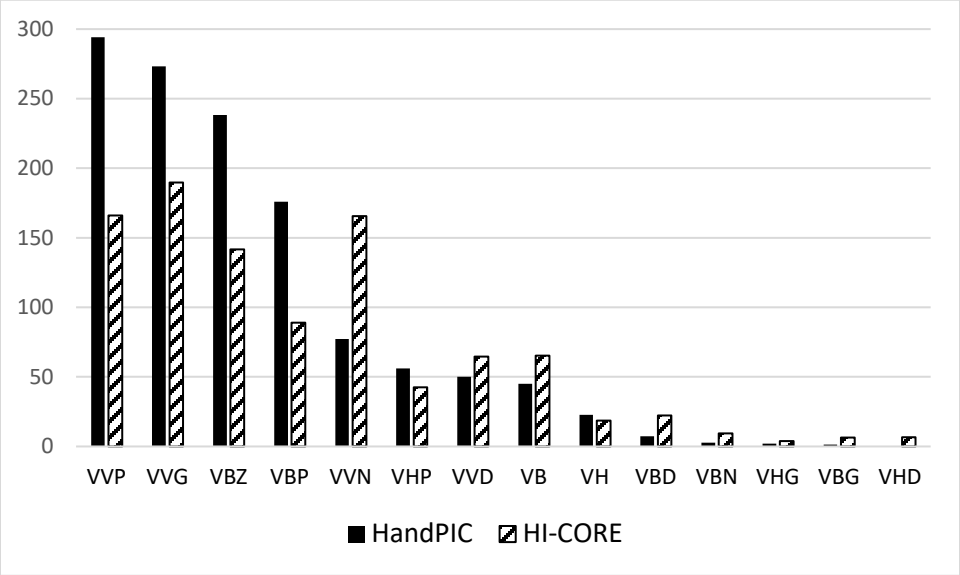
Tag	Description	Example
VVP	present (except 3rd person)	*take*
VVG	gerund	*taking*
VBZ	be-verb present (3rd person singular)	*is*
VVN	past participle	*taken*
VBP	be-verb present (except 3rd person)	*am, are*
VVD	past tense	*took*
VHP	have, present, singular (except 3rd person)	*have*
VB	be-verb, base form	*be*
VBD	be-verb, past	*was, were*
VH	have, base form	*have*
VHD	have, past	*had*
VHG	have, gerund	*having*
VBG	be-verb, gerund	*being*
VBN	be-verb, past participle	*been*

Compared to the HI-CORE, there are four verb tags that are more frequently found in the HandPIC. Two of these concern lexical verbs: present tense in the 1st or 2nd person (VVP), and gerunds (VVG). Two other common tags are also be-verbs: the form *is* in present tense in the 3rd

person singular (VBZ) and *am/are* in the present tense in the 1st and 2nd person (VBP). In Figure 11, the frequency of these forms in both corpora show some clear differences.

Figure 11

HandPIC: Verb tense frequency (per 10,000 words)



The following sub-sections describe how the four most frequently occurring forms are used by L1 speakers in a wide range of communicative functions.

4.4.5.1 Present (except 3rd person)

The present tense 1st or 2nd person (VVP) is the most frequently occurring verb form in the HandPIC. Subjects of utterances using the VVP are most often personal pronouns, which, as previously discussed in section 4.4.1, and are used indiscriminately in the HandPIC when procedural steps are described. A CQL search of collocation of the tags for pronoun and VVP shows a rate of occurrence of 193.61, which accounts for 77% of instances of this form in the HandPIC. Compared to the HI-CORE, the same search only yields 91.03 or 55% of occurrences.

An additional pattern in the HandPIC is that VVP forms are often (13.54) modified with the adverbs *just* and *always/never*. *Just* occurs more frequently (9.75) as in the following examples:

Okay, if it starts to stick a little, <u>just sprinkle</u> a little more on top.

So once you've done that you <u>just dump</u> it out.

And then you can check your tires yourself. And you <u>just push</u> that on there.

In all these utterances, *just* signals a procedural step that is cohesively tied to a previous utterance concerned with an aspect of the task (i.e., *stick a little*, *done that*, *check your tires*). The utterances can be understood without adverbial modification; *just* gives a sense of simplicity to the procedure, as if to say that the action (*sprinkling a little more*, *dump it out*, or *push that on there*) is an easy path forward towards finishing the task. As described by Biber et al. (1999), the adverb *just* can function to both restrict and lessen intensity, both of which appear to be the case in the HandPIC.

Two other adverbs are also collocated with VVP forms: *always* and *never*. Although not as frequent as *just*, these two adverbs occur at a rate 3.79, as illustrated below:

Also, I recommend that after you use your inhaler you <u>always rinse</u> out your mouth and brush your teeth.

We <u>always use</u> our fingers to prop our body up.

You <u>never bring</u> your stick up too high or too far back because you're going to throw yourself off balance.

These utterances function to give advice or warnings and address good habits for the listener to adopt. They are relevant to reoccurring tasks, as opposed to a one-off situation.

4.4.5.2 Gerund

There are distinct differences in the use of the gerund form (VVG) in the HandPIC and HI-CORE, both in terms of frequency and variety of verbs. Most notable is that in the HandPIC, 45% of all gerunds are *going* (or the contracted *gonna*). In the HI-CORE these forms only comprise about 3%. When collocated with the preposition *to*, as was discussed in section 4.4.1.1, the difference is vast; *going to* occurs at a rate of 73.5 in the HandPIC, while only 4.67 in the HI-CORE.

The gerund *doing* is also found more frequently, as it occurs when the speaker is simultaneously demonstrating and describing a procedural step or action, as shown here:

> *Alright so as we're doing this, what we're doing is, the saw itself is just oscillating very quickly.*
>
> *So what I'm doing is hitting the bag in that's going one, two, three, when it gets right around this I meet it in the middle.*
>
> *All we're doing, grabbing the fine teeth of the comb.*

Such usage is similar to the PRONOUN + *going to* construction (see section 4.4.1.1), in that the speaker's actions are being highlighted, but here it is used for longer actions or conditions that can be observed in progress. It is also possible for the speaker to suspend or slow down the procedure to clearly show the task, as in the example: *I'm kinda over-exaggerating the movement of my hand so that you can see what I'm doing*.

4.4.5.3 Be-verbs

As *am* and *are* (and contracted forms) are also part of the previously discussed constructions, such as PRONOUN + *are/am going to* and the use of gerunds, it is predictable that these forms frequently occur in the HandPIC. Additionally, be-verb present tense in the 1st and 2nd person

(VBP) are found in conditional adverbial phrases, especially those using the 2nd person personal pronoun, as in these utterances:

> *Because, if you're using a water base or even an oil, you're not gonna see any edger marks*
>
> *If you're trying to wipe off two inches of water with your towel, all you're gonna do is leave a ton of streaks.*

In these utterances, *you're* is often used twice, as the condition and effect both take the VBP form. In addition to the 1st and 2nd person forms, the 3rd person form (VBZ) is often frequently found in the HandPIC. One reason for this is the pervasiveness of *wh*-clefts, which will be reported on in section 4.4.7. Usually *wh*-clefts require the copula *is* to bridge the cleft and the highlighted clause, as in *What I need to do is line it up carefully*. Another reason is the high frequency (15.89) of the phrase *it is going to*. In some ways, this pattern functions differently from PRONOUN+ *going to* construction, as seen in the following examples:

> *Because, as a bulb wears out it's going to continue to grow dimmer.*
>
> *So it's gonna make it very easy for the insulation.*
>
> *What I love about this style is this hook is universal so it's going to fit on any type of windowsill, any depth.*

Instead of drawing attention to a forthcoming action to be performed by the speaker, these utterances describe reasons for procedures or properties of items used in the demonstration. They are not necessary to complete the task as much as they add additional commentary to help the listener understand the context.

The 3rd person present is also used in utterances that identify a specific item or part of an item used in the task. Such constructions, occurring at a rate of 5.77, use *there is* or *there's* plus a locational reference such *as here, there, back, bottom, top, front, under,* or *side*. This is seen in the following:

There's a lever on the bottom of it, here, that adjusts the height of it up and down.

There's a brass knob here that you can turn clockwise or counterclockwise.

And on ours, we have a Dewalt, there's a switch in the back that turns it on.

In addition, the VBZ form is often found in patterns that employ *wh*-words as the object of a sentence, as in these examples:

This is where, as you see, a longer screwdriver is helpful.

That's why we heat it up get all the moisture out of it.

And that's how this thing goes on.

That's what you want to see.

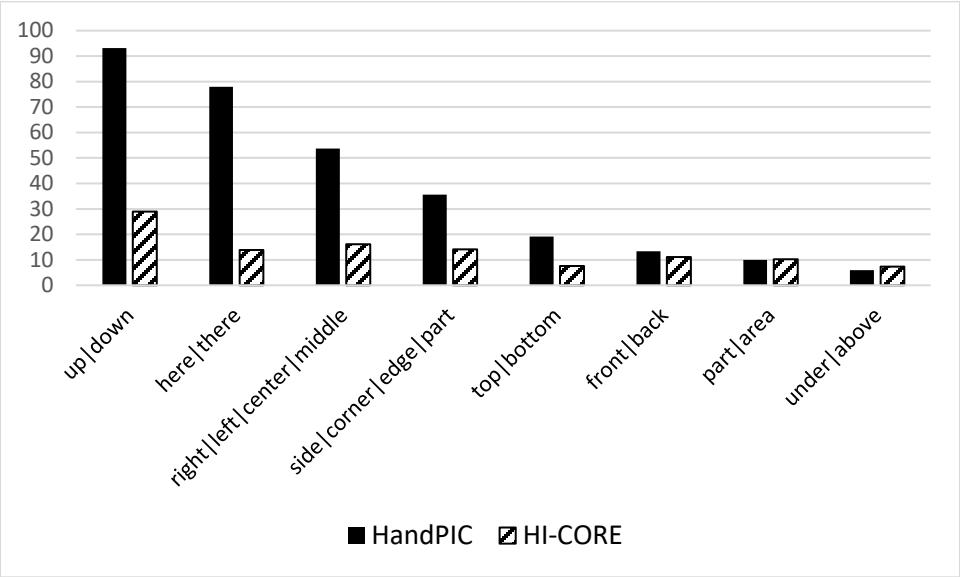
These utterances usually give a reason after a procedural activity and may function as a justification or a signal of a conclusion of a phase of the task.

4.4.6 Spatial reference language

In both corpora, there is frequent reference to location and spatial relationships of physical items. Overall, lexical items that are associated with place, position, or location are more pervasive in the HandPIC than in the HI-CORE. As shown in Figure 12, there is a wide difference in these types of words, which are discussed and interpreted for communicative function in the following section.

Figure 12

HandPIC: Spatial reference language frequency (per 10,000 words)



4.4.6.1 Up/down

Before considering frequency of occurrence of *up*/*down* to interpret communicative functions, it is worth noting that both are used in phrasal verbs (e.g., *set up*, *pull down*). In the HandPIC, these verbs occur at a rate of 42.98, which is more than twice as much as 19.35 occurrence in the HI-CORE. However, to understand how speakers describe spatial relationships, the collocation of *up*/*down* to nouns is more illuminating. In CQL search of the HandPIC, results showed that nouns are used to the left of *up/down* at a rate of 19.32, while only at 4.50 in the HI-CORE. The most frequently occurring noun is *way*, as seen in these examples:

> *And push the rewind knob <u>all the way down</u>.*
>
> *You don't have too much line but you also don't want to have your bait <u>all the way up</u> against the top of the rod.*

These utterances are used in procedural activities to direct the listener to execute an action to the fullest extent possible, such as in the above example, turning a knob to a point where it will no longer turn or making sure that the bait is at the very top of the fishing rod.

4.4.6.2 Here/there

There is a significant difference between the two corpora concerning the frequency of the adverbs *here* and *there*. Filtering out the existential use of *there* (e.g., *There is a box*) by POS tagging resulted in *here/there* as adverbs occurring at 78.01 in the HandPIC while only 13.91 in the HI-CORE. Several patterns may account for this difference. One is the collocation with the intensifier *right* as seen in these utterances:

And then when you're ready to get rid of it all you have to do is pull right here.

And I pull it through right down there.

There's another thread right over here.

This usage is focused on pinpointing a specific area or part of an object and is frequently accompanied by a pointing gesture. In addition, *here* used with a be-verb is often (3.25) found in utterances that introduce or highlight an item or part of an item.

Here is your typical fountain pen.

Here is the bottom part that you sit on.

Right here is your power port.

This pattern is similar to the PRONOUN + *have* construction that was described in section 4.4.1.3 and usually serves to introduce an item.

4.4.6.3 Right, left, center, middle

Compared to the HI-CORE (16.16), the adjectives *right, left, center,* and *middle* occur far more frequently in the HandPIC (53.64). These adjectives point towards specific locations like *center* and *middle* or choices between two items, *left*/*right or back/front*, as seen in these examples:

Starting off, for the first thing, you need to use the right blade.

If my dominant leg is my left leg I'm going to put the left block forward.

Like I said, in the center of the material that you're sewing.

A good place to start is with it completely level and it right in the middle of the rails here.

In addition, these adjectives are often (3.61 in the HandPIC, compared to 0.82 in the HI-CORE) used to modify the *hand*, *fingers*, *legs,* and *feet* when giving specific directions on how to hold tools or position the body, as seen below:

Start by positioning yourself with your right foot in front.

I use kind of my middle finger here, to just touch the hair.

Our left hand is going to connect the neck.

4.4.6.4 Side, area, corner, edge, part

The HandPIC texts have more occurrences of *side, area, corner, edge,* and *part* than in the HI-CORE. These words generally refer to boundaries or dimensional aspects of objects, as seen in these utterances:

Now, that's nice and tight then we're gonna do the opposite side.

Okay at that point we've got uh four screws each one for each opposing corner.

Hold the flat edge of the irons tip against the joint.

And so before you can cut the glass part, you have to cut a line through it with a knife.

Apart from the items described in this section, there is additional spatial language in both corpora, such as *top/bottom*, *front/back*, and *under/above*. However, no salient patterns of use or collocation were observed in these items.

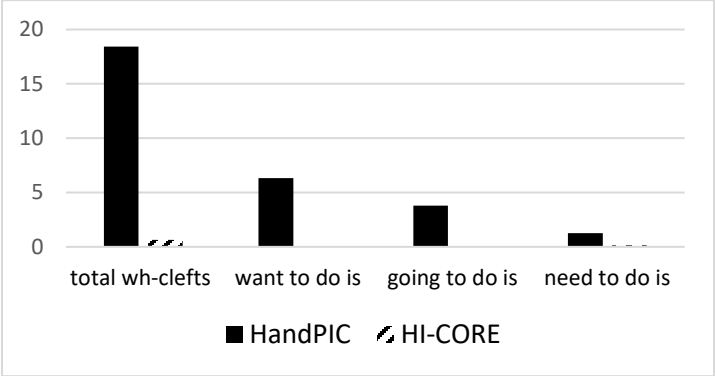
4.4.7 *Wh*-Clefts

Wh-clefts occur much more frequently in the HandPIC than in the HI-CORE, as seen in Figure 13. Using the same 5-word range criteria as Deroey (2012) to identify *wh*-clefts (as described in 2.4.4), a CQL search showed that *wh*-words followed by a personal pronoun (e.g., *what you*)

occur within a 5-word range of the copula *is* at a rate of 15.53. *Wh*-clefts are very rare in the HI-CORE, occurring only at a rate of 0.65. Thus, a strong case can be made that this feature is uniquely pervasive in spoken procedural monologues.

Figure 13

HandPIC: Frequency of Wh-clefts (per 10,000 words)



Much in the same way that Biber et al. (1999) describe *wh*-clefts as a "springboard in starting an utterance" (p. 963), speakers in the HandPIC employ this pattern to highlight a forthcoming procedural activity, often just before demonstration. They are frequently collocated with the verbs *want* (6.32), *going to* (3.79), and *need* (1.26) followed by the infinitive *to do*. Moreover, in some cases, the construction is used to preface procedures that may be repeated more than once, as seen in these examples:

> *So what we want to do is first loosen up all six strings.*
>
> *So what we're going to do is we're going to pull out pin bones on the fish.*
>
> *And what you'll do is every milliliter that comes across, record the temperature on the thermometer.*

Moreover, *wh*-clefts may also be used to give advice by signaling that a forthcoming demonstration may require more time than other steps, as seen in these examples.

> *So first what you want to do is you want to remove the sheathing on the wire using a little handy dandy wire stripper and then take a few minutes to separate each pair.*

Now what you want to do now is start the car that's doing the jumping and allow it to run for two to three minutes before starting the dead car.

And then what I'm gonna do is I'm simply gonna vary them back and forth for the rest of time.

In addition to the highlighting function, *wh*-clefts are used to clarify or further explain a term used by the speaker. Like Prince's (1978) "metalinguistic antecedent" described in section 2.4.4., this usage is illustrated below:

And make sure that your arms are nice and loose, not locked out. And what I mean by locked out is you never wanna lock your elbow out.

You'll take the striker. And what the striker is, is basically a piece of flint across which metal moves creating a spark.

This is called blooming. And what it does is let some of the gases release.

4.4.8 Summary of analysis

The following section offers a summary of the register analysis of the HandPIC by recounting the interpretation of the data to show the connections between linguistic features and communicative functions. Before doing so, it is important to acknowledge that the features investigated were not all exclusively assigned to a single function. Some, even though frequently occurring, were elusive in terms of a clear interpretation of how they were connected to the functions identified in the qualitative coding stage. Specifically, vague language, reference to spatial locations, and verb form were not so easily pinned to a specific situation. This is not to dismiss their importance, but to clarify that they appeared in a wide range of utterances, regardless of function.

In Table 14, communicative functions are paired with possible linguistic options that the speaker may call on to execute them. A contrived example is also included to illustrate a typical utterance using the feature.

Table 14

Summary of communicative function and linguistic features in the HandPIC

Function	Linguistic Feature	Examples
Procedural Activity	PN+*going to* PN+*want* *Let* + PN MD+ *go ahead and* Present/imperatives *Wh*-clefts	*I'm going to cut this.* *Next, I want to cut this.* *Let me cut this.* *You can go ahead and cut this.* *Cut this.* *What I want to do is cut this.*
Advice/Warning	PN+*want* PN+*have/ need to* Personal hypotheticals Conditionals Present /imperatives	*We want to make sure the knife is sharp.* *You have to be careful not to cut your finger.* *I would start cutting on this side.* *If you cut too much, it won't work.* *Cut slowly.*
Item description	PN+ *have* + N VL (*kind/sort of*) *Wh*-clefts	*We have the knife here.* *This is a kind of a knife.* *What this does is helps you cut.*
Reasons	N+*going* to	*The knife is going to be easier than scissors.*
Results	N +*going to* Conditionals	*The knife is going to stop here.* *If the knife stops here, then you are finished.*
Options	*If*+ PN + *want* MD (*can/could*) +*use*	*If you want, use scissors.* *We could use scissors.*
Clarification	PN+want	*Don't cut too much. We want about 2cm.*
Situational Description	N+*going to*	*It is it going to be too hard to cut.*
Confirmation	MD (*should/will*)	*You'll have two pieces when you are finished.*
Step Marking	PN+*going to* Let + PN	*Next, I am going to use the knife.* *Let me show how to use the knife.*
How-to Statement	PN+*going*	*Today, I'm going to show you how to X.*
Opening	VL (*lot, couple/few*) Conditionals	*A lot of you may not know how to X.* *If you want to X.*

4.5 Register Analysis of the TePIC

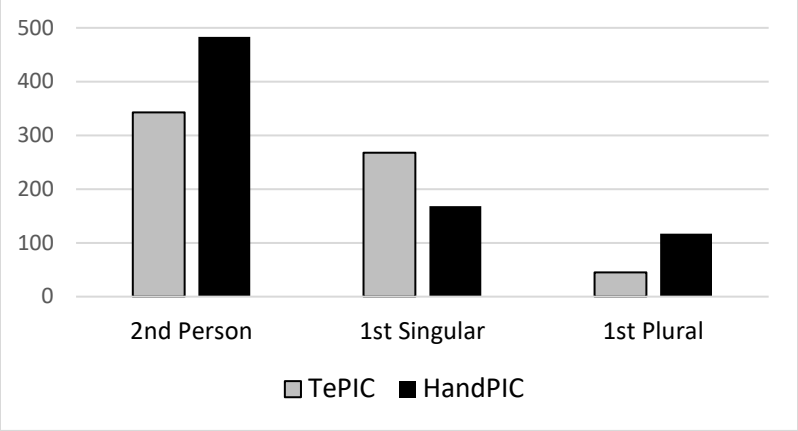
The following section focuses on a register analysis of the TePIC based on the same linguistic features (in the previous section 4.4) used to explore the HandPIC. However, instead of the HI-CORE as a reference corpus, the analysis of the TePIC is based on a comparison of the HandPIC. Accordingly, the results presented here overview the occurrence of personal pronouns, modals and semi-modals, vague language, conditional adverbial phrases, verb forms, spatial reference language, and *wh*-clefts. Theoretical connections to the analysis are cited when suitable, but to avoid redundancy, those referenced in the previous analysis are omitted. Moreover, as was the case with the previous section, the reader should assume that unless otherwise noted, all frequency is expressed at the per 10,000 words rate.

4.5.1 Pronouns in the TePIC

Compared to the HandPIC, there are several differences in the frequency of personal pronouns in the TePIC. 2nd person pronouns are used about 30% less; 1st person singular pronouns are found 38% more; 1st person plural occur 68% less, as seen in Figure 14.

Figure 14

TePIC: Frequency of personal pronouns by grammatical person (per 10,000 words)

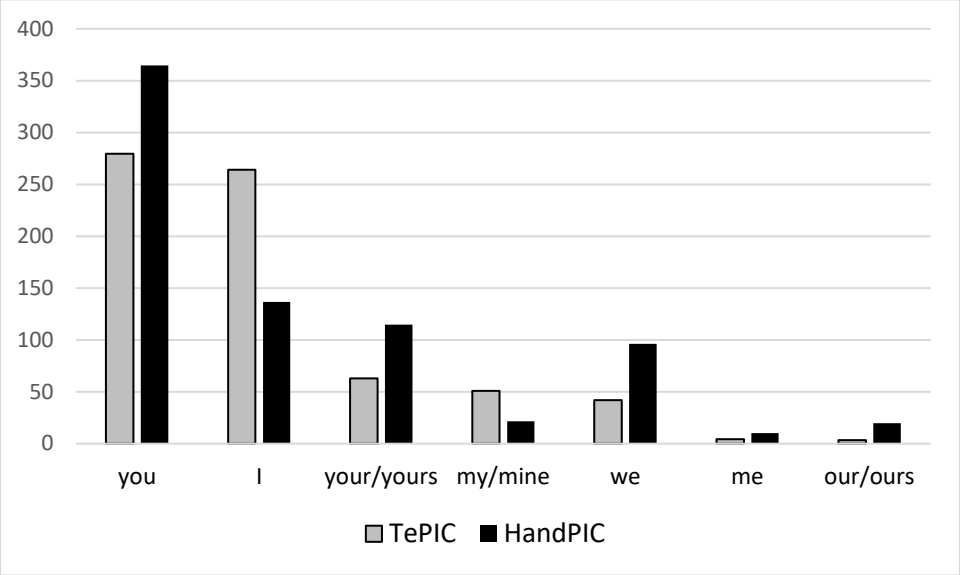


As was the case with the HandPIC, there are practically no occurrences of 3rd person pronouns in the TePIC. In all videos produced by students, there is only a single occurrence of a 3rd-person reference, in a monologue on how-to draw an animation character from the *Doraemon* series, when *he* is employed in the utterance *He is Nobita*.

Focusing on the differences in 1st and 2nd-person pronouns, frequency reflects a tendency of students to deliver monologues from a singular personal perspective. There is less of the indiscriminate use of 1st and 2nd grammatical person that is characteristic of the HandPIC (as described in section 4.4.1). This suggests that students may not visualize the listener as someone engaged in a co-occurring parallel task. As illustrated in Figure 15, the nominal *I* (264.05) is used by students almost as much as *you* (279.52). This is also in contrast to the HandPIC, where *you* (364.82) occurs with much greater frequency than *I* (136.70).

Figure 15

TePIC: Pronoun frequency by form (per 10,000 words)



Addressing these differences, the following sections will first compare the same patterns of pronoun collocations as described in the HandPIC. These include pronouns used with *going to*,

want, *have*, and *let*. In addition, patterns associated with pronouns that are uniquely found in the TePIC are also described.

4.5.1.1 PRONOUN + going to

Starting with the PRONOUN + *going to* construction, students produce this pattern far less frequently than L1 speakers. Using the same CQL query as described in section 4.4.1.1 with nominal forms (*I, you, we*) within a 2-word range to the left of *going*, results showed that the construction is only found at a rate of 17.67 in the TePIC, as compared to the 33.77 in the HandPIC.

There is also a difference in how the construction is functionally employed. In monologues by students, it is almost exclusively found at the very beginning of the text in the how-to-statement, for example, *Today I'm going to explain how to cook boiled egg*. Almost all (14 of 16) occurrences of PRONOUN + *going to* are of this nature. Such utterances can be considered a single genre move (see section 2.3.3) in the rhetorical structure rather than a recursive register feature. This is reflected in the verbs that come after *going to* in the student videos: *explain*, *show*, *introduce*, and *talk about*. These verbs report the how-to statements but do not signal any actual hands-on actions.

Unlike the pervasiveness in the HandPIC, the PRONOUN + *going to* construction to draw attention to a real time activity is rarely found in the TePIC. Only two of the 50 students in the study used the construction outside of the how-to statement, and each did so only once. In contrast, 84 of the 100 speakers in the HandPIC often uttered *going to* on multiple occasions throughout their monologue. Finally, none of the TePIC students produced two patterns common to L1 speakers: PRONOUN + *going to* construction with the verb *do* to form *wh*-clefts and collocation with the adverbs *just, first, next*, or *now*.

4.5.1.2 PRONOUN + want

Regarding the construction PRONOUN + *want*, there is a significant difference in frequency in the two corpora. As discussed in section 4.4.1.2, this pattern takes place at a high rate of 59.60 in the HandPIC to either offer advice, give warnings, or offer clarification. It can also function much like the modal *should* to express the proper procedural aspects, for example *You want to pour it pretty slowly*. On the other hand, in the TePIC, PRONOUN + *want* occurs less frequently (34.25) and is primarily used for two communicative functions. The first is seen in the 55% of occurrences that are found in conditional clauses in the TePIC (e.g., *If you want to draw Minnie Mouse…*) to present options or alternatives. The second function is to frame the how-to-statement genre move at the start of the monologue (e.g., *I want to tell you how to make roasted sweet potato*).

Unlike the L1 speaker videos, there are no occurrences of negation (*don't want*) to warn or give advice in the TePIC, nor is there any collocation of pronouns with phrases such as *want to make sure*, *want to be careful,* or *want to try to.* Additionally, students in the TePIC do not use PRONOUN + *want* to imply *should* when highlighting a particular aspect of the procedure.

4.5.1.3 PRONOUN + have + NOUN

HandPIC speakers (as noted in section 4.4.1.3) use the PRONOUN + *have* + NOUN construction in utterances that introduce objects or specific details (e.g., *So, here we have a rough piece of end grain*). In the TePIC, there are no occurrences of such use. Overall, students spend far fewer linguistic resources to describe items and may even simply state a single noun, for example: *Chocolate*. This contrasts with the typical L1 speakers who may use something such as this contrived example: *Ok guys, so we have our chocolate.* As will be discussed in section 4.5.5.1,

students favor *this is* when making first reference to physical objects, as in *This is a coffee maker*, rather than PRONOUN + *have* + NOUN.

4.5.1.4 Let + PRONOUN

The collocation of *let + us*, or contracted form (*let's*), surprisingly occurs more often in the TePIC (23.20) than in the HandPIC (16.25), as seen in these examples:

We may make our dress or our table dirty, so please be careful. Okay, let's prepare.

This is so easy way, so let's do this together.

Okay let's get started. First use this base coat.

These examples are very similar to the pattern in the HandPIC , as they function as a rhetorical structuring device that signals the move to a new stage or procedural step. Most often students produce such utterances relatively close to the opening. There are, however, some occurrences (3.31) that are produced at the end of the monologue, as in the following sequence from a student demonstrating how to make pancakes: *Okay, let's eat. So yummy. That's all for today.*

There is only a single occurrence of the phrase *let me* in the entire TePIC, which, like most of the occurrences of this pattern, was found in a how-to statement: *Let me teach you how to make paper box*. This contrasts with the HandPIC, where *let me* is found at a rate of 3.79 as a device to mark a new stage or slight shift to a sequence of tips, methods, examples, or remedies for common problems.

4.5.1.5 Pronoun patterns unique to the TePIC

Turning from what is lacking in the TePIC compared to the HandPIC, there are some constructions that students use more frequently compared to L1 speakers. One is the collocation of *I* with *will* (including the contracted form *I'll*), which occurs at a significantly higher

frequency in the TePIC (49.71) compared to the HandPIC (5.59). One reason for this is that in many cases students use *I will* in the same way as *I'm going to* when introducing the how-to statement. Specifically, students employ *I will* with four verbs (*show, explain, introduce, tell*) that occur in more than half (29.83) of how-to statements, as shown in the examples below:

I will show you how to fold a paper carton.

Hello. I will explain how to make a mascot using wool felt.

Today I will introduce how to use an old cell phone.

A second characteristic of TePIC texts is that the 1st person possessive forms (*my/mine*) occur more frequently (50.82) than in the HandPIC (21.49). To some degree, this difference may be attributed to *my* being used when stating one's name at the opening of the video. Students tend to favor *My name is…*, which occurs at a rate of 13.25, in contrast to only 1.26 in the HandPIC, as L1 speakers prefer statements such as *I'm John* or *Hi everybody, Mary here*. Moreover, in monologues by students, *my* as a modifier of family related words is more frequent with *family, father, mother, grandmother, brother*, and *sister* collocation occurring at 8.83. In the HandPIC, reference to family members only occurs at a low rate of 0.72. *My favorite* also is more frequent (4.41) compared to the HandPIC (0.18). These differences are shown in the following examples:

I use salt or ketchup, tomato ketchup. My father and my sister use black pepper.

My grandmother told me this way.

I'd like to introduce my favorite dressing from now.

There are also differences concerning the use of *you* in the TePIC, which is most often embedded in the phrase *thank you*, which occurs at a rate of 39.77 compared to 1.08 in the HandPIC. Predictably, students use this greeting to signal an ending, as in *Thank you for*

listening, or *Thank you for watching*. In the TePIC, 72% of videos end with *thank you*, while this is the case in only 6% of the HandPIC videos. Some speakers in the HandPIC simply use *thanks* without the pronoun, but still at the low frequency rate of 1.98. Instead of thanking the listener, L1 speakers use a wider variety of utterances to end the task, especially ones that paraphrase the how-to-statement.

Collocation patterns also vary concerning the possessive form *your*. Students most often collocate this form with parts of the body, such as *hand*, *fingers*, *thumb*, *face*, *lashes*, *earlobe*, *body*, *face*, *cheek*, *skin*, *eye*, and *neck*. In the TePIC, 72% of such occurrences fit this pattern and of the 24 words modified by *your*, only three (glove, drawing, and pencil) are not related to body parts. Speakers in the HandPIC also refer to *your* + body part, but at a lower rate of 11% of occurrences of *your*. The remaining 89% of HandPIC *your* occurrences modify a wide range of 274 lexical items directly related to the specific task, for example, *your piston, your cushion, your saxophone,* and *your scuba tank.*

A final notable difference is the higher frequency in the TePIC of the construction PRONOUN + *have to*, which occurs at a rate of 28.72, compared to only 11.73 in the HandPIC. Examples of such utterances are show below:

First, I have to prepare the vegetables and meat.

You have to empty the carton.

Put grindstone into water and then we have to wait.

Students prefer *have to* when expressing necessity of a procedural activity. This preference may explain the lack of PROUNOUN + *want* constructions as mentioned in section 4.4.1.2. Other

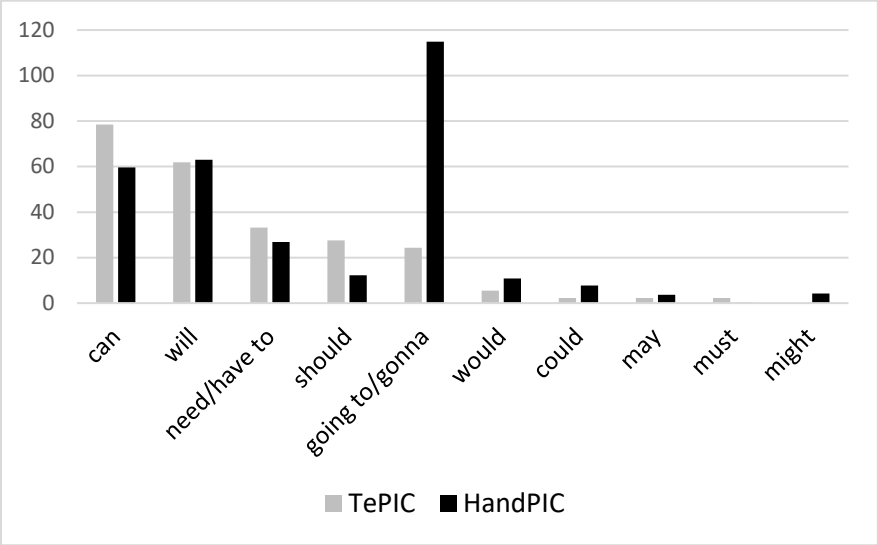
linguistic devices that HandPIC speakers used to imply importance or express necessity are absent from the TePIC, such as *make/be sure to*, *don't forget to*, or *got to*.

4.5.2 Modals

In the TePIC, two modal verbs, *can* and *will*, occur at a rate of more than 60 per 10,000 words. Compared to the HandPIC, *can* is slightly more frequent, while *will* occurs at about the same rate. Notably, there is a large discrepancy in the frequency of *going to/gonna*, which occurs about five times more often in the L1 speaker monologues. Figure 16 depicts frequency of modals and semi-modals:

Figure 16

TePIC: Frequency of modal and semi-modal verbs (per 10,000 words)



The following sections report on results of modal use in the TePIC, and include the differences observed in the use of *can*, *will*, *need/have to*, and *should*. Any additional modals, however, occurred at a very low rate, making it impossible to glean any salient patterns from the data. Thus, the use of *would/could* in personal hypotheticals (as reported in section 4.4.2.8) is not included in the report of results.

4.5.2.1 Can

Compared to the results found in the HandPIC (see section 4.4.2.3), the students in the TePIC do not use *can* for the same communicative functions as L1 speakers. Most notably, students do not produce utterances with the collocation of *can* + *use* to suggest the possibility of using an alternative tool, material, or technique. Such functional use was only found once in the TePIC, and somewhat indirectly over two separate utterances in a monologue on using a calligraphy brush when a student offered an alternative to bottled ink: *Second we use a calligraphy ink. You can also rub, rub the ink stick on the ink stone like this.* In the TePIC, the *can* + *use* collocations are primarily associated with the characteristics of items such as in the example *You can use the iron pan for long time*, but not as a device to suggest an alternative to what is demonstrated in the monologue.

Another difference is reflected in the *can* + *see* construction, which occurs at a rate of 7.73 in the TePIC, slightly less than the 10.11 in the HandPIC. L1 speakers tend to use *can see* with spatial reference, (see section 4.4.2.6), but similar usage was not found in the student's monologues. In all occurrences of the construction, there is only one utterance in the TePIC, from a how-to use an old-style cellphone monologue, that includes a reference to spatial language: *You can see center carousel.* It could well be the case, however, that *center* here is just used as modifier of *carousel* and not as distinction to a specific part of the cell phone.

Moreover, there are several patterns with *can* that were completely lacking from the students' texts, including the *can* + *do* construction to present alternative procedures, *can be* + spatial reference, and *can go ahead and* to signal a move to the next procedural step.

4.5.2.2 Will

A distinct difference in the corpora is seen in how the two groups use the modal *will*. In 80% of occurrences in the TePIC, the subject preceding *will* is the pronoun *I*, in contrast to the HandPIC, where *I* is found in only 8%. This difference primarily reflects that *I will* is used in 60% of cases (29.83) to express the how-to statement. The remaining 40% of occurrences (19.88) of *I will* in the TePIC are embedded in utterances that function as either step markers or as a procedural move, usually with a sequence adverb, as seen in these examples:

First, I'll explain about towel.

Next, I will tell you the first position, first position to, to snap your finger.

Thirdly, I will bake this for 5 minutes by toaster.

Students use *will* with a subject other than *I* much less frequently at a rate of 12.15. When they do so, these subjects comprise a variety of nouns related to the specific context of the task, each occurring only once (e.g., *daikon*, *application*, *soba*, *phone*, or *face*) as well as one occurrence each of the pronouns *you*, *we*, *it*, and *this.* Accordingly, there are no instances of *will* in utterances that point out sensual perception related details that the speaker thinks are important for the listener to notice. Such functional use was found in the HandPIC with collocation of verbs associated with sensual perception (as described in section 4.4.2.2) such as *you notice, you see, you hear,* or *you feel*. In the TePIC, however, there are no cases of students using *will* in any similar way.

Also, in contrast to the HandPIC, instances of students using *will* or *won't* to frame advice or give warnings are almost nonexistent, with only a single case from a monologue on how to use a graphic illustration software program: *Oh no, oh no, the door was hide by another color. But with layer you can, you won't do that. So great.*

When giving advice or warnings, students favor the modal *should* or to some degree *have/need to*, which will be covered in the following section.

4.5.2.3 Have/need to

In the TePIC, *have to* (28.72) and *need to* (4.41) occur at a collective rate of 33.14. This is slightly higher than the HandPIC, where *have to* (11.73) and *need to* (15.17) combined are found at a rate of 26.90. Like L1 speakers (see section 4.4.2.4), students use *have/need to* to suggest caution or give advice, as illustrated in these examples:

And this actually have a few important points. We have to using lower back.

First drink all. You have to empty the carton.

Pull slowly and you don't need to pull powerfully, only knife's own weight.

As was the case with the HandPIC texts, these examples from the TePIC depend on an underlying assumption of what could reasonably be expected from a person not familiar with the task. Here the students assume that a mistake could easily be made, such as not using the lower back, leaving some drink in the carton, or pulling the knife too forcefully.

Occurrences of *have/need to* are also found in utterances in the TePIC that function to list items needed for the task, as shown below:

First, have to prepare a kitchen knife and grindstone and bowl.

Something to, something to need to make boiled egg is a pot and water and egg.

If you want to make chicken hamburgers, you need to buy lettuce, tomatoes, cheese, chicken, and bread.

A unique characteristic of the TePIC is that the phrase *have to prepare* is often found (6.62), in contrast to the total absence in the HandPIC. Interestingly, in terms of total frequency, the verb

prepare occurs at 22.09 in the student text corpus of students while only 0.54 by HandPIC speakers.

4.5.2.4 Should

Overall, *should* is used by students (27.62) more than twice as much as L1 speakers (12.28). There are also differences in functional use. Firstly, unlike the HandPIC, the TePIC lacks any collocation of *should* with phrases that express status of readiness (see section 4.4.2.5) such as *be able to*, *good to go*, *all ready*, or *fine to*. In some cases, *should* is used to give advice or warnings, which account for about half of all occurrences, such as these examples:

You should buy this packages, this package. It is, it has the noodles and the soups.

Put this, this, into this pocket. But you shouldn't put like this. This is, this is bad way.

And I recommend we should write, we should do calligraphy on the newspaper.

In other occurrences (11.04), *should* signals a procedural activity, with the speaker demonstrating the task at the same time, as in these examples:

You can use many functions on an old cell phone. First you should open.

You should add two teaspoon, two teaspoon, two teaspoons. And then uh you should mix.

And, and it looks, and when it looks delicious, you should sprinkle salt and pepper on it.

In the above utterances, *should* suggests that the steps are optional, yet they appear to be important required moves that would be naturally expressed with a stronger modal (as discussed in section 4.4.1.4) such as *have to* or *must* or with an imperative, a present continuous form, or *let's*.

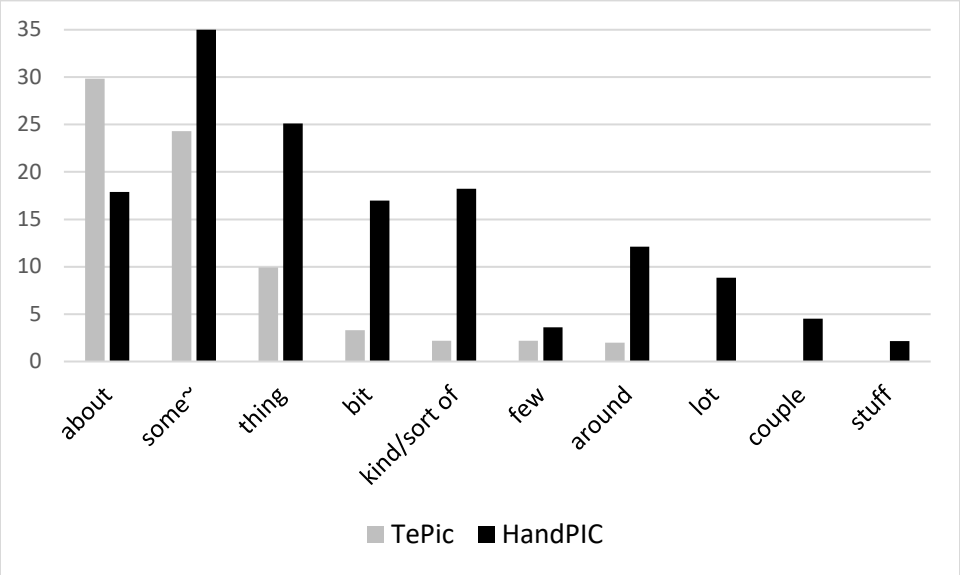
4.5.3 Vague language

As Figure 17 shows, the use of vague language varies greatly between the two corpora. In general, L1 speakers tend to use vagueness with more frequency and variety, while students

primarily only employ three lexical items: *about, some* (including compounds), and *thing*. In this section, a comparison of the use of these three items in the TePIC and HandPIC is made, with additional observations of other patterns of VL use by students.

Figure 17

TePIC: Frequency of vague language (per 10,000 words)



4.5.3.1 About

Of all VL, the most frequently found lexical item (29.83) in the TePIC is *about*, which is the only item that occurs more often than in the HandPIC (17.88). However, despite this high frequency, students tend to use *about* in a narrow range of communicative functions. In 29% of occurrences of *about*, students express the how-to statement or mark a new step, stage, or end of the procedure, as illustrated in these examples:

> *Hello today I'd like to talk <u>about</u> how to cook miso soup which I often make.*
>
> *Next I'd like to explain <u>about</u> bath towel.*
>
> *Today I talked <u>about</u> how to throw an American football. Thank you.*

In contrast, in the HandPIC, only 5% of all occurrences of *about* are used in this fashion.

Another frequent function of *about* in the TePIC is to expresses an approximation as a vague additive (Cutting, 2007). This is accomplished by modifying a cardinal number followed by a unit of measure such as *milliliters, seconds, grams, yen,* and *cups* as in the example: *And after the egg put into a pot, I wait about 7 minutes*. On one hand, such use is more common in the TePIC , as *about* was found to the left of a number and a unit at a rate of 9.94, while this only occurs at 4.87 in the HandPIC. On the other hand, students do not use *about* as a vague additive to approximate locations or positions, which was somewhat common in the HandPIC (4.69). Thus, student monologues lacked collocation patterns of *about* to the left of adverbs or adjectives (e.g., *about there, about here, about halfway, about equal*, and *about this much*), which were commonly used by L1 speakers.

4.5.3.2 Some

Occurring at a rate of 24.30 in the TePIC, *some* and associated compounds (i.e., *someone, something,* and *sometime*) are the second most frequent VL items. Unlike the HandPIC, *something* was more than twice as frequent (16.57) as the other compounds combined (7.73). However, students tend to use *some* to modify nouns related to the specific context at hand, for example *some rice*, *some colors* (of nail polish), *some comic books*. There is less collocation of *some* with general nouns that could be used in multiple contexts, such as some *cases*, some *situations*, some *points*, or some *benefits* that were found in the HandPIC as reported in section 4.4.3. Only two such general nouns were collocated with *some* in the TePIC: *advantages* and *reasons*.

Moreover, the phrases *something like this*/*that*, which were frequent in the HandPIC, were completely lacking from the students' monologues. This is remarkable as *like this* was

extremely frequent in the student corpus (72.94), yet there was no occurrence of the phrase used in collocation with *something*.

4.5.3.3 Thing

In the TePIC, the third most frequently occurring vague language item is *thing,* which is most often found when students give instruction to repeat the previous procedural step, such as *Turn it over and repeat the same thing*. Such utterances account for roughly half of the occurrences, totaling 4.41. This pattern is also found in the HandPIC but only at a rate of 2.79.

The variety of modifiers of *thing* vary greatly between the two corpora. In the HandPIC, speakers modify *thing* with 15 different words (*first, same, other, only, whole, next, last, second, little, nice, important, simple, complicated, entire,* and *good*). On the other hand, in the TePIC there are only two (*same* and *important*). Moreover, speakers in the HandPIC use *first thing* (1.8) to mark the start of the actual procedural steps, as well as instances of *other thing* (2.26) to express alternatives or some additional information. However, neither of these collocations are found in the TePIC, as students prefer to mark a sequence with just an ordinal number, such as *First, fold the paper*, whereas L1 speakers may include *thing* as in *The first thing is to fold the paper*.

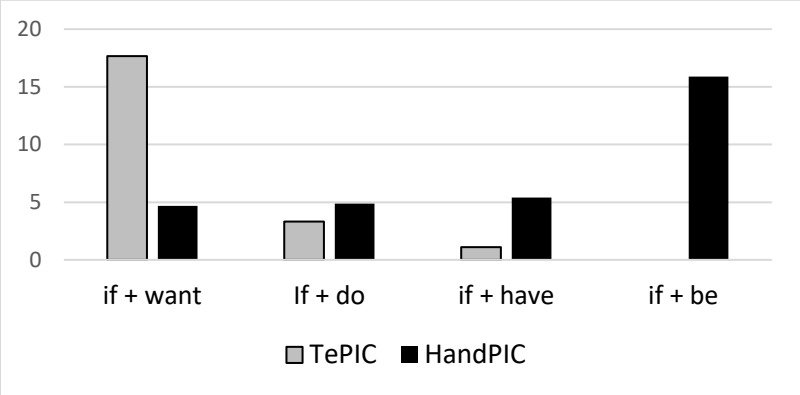
As a final word on VL, apart from *about*, *some*, and *thing*, there are few occurrences of VL in the videos produced by students for the study. Although there are some instances of *bit, sort of/kind of*, *few*, and *around* in the TePIC, due to the low frequency, no salient patterns of communicative function were observed. Moreover, there are no occurrences of *lot*, *couple*, or *stuff* in the TePIC.

4.5.4 Conditional Adverbial Phrases

As previously described in section 4.4.4, *if* is by far the most frequently occurring lexical item in conditional phrases in the HandPIC (47.49). This is also the case in the TePIC, although *if* is found slightly less frequently (38.66). Concerning other types of conditional clauses (e.g., *whether, in case, as long as, otherwise, even though*, and *unless)* there are zero occurrences of such items in the TePIC. In addition, the verbs commonly collocated with *if* in the TePIC vary greatly from that of the HandPIC, as seen in the Figure 18.

Figure 18

TePIC: Verb collocation with if *within three tokens (per 10,000 words)*



Most notable is the total absence of *if*-clauses collocated with be-verbs in the TePIC, which was the most frequent collocation in the HandPIC. L1 speakers tend to favor *if + be* when pointing out options or solutions to possible problems or undesirable conditions. The lack of this pattern may suggest that students deliver monologues under the assumption that the listener will not experience common mistakes or misunderstanding. This hypothesis will be further explored in the discussion chapter.

4.5.4.1 If + want

In the TePIC, the most frequently occurring verb collocated with *if* is *want*. This pattern occurs at a rate of 17.67, which is almost four times as much compared to the HandPIC at 4.69. Examples of how students use the if + *want* collocation are shown below:

> *If you want to make chicken hamburgers, you need to buy lettuce, tomatoes, cheese, cheese, chicken, and bread.*
>
> *If you want to know the meaning of the alphabet words you should touch this* eigo *button.*
>
> *If you want to make your nails prettier, you can use some colors on one nail.*

If you want accounts for 45% of occurrences of *if* in the TePIC. In the HandPIC, such utterances describe optional outcomes or variations of the how-to task being demonstrated. Students, however, exclusively use the 2nd person pronoun as the subject of these clauses; there are no occurrences of any other pronoun. In contrast, the speakers in the HandPIC also use the 1st person pronouns (*If I want/If we want*) at the somewhat frequent rate of 4.87.

Moreover, in the TePIC, every occurrence of *want* is followed by *to* and an infinitive verb form. This contrasts with the HandPIC, where speakers also follow *want* with concrete nouns, such as: *If you want the nose up then you tighten that.* Using nouns as the object of the antecedent clause allows L1 speakers to communicate hypothetical conditionals concerning the relationship of items or results of procedural activities. Students, on the other hand, always use the infinitive.

4.5.4.2 If + do

Although much less frequent than collocations with *want,* there are some (3.31) occurrences of *if* + *do* in the TePIC, as seen in these utterances:

> *This time don't rub your face because if you do so your skin may become breaking out.*

And because <u>if we don't</u> do that it be broke, a broke, a shoulder or elbow.

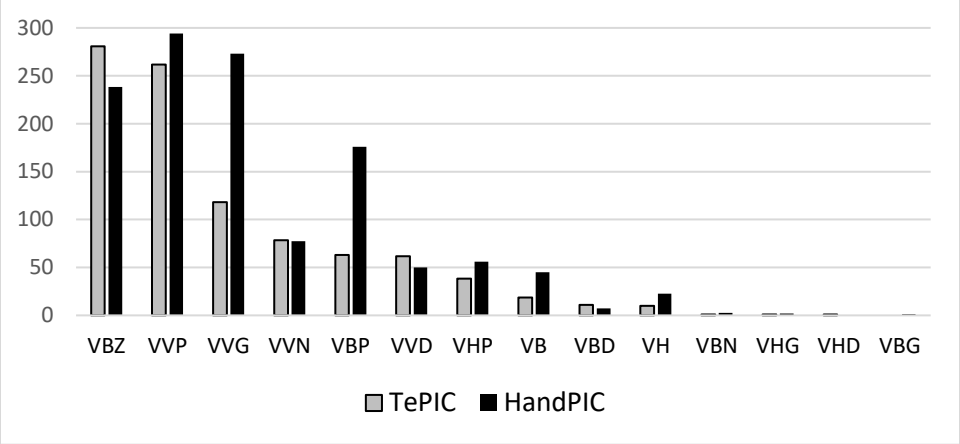
These function as warnings or cautions of negative outcomes, much like the *if + do* patterns found in the texts of the HandPIC. However, L1 speakers favor the negative form, such as *If you don't X* to offer warnings.

4.5.5 Verb Forms

As shown in Figure 19, there are distinct differences in POS tagged verb forms in the two corpora.

Figure 19

TePIC: Frequency of POS tagged forms (per 10,000 words)



Two pervasive verb forms are favored by students: the present tense of be-verbs in the 3rd person (VBZ) and the present tense of lexical verbs in the 1st or 2nd person (VVP). These two forms alone account for close to 60% of all taggable verb forms. In addition, two other forms are somewhat frequent: gerunds/present participle (VVG), and past participle (VVN). The following section describes frequency and functions related to these four forms as found in the TePIC.

4.5.5.1 VBZ (be-verb present, 3rd person singular)

The 3rd person singular be-verb (*is*), tagged as VBZ, occurs most frequently in the TePIC at 280.63, even higher than the 238.21 in the HandPIC. Two patterns of collocation may account for this difference. The first concerns the demonstrative pronoun *this* as the subject of utterances with *is* as the linking verb. This pattern is illustrated in the following examples:

This is a pocket.

First this is a mouthpiece.

And this is a calligraphy paper.

Instead of using the PRONOUN + *have* construction like L1 speakers do (see section 4.4.1.3) students tend to introduce objects by a demonstrative pronoun (*this*) with a simple 3rd person singular verb *(is),* much like the classic sentence used to teach English grammar in Japan: *This is a pen.*

A second pattern is the collection of the pronoun *it* with the VBZ form, which occurs at a rate of 36.46 in the TePIC, similar to the 40.99 in the HandPIC. Students use the pattern *It is* + ADJECTIVE at a high rate of 16.57, often in short sentences (e.g., *It's important*). This pattern also occurs at a rate of 18.42 in the HandPIC but usually in longer sentences, such as *It's really important when you're doing these that you overlap your tape, so you always catch some skin.*

4.5.5.2 VVP (present, except 3rd person)

Want and *do*, as stated in section 4.4.4, are frequently found in conditional clauses, so it is predictable that they are among the most frequent verbs tagged as 1st/2nd person present forms of lexical verbs (VVP). Other differences concerning VVP forms include students' frequent use of *prepare* (9.94 in the TePIC, 0.36 in the HandPIC) as seen in these examples:

Then I prepare a hot water.

Today I prepare one egg.

Second I prepare leftover rice

Like these examples, all TePIC occurrences of VVP forms of *prepare* are in context with food and cooking. This contrasts with the HandPIC; *prepare* in any form is very rare (0.54) and only occurs in a single video about preparing slides for using a microscope. In the ten videos in the HandPIC with cooking related tasks, *prepare* is completely absent.

An additional pattern in the TePIC is the occurrence of VVP forms of *fold* (9.94 in the TePIC and 0.72 in the HandPIC). This is understandable, given that six of the TePIC videos focus on tasks such as folding laundry or *origami* activities that require folding paper. Accordingly, *fold* as a lemma occurs 32.04 in the TePIC, while only 1.08 in the HandPIC.

4.5.5.3 VVG (Gerund)

Turning to the gerund form (VVG), 35% of occurrences in the TePIC are found in utterances that function as one-time genre moves to present the how-to statement or the ending the video. Students make such moves with the verbs *going, watching,* and *listening*, as shown below:

Today, I'm going to make a box from now on.

I hope you enjoy watching this video.

That's all, thank you for listening.

Compared to L1 speakers there is a much lower frequency in the TePIC of gerunds used as modifiers of nouns (e.g., *breathing problems, pairing mode, continuing motion*). Such modification occurs at a rate of 13.54 in the HandPIC, but only 4.4 in the TePIC. When used by students, the pattern is found only in compound nouns, such as *frying pan* or *dishwashing liquid*. Speakers in the HandPIC use such compound nouns, but they also produce more original collocations such as *extending thing, opposing corner, stringing process, the jumping car,*

throwing motion, and *hissing sound.* This type of descriptive use of the gerund is not employed by students.

4.5.5.4 VVN (Past participle)

As has been the case in other verb forms, the past participle in the TePIC is also often found in the ending statement. The verbs *done, finished,* and *completed* are frequently (13.25) employed to do so, as in:

The glass is full, it's done. Thank you for watching.

After 10 minutes later the cooking is finished. That's all my how-to video.

Now I'm completed all section. This is Taiwan's mazesoba*. Thank you.*

Additionally, be-verbs tagged as VBZ are often (18.78) collocated to the left of the VVN tag, to mark a step or phase, as in these examples:

Okay next is electricity cord is attached.

Now the noodle is boiled.

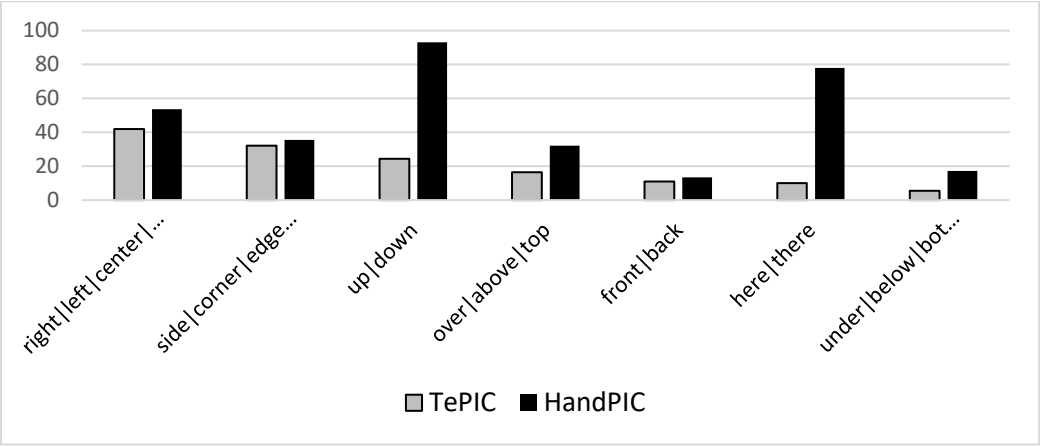
Such collocation occurs only at about half the rate (9.03) in the HandPIC. It may be the case that L1 speakers would favor other verb forms or linguistic devices (e.g., *wh*-clefts) to express step marking or to highlight procedural activity. Taking the first example above, this could be uttered as *Okay next, what I am going to do is attach the cord*.

4.5.6 Spatial Language

Comparing the use of spatial language, illustrated in Figure 20, associated lexical items occur roughly at the same rate in both the TePIC and HandPIC, with the exceptions of *up/down* and *here/there*.

Figure 20

TePIC: Frequency of spatial language (per 10,000 words)



The following sections will report on the three most frequent items that students used when referring to spatial relationships and locations. As was also the case with the HandPIC, the small number of examples of other lexical items was not sufficient to determine any salient patterns of use.

4.5.6.1 Right/left/center/middle

Although they occur slightly less frequently in the TePIC (41.98) than the HandPIC (53.64) *right, left*, *center,* and *middle* are used almost exclusively by students to modify either *hand* or *finger*, much in the same way that L1 speakers do (see section 4.4.6.3). In addition, students used these words as stand-alone nouns in about roughly the same frequency (8.84) as L1 speakers (7.94), as seen here:

> *First pinch in the middle.*
>
> *And fold the corners towards the center.*
>
> *Right or left. It doesn't matter which you choose.*

One small difference is that collocation of the definite article *the* with either *center* or *middle* is found more often by L1 speakers at a rate of 7.40 than the 3.31 found in the TePIC.

4.5.6.2 Side/corner/edge/part

A distinct difference in the two corpora can be seen with the variety of adjectives that modify the words *side*, *corner*, *edge*, and *part*. As pointed out in section 4.4.6.4, most L1 speakers use *sharp*, *flat*, *little*, or *straight* to indicate specificity or *left/right*, *this/that*, *back/front, opposing* or *opposite* in reference to binary choice of locations. However, there are no cases of students using any of these adjectives. They may modify with a demonstrative adjective (i.e., *this/that*), but not with much else; only four adjectives were found at one occurrence each: *lower part, yellow part, square part,* and *back side*.

4.5.6.3 Up/down

As previously described in section 4.4.6.1, *up/down* may be used by L1 speakers in reference to spatial relationships, but also in phrasal verbs. In the TePIC, 87% of all occurrences of *up/down* occur in phrasal verbs, in contrast to only 45% in the HandPIC. In the remaining 13% of occurrences uttered by students, there is no collocation of nouns to the left of *up/down*, such as the frequently found *way up/way down* used by L1 speakers.

4.5.7 Wh-clefts

Unlike the HandPIC, where *wh*-clefts are a distinct and pervasive characteristic of spoken monologues compared to the written texts of the HI-CORE, such constructions are practically non-existent in the TePIC. There is only a single occurrence in the entire corpus in a monologue about fingernail manicure: *What you have to prepare is these three things.*

There are, however, two utterances in the TePIC when students may be attempting to produce a *wh*-cleft but fail to put together the proper syntax, as shown in these examples:

So, so now I'll show you what is you need to make Taiwan's mazesoba.

First of all I show you is what is the lifting.

It is hard to determine if these are *wh*-cleft attempts, false starts, or simple grammatical errors. It seems feasible, however, perhaps because they both contain the verb *show*, that they serve the same highlighting function as *wh*-clefts in the HandPIC.

4.5.8 Summary of analysis

Overall, there is a limited variety of communicative functions and less pervasiveness of linguistic features in the TePIC compared to the L1 texts of the HandPIC. Concerning the use of personal pronouns, a dichotomy of the nominal *I* and *you* account for most forms in the TePIC, as students used *we* much less frequently and with a narrower scope of function. In addition, modals and semi-modals were used differently; *going to* and *can go ahead* were rarely collocated with pronouns to highlight procedural activities. Moreover, vague language was used less often in the TePIC. Students employed *about* to approximate numbers or amounts, but not for locational reference; *some* was collocated with specific nouns but not with general nouns to signal advice. There was also less dynamic use of *if*-conditionals, with a total lack of *be*-verb collocation in the TePIC, reflecting that students give fewer options or advice compared to L1 speakers. Regarding verb forms, in addition to *be*-verbs, gerunds were also used less frequently by students. As was the case with several pervasive patterns of modals and pronouns in the TePIC, gerunds were limited to non-recursive functions typical of genre moves, such as openings, *how-to-X* statements, and endings. Finally, *wh*-clefts, one of the most pervasive features in the HandPIC were absent from the TePIC.

Chapter 5: Discussion

In this chapter, I will expand on several aspects of the results and offer discussion aimed at how the study may have practical value for English language teaching, especially in ESP contexts with Japanese university student learners. To frame the discussion, the purpose of the study is revisited and the answers to the four research questions are presented. Therefore, I will expand on several linguistic features and their relationship to communicative functions. Lastly, practical creation of learning materials and other pedagogic recommendations are discussed.

5.1. Revisiting the purpose of the study

As stated in the introduction of this dissertation, the underlying goal of the research presented here is to provide practical and useful knowledge of procedural monologues. My aim is to support pedagogical approaches employed by English language course designers and instructors, especially those teaching in higher education contexts in Japan. Without any research-based resources to build on, instructors have only their own intuition when forming an approach to incorporating procedural monologues into lesson plans or learning materials.

Throughout this project, the primary focus has been on procedural monologues typical of a L1 speaker communicative approach. Regarding such an approach, however, it is worth clarifying a point that came out during my presentation at the 2021 JACET conference during discussions concerning the “right” or “wrong” way to engage in procedural discourse. I am not suggesting that L1 speakers are to be seen as the authority on how to deliver an effective procedural monologue. Unlike written academic registers or established genres such as the research article that have established rhetorical structures practiced by a discourse community, demonstrating a how-to task is much more fluid and produced in real time. I hold a strong belief that there is a place for such discourse in higher education contexts, but I am not advocating for a

rigid formulaic model for all students to follow. Instead, my primary aim is to understand what speakers engaged in procedural discourse are trying to communicatively accomplish and what language may help them to do so. It was towards these goals that I crafted the four central research questions, which are restated for reference below:

1. What are the salient communicative functions associated with procedural monologues produced by L1 speakers of English?

2. What linguistic features are most pervasive in procedural monologues produced by L1 speakers of English and how are they related to communicative function?

3. What are the differences in communicative functions in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates?

4. What are the differences in linguistic characteristics in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates and how are they related to communicative function?

Concerning the first question (1), the term *salient* may convey a wide range of meanings across difference fields of linguistics (Boswijk & Coler, 2020). I am using the term here in a general sense to represent features that are "widely and easily recognized" (Puschmann 2009, p. 51) in a text. My assessment of salience was made by considering the results of frequency of occurrence within the corpus (as reported in 4.3.1) and the number of monologues the function occurs in at least once (see section 4.3.2). In the second question (2) the term, *pervasiveness*, which is favored by Douglas Biber and associated researchers, is based on rates of normalized frequency of features (compared to the HI-CORE as a reference corpus), which was the focus of the register analysis (see section 4.3) of the HandPIC.

Notably, the texts of L1 speakers are at the heart of all four questions, so it is logical that the HandPIC is the central data set in the study. Working with this corpus to answer questions (1) and (2) involved a much more rigorous effort than (3) and (4) for several reasons. First, the HandPIC is much more semantically dense, syntactically complex, and larger (48,321 words)

than the TePIC (7,480 words). Moreover, the 1.5 million-word HI-CORE used as a reference was very large, which limited the extent of familiarity I developed with the texts within it. Thus, answering the first two questions commenced from zero ground by unpacking the L1 speakers' monologues in small steps by extracting data and looking for connections between function and form. As patterns of language started to emerge, I developed an understanding of the HandPIC that facilitated investigating the student texts to answer questions (3) and (4). In addition, the smaller size of the TePIC permitted a detailed analysis; in some cases, a manual search for patterns of language was possible. In other words, when working with the student texts, I knew what I was looking for and had less clutter to deal with when searching. There were even a few instances that before submitting a search of the HandPIC, I could make an accurate prediction as to which of the 50 students would probably show up in the hits from the inquiry.

It was through this process that I was able to arrive at an analysis of both the HandPIC and TePIC. Before advancing to further discussion, however, it is appropriate to answer the four research questions at this time, as presented in the following sections.

5.2. Research Question 1

> What are the salient communicative functions associated with procedural monologues produced by L1 speakers of English?

The data suggests that there are 13 salient communicative functions that are associated with L1 speakers' procedural monologues. These functions can be categorized into two types: ten recursive functions and three non-recursive functions.

Of the ten recursive functions, three have a particularly high degree of saliency. Describing procedural activity to complete the task is by far the most dominant. Approximately a third of all utterances in L1 monologues are engaged in demonstrating or directing the listener

through activities that are essential to completing the task. A second highly recursive function is communicating advice, which includes giving warnings or expressing the speaker's preference towards aspects of the task. Such utterances provide supplemental knowledge that aim to make the task easier or avoid commonly occurring problems. The third highly salient function is referring to physical items (or materials) that are used during the demonstration. This may include statements that only define or name the item as well as those which place it in context of the spatial location or provide more descriptive details of the item's characteristics.

The remaining seven communicative functions, which may be considered moderately salient, include: explaining reasons for procedures, describing results of procedures, offering options or alternatives, providing clarification, describing typical situational factors, confirming that aspects of procedural activities were understood by the listener, and signaling a sequential step or phase of the task.

The three salient non-recursive functions may be considered genre moves as they only occur once at a predictable part of a monologue. All three have a high degree of saliency. The first of this type is the statement of the *how-to-X* task, which specifies exactly what will be demonstrated. The second is to signal that the monologue is starting and may include a self-introduction and background information. The third is to signal to the listener that the monologue is ending.

5.3 Research Question 2

> What are the pervasive linguistic characteristics and patterns of language found in procedural monologues produced by L1 speakers of English and how are they related to communicative function?

There are five pervasive linguistic features of L1 procedural monologues. The first is that speakers rely on 1st person plural and 2nd person pronouns when engaged in all communicative functions. These pronouns are indiscriminately substituted for 1st person singular forms and foster a sense of inclusion, as if the listener is performing the *how-to-X* procedures in a parallel task. A second salient linguistic characteristics is the use of *wh*-clefts. This construction has multiple relationships with communicative functions, including signaling of procedural activity, advice and warnings, item descriptions, and how-to statements. Speakers use *wh*-clefts to highlight and bring attention to specific aspects of the monologue. A third characteristic is the semi-modal verb *going to*, which primarily is related to procedural activities. It may be used to signal a forthcoming activity, highlight an on-going activity, or draw attention to a consequence resulting from an activity. Moreover, *going to* is often used in conjunction with *wh*-clefts. A fourth characteristic is the use of conditional adverbial clauses with *be*-verbs. This feature occurs most often when speakers give advice or warn of potential problems. A fifth characteristic is the use of present-tense verbs and gerunds that are needed to form imperatives for procedural activities or as complements to *wh*-cleft constructions.

5.4 Research Question 3

> What are the differences in communicative functions in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates?

There are three key differences between the communicative functions in procedural monologues by L1 speakers and Japanese university first-year undergraduates. The first difference is that students engage in a limited scope of recursive functions. While procedural activities and item descriptions are salient foci of their monologues, students do not place emphasis on the five moderately salient recursive communicative functions that L1 speakers typically do. The second

difference is that L1 speakers put much more emphasis on giving advice or warnings. In contrast to the high saliency in monologues by L1 speakers, this function was significantly deficient in monologues by students. The third key difference is that students spend a larger portion of their monologues on functions related to genre moves or step marking. This results in a predictable rhetorical structure of student monologues, but one that, when compared to L1 speakers, is less dynamic in terms of overall communicative scope.

5.5 Research Question 4

> What are the differences in linguistic characteristics in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates and how are they related to communicative function?

The first difference in the linguistic characteristics between the two groups is found in the use of personal pronouns. Students primarily rely on the first person singular and do not incorporate the indiscriminate use of second-person or first-person plural pronouns as L1 speakers may do to foster a sense of inclusion with the listener. A second difference is the lack of *wh*-clefts in monologues by students, which is a particularly salient construction used by L1 speakers. Without *wh*-clefts, a forthcoming procedural activity may lack any distinction for the listener. Thirdly, there is a significant discrepancy in the presence of semi-modal verb *going to*, which students generally avoid when engaged in procedural activities, which also reflects a lack of highlighting for procedures. A fourth difference is that students do not use much vague language, including the most salient forms that are favored by L1 speakers. Lastly, a fifth difference is that although both groups employ conditional adverbial clauses, they are found with different collocations. L1 speakers have more clauses with *be*-verbs, which reflects a lack of advice or

warnings by students, who favor *if*-conditionals with the verb *want* to express possible procedural options.

5.6 Discussion of linguistic features and their relationship to communicative functions

In the following sections, several aspects of the answers to the research questions will be discussed, including personal pronouns, *wh*-clefts, vague language, *if*-conditionals, and finally the rhetorical structure of procedural monologues.

5.6.1. Personal pronouns and simultaneous-task schema

The first point of discussion concerns the use of personal pronouns and the role they play in fostering a sense that the listener is engaged in a real-time parallel activity. L1 speakers use pronouns, especially the nominal forms (*I, we, you*) indiscriminately across a wide range of communicative functions. This implies a cognitive schema centered on the listener as one who is performing the task simultaneously. In other words, instead of producing a testimonial account of their own actions as a package of referential knowledge for future use, L1 speakers may imagine that the listener is directly in front of them and synchronously performing every step of the procedure.

This simultaneous-task schema appears to be lacking in student monologues. At times it seems that students model their dialogues on a schema rooted in the Japanese language. For example, consider the register characteristics of a how-to video in Japanese. The classic TV cooking show *Kewpie 3 Minute Cooking* (キユーピー3分クッキング) , could be considered an exemplar of procedural discourse register in Japanese. It is easy to imagine an utterance in the show such as 水に塩を少々入れます , which in English may be translated as *[I/We/You] add a little salt to the water*. Here, the nominal pronoun is ellipsed. Although *I* may be the most logical subject, there is no way to determine if the speaker means to imply, *we* or *you* to include the

listener. In contrast, it would seem unnatural for a speaker on the show to include a specific nominal pronoun, such as in the utterance 私たちは水に塩を少々入れます. However, the same utterance in English (*We add a little salt to the water*) is consistent with salient patterns of pronoun use found in the L1 texts in this study. By using this inclusive first-person plural (i.e., the nominal *we*), L1 English speakers make the listener part of the activity, whereas in Japanese this may only happen with first-person plural imperatives, such as *Let's add a little salt to the water* (塩を少し入れましょう), but not in other constructions. Although this study aimed to identify differences between L1 speakers and Japanese students, the reason for these differences was outside of the scope of inquiry. However, by pointing it out here, I hope to emphasize that students may be unfamiliar with using personal pronouns in the indiscriminating way that L1 speakers do. Introducing the use of pronouns to support this simultaneous-task schema concept may require the typical Japanese learner to let go of the thinking-in-Japanese strategy before speaking in English. This idea will be discussed further in recommendations for pedagogical applications in section 5.7.

5.6.2 Wh-clefts

A second issue of discussion is the void of *wh*-clefts in student monologues. This type of construction may be outside of pedagogic grammars that most university undergraduates have been exposed to. Thus, without awareness of *wh*-clefts and their usefulness as highlighting devices, students may tend to produce somewhat flat texts that require L1 listeners to pay close attention. For example, using the utterance from the discussion of pronouns, L1 listeners may be more apt to recognize the highlighted *Now, what we are going to do is add a little salt to the water* more than they would *Add a little salt to the water*. Semantically, there is little difference between the two, but communicatively, the *wh*-cleft signals that something worth noticing is

happening. Similar highlighting is also possible without the *wh*-cleft by just using the semi-modal *going to*, as in *We are just going to add a little salt to the water*. However, even these simplified constructions are mostly missing from student monologues. Therefore, without such highlighting devices and the tendency to use simple present forms, student monologues may come across to the L1 speakers as more like a list of written instructions than being personally involved in a demonstration of a procedure.

5.6.3 Vague language

An interesting aspect of how both groups use *thing* is that L1 speakers utter the word with a wide variety of modifiers, while the students only used two (*same thing* and *important thing*). One group of modifiers used by L1 speakers are sequential (e.g., *first, second, next, last*) and were most often found in step-marking utterances. While students may use *first* as an adverb, L1 speakers prefer to use these items as adjectives (e.g., *first thing*). Out of context, it is hard to argue that adjectives are any better or worse for marking steps. However, consider that L1 speakers favor an utterance such as *Ok, the first thing we are going to do is open the box*, while students would more likely say *First, open box*. Functionally, both utterances serve the same purpose. However, using *first* as an adjective of *thing* changes the structure of the sentence and requires a longer utterance giving the listener a better chance to notice. Moreover, the noun phrase *first thing* also allows for the *wh*-cleft to be constructed, which in turn may highlight the step more than the simple imperative form favored by students. An additional group of modifiers of *thing* in L1 texts are descriptive adjectives that facilitate giving advice or warnings, such as *only*, (*The only thing, though, when you pull it out, you need to scrape off the excess. So you don't get too much*), *other* (*Another thing you don't want to do is bring you hand too low*), or

good (*So a good thing to do is to take some sandpaper and sand that down*). These types of phrases may help students to put more emphasis on advice.

Another aspect of vague language worth noting is the paucity of downtoners such as *little bit* and *kind/sort of* in the student corpus. Downtoners are often used by L1 speakers to indicate the level of intensity of verbs related to procedural activities (e.g., *push down a little bit; kind of flatten it out; sort of micro-adjust it*) or the amount of a material (e.g., *a little bit of water*). As students tend to speak in more absolute terms when vague language may be more effective, an increased awareness of these downtowners could add more depth to procedural activities and item descriptions.

5.6.4 If-conditionals

The difference in the two groups use of *if*-conditionals raises some interesting points, especially the complete lack of conditionals with *be*-verbs by students. As described in section 4.4.4.1, typically L1 speakers use *be*-verbs conditionals in a wide range of functions. One is to frame advice or warnings for undesirable or potentially difficult situations. For example, consider the hypothetical in the following utterance from a HandPIC video on how to help a choking victim:

> *If the person is pregnant or a larger person and you can't get your arms all away around to where their belly button is, you want to go higher.*

In this case, the speaker is acknowledging that not all situations of people choking are the same and that the listener may need some additional advice to deal with pregnant or overweight. victims. Such acknowledgement of hypothetical situations rarely occurs in student monologues. It may be that they do not envision any need for special instructions for possible situational factors that may differ from those in the demonstration. Thus, students tend to base monologues on just one possible situation and have little need for *be*-verbs after an *if*-conditional.

Another outcome of the lack of *if*-conditionals followed by *be*-verbs is that students generally tend to avoid clarifying aspects of the procedure that may appear odd or incorrect to someone unfamiliar with the task. For example, consider these utterances from a HandPIC monologue:

> *You don't have to worry if the dough gets a little crackly because you're gonna be painting icing. You're gonna be icing these cookies, so <u>if there are</u> a few little cracks in the dough it won't matter.*

The function of the second utterance goes beyond instruction of a procedural step and acts to assure the listener that there is no need to distress if something occurs that does not seem correct, such as *cracks in the dough* in the example above. The absence of the *if* + be-verb pattern reflects that students do not attempt to make such assurance as L1 speakers often do.

In addition, *if*-conditionals followed by the verb *have* are practically nonexistent in the TePIC, occurring only once. In contrast, this construction is often used by L1 speakers to reference items or materials, as in the example: *Start off with 23 grams of coffee, <u>if you have</u> a scale*. Again, this type of hypothetical conditional addresses situations that may vary, which in this case implies that a scale is helpful but is not absolutely required to complete the task. Moreover, the pattern can be used to inform the listener that other items or tools may be suitable as an alternative, as in following from the HandPIC video on how-to assemble a skateboard:

> *So these are going to be the basic tools you'll need to put your board together. A skate tool, a poker, a screwdriver, a razor blade, and a power drill, <u>if you have one</u>.*

In this case, the conditional shows that the speaker is clearly thinking of his listeners' situation as well as his own, as not all people have access to a power drill. Students do not use conditionals

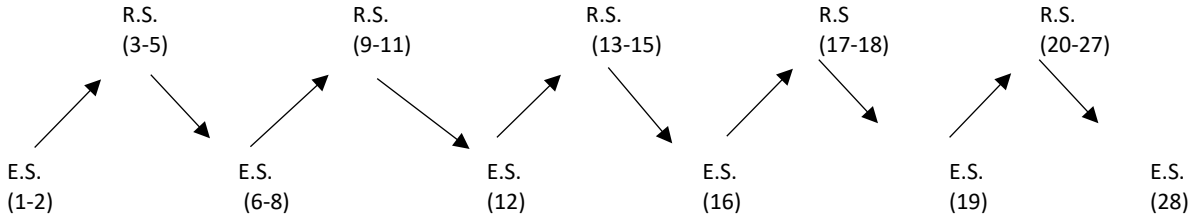
in this same way, perhaps because they are completely focused on the tool in their own hand and not thinking of what possible resources may be available to the listener.

5.6.5 Rhetorical structure

An additional point of discussion involves the narrow scope of recursive functions in student monologues. Through the lens of Swales' moves/steps paradigm, there are certainly genre elements embedded in procedural monologues by both groups, especially in the openings and closings of texts. However, much of what happens in-between does not follow any generic sequential structure. This is not to say that the vast middle ground is an unpredictable mess. When giving a procedural monologue, speakers shift between what Swales suggests are *levels of treatment* (see section 2.3.4). Borrowing the terms from Fontan and Saint-Dizer's *rational structure* vs *explanation structure* (see section 2.1.2), perhaps these levels are cloth woven of two essential threads. At the core of the rational thread's fibers are procedural activities, which are intertwined with item descriptions, confirmations, results, and step marking. The explanation thread is made of advice and warnings, reasons, options, and include the genre-like functions found in the opening and ending. Employing Swales' (2016b) model of SIA oscillation of levels of treatment, these two threads in a HandPIC video (mixing a martini) are illustrated in figure 21.

Figure 21

Example of oscillation of levels of treatment in L1 monologues



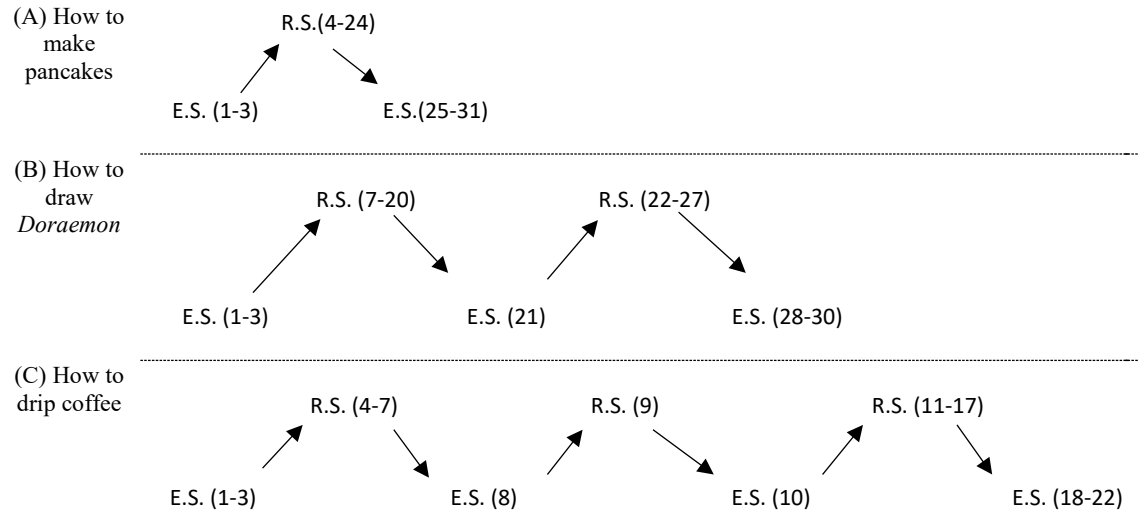
Note: R.S.= rational structure; E.S.=explanation structure.

In the example in Figure 21 above, the speaker makes ten shifts of level of treatment over the course of 28 utterances in the monologue. After opening and stating the *how-to X* task, a transition to the explanation level is often made to give recommendations, to explain why carbonated water is better for glass chilling, to justify the length of the shake, to comment on the situational factor of dry vermouth, and finally to end the monologue. Such oscillation is typical in the L1 speaker monologues and reflects a frequent flow between the two poles. This implies that L1 speakers give procedural instructions while trying to connect to the human experience of someone who is unfamiliar with the task by offering advice, options, explanations, and clarification. This supports the simultaneous-task schema discussed in section 5.6.1. Without a shift in levels, a procedural monologue would become a flat set of directives, something akin to a set of written directions or even pictorial assembly instructions most often associated with products produced by IKEA™ and Lego™. Such instructions are designed to be understood by all users, regardless of their L1 language, through a series of illustrations without any written text. There is no need for an explanation structure, so such texts do not shift between two levels of treatment. In contrast, procedural monologues, as results in this dissertation have shown, have a much wider range of communicative functions beyond the core procedural activities.

Again, using Swales' method of illustrating oscillation, Figure 22 illustrates three student monologues that have approximately the same number of utterances.

Figure 22

Examples of oscillation of levels of treatment in student monologues



Note: R.S.= rational structure; E.S.=explanation structure.

Simple patterns of level oscillation are typical in student monologues. Example (A) shows the most basic, which involves two shifts in levels in a monologue on how to make pancakes. In this case, like many others in the TePIC texts, the student said hello and stated the task and then shifted to the rational structure for 20 consecutive utterances only to return to the explanation level to end the text to comment on how delicious her pancakes look before saying goodbye. Case (B), how to draw the animation character *Doraemon*, follows a similar pattern, but with a single one-utterance shift when the student gave a warning that drawing the curves of the character's head is difficult. Finally in case (C), the student makes two level shifts: one to acknowledge a mistake and a second to clarify that the water must boil before pouring.

In short, a strong argument can be made that students are more concerned with the rational structure than they are with the explanation structure. This could imply that a student's connection to the listener does not extend much further from formal greetings (e.g., *Hello* and

Thanks for watching). Unlike L1 speakers, students prefer the simple flow of the rational structure sequence and are less focused on orienting a listener who is attempting the task for the first time.

5.7 Recommendations for pedagogical application

The research questions answered in the dissertation are centered on identifying communicative functions and linguistic features in both sets of data and do not extend any further. While the underlying goal of this project is to provide results that may support language teaching and learning, the study stops short of investigating how this may effectively take place. Accordingly, as this section proceeds, I want to emphasize that these recommendations are offered purely as a point of discussion and not as an extension of the research. Especially concerning sample learning materials, my intention is to give an example of how the results could be used by an instructor for any given ESP context, which in my case involves the ceramic arts. At this point, the materials are in the prototype stage and have not yet been used in authentic teaching contexts.

Building on the results of this study, a language instructor may take the logical direction of incorporating the key communicative functions into actionable lesson plans for classroom learning. Since describing procedural activities and giving advice comprise a large part of monologues by L1 speakers, a good place to start may be with these two key functions. Salient differences between L1 speakers and students may deserve particular emphasis, including linguistic devices that highlight a procedural activity or frame advice or warnings.

To illustrate how this may be accomplished, let's consider ways that an instructor might develop lesson plans focused on how to highlight a forthcoming procedural activity. As shown in the prototype classroom material (Figure 23), a general introduction of alternatives to the simple imperative may provide a point of departure.

Figure 23

Prototype classroom materials: highlighting procedural activities

	When you are giving a how-to demonstration, there are many different phrases that you can use to give step-by-step instructions. Of course, a simple phrase is possible, such as: ***Cut the paper*** However, in many cases, other phrases are used with personal pronouns like **I**, **we**, or **you**. These help the listener to notice that an important step is happening. Please look at some of these patterns below.
PRONOUN + is/are going to…	*Next, I'm going to cut the paper* *Next, we are going to cut the paper* *Next, you are going to cut the paper*
What + PRONOUN + want to do is …	*What I want to do is cut the paper* *What we want to do is cut the paper* *What you want to do is cut the paper*
PRONOUN + can go ahead and…	*I can go ahead and cut the paper* *You can go ahead and cut the paper* *We can go ahead and cut the paper*

Based on my own intuition and teaching experience with Japanese learners, there may be two aspects of these examples that students are not familiar with: the general concept of using the nominal pronouns (*I, we, you*) indiscriminately, and the grammatical constructions that were not found (or extremely rare) in the TePIC corpus, such as using the present continuous, *wh*-clefts, and *the* MODAL+*go ahead and* pattern. Since these patterns are all presented with the same simple prompt (*cut the paper*), this set of examples could be used to provide a basic model, regardless of the ESP context. Building on these patterns, an instructor could also choose to design a classroom activity that calls for the students to complete a brief procedure that most learners would be familiar with. For example, it is hard to imagine that any student in Japan does not know how to prepare cup-ramen, so a cloze-sentence activity (with contrived example answers in script) such as the one shown in Figure 24 may be useful. In this activity, students

need only to focus on the patterns of language listed in Figure 23 and not on organizing the sequence of procedures.

Figure 24

Prototype classroom materials: sequential procedural activities

Try to use these patterns and tell your partner how to make cup ramen.

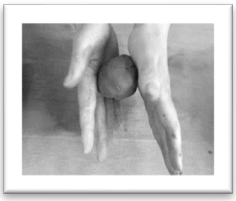
PRONOUN + is/are going to…
What + PRONOUN + want to do is …
PRONOUN + can go ahead and…

1. *What* you want to do *is open the lid.*
2. Next we are *going to add the soup mix.*
3. Next, I can *go ahead* and add the *boiling water*.
4. Then, what we *want to do is wait* for 3 minutes.
5. We are finished, so you can go *ahead and eat!*

In addition to general procedural tasks, these types of materials could be constructed more specifically for the target situational use. Drawing on my own context of aiming to support traditional craft practitioners, an activity such as the following Figure 25 may allow a ceramic major student to apply the patterns to their own context of working with clay. In these examples, I have selected a few photographs from past research projects that represent basic verbs needed with hands-on techniques. The focus here is to foster awareness of the linguistic features of the semi-modal *going to*, *wh*-clefts, and the *go ahead and* + VERB construction by using familiar tasks that occur in most clay studios. Like the activities in Figure 23 and Figure 24, there is no need for students to apply any knowledge of the ceramic arts to complete the exercise.

Figure 25

Prototype classroom materials: specific context procedural activities

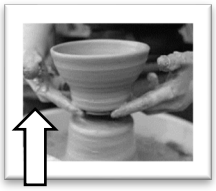
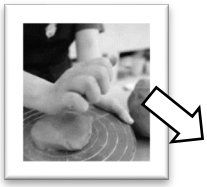
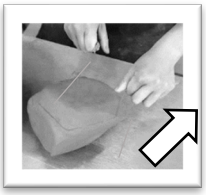
Describe what the person is doing by using these patterns: PRONOUN + is/are going to… What + PRONOUN + want to do is … PRONOUN + can go ahead and…	
Now you are *going to* lift the bowl. 	What we *want to do* is roll the clay. 
You can *go ahead and* pinch the edge. 	What I *want to do* is make a ball. 
Next, I'm *going to* push with my palm. 	We can *go ahead and* cut the top. 

The prompts in Figure 25 are not a sequential procedure but simply focus on alternative patterns to highlight a procedural activity. A lesson plan could build on this activity and ask students to write a set of key procedures for one of their own personal techniques. As most students have smartphones with cameras, it is feasible for them to take photos of their classmates' technique which could then be used with the same patterns. Using the same example photos as a substitute, student smartphone photos could also be used in classroom activities to promote the giving of advice or warnings, which the results showed was a salient difference

between L1 speakers and Japanese students. Figure 26 shows how students may apply their own knowledge of ceramic technique.

Figure 26

Prototype classroom materials: advice in specific contexts

<table>
<tr><th colspan="3">Ways to give advice for techniques: Look at these patterns below:</th></tr>
<tr><td rowspan="4">  </td><td>PROUNOUN + want</td><td>I want to use both thumbs.
We want to use both thumbs.
You want to use both thumbs.</td></tr>
<tr><td>PRONOUNS + have/need to</td><td>I have to use both thumbs.
We need to use both thumbs.
You have to use both thumbs.</td></tr>
<tr><td>I would…</td><td>I would use both thumbs.</td></tr>
<tr><td>If….</td><td>If you use both thumbs, it is very easy.</td></tr>
<tr><td colspan="2">Now you are going to lift the bowl.
We want to pull up very slowly
  </td><td>What we want to do is roll the clay.
I would check that the surface is clean.
  </td></tr>
<tr><td colspan="2">You can go ahead and pinch the edge.
You need to pinch softly.
  </td><td>What I want to do is make a ball.
If your fingers are straight, it is better.
  </td></tr>
<tr><td colspan="2">Next, I'm going to push with my palm.
I would use a banding wheel to do this.
  </td><td>We can go ahead and cut the top.
I have to pull towards me.
  </td></tr>
</table>

These materials may help students to shift levels of treatment, but some caution should be exercised that learners do not feel that they are required to give advice every time they describe a

procedural activity. Because many of the salient communicative functions employed by L1 speakers are recursive in nature, it should be made clear to students that they are free to shift to a different level of treatment when they think it is needed. This is not only true with giving advice, but also with other recursive functions such as describing items in detail with special locations, presenting optional procedures or tools, clarifying, confirming, and bringing attention to results and situational factors. At best, effective lesson plans may help students to develop awareness of these recursive functions, but since procedural monologues unfold in real time, shifting to a different level of treatment may not always be something that can be planned and, in some cases, may be a spontaneous reaction to situations of the demonstration.

The non-recursive functions of the opening, the *how-to X* statement, and the closing, can be emphasized by classroom instructors as well. Considering the differences in how L1 speakers and students opened their monologues (see sections 4.1.12 and 4.2.9), students tend to just say hello and quickly make the *how-to X* statement. On the other hand, L1 speakers sometimes suggest that by affiliation or experience they are qualified to demonstrate the task and give some background before stating the *how-to X* purpose. Although many YouTube videos are produced by professionals whose self-introduction alone may validate their competency to give how-to instructions, students may still benefit by practicing with a simple model of this structure as illustrated in Figure 27.

Figure 27

Prototype classroom materials: monologue opening

Starting a how-to demonstration	
Self-introduction	Hi everybody, I'm Yuki. Thanks for being here today.
Why you?	My hobby is cycling, and I am interested in bicycle maintenance.
Topic Background	Have you ever got a flat tire on your bicycle? It can be inconvenient. I think you took the bicycle to a repair shop, right? Maybe you had to push it to the shop and of course you have to pay to have it repaired.
How-to X Statement	Today I am going to show you how to repair a flat tire by yourself.
Let's practice. Think of one idea for a how-to video. Fill in the blanks below	
Self-introduction	*Hello. I am Tomoko. Welcome to my how-to video.*
Why you?	*Recently I have been spending a lot of time checking the internet for healthy recipes.*
Topic Background	*I think many university students are too busy to cook every day, so maybe you do not always eat a balanced meal.*
How-to X Statement	*Today I am going to show you how to make a simple salad that is not only cheap but also very healthy.*

This opening model could also be used for a specific context to give learners a better sense of how they might put forth their own qualifications, present appropriate background for the task to be demonstrated, and state a *how-to X* task that members of their own discourse community will clearly understand.

In summary, because the study focused on specific linguistic features and communicative functions, classroom instructors may draw on results to develop materials that can promote a more dynamic monologue than what Japanese university undergraduates may typically produce. While the research questions of this dissertation did not encompass the effectiveness of materials, a case can be made that a list of authentic communicative functions provides instructors with themes that could be incorporated in lessons focused on both general how-to instructions and monologues with more specific purposes. Additionally, by understanding which linguistic features are salient in L1 texts, instructors may create materials based on corpus-based findings as opposed to their own intuitive approach.

5.8 Originality of the study

As mentioned in the introduction, very little attention has been given to spoken procedural discourse for learners of English as a foreign or second language despite the importance that it may have in a wide range of contexts. Because of this gap, the dissertation has several original aspects. To examine these, it may help to step back from the research questions and detailed results and reflect on how this study may have, to some degree, broken new ground.

First, from a register analysis perspective, the study may be the first to attempt to define procedural monologues as a linguistic register. The HandPIC, to the best of my knowledge is the first corpus dedicated strictly to a representation of the spoken discourse of how-to videos. Although many communicative functions and linguistic features discovered in my investigation were predictable and very much in line with the Biber and Egbert (2018) work with the written texts of the HI-CORE, some result can be considered as new knowledge of our understanding of the way language is used when giving a hands-on demonstration of a procedure. Highlighting devices stand out as a significant addition. These devices rely heavily on two linguistic features, the semi-modal *going to* and *wh*-cleft constructions. The study presented here is the first to offer corpus-based evidence that these features are pervasive in spoken texts that focus on *how-to-X* goals.

A second original aspect of this project is that, until now, there have been no attempts to investigate how Japanese university students may approach the challenge of delivering a procedural monologue in English. The TePIC corpus provides data that makes a strong argument that many recursive functions favored by L1 speakers are not employed by students when producing this variety of spoken English. Instructors may draw on these results to get ideas for

effective ways to introduce both function and form in lesson plans that focus on bringing awareness to these recursive features.

Thirdly, a unique aspect of the study is that it seems to be the first that attempts to apply Swales' concept of *levels of treatment* and patterns of oscillation between levels to new contexts. Although Swales, in our personal correspondence, described this concept as one that he did not pursue any further than architectural critiques or single image accounts of artworks, it is well-suited for investigating procedural monologues and may illuminate the grey areas between a register and genre perspective.

In summary, the four original research questions that guided this project were answered and showed that there are numerous salient features of communicative functions and linguistic features that are part of the situational context of procedural monologues by L1 speakers. Additionally, many differences in these functions and forms were found when compared to monologues produced by students. The discussion here covered unique aspects of personal pronouns, *wh*-clefts, vague language, conditionals, and patterns of oscillation in the levels of treatment concerning rhetorical structure. Some recommendations for how instructors may make use of the study's findings to create learning materials was illustrated, and a final note was offered on how the research may have contributed to a better understanding of procedural monologues in general, and specifically in Japanese contexts.

Chapter 6: Conclusion

In this final chapter, some conclusions are drawn based on key points previously made in the results and discussion chapters. These start with some limitations of the study, including the single rater approach to qualitative coding of communicative function in both sets of data, the scope of representativeness of collecting data from a single institution, and the degree to which a claim of authenticity may be made with respect to linguistic data collected by means of the prompt used in the study. Additionally, although longer and more detailed answers to the research questions are available in the discussion chapter, a more succinct summary is presented here. Specific and brief answers for each of the four questions are provided for a review of salient communicative functions and linguistic features. Following the summary, suggestions are put forth on how procedural monologues may be investigated further or taken in new directions in future studies. This includes expanding the size of the HandPIC to allow for a richer source of linguistic patterns, developing the TePIC to enrich the representation of the typical Japanese undergraduate student, and possible future research aimed at implementing procedural monologues into ESP course design in Japan. Finally, closing remarks are given that reflect on the project and its underlying goals.

6.1 Limitations of the study

It is important to acknowledge that the study has its limitations. Starting with the qualitative coding results described in section 4.1, findings are based strictly on my own interpretation of communicative function and lack any second opinions of additional raters. Although doing so would have increased the validity of the coding methodology, I decided not to for two reasons. The first was to economize time and to have flexibility to aggregate codes or add new ones that emerged while working with the corpus-based side of analysis. The second is that my purpose

with coding was to explore the situational aspects of monologues to enhance register analysis of both corpora. It was not my intention to produce qualitative data to support a stand-alone study, which would require a more rigorous approach to rater validity and a systematic process of refining codes. Such an approach, and perhaps with a larger set of data, could be explored in a future study to extract a more valid and comprehensive set of qualitative codes.

An additional limitation concerns the degree to which the TePIC represents the typical Japanese university undergraduate. Although the corpus presents a balance in gender and spans a wide variety of academic majors, a sample of spoken texts by 50 students from a single university cannot provide a full picture of the numerous institutions that make up the higher education ranks in Japan. Moreover, all participants were first-year students, so the data may not accurately reflect characteristics of their upper classmates. This limitation does not necessarily hinder my purpose of understanding which communicative functions and linguistic characteristics would provide useful points of departure for the learning and teaching of procedural monologues. However, using findings for broad characterizations of typicality in Japanese higher education should be done cautiously. To address this limitation in future research, the inclusion of a wider variety of universities would be required.

Data collection methods, to some extent, may limit the degree of authenticity of the TePIC texts. Although I attempted to reduce the risk of the imaginary interlocutor effect (see section 2.6.1) and write the DCT prompt to depict the task as a "fun activity" of "just talking and showing how to do something," it is feasible that some students still approached the task as a type of assessment. It is also possible that some speakers took the easier route of using familiar and safe linguistic resources instead of being driven by the situational context and demonstrated somewhat routine tasks. Such a limitation is perhaps unavoidable when DCT prompts are used,

as no reasonable alternative was available to collect data of the students' monologues. However, it is important to acknowledge that the YouTube videos, in most cases, were produced by people who consider themselves to be highly knowledgeable about the task being demonstrated. Since the TePIC videos were collected without any prerequisite that the students be experts in the task, it is possible that the discrepancy in the patterns of shifting to different levels of treatment was a side effect of choosing a routine task that students felt did not require much more than the step-by-step procedures. The example videos that were provided to students (how to tape a box, wash your hands, and peel an avocado) included a full range of communicative functions, but do not necessarily imply that any special knowledge is needed.

6.2 Summary of key findings

Although a more complete account can be found in the discussion section (see sections 5.2 to 5.5) a summary of key findings is offered here. Concerning the first question [*What are the salient communicative functions associated with procedural monologues produced by L1 speakers of English?*], 13 salient communicative functions were identified and can be categorized into two types: ten recursive functions and three non-recursive functions. The recursive functions include describing procedural activity, giving advice, referencing items used in the task, explaining reasons for procedures, describing results of procedures, offering options, providing clarification, describing typical situational factors, confirming, and signaling a sequential step. Non-recursive functions comprised signaling the start of the monologue, stating the *how-to-X* task, and moving to end the monologue.

To answer the second question [*What are the pervasive linguistic characteristics and patterns of language found in procedural monologues produced by L1 speakers of English and how are they related to communicative function?*], five pervasive linguistic features were

identified: first-person plural and second-person pronouns (multifunctional), *wh*-clefts (general highlighting device), the semi-modal verb *going to* (highlighting procedural activities), conditional adverbial clauses with *be*-verbs (giving advice), and present-tense verbs and gerunds (related to procedural activities).

Pursuit of the third question [*What are the differences in communicative functions in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates?*] yielded three key differences: students engage in a limited scope of recursive functions; L1 speakers put much more emphasis on giving advice or warnings; students spend a larger portion of their monologues on functions related to genre moves resulting in a rhetorical structure that is less communicatively dynamic compared to L1 speakers.

Finally, regarding question four [*What are the differences in linguistic characteristics in procedural monologues produced by L1 speakers of English and Japanese university first-year undergraduates and how are they related to communicative function?*], five differences were identified: students primarily rely on the first person singular and do not incorporate the indiscriminate use of second-person or first-person plural pronouns as L1 speakers may do to foster a sense of inclusion with the listener; students do not employ *wh*-clefts to highlight aspects of the procedure; students rarely use the semi-modal *going to* as a means to signal a forthcoming procedural activity; students use less vague language when describing procedures; L1 speakers have more *if*-conditional clauses with *be*-verbs, which reflects a lack of advice or warnings by students.

6.3 Recommendations for future studies

Since this study attempts to begin filling a gap in the literature concerning spoken procedural discourse, there are numerous ways that the results presented here can be developed further in

future studies. Four key recommendations are described in the following section and focus on: developing the HandPIC into sub-corpora, achieving a richer representation of monologues by the typical Japanese undergraduate student, taking a contrastive-linguistic approach to further explore the data, and determining the effectiveness of implementing procedural monologues into ESP course design.

While compiling the HandPIC, my goal was to represent procedural monologues in a general sense by including texts from a wide range of contexts. Although 100 videos may be enough to see some salient patterns of function and form, future studies could increase the number of videos to approach the size of other studies, such as the 1.4 million tokens of the HI-CORE. Moreover, in the current study, each category of tasks in the HandPIC is perhaps too small to be divided into sub-corpora. A much larger HandPIC could facilitate investigations to determine if certain types of procedures require specialized language. Such a study with larger sub-corpora could show a clearer picture of differences related to the ESP context. It could also be possible to treat the current HandPIC as a reference corpus for comparative analysis of newly compiled specialized corpora for any given specific ESP context. For my own project concerned with ceramic artist talks, for example, collecting 100 videos of ceramic technique tutorials could then be used to investigate specific linguistic features or communicative functions that are unique to working with clay.

As previously mentioned as a limitation of the study, data from a single institution may not be considered as a full representation of what the typical student is capable of in terms of producing how-to type discourse. Data collected from a wide variety of institutions could increase the representation and allow for further studies to determine if higher-level universities produce graduates who may be better prepared to give a procedural monologue in English in a

professional context. It may also be fruitful to explore the differences between third-year high school students and fourth-year undergraduates to determine if the typical university experience prepares learners for this type of register. Moreover, a look at the data from the perspective of the students' major course of study may also be an original path to determine if, for example, science majors are any better at procedural discourse than students focused on liberal arts or humanities, or to identify differences between students graduating from specialty high schools, such as engineering or computer science, and those who study under a more traditional curriculum.

Although I offered some comments in the discussion (section 5.6.1) concerning personal pronouns and simultaneous-task schema, the scope of my research questions did not permit a deep investigative exploration of the specific reason why L1 Japanese users may produce procedural monologues that differ from L1 English users. Further studies that compare function and form in monologues produced in Japanese could illuminate areas of interlingual transfer. Would, for example, students produce the same dynamic range of communicative functions as found in the HandPIC if given the chance to give the same monologue in Japanese?

Finally, as mentioned in the discussion section, this study did not investigate the effectiveness of learning materials that incorporate the salient communicative functions and linguistic features. Further work in this area could provide validation of pedagogic approaches that result in learners producing more effective procedural monologues. The study gets to the heart of the linguistic register embedded within how-to videos, but future work is needed to show that this type of language-in-use can be taught and learned in university classrooms. Such future research could also extend outside of the classroom and be explored in authentic occupational

situations that involve Japanese employees engaged with procedural discourse common to their field of expertise.

6.4 Closing remarks

Lastly, I would like to include some closing remarks to reflect on how this project evolved over the past three years. Much to my surprise, the investigative process was very different from what I envisioned when first preparing a proposal. As mentioned in the introduction, initially I had thought of procedural monologues as a genre, much like a wedding speech or an academic presentation. I thought that by understanding the rhetorical structure, it would be possible to provide a model that could be applied for any context of hands-on demonstration. Primarily I was interested in how such a model could help Japanese ceramic artists to deliver monologues to their international peers. Under the sound advice of my primary advisor, Professor Moriya, I took a wider perspective to allow me to identify salient functions and pervasive forms that transcended a generic model and expanded my scope to see procedural monologues as a general register. As the study progressed, it became clear that apart from a few generic structures, how-to videos are much more of a moving sea of communicative functions that undulate around the essential procedural activities.

Throughout the project, in both direct and indirect ways, the course work required for the program helped to shape my approach. In Professor Shibuya's lectures on cognitive linguistics, the introduction to the concept of construction grammar allowed me to envision patterns of language as opposed to just looking at individual lexical items. In Professor Horita's courses on linguistic science, I found my footing with a quantitative approach by exploring the literature of register analysis for seminar discussion assignments. This opportunity led me to the How-to/Instructional sub register of the C.O.R.E, which became a key element of the study. In

addition, the organic nature of how my research design developed was enriched by the tasks encountered in Professor Matsuda's applied linguistic seminars, which focused on software applications to manage both quantitative and qualitative data. Moreover, exposure to the concepts of sociolinguistics in Professor Nishijima's seminars was instrumental to conceptualize the indiscriminate use of pronouns as a unique aspect of L1 speakers' discourse.

Coming to the end of the path of answering the research questions put forth in this dissertation, I hope that I have provided EFL instructors, material designers, or course planners with something to build on. From personal experience I understand the challenges that instructors often face in developing materials. Without a solid research-based perspective, it is difficult to meet the challenge of making lesson plans that are comprehensive in coverage of function and form of a specific genre, register, or functional notion. As a starting point, this study can contribute to efforts to help teachers and learners of EFL prepare for the authentic situations of demonstrating a task and producing hands-on instructions in English.

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Appendix A: sample texts from the HandPIC

Hand/Power Tools: How to use a tire pressure gauge

Filling tire pressure is a pretty simple process.
The first thing you have to determine is how what's the proper inflation for your tire.
There are two numbers.
And most people don't realize this.
There is what we call operating pressure.
And there's what we call maximum pressure.
What it says on the side of the tire is maximum pressure.
This one says maximum inflation 44 psi.
What that means is that's the maximum amount of air you can put in that tire without jeopardizing the structural integrity of the tire.
That is not where you should inflate your tire.
You should inflate your tire to operating pressure, which is determined by the car manufacturer.
So I looked on the tire sticker which is on the door.
It's also in your owner's manual.
And the operating pressure on this car is 30 pounds, even though the maximum inflation for this tire is 44 pounds.
A lot of people make the mistake and they over inflate.
We're going to set this one at 30 pounds.
You take your little cap off.
And if your cap is ever missing, you can buy a four pack of these at any auto parts store for just a couple of dollars.
And it's well worth replacing them.
And then again a tire gauge, fairly simple, you can buy a tire gauge for a couple of dollars at most any department store or auto parts store.
And then you can check your tires yourself.
And you just push that on there.
And you'll see the little gauge runs out.
And this one is at about 31 pounds.
So we want 30, 31 is fine.
It's okay to be a pound or two on either side of the actual inflation that you want.
And that's it.
If it's okay, you put your cap back on and you go to the next tire.
If it's a little low, you can use the air hose at the local gas station or you know whatever you're going to go.
And you just put a little air in there if it's low.
If it's over full, which this one now is, there's a little knob on the back.
And you can just push down on the center of there and let a little bit out.
And now we're right back at 30 pounds where we want to be.

Sport Technique: How to do a slapshot (ice hockey)

Hi my name is Connor and I'm a hockey coach.
This is a slap shot.
We want to take a slap shot only when you have the time and room to bring your stick all the way back.
Your hand positioning is a little lower than a wrist shot or a snapshot, because when you come through you want to put some weight on the stick and really show off that flex.
The most important part of a slap shot is that the power comes from your legs.
As always you want to start in an athletic stance with your legs and your body perpendicular to the goal
And as you come, as you come down, never bring your stick up too high or too far back because you're going to throw yourself off balance.
Bring your stick up.
The blade will be about shoulder length.
And hit right behind the puck so you can follow through.
And turn your wrists over.
As always you want to transfer the weight from your back leg when you wind up to your front leg as you come through.
And your hips are coming with it.
So you start facing perpendicular to the goal.
But when you finish your hips want to be facing the neck again.
Have the puck about the front of, at the front of, your foot.
Hit right behind the puck and follow through.
If you follow through low, the pucks going low.
If you follow through high, the pucks going high.

Remember the best shots are about six inches off the ice.
So athletic stance.
Transfer your weight.
Hit right behind the puck.
Follow-through.

Food Preparation: How to remove bones from a fish

So what we're going to do is we're going to pull out pin bones on the fish.
This, again, can be used for just about any process, whether it's striper, snapper, salmon.
Anything that has those big, long pin bones.
All you really need are some nice needle-nose pliers.
You can spend some money and go to a fancy home cooking store and spend money on fish pliers.
But you can go to any hardware store and get some needle-nose, and they'll do the job.
I actually like them better.
So, what we're looking for is pin bones.
The pin bones are these kind of weird little bones that kind of run off the side of the ribcage.
And they only go about halfway through the fish.
So, to find them, what you want to do is you want to run your finger against the grain.
So starting up at the neck and going down toward the tail, and you just kind of run your fingers down.
And you'll feel these little, almost like little stubble.
You just kind of feel these little pieces sticking up.
And all you're going to do is take your needle-nose, go up to those little stubble pieces, and pull out with the grain.
So kind of go with it, going toward the head, or where the head would have been.
And you can see, they'll come right out.
And again, you can feel it with your finger, and pull right out.
You want to be careful.
On some of the bigger fish, or the ones that have really strong, thick pin bones, like wild striped bass and stuff, you might want to keep your fingers down on the filet a little bit, so as not to tear the meat or rip it up.
On some of the bigger fish, as well, it's actually easier to take the pin bones out once you've skinned it.
If you like salmon skin and striper skin, you're just going to have to tug a little bit more, but otherwise, go for it.
You should be able to just push down on it for some leverage.
Take your needle-nose and pull them right out.
They'll come right out.
These are pretty big so they're pretty easy to find.
Some of the smaller fish, you may have to work at it.
But you can really ruin date night if you don't get any of the pin bones out.
So really try and get those out.
And then you can take your finger, run back over it, and really make sure you get them all out.
There we go.
They should look a little bit like that.

Computer Software: How to use the sum function in Excel

Hi I'm Ted and today I'm going to show you how to make a totaling column formula in Excel.
I have a spreadsheet already here.
And it's just some information I made up.
And it's an imaginary list of employees and how many weeks they worked and how many hours per week they worked.
And then the over on the right, I have a formula with the total hours which is just the weeks times the hours per week.
And what we want to do is we want to total up the total number of weeks that all the employees worked and the total hours that they all worked.
So what we're going to do is we're going to go to the bottom of the of the table and we're going to add a new column..
And we're going to we're going to call it total.
And we're going to in cell b12.
We're going to have the total we're going to enter in a formula.
And the easiest way to do it is to use the sum formula.
Obviously we could we could put in a formula and we could say equals B 2 + B 3 + B 4 + B 5.
But that could get very tedious and Excel has ways to make things like this common tasks that you do much simpler.
So we could go in and we could say equals sum s um and then an open parenthesis.
And then just select the whole range of cells we want to add.
And then close the parentheses and, and hit a return
And when we do that I guarantee we'll have the sum at the bottom.
But I'm going to show you a much quicker way of doing it.
And so I'm going to hit the up here.

I'm going to cancel what I was going to do.
Hit the little red X up there.
And I'm going to show you a shortcut that Excel has.
And depending on the computer you have in the particular operating system in the version of Excel you may find it in a different place.
But you want to look for a symbol that looks like this, which is the Greek capital Sigma sign.
And it's the universal symbol in math for summation.
So you look for that and if you mouse over it, it says display the sum of the selected cells at the end of the selection.
Now this is really cool because when you do, we're going to click on that and watch what happens.
Excel knows that we have a range of numbers that are adjacent to the place where we're entering in the sum formula.
And it's already picked out the cells exactly the way we want it.
So we hit return and we're done.
Now let me just show you if we happen to have a blank line in there.
So I'm going to insert a blank line and a sort of row.
And we're going to go over here.
And we're going to put do try the same thing over here in column D where we have the total hours.
And let's try that little trick I just taught you.
Click on the sum sign.
And look what happened.
It only wants to sum the cells up to where that blank line is.
So that's why it's very important in Excel, when you're going to do lots of things like this is to have a consistent pattern to your cells.
You don't want a lot of blank lines because Excel doesn't like that when it's doing things like this.
So let's, let's undo that.
And we'll click on the undo lines so that we do, we don't have that blank line.
And let's just go down here.
And click on the sum sign.
Hit return and we're done.
And then you might want to do some formatting.
I always like to have bold.
You know the total's bold, so it, so that they stand out.
And you can do all kinds of formatting yourself for whatever it is you want to show.
So I hope this has been helpful.
I'm Ted and today I showed you how to enter in a totaling column formula in Excel.
Thank you for watching.

Computer Hardware: How to add memory to a laptop

Hello this is Nick with Nick's computer fix dot com.
And here's a video on how to upgrade your RAM on a laptop computer.
Okay to begin with let's go ahead and disconnect our AC adapter plug from our laptop computer.
Once that's done we'll go ahead and locate our laptop battery and remove it.
Now after you remove the laptop battery we want to make sure that all the juice is out of your laptop.
And we do this by depressing the power button for about five seconds and that makes sure that there's no more juice in your laptop.
At this point we can go ahead and start to open up the back panels on your laptop computer.
Right here is your disk and your, your laptop memory's right in here.
Sometimes there is a lid, but in this case it's not.
I have to actually remove several panels here and I'm going to do that quickly.
Once I have all the screws on screwed I'm going to go ahead and pop the lid off the hard drive cover here.
And as you can see the hard drives located right here.
Now up here the memory is located underneath this panel.
And I'm gonna pop the lid here that allows us to see the hard drive, the fan, the CPU and of course, our memory.
Now we'll remove the memory stick.
You press the little levers on the each side here it pops up like this.
And you go ahead and pull it out.
And what we want to take note of here is the little groove on the memory stick.
Alright I'm using four gigabytes of memory to two gigabytes each.
And the way you put it in is at about a 45 degree angle.
And then you press down and it clips back in place.
I also want to mention that there's normally only two memory slots available on most notebooks.
okay let's go ahead and put this back together put the lid on top here and with the magic of video editing I can speed this up a little bit and screw those screws in really quick.

Put my battery back in.
And I am ready to go.

Scientific Equipment: How to prepare a slide for microscope
Alright so the next part of the pieces of equipment that you're going to be using is our slides and cover slips.
This is what you are going to do in preparing one as you go.
So the bigger object obviously is the slide.
These are glass so be very careful with these.
Some have a blue tint to them on the end, and some are just rather clear.
The small piece here, this is and it's hard to see what that as clear as it is, but these are your cover slips.
And then I'm going to use this white little piece of paper as my object to demonstrate how to prepare a slide for what you're doing.
So one of the first things that you want to do is make sure that your slide is cleaned.
So if you have a piece of paper towel you want to make sure to get that cleaned off.
And you will have the appropriate cleaning stuff to take care of that.
The second thing is you want to take your object that you're going to be looking at and you want to put it directly in the middle of your slide.
You're gonna take the water that's in this beaker.
You're gonna have an eyedropper here.
You're gonna get some water in there.
And you're gonna put maybe one or two drops.
You want kind of get a bubble on there as you go.
And then when you put the cover slip on, to make sure that you don't have bubbles, you want to have your cover slip.
And this is gonna be hard to see in the video, so kind of listen to how I'm describing this, you want your cover slip to be at an angle and you want to kind of push up against the water so the water kind of goes against the edge.
And then you just want to kind of drop your slide in.
That way it'll push the water throughout the cover slip as you go.
So what your goal is, is you want to try and not get any bubbles underneath because bubbles are really hard in a microscope.
They kind of mess you up when you're trying to look for something especially if you're looking for little cells or different things like that.
So that's how you create and prepare a cover slip and a slide for what you're doing.

Emergencies: How to use an escape ladder
Let me give a couple of tips on how to use a fire escape ladder.
And there's a few styles on the market.
If you're purchasing one make sure that you measure the depth and the width of your window.
Or get a universal style.
This one is from EXIT.
It's rated one of the best and what I like about it is it has a universal hooking system.
Make sure you look at the packaging.
Some models are a one-time use and you definitely want something you can practice on.
You want it to be marked reusable.
And look at your windows.
You need to know how to remove the screens.
And then depending on the style of window, whether you have a sash or like this casement, you need to make sure that the ladder is going to fit onto the windowsill and have enough room to get out of the window.
What I love about this style is this hook is universal so it's going to fit on any type of windowsill, any depth.
And it drops right out of a small area, so even with the casement window that obstructs this quite a bit, you can see that you can drop it right out the window.
This style, all you would do is pull a Velcro strip.
And throw it out the window.
I would look for a ladder with large standoffs so that your feet can get into the rungs easily.
And then always practice from the outside.
First just going up the ladder.
And this will get you used to the ladder and make sure that your windows sill will work properly.
And then once you're practicing from inside the house, you may need a chair or something to get through the window.

Repairing Items: How to repair a refrigerator seal
Hey guys Paul here.
These rubber gasket seals around your freezer and refrigerator doors can get cracked with time.
So what you want to do is clean out all this ahead of time with vinegar or bleach, along the seams and get all that gunk that is going to be in that crack out because it's been in there for a while probably.

And make sure this is good and dry.
And what we're gonna do is put a bead of the silicon sealant along that seam right there.
And then we're simply going to close the refrigerator door and that's gonna create enough of a seal to let that cure overnight.
Alright so what we're gonna do is run a bead of this all down this seam here.
Leaving about a quarter-inch gap as I move along, just to create a little bit of excess for going inside the seam.
And go over that again.
Just filling in about a quarter-inch opening there.
That will cure up really nice.
Take off any excess there on the sides, just like that.
And come back, get the same out here because you don't want these two seams sticking together, just the seam that is ripped.
So keep that seam in there clean.
And let's shut the refrigerator door.
The suction on the refrigerator door closes that seam.
Let that sit for about 12 hours before I open the door.
Alright this has been curing overnight for about 15 hours.
Let's check out the seal.
It's curing up nicely, definitely adhering to both sides of that rubber.
There's a little gap in there,
However, if you notice, it's nice and straight.
And the whole idea is that when this pulls in and out with the suction, that this silicone sealant is flexible and it will move as the seals open and close with the door.
If your seals are cracking, pick up some DAP 100% silicone sealant.
They have some other silicone sealant products as well.
They're all gonna work great in this kind of repair.

Assembling Items: How to assemble a tent
Today I'm going to teach you how to set up the tent, but there's three things you should do before you get to your campsite.
One is you need to reserve a campsite on our website NC parks gov.
And two you need to make sure you have all the materials to your tent.
And the third is you should practice because you don't want to arrive at your campsite and a thunderstorm and get all wet.
Let's make sure we have everything we need in our tent.
Here's our bag.
You've got our tent poles, our rain fly, the body of the tent, stakes, and our ground tarp.
Now not every tent comes with a ground tarp or a footprint so make sure you buy one if it doesn't come with it.
And that's everything.
So every tent is different but they all have the same basic steps.
First step is to get your ground turf and lay it out with the shiny side facing up.
The second step is to lay the body of your tent on top of the ground tarp.
When you lay your tent out if you want your door in a certain direction make sure you place it in that way so you can see that there's a door on this side and there's a door on the opposite side.
Some tents will have colored tabs that correspond to the ground tarp so that ensures that you match it to the right side.
The third step is to assemble your tent poles.
Most of them easily fit into another.
All right your next step is to attach the poles to the body of your tent.
Now some tents don't have what this tent has, which is a sheath that I'll be pushing the poles through.
Some have clips so yours might be different from this.
Next you're gonna take your tent pole and put it into this little circle here.
It's called a grommet.
So don't be afraid, your tip pole isn't gonna break, though it may feel like it's gonna break.
So some tents will have additional poles that will help expand your tent but your tent may not have it.
I'm gonna show you real quick, just fit it into the grommets.
And now the other grommet.
So now we're gonna put the rain fly on top of the tent.
I told you that some tents will have a tab that corresponds to the body of the tent so I'm going to make sure this red tab goes to this red tab.
And that makes sure the door matches up with this door.
Now we're going to put the grommet of the rain fly underneath the tent pole.
We're gonna fit it in there on each side.
We're not gonna tighten the rain fly just yet.
We're gonna wait until it's staked.
Now we're gonna stake our tent, and this makes sure that when you're moving around in your tent your tent isn't moving with you, or if there's a lot of wind, your tent isn't blowing away.

So I'm going to start in the corners.
All right you're gonna put your stake through both loops of the body of the tent and the rain fly.
And you're gonna put it the stake in at a 45 degree angle.
Now sometimes it can be hard to push in so you may need to grab a mallet.
You can also use your foot.
And I'm gonna go on the opposite side to make sure it's really tight.
After you do the corners you want to do the sides of the tent and make sure that your door is closed.
So this tent has two tabs and there's some on the side of your tent.
This just makes sure when it rains that the rain goes off of the tent and not inside your tent.
The last step is to tighten your rain fly.
Your tent may not have this but most of the new tents do.
I'm gonna pull up on this tab to cinch the tent to make it tighter on all corners.
The gap between the rain fly and your tent is called the vestibule and this is a great place to store your dirty shoes and keep them dry.
Most tents have a way for you to keep your door open by just simply rolling it all the way to this loop here.
And you just fit this piece into the loop.
You can also roll your tent at the bottom here.
And that's your tent.

Hair/Skin Care: How to use a curling iron

Today, I'm going to show you how to use a curling iron.
A few basic steps before you ever want to put a curling iron to your hair, is be sure you're using something that has a little bit of hold, and most importantly, a little bit of heat protectant spray.
I would also suggest, if you have super-fine hair that doesn't take shape, to maybe add something to it that takes a little bit of texture.
Sometimes with my fine-hair clients, I like to actually just prep the hair using a light flexible hold hairspray, just to give it a little of texture and little bit of airiness.
So, what I'm going to do is show you the basic principle of how to use a curling iron.
You're always going to want to brush through the section of hair that you're going to curl.
I'm going to take my curling iron.
And when you're using a curling iron, you always want to curl from the root to the tip.
So, it's the exact opposite.
You never want to start at the tip and wrap your way up.
The reason you don't is because this is the most fragile part of your hair, at the end.
And this is the part that needs the most heat.
So, you're actually doing it exactly the opposite.
So, after you've prepped the hair and brushed it through, you're going to curl it with the curling iron.
I always like to go through and season the hair.
So I'm just adding a little bit of warmth through the hair.
And then start at the root, and wrap it around.
And if you notice, I'm kind of hovering my clamp open.
I'm not pressing all the way down.
It's a very light movement.
And that might seem easy.
I find it really hard because I'm, naturally, not a very delicate person and so for me to be delicate, it takes me to think about it.
You're going to want to start, especially when you're just learning how to curl your hair, you're going to want to start with a medium temperature and build your way up.
Medium temperature is so that you don't feel too rushed while you're doing it.
If you feel too rushed while you're doing it, you're going to panic that you're burning your hair and you're not going to have a good experience.
So start with a lower temperature, until you get the hang of it.
Another technique that you can do is called tonging the hair, which you would just wrap the hair around the barrel.
I'm still going to start by seasoning the hair.
If you season the hair by just running it through your barrel, or even if you have your barrel closed and you just give it one full rotation of the hair and wrap it up and down,
That's going to alleviate any clamp marks that you might have gotten.
So, to tong the hair, you're going to hold your curling iron down.
You're going to open it up.
And you're going to wrap the hair, from root to tip around the barrel.
So you just keep wrapping it around and you're going to hold the tip in your hand.
And then you're just going to touch, I use kind of my middle finger here, to just touch the hair.
As soon as the hair feels warm, I'm going to go ahead and let it down.

And you'll see you get a very different type of curl.
This is a softer, flatter curl, and this one is a little bit fatter and has a more natural end.
Both of these curls, of course, can be softened even more by running your hands through.
So those are my tips about how to curl your hair.
Remember, most importantly, to protect the hair from heat, and to start at the root and work your way to the tip.

Nursing Practice: How to use an inhaler device

If it's the first time that you've ever used your inhaler you actually need to prime your inhaler.
This means pushing it down until you get a nice even spray.
So you'll push it down a few times until you get a nice steady even spray.
You need to prime your inhaler the first time you've ever used it or if you haven't used it in more than two weeks or after you may drop the inhaler.
It's very important to do that to make sure you get a nice steady solid even spray each time you use it.
I'm now going to review with you the appropriate steps for using your inhaler.
The first thing you'll want to do is take your cap off and make sure it's clean.
And clean the mouthpiece off.
You'll then want to shake it 10 to 15 times without the inhaler.
You'll want to take a big deep breath in and a big deep breathe out all the way.
You'll then take the inhaler and you'll put it in between your lips and above your tongue.
Before you press down on the inhaler you'll actually want to begin breathing in slowly.
A lot of people will push it down and then begin breathing in but that's not appropriate.
What you should do first is to start breathing in and then push down your inhaler so that you get the maximum amount of the medication.
Now this is a training inhaler and so it actually makes a noise when I start breathing in.
Your inhaler will not do that but this is so that you get an idea of what I'm doing on this video.
So when you hear that noise you'll know I've been breathing in.
After you begin to breathe in slowly you'll push the inhaler.
And you'll take a big deep breath in now.
This is the most important part.
Again as I said earlier, you don't want to breathe in quickly and then immediately exhale the medication.
Remember it only gets to here and we want to get it down to here.
So what you're gonna do is after you breathe in all the way, you want to hold your breath as much as you possibly can.
Usually about 10 seconds is what we're trying to go for here.
But as long as you're able to comfortably hold your breath in the more medication are going to get in.
After you've done about 10 seconds of holding your breath in, you'll want to breathe out slowly again.
You don't want to breathe out too fast.
So I'm gonna demonstrate these steps for you again.
Remember taking the cap off.
Making sure it's clean.
Shaking the inhaler.
Taking a deep breath in out
Now doing this twice is typically a full dose so I would repeat those steps one more time to get my second puff of that dose.
Some points to remember, do everything slowly.
Bring the medication in slowly.
Bring the medication out slowly.
Also I recommend that after you use your inhaler you always rinse out your mouth and brush your teeth.
If the medication is not working for you appropriately, or you're not getting the response that you used to get from your inhaler, please be sure to follow up with your primary care provider so that they can talk with you about what needs to happen next.
Thank you again for letting me teach you how to use an albuterol inhaler appropriately.
Once again, I'm Doctor Michael Brown with Meritage health and North Kansas City Hospital.

Miscellaneous: How to remove wine stains

Red wine stains?
Most people think you can't get them out.
Let me show you otherwise.
Let me show you a little remedy for getting this red wine out of a shirt.
Just look at that, what a disaster.
What you wanna do is, the first thing is to try and get to as quickly as possible before it sets up.
This approach will work even if it sets up.
And it's much better if you can go through here and try and blot out any red wine you can.
And in this case, I'm able to get some of it out.
You can see here the pink on the paper towel.

Now, if you spill red wine on something that needs to be dry-cleaned, you need to get it to the dry-cleaners.
This recipe will work for things that you're gonna throw in the washer.
Now the recipe for this is really simple.
All you're doing is taking 1 cup of hydrogen peroxide, and you're gonna add that to 1 teaspoon of just a mild dishwashing liquid.
So here's a teaspoon of the dishwashing liquid here in a bowl and add 1 cup of hydrogen peroxide.
Just gonna mix that.
And then just take a little sponge.
Completely soak the sponge about half.
You don't wanna rub the fabric.
You simply wanna blot the stain.
The reason for this is that you don't wanna drive the stain deeper into the fibers of the fabric.
You also don't want to mess up the sort of finish on the fabric.
Just taking a gentle approach like this is all you need.
The soap will help release the wine particles from the fiber, and the hydrogen peroxide will, through its effervescence, lift those particles out to the surface.
Once you finish blotting, throw it in the washer and wash it in cool water, unless the directions on the garment indicate otherwise.
And then just let it air dry.
Then the garment will be as good as new.
I've tried this multiple times, and it always works.
Give it a try.

Appendix B: sample texts from the TePIC

Food preparation: How to make curry-rice
Hi I'm XXX.
Today I want to do how to cook curry and rice.
Let's do cooking.
First I have to prepare the vegetables and meat according to this.
Peal the carrot.
Finish it.
Next, cut it.
Next also use peeler and peel the potato.
After peel it, cut the potato.
Next rinse the onion.
After that cut the onion.
After cutting the vegetable next is to apply this vegetable and pork.
Use this chopstick and mix the pork.
Some minutes later put in the potato.
And mix the potato and pork.
Next put in the carrot.
And mix the carrots and potato and the pork.
Next put in the onion and mix all vegetables and pork.
And after stirring, stirring by this vegetable and pork add a little water to this.
Next I wait some minutes until this boils well.
Be careful I have to check this.
Of course sometimes I have to take lard.
After boil a while, power down.
And wait for 15 minutes.
After 15 minutes later stop the heating and put the roux.
After that mix.
After 10 minutes eating.
I finished making cooking curry and rice.
I will finish the how to make how to cook curry and rice.
Thank you.

Using tools: How to sharpen a knife with grindstone
Now I tell you about how to grind kitchen knife.
First, have to prepare a kitchen knife and grindstone and bowl.
Then we have to include, ah, if you have to put grindstone into water and then we have to wait.
Uh, stopped bubble from grindstone.
Now, bubble is stop.
Let's grinding.
First when grinding don't change angle.
Not too high.
It is good, 10 yen coin, uh two 10 coins here, and this angles when grinding.
And don't do, don't need power.
Don't need power and too fast.
This speed, this speed.
When you grind it you grind round that line.
When you grind middle and you grind straight, straight.
It is enough to sharp.
Then we take water.
It is finished.

Drawing: How to draw Mickey Mouse
I will show you how to draw Mickey Mouse.
First draw two mountains.
From both sides draw two half heart.
Like that.
Then draw a curved line.
Next add the face parts.
First draw a curved line and a circle which is, which is horizontally long.
Then add two circles.

It is vertically long.
Inside each circle draw a smaller circle.
Then draw two small, small curved line, a big carved line, and a medium cup line.
Inside this draw two mountains
Then surround the two mountains with a curved line.
Finally add two circles.
It's Mickey Mouse.
If you draw, if you want to draw Minnie Mouse, you just add ribbon, you just add a ribbon and eyelash.
It's Minnie Mouse.
Thank you for listening.

Using electronic products: How to use an electronic dictionary
I'm going to explain how to use electronic dictionary.
An electronic dictionary is very useful because you can search words of many and many things
First if you want to know the meaning of the alphabet words you should touch this *eigo* button.
And you can choose which dictionary you want to use.
And if you choose this dictionary, you should type the word you want to know.
For example if you want to the mean of the happy.
Happy.
You can know the words, the words, the meaning of the words.
Then if you want to back, if you want to the previous screen you should, you should push this home button.
And you can back to this this screen
And if you want to know the mean of the Japanese word you should touch this button.
And you can choose which dictionary you use.
Like this, in this dictionary many dictionaries are, there are many dictionaries.
So, this is very useful

Making paper items: Hold to make a paper box
Hello.
Today, I'm going to make a box from now on.
First, let's prepare the rectangle, rectangular piece of paper.
First, fold in half.
Once again, fold in half as well.
Unfold it.
Place your finger inside and push down on the top.
Turn it over.
And repeat the same thing.
Turn the paper.
And fold the corners towards the center.
Corner, center.
Repeat the same thing.
Fold the lower part up towards this line.
Like this.
And turn it over.
Repeat the same thing.
Finally, place your finger inside and unfold it.
That's all.
It is a box.
Thank you for watching.

Sports technique: How to throw a football
Today I talked about how to throw an American football.
And first.
Uh this uh generally, generally speaking, this acts similar to vertical slider in baseball.
And because it's for throwing like catch a ball, a ball
Catch a ball
And this actually have a few important points.
We have to, we have to, using lower back,
Lower back here.
This lower back
We have to spin a lower back.
And throw up.

And second point.
And when we throw when we throw a put forward elbow.
Preferable
And because if we don't that it be broke a broke a shoulder or elbow.
And these points, if you understand this point you can throw a American football.
Like this.

Beauty tips: How to apply make-up
Hello this is XXX.
I'm going to explain how to do natural makeup to my face.
Before you do makeup, you have to tie your hair up.
And also you have to fasten your bang with big clip.
Like this.
Now you're ready.
And initially I'm going to put this sunscreen because this can be on the base for makeup.
You place it on your back hand.
And apply this to your face lightly.
I think I put too much this time.
And next I'm gonna do my eye brow.
I use this.
And I'm gonna use blush for my eyebrows.
Just add some coloring to your eyeballs.
And next is eyeshadow.
This is liquid so you put it a little.
And you have to use your fingers to spray this eyeshadow.
Like this.
Okay and the next step is you're gonna curl your eyelash up.
And put mascara on.
I put mascara only the upper eyelash.
And final step is lipstick.
This is easy.
Just like this.
And again you use your fingers.
Now it's done.
Thank you.

Miscellaneous: How to snap your fingers
Today I will show you how to finger snap.
Like this.
Can you hear?
Like this.
Well first please ready your a hand.
Right or left.
It doesn't matter which you choose.
Yeah, please ready your favorite hand.
Well in this time I choose right hand because I usually use right hand.
Yes.
Next, I will tell you the first position, first position to to snap your finger.
First position is this.
Can you see it?
Like this.
Please don't do that.
It is not good.
This is better.
Yes.
Can you see it?
Okay, so next.
And to please, you please move your middle finger to draw a circle around your thumb.
Like this.
Yes so please don't use other fingers.
We use only thumb and a middle finger.
Do not use please don't use other fingers like index fingers.

Like yeah please don't use it.
And so how to make a sound in doing the finger snap.
The middle, the middle finger touch your, this part.
And we can make a sound from our hand.
Can you see it?
So this is good final position, finish position.
Your, your middle, your middle finger touch your this part of your hand of your hand.
Yes.
Like this.
Can you do that?
Well, yes like this.
And well, I'm not good at finger snap on my left hand.
Yeah the reason why I can't do it well it's the my middle finger don't touch well in my left hand on my left hand.
So this is bad example.
My right hand is better.
Yes.
Yeah so yeah we use only these two fingers so your other three fingers are free.
Please do anything you like about these three fingers.
Well it's time to finish.
So thank you for listening.
See you again.
Bye.

Appendix C: Task description of example utterances in HandPIC

Section	Task description
4.4.1.1 PRONOUN + going to	
So next you're going to grab the screwdriver. And then you're going to scrape the top …	Assemble a skateboard
I'm just going to swivel that top piece so that I can take the saddle off.	Adjust a bicycle seat
We're going to have the total and we're going to enter in a formula.	Use Excel software
4.4.1.2 PRONOUN + want	
Don't loosen it too much. We don't want it to fall out.	Assemble a saxophone
And we want to make sure the Velcro is in good condition.	Use a floor sander
And when putting it on you want to be careful to make sure it's centered.	Assemble a skateboard
You want to pour it pretty slowly starting in the center.	Drip coffee
And we want this about halfway up.	Use a Bunsen burner
Then I want to tuck this part diagonally up and over.	Tie a bow tie
Obviously the card, a driver CD, which you probably don't need to use, but you can …	Install USB port
And if we want to make it longer, we hold onto this plastic piece and we pull the strap this way.	Assemble a saxophone
All right, so if I want to completely replace this saddle, I'm just going to swivel that …	Adjust a bicycle seat
4.4.1.3 PRONOUN + have + NOUN	
We have the strap and then we have this plastic piece.	Assemble a saxophone
As you can see right here I have a pair of wire strippers.	Use wire strippers
Once you have your replacement bulb, we're gonna pop our hood and identify where …	Change a headlight
4.4.1.4 Let + PRONOUN	
Looks like we've got a full tank. Let's get ready to dive.	Assemble SCUBA gear
But let's go ahead and show you how to use the copy and paste.	Copy-paste with iPad
Then while that guy's chilling, let 's go ahead and make the rest of the martini.	Mix a martini
Let me give a couple of tips on how to use a fire escape ladder.	Use a fire escape ladder
So let me show you a secondary method on how to put that on there.	Change a watch battery
Let me show you a bad example so you know what not to do.	Use a soldering iron
Let me show you a little remedy for getting this red wine out of a shirt.	Remove wine stains
And let's shut the refrigerator door.	Repair a refrigerator seal
Now let's clip the ends.	Tie a ribbon bow
Let me take off the lid.	Fix a toilet leak
Actually, let me get a better grip on it.	Use a nail gun
4.4.2.1 Going to	
Pull that sheathing off. It's going to expose the twisted pairs.	Crimp an ethernet cable
You want to twist it towards you. And that's going to send your needle up and down.	Use a sewing machine
Go to apps or apps and notifications and then tap on see all to see all of your apps. Now…	Clear cache on smartphone
4.4.2.2 Will	
So we're going to keep our knife right behind that line and go ahead and slice …	Cut a pineapple
And then you're going to scrape the top to get a good outline of the board. And then …	Assemble a skateboard
Alright so as we're doing this what we're doing is, the saw itself is just oscillating very quickly…	Remove a plaster cast
Now a lot of cases, you'll hear a little snap and the cover will be back on. Now in …	Chane a watch battery
4.4.2.3 Can and could	

This project mat works great but you could also use cardboard.	Cut glass
I recommend starting with index cards. You could use a stack of post-it notes or a note pad.	Make a flipbook animation
We can use the thumb to make sure we don't get any wrinkles.	Tape ankles
Now take both of your thumbs and push as hard as you can, downwards. You can use all of …	Change a watch battery
Now sometimes it can be hard to push in so you may need to grab a mallet. You can also use …	Assemble a tent
Now there's three different ways you can do this.	Pass a football
One of the ways you can do it is with the skate tool.	Assemble a skateboard
And see how it brings the select, select all, paste highlight, and comment? So this is kind of …	Copy-paste on iPad
Anyway, after a little bit of work, you want to back off the plane a little bit just to get it smooth…	Use a wood planer
And I like to go a little bit past where I started just to be sure I get it cut all the way off…	Use a corkscrew
4.4.2.4 Have to / need to	
You shouldn't have to be pushing too hard.	Install USB port
It doesn't have to be super tight. Just tight enough that the neck won't move around.	Assemble a saxophone
So it doesn't need to be a huge arm motion.	Cast a fishing rod
You also need to be careful in patients with diabetes because they have poor healing ….	Remove sutures
Just keep in mind that you have to make sure that you give it a couple minutes to warm up.	Use a log splitter
So the technique that I teach my guys is I'm training them, is you need to keep your eye on …	Use a window squeegee
When I'm done adding members, all I need to do is come here and click save.	Make an email group list
So all you have to do in that case, is to use your hand wheel on the side.	Use a sewing machine
And all we have to change about it is to have the other condenser.	Distill chemicals
4.4.2.5 Should	
One or two wipes on a paper towel and you should be good to go.	Replace ink in pen
You should be able to just run it over the wood, quickly and easily one handed…	Use a wood planer
You might want to make sure your trucks are all tight. Wheels are good. Check for any …	Assemble a skateboard
4.4.2.6 MODAL + location reference	
At this point you can see we have a really hot fire going on right in the middle.	Light charcoal
You 'll see the diagram come up on the right-hand side of your screen momentarily.	Crimp an ethernet cable
If you go about halfway down the body you should see a metal loop sticking out.	Assemble a saxophone
The fitted end should be to your right.	Fold bed sheets
All the keys should be facing away from you.	Assemble a saxophone
Therefore, if you cut on the backside, the tear out will be on the bottom…	Use a jigsaw tool
4.4.2.7 MODAL + go ahead and	
And let's give this a good shake. We'll go ahead and pour.	Mix a martini
At this point we can go ahead and start to open up the back panels on your laptop computer.	Add memory to PC
As soon as the hair feels warm, I'm going to go ahead and let it down.	Use a curling iron
4.4.2.8 Would/could in personal hypotheticals	
All right, so if I wanted the nose up a little bit I would loosen off the one in the front.	Adjust a bicycle seat
And then if that didn't work, I'd go to the next smaller hole.	Use wire strippers
I would suggest as long as you have a free port that you go ahead and put power to it.	Install USB port
So normally I would recommend that you probably lay it down to go ahead and give you …	Install a motherboard
What I would say is the best practice, is hit the power button first.	Install iPhone app
If you're on a phone like the Google pixel, you could simply ask Google assistant to get you to …	Clear cache on smartphone

You could place a piece of candy a pencil a little flower or something like that.	Gift wrap a box
4.4.3.1 Thing	
So the first thing you're gonna do is bring up the cursor.	Copy-paste on iPad
The first thing to do when lighting a Bunsen burner is to turn the gas on.	Use a Bunsen burner
The very first thing you do after taking it out of the dryer is to shake it out.	Fold bed sheets
Today we're gonna talk about how to put your snowshoes on and make sure they're…	Put on snowshoes
They kind of mess you up when you're trying to look for something especially if you're looking …	Use a microscope
Now the other thing that you guys can do to make your lashes look thicker, in addition to …	Apply mascara
4.4.3.2 Kind of/Sort of	
And then you just kind of flatten out your cushion until it gets kind of flat.	Assemble a chair
It kind of just goes over top of this piston until it comes down and sort of sits on top of there…	Assemble a chair
Sometimes you can't get it quite level, so you have to kind of play around with it.	Adjust a bicycle seat
4.4.3.3 About	
So those are my tips about how to curl your hair.	Use a curling iron
Just filling in about a quarter inch opening there	Repair a refrigerator seal
Completely soak the sponge about half.	Remove a wine stain
You know, just get about finger tight, maybe a little bit more than finger tight	Install motherboard
The blade will be about shoulder length.	Do a hockey slapshot
4.4.3.4 Bit	
If things loosen up a bit again, tighten down the thumbscrew a little bit more.	Repair a zipper
That way when you tune it up to pitch, it'll stay in tune a little bit easier.	Replace a guitar string
It looks like an alcohol swab and that just makes the stay a little bit better.	Remove sutures
4.4.3.5 Around	
So when you get to around this area, sometimes you have to comb it down because of the way …	Trim a beard
It should just be slightly pink around here.	Remove sutures
So I'm going to try and loosen the ground around the root.	Pick weeds
4.4.3.6 Lot	
A lot of people make the mistake and they over inflate.	Check tire pressure
A lot of beginners make the mistake of dropping and swinging at the same time.	Do a badminton serve
You see a lot of guys with bad habits, throwing the bar up, letting the bar drop doing nothing …	Use barbells
Again because the swivel allows me to have a lot more freedom with my hand position when …	Do eyebrow care
I've always got two hands on the rod. It makes it a lot easier to cast a lot farther.	Cast a fishing rod
4.4.3.7 A couple/few	
Let me give a couple of tips on how to use a fire escape ladder.	Use a fire escape ladder
A few basic steps before you ever want to put a curling iron to your hair	Use a curling iron
Now a few other things to keep in mind as you're making a cast with a spinning rod here, is how...	Cast a fishing rod
So there's a couple different processes.	Replace a guitar string
4.4.3.8 Stuff	
I'm typically teaching techniques and different fundamentals and stuff like that.	Hit a boxing speed-bag
For the most part, they have the same adjustments and all that kind of stuff, if …	Use a floor sander
And then what we'll do is as our stuff distills we'll collect it into a graduated cylinder.	Distill chemicals
4.4.4.1 If + be	

So if your shirt sleeve is too long, take the outer most button on the shirt cuff and …	Put on cuff links
But if it's muddy, you're gonna be able to go down in like a minute flat.	Dig a post hole
Or if there's a lot of wind, your tent isn't blowing away.	Assemble a tent
But this is just going to be a quick put together guide for you because if you're like me …	Assemble a chair
So, if you aren't sure how to get that right effect of full lashes with mascara, I'll give you …	Apply mascara
Now it's pretty simple but just like anything else if you're learning it for the first time a few …	Cast a fishing rod
4.4.4.2 If + have	
So the first thing you do is start off with 23 grams of coffee, if you have a scale.	Drip coffee
A skate tool, a poker, a screwdriver, a razor blade, and a power drill, if you have one.	Assemble a skateboard
So if you have a piece of paper towel you want to make sure to get that cleaned off.	Use a microscope
4.4.4.3 If + do	
If you do short chops, you might end up taking the risk of cutting too much off.	Trim a beard
And if you don't get the whole root that's okay. You'll get it the next time.	Pick weeds
Now if you don't know the gauge or the thickness of the wire that you're working with…	Use wire strippers
4.4.4.4 If + want	
Okay, so that's three of each cookie and if we wanted to make some more, we could just…	Decorate cookies
Now if you wanted to add a little treat or something fun in there…I might be giving this as …	Wrap a box
All right, so if I wanted the nose up a little bit I would loosen off the one in the front.	Adjust a bicycle seat
4.4.5.1 Present (except 3rd person)	
Okay, if it starts to stick a little, just sprinkle a little more on top.	Decorate cookies
So once you've done that you just dump it out.	Drip coffee
And then you can check your tires yourself. And you just push that on there.	Check tire pressure
Also, I recommend that after you use your inhaler you always rinse out your mouth and …	Use an inhaler
We always use our fingers to prop our body up.	Do sprinter start position
You never bring your stick up too high or too far back because you're going to throw yourself …	Do a hockey slapshot
4.4.5.2 Gerund	
Alright so as we're doing this, what we're doing is, the saw itself is just oscillating very quickly.	Remove a plaster cast
So what I'm doing is hitting the bag in that's going one, two, three, when it gets right around …	Hit a boxing speed-bag
All we're doing, grabbing the fine teeth of the comb.	Do eyebrow care
4.4.5.3 Be-verbs	
Because, if you're using a water base or even an oil, you're not gonna see any edger marks	Use a floor sander
If you're trying to wipe off two inches of water with your towel, all you're gonna do is …	Use a window squeegee
Because, as a bulb wears out it's going to continue to grow dimmer.	Change a headlight
So it's gonna make it very easy for the insulation.	Replace a guitar string
What I love about this style is this hook is universal so it's going to fit on any type of …	Use an escape ladder
There's a lever on the bottom of it, here, that adjusts the height of it up and down.	Assemble a chair
There's a brass knob here that you can turn clockwise or counterclockwise.	Use a wood planer
And on ours, we have a Dewalt, there's a switch in the back that turns it on.	Use a floor sander
This is where, as you see, a longer screwdriver is helpful.	Install a motherboard
That's why we heat it up get all the moisture out of it.	Clean an iron skillet
And that's how this thing goes on.	Use a nail gun
That's what you want to see.	Park a car

4.4.6.1 Up/down	
And push the rewind knob all the way down.	Load film in a camera
You don't have too much line but you also don't want to have your bait all the way up against …	Cast a fishing rod
4.4.6.2 Here/there	
And then when you're ready to get rid of it all you have to do is pull right here.	Apply a tourniquet
And I pull it through right down there.	Tie a bow on a package
There's another thread right over here.	Use a sewing machine
Here is your typical fountain pen.	Put ink in pen
Here is the bottom part that you sit on.	Assemble a chair
Right here is your power port.	Install a USB port
4.4.6.3 Right, left, center, middle	
Starting off, for the first thing, you need to use the right blade.	Use a jigsaw tool
If my dominant leg is my left leg I'm going to put the left block forward.	Do a sprinter start position
Like I said, in the center of the material that you're sewing.	Use a sewing machine
A good place to start is with it completely level and it right in the middle of the rails here.	Adjust a bicycle seat
4.4.6.4 Side, area, corner, edge, part	
Now, that's nice and tight then we're gonna do the opposite side.	Pick weeds
Okay at that point we've got uh four screws each one for each opposing corner.	Install a motherboard
Hold the flat edge of the irons tip against the joint.	Use a solder iron
And so before you can cut the glass part, you have to cut a line through it with a knife.	Cut glass
4.4.7 Wh-Clefts	
So what we want to do is first loosen up all six strings.	Replace a guitar string
So what we're going to do is we're going to pull out pin bones on the fish.	Remove fish bones
And what you'll do is every milliliter that comes across, record the temperature on …	Distill chemicals
So first what you want to do is you want to remove the sheathing on the wire using a little…	Use wire strippers
Now what you want to do now is start the car that's doing the jumping and allow it to run …	Jump start a car
And then what I'm gonna do is I'm simply gonna vary them back and forth for the rest of time.	Dig a post hole
And make sure that your arms are nice and loose, not locked out. And what I mean by locked …	Use barbells
You'll take the striker. And what the striker is, is basically a piece of flint across which …	Use a Bunsen burner
This is called blooming. And what it does is let some of the gases release.	Drip coffee

Appendix D: Task description of example utterances in TePIC

Section	Task description
4.5.1.1 PRONOUN + going to	
Today I'm going to explain how to cook boiled egg.	Make a boiled egg
4.5.1.2 PRONOUN + want	
If you want to draw Minnie Mouse…	Draw Mickey Mouse
I want to tell you how to make roasted sweet potato	Cook sweet potatoes
This is a coffee maker	Use coffee maker
4.5.1.4 Let + PRONOUN	
We may make our dress or our table dirty, so please be careful. Okay, let's prepare.	Use a calligraphy brush
This is so easy way, so let's do this together.	Give a face message
Okay let's get started. First use this base coat.	Paint fingernails
Okay, let's eat. So yummy. That's all for today.	Make pancakes
Let me teach you how to make paper box.	Make a paper box
4.5.1.5 Pronoun patterns unique to the TePIC	
I will show you how to fold a paper carton.	Fold a paper carton
Hello. I will explain how to make a mascot using wool felt.	Make a felt toy
Today I will introduce how to use an old cell phone.	Use a cell phone
I use salt or ketchup, tomato ketchup. My father and my sister use black pepper.	Cook eggs
My grandmother told me this way.	Make a paper box
I'd like to introduce my favorite dressing from now.	Make salad dressing
First, I have to prepare the vegetables and meat.	Make curry-rice
You have to empty the carton.	Fold a paper carton
Put grindstone into water and then we have to wait.	Sharpen a knife
4.5.2.1 Can	
Second we use a calligraphy ink. You can also rub, rub the ink stick on the ink stone like this.	Use a calligraphy brush
You can use the iron pan for long time	Use an iron skillet
You can see center carousel	Use a cell phone
4.5.2.2 Will	
First, I'll explain about towel.	Fold laundry
Next, I will tell you the first position, first position to, to snap your finger.	Snap your fingers
Thirdly, I will bake this for 5 minutes by toaster.	Cook sweet potatoes
Oh no, oh no, the door was hide by another color. But with layer you can, you won't do that.	Use paint tool software
4.5.2.3 Have/need to	
And this actually have a few important points. We have to using lower back.	Throw a football
First drink all. You have to empty the carton.	Fold a paper carton
Pull slowly and you don't need to pull powerfully, only knife's own weight.	Sharpen a knife
First, have to prepare a kitchen knife and grindstone and bowl.	Sharpen a knife
Something to, something to need to make boiled egg is a pot and water and egg.	Make a boiled egg
If you want to make chicken hamburgers, you need to buy lettuce, tomatoes, cheese, chicken, …	Cook hamburgers
4.5.2.4 Should	
You should buy this packages, this package. It is, it has the noodles and the soups.	Make Taiwan noodles

Put this, this, into this pocket. But you shouldn't put like this. This is, this is bad way.	Fold a package
And I recommend we should write, we should do calligraphy on the newspaper.	Use a calligraphy brush
You can use many functions on an old cell phone. First you should open.	Use a cell phone
You should add two teaspoon, two teaspoon, two teaspoons. And then uh you should mix.	Make pancakes
And, and it looks, and when it looks delicious, you should sprinkle salt and, and pepper on it.	Cook eggs
4.5.3.1 About	
Hello today I'd like to talk about how to cook miso soup which I often make	Make miso soup
Next I'd like to explain about bath towel.	Fold laundry
Today I talked about how to throw an American football. Thank you.	Throw a football
And after the egg put into a pot, I wait about 7 minutes.	Make a boiled egg
4.5.4.1 If + want	
If you want to make chicken hamburgers, you need to buy lettuce, tomatoes, cheese, …	Cook hamburgers
If you want to know the meaning of the alphabet words you should touch this eigo *button.*	Use an electronic dictionary
If you want to make your nails prettier, you can use some colors on one nail.	Paint fingernails
4.5.4.2 If + do	
This time don't rub your face because if you do so your skin may become breaking out.	Give a face message
And because if we don't do that it be broke, a broke, a shoulder or elbow.	Throw a football
4.5.5.1 VBZ (be-verb present, 3rd person singular)	
This is a pocket.	Fold a package
First this is a mouthpiece.	Assemble a clarinet
And this is a calligraphy paper.	Use a calligraphy brush
4.5.5.2 VVP (present, except 3rd person)	
Then I prepare a hot water.	Make miso soup
Today I prepare one egg.	Make a boiled egg
Second I prepare leftover rice	Use leftover rice
4.5.5.3 VVG (Gerund)	
Today, I'm going to make a box from now on.	Make a paper box
I hope you enjoy watching this video.	Use a calligraphy brush
That's all, thank you for listening.	Use a cassette recorder
4.5.5.4 VVN (Past participle)	
The glass is full, it's done. Thank you for watching.	Make cocoa
After 10 minutes later the cooking is finished. That's all my how-to video.	Make curry-rice
Now I'm completed all section. This is Taiwan's mazesoba. Thank you.	Make Taiwan noodles
Now the noodle is boiled.	Make Taiwan noodles
4.5.6.1 Right/left/center/middle	
First pinch in the middle.	Fold laundry
And fold the corners towards the center.	Fold paper box
Right or left. It doesn't matter which you choose	Snap your fingers
4.5.7 *Wh*-clefts	
So, so now I'll show you what is you need to make Taiwan's mazesoba.	Make Taiwan noodles
First of all I show you is what is the lifting.	Do soccer ball lifting