Taking an effective authorial stance in academic writing: Inductive learning for second language writers using a stance corpus

By

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Chapter One Introduction

The research investigates academic writing in a second language, exploring daunting challenges for second language (L2) writers; specifically, the challenges of authorial stance-taking in research writing. An effective stance enables an author to claim solidarity with readers, evaluate and critique the work of others, acknowledge alternative views, and argue for a position (Hyland 2004a). Failure to present an effective authorial stance often results in poor evaluation which compromises a writer's research potential (Barton, 1993; Hyland, 1998a; Schleppegrell, 2004; Wu, 2007).

Despite the urgent need and importance, particularly for novice and novice L2 writers, of taking control of one's authorial stance to fulfill required rhetorical moves in introducing research, writing instruction for these writers typically remains general and conceptual. In writing classes, L2 writers often are provided with only very general writing guidelines but not specific examples of how to write. Research in EAP has argued for the need to shift to discursive practice when advanced academic writing instruction is involved (e.g. Hood, 2004, 2006; Flowerdew, 1998; Charles, 2007; Pho, 2008). While tackling the discursive aspect of writing is complex, this study seeks to provide learners with foundational knowledge they can apply in linguistic stance taking; knowledge that they can build on as they develop the knowledge further. The purpose of this study, then, is to cultivate a stance schema as the foundational knowledge for developing an authoritative authorial voice.

To this end, I designed a stance corpus to assist advanced second language writers. The corpus is grounded in three main theoretical frameworks: In terms of instructional material development, it applies the "engagement framework" as an analytical tool to systemize the linguistic expressions of stance (Martin and White 2005; SEE Appendix A). The engagement framework is one of the three sub-systems of the overarching appraisal system, a theoretical framework in the Systemic Functional Linguistics (SFL) tradition. The instructional materials were developed from analysis of a total of 15 published texts, resulting in the presentation of the texts at the sentence/clause level, the rhetorical move level and the (con)text level, organized by sub-discipline of the social sciences, to allow the learners to observe and discover regularities in the use of stance resources that meet their particular writing goals.

The corpus also draws on Swales' (1990; 2004) descriptions of rhetorical move structures which illustrates three moves that characterize a typical introduction to a study or research proposal: Establish a territory, Establish a niche, and Present the present work. A marriage of both linguistic expressions and rhetoric structures in research "introductions" gives purpose to sentence/clause-based stance expressions which, if deployed effectively, accomplish the rhetoric purposes of each move.

The third theoretical foundation concerns the instructional interface design to promote a constructivist approach to learning. The learning interface is premised on the notion of computer corpora which promotes a data-driven approach to probabilistic learning and encourages active exploration in inductive pattern-finding of the systematically rendered stance resources (Hunston, 2002; Johns 1991, 1997; Leech 1997).

Empirical studies that have investigated pedagogical applications of computer corpora report both strengths and weakness in learners' performance when such tools are the sole intervention, even though theoretical discussions have proposed that computer corpora have great capacity to encourage inductive learning. The gap in theory and empirical research underscores the importance of two major goals of this study: first, to add to the current body of research regarding the learning styles and cognitive processes actually encouraged by corpora tools, and second, to investigate if the learning materials rendered by adopting the linguistic framework of SFL facilitate learning.

Components of the stance corpus

The corpus tool is composed of the following three major components:

(1) Rhetorical *move examples* (both in plain and annotated texts): the "introduction" sections of the texts are rendered into three rhetorical moves.

(2) *Stance examples* (clause/sentence based): the texts are analyzed clause by clause for their stance types, which are then grouped by the four stance types, "High Argumentative", "Medium Argumentative", "Tentative" and "Non-Argumentative".

(3) Integrated *(con)text examples* with stance annotations: The move-based examples are further analyzed by clause units and then annotated with stance types and move-making steps, along with textual enhancement of stance keywords in each clause. In addition, there are 5 supplementary parts:

(4) *Stance keyword tables*: A general list of stance keywords is provided for each stance type in four individual tables.

(5) *Stance ratio graphs:* Different stance type distributions are shown in the three respective moves in all the texts included.

(6) *Reference lists* in the *stance example* pages: The lists exemplify for the users possible ways to find patterns when exploring the clause/sentence-based stance examples.

(7) *Distinguish the stances:* Examples are shown to compare and contrast the key different linguistic items used to construe the four stances.

(8) *Breaking into clauses:* A list of instructions includes step by step descriptions of how to recognize a clause unit, the smallest unit that can be encoded with a stance.

The development of the tool followed an iterative process. A few rounds of trial and revision were involved to refine the tool in its capacities in affording learning. The process of the design, development and subsequent revisions aimed to render the raw materials pedagogically beneficial in ways that could better induce pattern finding by the users. Examples therefore were carefully selected and annotated along with textual enhancement of the key linguistic stance items. These examples were also better organized, with the aid of a refined navigation system, into the four stance types and three-move structures.

Research Questions

My research probes how L2 writers would learn as they explore these engagement resources: how they would reason, and more importantly, how they would generalize patterns when presented with multiple stance examples. Specifically, the questions are:

1. Pertaining to the affordances of the stance corpus: How do the L2 writers use the tool to help them develop their stance in their introductory moves?

    A. What type of cognitive activities do they engage in most frequently when interacting with the corpus tool and engaged in learning as a whole, particularly stance, and why?

2. Pertaining to their performance: How can the progress they make be characterized in terms of changes in move (rhetorical structure) and stance (lexico-grammatical choices)?

A. How is their move and stance performance different after using the stance corpus?

B. Do they use the four stances appropriately to fulfill the three different rhetorical moves expected in an introduction in their final drafts?

C. How accurate are the learners in identifying and labeling stances used in their drafts?

3. Pertaining to the effect of tool use on their learning outcome: What are the more frequent cognitive activities being encouraged and how is this related to their writing performance?

Methods and analysis

To answer the questions, a total of seven Chinese-speaking learners of English studying at post-graduate levels were recruited for the study and engaged in two orientation/training and three writing sessions. Data collected includes pre-tool use interviews about the subjects' academic writing experience, their writing samples before tool use, their Stimulated Recall (SR) protocols for the cognitive learning processes in tool-use sessions, three developmental drafts, along with three self-analysis sheets from the three tool use sessions, and finally post-tool use interviews.

Multiple methods of analysis were employed to provide a rich description of the learning facilitated by the stance corpus. The study evaluated students' pre- and post-tool writing and their stance identification accuracy, conducted in-depth textual analysis of the developing drafts, tracked and calculated the frequency of tool functions

accessed and the cognitive processes promoted by the tool that writers engaged in while learning, and documented recurrent cognitive and stance learning patterns and issues through analysis of the drafts, recall protocols and interviews.

The study seeks to identify important issues related to learning stimulated by the stance corpus tool and assess written performance that resulted from the learning. Interesting insights emerge related to the following issues: (1) how the stance corpus promoted learning and the cognitive activities encouraged by use of the corpus; (2) whether the participants' writing improved and how stance learning and understanding is reflected in the improvement; (3) how the learning experience facilitated by the corpus was associated with stance learning outcomes; (4) what types of support(s) offered in the tool best afforded learning; and (5) what other factors that the tool , as currently formulated, has not yet accounted for, need to be addressed and what supports still need to be provided to optimize stance learning,.

The findings have implications for the pedagogical application of computer corpora, for understanding cognition and advanced second language writing, for instructional tool design for advanced academic writing, and for understanding advanced academic writing as a discursive practice.

This dissertation is organized as follows:

Chapter 2 reviews the research literature in two major areas. First it surveys academic writing challenges, particularly viewed from the angle of stance deployment in novice writers. The review focuses on the literature relevant to advanced academic writers. This part of the review documents an important gap in research for which pedagogical proposals to assist learners of advanced academic writing, particularly L2 writers, are urgently needed. I then review literature in the corpus linguistics field with a

specific focus on how computer corpora afford learning, as a basis for my proposed solution to help the writers tackle academic stance writing. This part reveals a gap between the theoretical assumptions suggesting the multiple benefits that computer corpora promote, including inductive learning, and actual pedagogical practices which report mixed results in students' learning. More investigation is needed to understand how students learn by using corpus tools to construct a solid knowledge in pedagogical application.

Chapter 3 delineates the principles and process involved in constructing the corpus tool to afford learning in stance and move development. The development involves multiple strands: from the filtering of texts for representative examples, rendering the materials to facilitate learning, modifying the theoretical framework of stance to be pedagogically accessible, conceiving and revamping the interface design (e.g. navigation systems, ways of content organization) to recursive trialing and testing for tool usability.

Chapter 4 presents the methodology of the investigation of the affordances of the tool. The overarching question probes whether a stance corpus promotes inductive learning in L2 writers. Seven L2 doctoral students in the social sciences whose first language is Mandarin were recruited. In three sessions, they were aided by the tool to write introductions to research papers they were developing for their studies in three developing drafts and to analyze their drafts for stance expressions and move structures. The writing and learning process was captured on video that was subsequently used to prompt their recall of what was going on in their minds as they engaged with the tool. They were also interviewed before and after the experiment. Data analysis includes investigation of cognitive learning processes, tool use frequency, writing performance

from pre and post-task drafts, and stance identification accuracy, as well as close analysis of the recurrent stance patterns demonstrated in the three developing drafts.

Chapter 5 presents the analysis and findings. First, the types of cognitive activities the learners were engaged in while interacting with the stance corpus are investigated. Following that, overall cognitive processes in learning (i.e. cognitive processes directly prompted by the tool and those engaged in while learning and writing but not directly prompted by the tool), are explored. The learners' cognitive learning patterns are interpreted in relation to their writing performance, stance learning outcomes and tool use patterns. Building on the above findings, the learners' development of stance deployment in the three developing drafts is examined via close textual analysis.

Chapter 6 discusses and generalizes from the results by research questions. These include (1) how the learners' cognitive learning patterns, stimulated by certain components most frequently accessed, dictate their writing performance and stance understanding, (2) what other important learning issues play a role in their stance learning, (3) what stance knowledge they possessed after the three-time intervention, and in addition, specific to tool design and instructional material development, (4) how the tool afforded the learning and what still falls short in assisting the writers in writing. Suggestions for future tool revision and expansion are then suggested. Finally, implications drawn from the results and discussion follow, and limitations this study observed are discussed.

Chapter Two Literature Review

Overview: The chapter first examines the challenges and complexities in making interpersonal meanings, specifically on authorial stance-taking in advanced academic writing. I then review the pedagogical proposals and applications of computer corpora and their potential in tackling the challenges of advanced academic writing. These include both theoretical discussions and empirical studies conducted to support with evidence the benefits of using corpora tools.

The challenges and complexities of advanced academic writing, particularly interpersonal meaning making, are associated with the making of knowledge claims and authorial stance-taking to establish a credible authorship. The review centers on the pedagogical discussions of advanced academic writing. These involve the difficulties adult L2 writers face in effectively managing their authorial stance and voice in academic writing. Examining this research reveals the urgency in dealing with the L2 writers' long-term problem with projecting an effective stance. Following this, I examine literature in the field of corpus linguistics with a focus on learning with computer corpora to aid with academic writing. Computer corpora have been proposed in a multitude of theoretical and pedagogical arguments as a way to promote active inductive and discovery learning. With multiple authentic examples in the form of concordance lines, the tools exhibit potential to relieve cognitive loads in managing advanced linguistic tasks. Complex linguistic data can be rendered in a system of

multiple examples to allow the investigation of patterns. However, evidence to validate such a proposition is only slowly emerging. Among the empirical studies carried out, though general positive outcomes from the introduction of corpora tools were reported, the types of learning and cognitive skills stimulated as a result of use were seldom probed. Understanding the strengths and weakness in adopting corpora tools is critical to help refine and revise pedagogy to maximize the benefits of computer corpora.

2.1 Challenges of authorial stance-taking in academic paper

2.1.1. Overview

L2 writers confront multiple challenges in producing professional academic papers at graduate level. These challenges fall in the spectrum from word usage to delivering effective meanings. My study takes on a semantic approach in studying the critical role of the making of interpersonal meanings in terms of their contribution to the construction of effective authorial stance. Interpersonal meanings are made with an assumed audience that an author sets out to negotiate meanings with.

The challenges are especially keen for those in the fields Hyland termed “soft disciplines” such as social sciences which rely heavily on the writers’ interpretive and reasoning capability to deliver convincing arguments appreciated by their disciplinary community (Hyland, 1998a; 2003; 2004b). We can sum this up as the ability to deploy linguistic and discursive resources to strike a fine balance between being a humble (so conceding other perspectives) and authoritative (so contracting interpretation in support of a particular one). To achieve this, managing interpersonal meanings well is key.

A common cause for the L2 writers to write less successfully is attributed to their ill management or lack of linguistic and discursive resources. For example, Schleppegrell

(2004) found these writers tended to overuse subjective "I" in combination with modal verbs (e.g. could, may) that resulted in a monotonous implicit subjective stance. The native writers, by contrast, tended to communicate implicit objective stance using multiple resources (e.g. it is *difficult* to draw any firm conclusions; *perhaps*). The novice L2 writers, overall, were either too definite when tentativeness was called for or tentative where they should be more definite. Hyland (1997) also found similar pattern in the student L2 writers in a study he conducted. In terms of the proportion of probability and possibility devices, for example, these writers used twice as many 'may' and more 'will' as opposed to 'would,' whereas the native speakers used more modifiers to withhold full commitment to claims.

My goal in this part of the review is to examine the various studies on how interpersonal meanings are construed related to the projection of successful or unsuccessful authorial stance. These studies are linguistically oriented and, as a whole, reveal the linguistic complexities that contribute to the making of effective interpersonal meanings. Some studies attended to the lexical realizations of interpersonal meanings, some studies took a more meaning or discourse based approach, and some others combined the two approaches. I divide the review below into two parts: the first describes the theoretical constructs of stance-taking as interpersonal meanings and the second explores the empirical studies which investigated the multiple challenges of making of interpersonal meanings in academic writing.

2.1.2. Theoretical constructs on "stance"

My study explores how L2 writers can construct a successful authorial stance in their academic writings. The concept of "stance" has been discussed by many researchers and

theorists under different terms and definitions, each of which is also mobilized by different level of linguistic resources (lexical, grammatical, lexico-grammatical, discursive, etc.). Many of the theoretical constructs are not pedagogically oriented, so clarification is needed, after which I explain and support the "stance" construct this study is based on and its potential in pedagogical application.

Stance, authorial voice, attitude and evaluation are concepts adopted by different theorists to refer generally to making interpersonal meanings. Due to their correlation to other concepts, such as identity, and to grammatical functions, such as the use of first-person pronoun, these terms can represent very different notions. When aligned with "stance" or "evaluation," voice concerns the deployment of evidence and the construction of a convincing argument. This is the concept that the current study takes interest in. Along this line, the concept of stance has been highlighted as very challenging for novice and L2 writers at college or postgraduate level.

The following discussion looks at each of these terms used broadly to refer to the interpersonal meaning making in detail. These are "evaluation," "interactional" resources, "stance", "hedge" and "booster," and "appraisal meanings".

"Evaluation", proposed by Hunston and Thompson (2000), designates "the expression of the speaker or writer's attitude or stance towards, viewpoint on, or feelings about the entities or propositions that he or she is talking about. . ." (p. 5). Evaluation in texts is crucial in terms of expressing the speaker's or writer's opinion, and maintaining relations (i.e. to manipulate the reader, to persuade him or her to see things in a particular way, or to hedge by adjusting the truth-value or certainty attributed to a statement). It is therefore inherently comparative, subjective, and value-laden (p. 13). Linguistically, it is realized through the use of lexis, grammar (i.e. the

combination of lexis and grammar) and text (the buildup of values in prolonged text) (p.14).

"Interactional" resources, discussed by Thompson (2001) signal the other voice ('reader-in-the-text') in academic texts. The discussion centered on academic argumentative writing and recognized the fundamental importance of it in terms of setting up room to anticipate potential reader responses. A convincing argument, accordingly, is achieved by a fine balance between author's subjective analysis and objective observation that allows for refutation. The lexico-grammatical interactional resources have the reader collaborate in the development of the text by command, questions and statement which are potentially subjected to contradiction[1].

"Epistemic", and "attitudinal" stance proposed by Biber (2006a) refer to those "linguistic mechanisms used by speakers and writers to convey their personal feelings and assessments" (p. 97). The former is associated with certainty, reliability, and limitations of propositions and the latter concerns attitudes, feelings, or value judgments.

Hyland used a set of concepts to codify the making of interpersonal meanings, "evidentiality", "affect", and "relation" (1998b). "Evidentiality" refers to the writer's commitment to the truth of propositions and their strategic manipulation for interpersonal goals. "Affect" involves a range of attitudes, including emotions,

[1] For example, this statement "literally translated 'Landeskunde' means 'knowledge about the country'. This is misleading in that geographical notions are expected" was less effective as it failed to involve the reader in the text dialogically so s/he could participate in questioning or contradicting this statement. By modifying "are" in the last sentence to "might be" (modalization), the writer then sets him/herself up as entering into potential dialogue with reader-in-the-text which Thompson considered effective in making arguments.

perspectives and beliefs. “Relation” concerns the extent to which writers choose to engage with readers, and their degree of intimacy or remoteness (p.82).

A widely received and operationalized concept in language education is “hedge” and “booster”, two subsets of interpersonal meanings used in evaluating stance the writers project (Hyland, 1998, 2004a, 2006). Fine-tuned knowledge claims should be a result of a balanced interplay between objective (i.e. tentative or concessive) and subjective claims (i.e. definitive or contractvie).

“Appraisal” meanings, proposed by Martin and White (2005) are closely related in concept to “evaluation” in Hunston and Thompson’s term. Appraisal concerns three key components: “attitude”, “engagement” and “graduation”. ‘Attitude’ designates the way the writer passes on values in light of appreciation, judgment and affect. ‘Engagement’ concerns the projection of authorial voice and stance. ‘Graduation’ designates the force with which the writer adjusts his/her evaluation.

The theoretical constructs discussed above serve different goals and purposes. Hunston and Thompson’s (2000) “evaluation” and Thompson’s (2001) “interactional” resources are theoretical discussions of the linguistic concept which do not have a pedagogical orientation. Biber (2006a) and Hyland’s (1998a, 1999, 2004a, 2006) discussions are more pedagogically oriented and both used concordancing tools to explore the probability of lexical or lexico-grammatical resources for academic purposes. While Biber offered a more systematic stance framework, his focus was more on the lexico-grammatical level than a discursive one. Hyland’s work has more grammaticality and is quantitative without a systemic approach to stance meanings. Martin & White’s (2005) systemic framework on stance meaning, part of the whole appraisal meanings, is semantically orientated. This focus on the semantic level enables description both on

the lexico-grammatical and discursive levels, dealing with how meanings are built up across a text.

My study is grounded on the semantically oriented framework by Martin and White (2005), in particular one subset of the overall appraisal framework, the engagement system, for its capacity in tackling the discursive level of advanced academic writing, which a lexico or lexico-grammatical approach cannot fully address. Advanced writing relies heavily on the overall construction of meaning to succeed which substituting a word for another fails to address the overall effectiveness of the argument. “Engagement” deals particularly with the deployment of voice in the form of monogloss or heterogloss to engage with the readers. This view toward stance-taking can account for the deployment of stance getting strengthened as a result of the co-articulation of meanings resonant with the surrounding context in an argument. The framework in offering explicit stance meanings has great potential in rendering linguistic resources for instructional purposes.

Martin and White’s framework is grounded in Systemic Functional Linguistics (SFL). SFL looks at how meanings are made socially with the goal of pinpointing discourses as constructs and a matter of choices (Schleppegrell, 2004). Broadly defined, it seeks to explicitly elucidate what type of lexico-grammatical choices come to fulfill specific type of meaning. According to Schleppegrell, “systemic functional linguistics (SFL) is a theory of language that offers tools for identifying the linguistic features that are relevant in the construction of different kinds of texts. Different choices from the grammar accomplish different kinds of things for speakers and writers” (2006, p.136). In this sense, SFL is an ideal explicit instructional tool to equip the L2 writers.

Halliday and Martin (1993) posit the critical features of SFL, and two of them are particularly pertinent to my study: first, SFL is oriented to the description of language as a resource for meaning and second, SFL is concerned with language as a system for making meaning. Mohan et al. (2005) put forth that SFL is the powerful analytical tool to "illuminate aspects of CALL at the discourse level" which an SLA approach does without. They further point out an important dimension of language learning that sets SFL and SLA approaches apart: "SFL speaks of second language socialization rather than second language acquisition" (p. 92). As Schleppegrell indicates, "Learning a new language is a way of expanding one's meaning potential to new contexts," and for L2 learners, it is important to take into account "the meaning potential that the learner is exhibiting" and so offer "language input to expand that meaning potential" (2006, p.144).

In systemizing language as choices and meaning resources, SFL, therefore, is a highly potential tool for advanced second language learning and the appeal of systematizing linguistic resources coincides with learning with computer corpora which actually makes visible display of such a system of linguistic resources. Both pertain to explicit instruction in learning a second/foreign language.

2.1.3. Empirical studies on interpersonal meaning making in academic writing

The empirical studies included here are both pedagogically inclined and focus on advanced learners, both under- and post-graduate levels composing native and L2 or non-native speakers. The target of study ranges from published research papers, student writings including the comparison of high/experienced and low/novice and of native/experienced with non-native/novice, to comparing published papers and student writings. These were generally conducted in the field of English for academic purposes. These studies were selected for their focus on the semantic or discursive discussion of

advanced academic writing, particularly in the social sciences or “soft disciplines”, in Hyland’s term, , leaving out a huge body of studies conducted exclusively on lexis or only a few lexico-grammatical items in these writings.

Interpersonal meanings were conceived in varied terms: including ‘attitude’, ‘stance’, ‘hedge and booster’, ‘engagement’, ‘epistemological stance’, ‘knowledge claims’ and ‘authoritativeness’ (Barton, 1993; Hood, 2004, 2006; Hyland, 1998, 2004a, 2004b; Schleppegrell, 2004; , 2007). Some studies discussed wider scope, metadiscourse, metafunctions or overall generic and analytical features which “interpersonal meanings” are subsumed or a sub-component of (Hewings, 2004; Hyland, 2004; Woodward-Kron, 2002). Two studies have distinct pedagogical focus: one on how to teach L2 advanced writers about making effective argument in combining lexical explorations with rhetorical scaffold (Charles, 2007); the other investigated the linguistic resources of stance-taking to fulfill different rhetorical moves in abstract writing and rendered these explicit to L2 writers (Pho, 2008).

The methodological approaches carried out included discourse analysis on expert, novice and L2 writing (Barton, 1993; Hewings 2004; Hood, 2004, 2006; Pho, 2008; Schleppegrell 2004; Woodward-Kron, 2002; Wu 2007), the resort to concordancers for finding frequent lexical items appeared both in expert and novice or L2 writing, supplemented by interviews (Hyland 2004a, 2004b), and exploration of a pedagogical practice (Charles, 2007).

The findings generally suggested that novice and (novice) L2 writers consistently demonstrated weakness in the deployment of the interpersonal meanings or knowledge claims in negotiating the relationship with the readers. These include (1) presenting an inappropriately and monotonously subjective persona, (2) inability to carry on

consistent evaluation to strengthen an argument and (3) presenting descriptive narrative more than critical evaluation.

Pertaining to each of these weaknesses, more detailed discussion is provided below, followed by the review of two pedagogical approaches related to tackling the complexities of advanced academic writing.

First, the studies consistently found that novice or (novice) L2 writers tended to either project a subjective authorship or an authorship devoid of stance or voice equivalent more to descriptive account or narratives. While each of these studies took on different linguistic angles, the diverse perspective all lead to the same findings. Looking closely at the introductory sections of published research articles and those from the novice writers, the undergraduate dissertations, Hood (2004) found that published writers used more APPRECIATION, resources about making evaluation, while the student writers used more AFFECT, resources about making emotional evaluation, and JUDGEMENT, resources about expressing personal opinions. Judged by the fact that academic writings are dominated with evaluations that tend toward impersonal and objective observation for persuasive argument, the student writers' inclination to use more AFFECT and JUDGMENT instead constructed a more personal and subjective evaluation. Similar to Hood's analysis, Barton (1993) also found these writers exemplified through real world and personal experiences which were usually communicated through such linguistic resources as AFFECT and JUDGMENT Hood pointed out.

Failure to operationalize richer interpersonal resources to contribute to an appropriate authoritative authorship was found in Schleppegrell's (2004) study on grammatical metaphors deployed in non-native/novice writers. Grammatical metaphors

refer to the choice of different wording for making the same meaning, where two layers of meaning result from grammatical choices. The L2 writers tended to overuse subjective options through “I” or modal verbs (e.g. could, may) or a combination of both that resulted in a monotonous implicit subjective stance. This resulted in either a too definite stance when tentativeness was called for or a too tentative stance where they should be more definite. The native writer, however, tended to communicate implicit objective stance using multiple resources (e.g. it is difficult to draw any firm conclusions; perhaps).

Similarly, Barton (1993) also found that weaker writers tended to either use “we” or “I” and did so without providing claims to build and back up an academic authority. In contrast, experienced writers were able to build credentials using effective linguistic resources (e.g. “After tracking student attitudes…, we noticed…”). And in using citations, novice writers often failed to appropriate the sources either to support their argument or counter an argument with appropriate wording. This coincided with Wu’s (2007) finding that novices were less effective in entertaining meanings denoting a range of possibilities than in making arbitrary bare assertions, contributed also by their weakness in mobilizing “endorsement” resources, the way citations are incorporated to produce convincing authorship. Alternatively, Hyland found that these writers avoid the use of “we” and “our” to explicitly align themselves with the argument, resulting in an authorship that lacks stance (Hyland 2004a).

Second, these writers also were found unable to carry on consistent evaluation to strengthen an argument was identified. Hood (2006) discussed that student writers were weak in carrying out consistent evaluation using appropriate linguistic items (e.g. discordant values in novice writing: ‘more thorough’ mitigated by the process ‘try to

have'). This is referred to as "prosodies" which concern the consistent presentation of values to build up a convincing authorship. Novice writers are often found to fail in having values previously encoded picked up and reinforced through extended text, not to mention using discordant values, which as a result weakened their argument. They usually accomplish a static perspective whereas experienced writers are able to deliver a more dynamic perspective by using multiple instances of interpersonal resources accumulated and resonated with one another as the text unfolds.

Third, weak writers tended to describe more than to critically evaluate in their argumentative writing. Hewings (2004) found that novice writers conflated subject and theme at the beginning of a clause, so that their texts took on features of narratives and descriptions (for instance, 'there are'; 'the Nile'; 'this is'). "Theme/Rheme" analysis is the tool for tracking meaning in text to see how a writer construes the textual meanings. It tracks how and if the ideas are well connected and presented to form a convincing argument by tracing the linkage moving from clause to clause (Martin & Rose, 2003). Compared to more experienced writers, Hewings found that multiple themes that conveyed an interpersonal orientation were used (e.g. And/as a result the importance of some of the factors; and/thus his analysis; however/it is often felt that). The very different sets of resources used in themes led Hewings to conclude that the more advanced writers were able to construe more complex text and argument by using more interpersonal devices to engage the readers whereas the novice writers, at the threshold of building up disciplinary knowledge, wrote more descriptive narratives.

Hyland (2004a) also found that student writers tend to refrain from expressing obligation to the reader, using, e.g., must, should, Look at, See and were frugal with expressing judgment (e.g. *inherently* dialogic). The former is referred to as "directives"

used by expert writers as imperatives. Students tended to guide the readers through the discussion rather than engaging or directing the readers to particular views, resulting in more factual descriptive accounts. Woodward-Kron (2002) analyzed the gap between the descriptive and critical rhetoric, and argued that most students, before they can construct critical opinions and critique established theories, need to acquire substantial content or disciplinary knowledge. Aligned with Hewings' observation, Woodward-Kron acknowledged this as a phase where the students learned through writing. For instance, "naming, defining and taxonomising," she argued, "introduce technical field specific terms to texts, a process which contributes to the construction of *authoritative* texts" (2002).

The making of more descriptive statements in academic writing was again echoed in Barton's study (1993) which pointed out that student writers usually were less frequent in contrasting or problematizing issues, one of the five aspects of 'evidentials' resources in epistemological stance-taking, resulting in more general than critical argument. Epistemological stance-taking concerns the use of 'evidentials,' which Barton defined as words and phrases that express attitudes toward knowledge. She underscored five aspects of evidentials (problematization, persona, citation, argument, and epistemological stance) as benchmarks to examine the two sets of writing. Pertaining to 'problematization', the novice writers tended to agree more than countering or problematizing, leading to generalized statement.

Taken together, experienced writers were apt to use evidentials of contrast that designated knowledge as a product of contrast and competition. They were also good at presenting credentialed personae as researchers combined with appropriating sources to substantiate their arguments. More advanced students also employed more

metadiscourse to both guide and engage the readers, which Hyland credited as a more sophisticated approach to craft a professional persona (Hyland, 2000, p. 109). These writers were also found to mobilize multiple richer and more effective linguistic resources to convey interpersonal orientation, build credentials and contribute to an implicit objective stance.

Student writers tended to use more generalized statements with uncredentialed persona, supported by personal experiences or real-world observations not appropriating the literature to their critical advantage. They were also found to be weak in carrying on consistent evaluation using appropriate interpersonal resources. Failure in deploying effective interpersonal meanings also resulted in descriptive accounts devoid of stance.

Finally, two studies, in acknowledging the challenges, proposed pedagogical approaches to the teaching of interpersonal meaning making targeting research papers. Charles (2007) described an approach to advanced academic writing, the composition of doctoral dissertation for international students, which combined lexico-grammatical and rhetorical-discursive guidance to really tackle the challenges they faced. The discourse-based tasks focused on the management of rhetorical functions (e.g. anticipated criticism and made defense along with the linguistic realization using signals of apparent concession, contrast and justification, etc.) and the corpus search tasks focused on specific lexico-grammatical issues in which the rhetorical function appeared (e.g. the students explored a word usage, for example, while in sentence initial position and compared and contrasted with while within a sentence). The combination of discourse and lexis points to the importance of the need to tackle both linguistic and discursive aspects in writing, particularly advanced tasks.

Similar to Charles' pedagogical proposal, Pho (2008) also looked to both the rhetorical and linguistic resources to help advanced academic writers write, particularly non-native speakers. Pho explored the rhetorical moves, the linguistic realizations of the moves and authorial stance in abstract writing in two fields in social sciences with the purpose of rendering these explicit to the novice writers. Similar to Charles, he also proposed a corpus-based pedagogy not only to complement where the printed media falls short, but also to explore the linguistic patterns in realizing different moves. Both Charles and Pho delineated the importance of combining both rhetorical and linguistic approaches to teach about research writing to prepare the novice writers to participate in academic publication.

To conclude this part of the review, the literature informs the multiple challenges and weakness novice and (novice) L2 writers exhibited in advanced academic writing. Particular focus is drawn on the making of interpersonal meanings, including the making of knowledge claims and the extent to which writers engage with the readers and expressions of stance and evaluation writers take on. Both lexico-grammatical and rhetorical/discursive resources and devices were explored to underscore areas these writers were less effective. These included presenting overly subjective personae, failure to carry out consistent evaluation, and tendency to describe thus hiding authorial stance. These weaknesses were well founded judging that the "soft disciplines" demanded more from the writers in their ability to carry out find-tuned interpretation mobilizing a wider range of rhetorical and linguistic resources (Hyland, 1998; 2003; 2004). Proposals to tackle the issues include making explicit the demands of argumentative writing by providing not only lexico-grammatical but rhetorical resources, strategies and guidance to equip the novice and L2 writers in academic publication.

To respond to this research on the multiple challenges novice writers are presented with, this study proposes to render explicit the linguistic resources for stance-taking to advanced L2 writers. In adapting the analytical framework from Martin and White's (2005) engagement system, the rendering of these resources into instructional materials is aimed at a systematic presentation of these stance expressions. The final product is a stance corpus which shows different stance examples by clauses/sentences and also in contexts. This enables exploration both at lexico-grammatical and rhetorical/discursive level, aligned with Charles (2007) and Pho's (2008) suggestion to the teaching of advanced academic writing.

The marriage of the engagement meaning system with a concordancing approach seems natural. Using the engagement system as the analytical framework to render the instructional materials related to stance-taking naturally produced examples in systems of various stance meanings. This facilitated the organization of these examples in clauses/sentences, which were also depicted in their rhetorical move contexts with stance annotations (i.e. keywords highlighted and stance type identified). This pedagogical design led to the examination of the literature on the pedagogical applications of corpora-based teaching and learning, regarding the constructive language learning environment it has been recognized to promote. Specifically, researchers found the multiple concordance lines tend to stimulate inductive pattern finding.

The next part of the review explores the pedagogical potential of corpora tools in facilitating inductive language learning. These include the types of cognitive learning skills promoted and performances achieved, which can shed light on adopting better pedagogical approaches in a corpus facilitated learning environment.

2.2. Pedagogical proposals of teaching stance: Inductive learning and computer corpora

2.2.1. Overview

Hosting natural occurring linguistic data, computer corpora have the potential to promote learning through inductive pattern finding, referred to as data-driven learning (Hunston, 2002; Johns 1991). Data-driven learning has the potential to facilitate observation of the "regularities in use", not attainable in individual context these instances take place or in printed format (Hunston, 2002).Focusing on what inductive learning means using such media, usually an active role for the learners is implied, involving such concepts as "discover"' (Stern, 1992, p. 150), "infer" (Carroll, 1981, p. 105), and "consciously perceive"' (Shaffer, 1989, p. 395), which is also of great relevance to most educators (Todd, 2001).

Yet while theoretical assumptions champion multiple benefits using such tools in language learning, studies engaged in the pedagogical applications often reported mixed results. This part of literature review is based on discussions related to the corpora's pedagogical applications. First, I provide a brief account of the theoretical assumptions of using computer corpora. Following that, I review studies carried out in this vein that examined whether the theoretical assumptions were supported or contested in implementations. Implications drawn from these studies in the pedagogical applications are discussed after that.

2.2.2. Theoretical assumptions of computer corpora in teaching and learning

Theoretically, computer corpora, in hosting numerous natural occurring linguistic data, facilitate probabilistic learning (Manning, 2003). Halliday also indicated that "frequency in text is the instantiation of probability in the system" seeing that "a linguistic system is

inherently probabilistic in nature" (Halliday, p.42). Either frequency or probabilistic rendering of linguistic data is basis for inductive learning.

Probabilistic learning is conducive to inductive learning which research literature champions multiple benefits of. Not only are the language learners able to see repetitions of use demonstrated by the concordance lines but they are also prompted to infer a pattern from the multiple examples (Biber et al., 1994; Flowerdew 1998; Hunston, 2002; Hyland 2006; Stubbs, 2006; Thompson et al., 2006). Learning this way is referred to as data-driven learning (DDL) which engages the learners in making generalizations from authentic examples (Hunston, 2002; Johns 1991, 1997; Leech 1997). According to Hunston (2002), this opportunity to observe "regularities in use" is not attainable in each individual context these instances take place in or in printed format. Biber et al. (1994) also suggested by observing examples in a large corpus, language learners are prompted for register awareness when the linguistic pattern characterizing a particular register starts to emerge. DDL, according to Boulton (2007, 2009), "exploits processes that humans have evolved to be naturally good at: exposure to information, detection of patterns, extrapolation to other cases" while traditional teaching, with explicit rule-learning, is both "artificial and difficult" (2009, p39).

Celce-Murcia (1990) stated that data-based language perspective contrasts sharply with "the deductive rationalist tradition in linguistics, epitomized by Chomsky and his followers" to whom a "mental reality" exists that represents the native speakers' internal grammatical competence (p. 246). Halliday (1985), who represents the functionalists in line with the data-based language perspective, has therefore argued that "language teaching is a valid application of linguistic analysis". And such an approach is inherently promising to language teaching. Not only can language learning

be driven by evidence, but the connection between lexis, syntax and discourse can be well connected to lend learners better understanding toward both forms and meanings.

2.2.3. Computer corpora: pedagogical discussions

Pedagogical discussions considered the capacity of computer corpora to promote learning in various aspects: the promotion of advanced cognitive ability and metacognitive awareness, effective learning strategies and heightened attention, constructivist learning process (Bernardini, 2002; Hafner 2007; Johns, 1991; McCay, 1980; O'Sullivan 2006, 2007; Tribble, 1991). Presumably, a constructivist learning process requires the learners to engage in active discovery in formulating a question, working through evidence found, drawing conclusions and formulating hypotheses (Chambers, 2007; O'Sullivan, 2007). These inquiries in turn stimulate the following cognitive processes: predicting, observing, noticing, thinking, reasoning, analyzing, interpreting, reflecting, exploring, making inferences, focusing, guessing, comparing, differentiating, theorizing, hypothesising, and verifying, which O'Sullivan synthesized as the activities triggered by corpora consultation (2007). These cognitive activities are seen as particularly well suited for adult or advanced learners when engaged in advanced tasks such as academic writing (Johns, 1991; McCay, 1980 and Tribble, 1991).

Boulton (2007) summarized 39 studies related to DDL and corpora use and categorized the various focuses as follows: (1) learners' attitude toward corpus use, (2) learners' practices to become "amateur corpus linguists" (p.13), and (3) the effectiveness of corpus use in learning. Only the third attempted to evaluate the efficacy of corpus use by learners and it concerned two major currents. First, corpora were investigated as reference tools for the purpose of translation, certain aspects of writing or error-correction, which did not account for learning or the learning process. Second,

learning was studied with an almost exclusive focus on lexis, with very controlled tasks between an experimental and a control group in before-and-after situations (p.13). Among all, 23 of the studies adopted quantitative approach and only 6 evaluated language learning and are exclusively lexical or collocational in nature. While most studies reported positive results with corpora use, caution was also made on the level of student involvement and the types of condition favorable for contributing to a satisfactory outcome.

Seeing the myriad pedagogical potentials computer corpora are presumed to encourage, including increasing language awareness, learner autonomy, cognitive and metacognitive skills, to name a few, existing studies mostly only measured the outcome of learning but not how learning happens, Boulton called for more empirical studies for evidence of corpus use, and such a project is undertaken in the current study.

The literature reviewed here includes the empirical studies that investigated corpora use in learning targeting more advanced academic learners. Regardless of a lexis learning focus or experimental design methodology, these studies all inform, to varied extent, important learning outcomes or processes related to inductive learning or learning as whole, with some particularly exploring the learning of rhetorical/discursive language features.

2.2.4. Review of empirical studies on the pedagogical applications of computer corpora

The studies examined below are connected by a common interest in exploring or reporting the pedagogical use of computer corpora. They report generally positive learning using such tools but also pointed to the need to reflect on the pedagogical conditions and not just the tools themselves. These studies collectively covered a wide

array of agendas: whether inductive learning was promoted, what cognitive strategies were applied, how exploration of linguistic patterns happened, how vocabulary was learned, whether grammatical error correction was effective, how experiences of use was reflected in assignments, what is appropriate learner level, and what pedagogical practices were suggested. However, how learning happens with tool use has not been sufficiently studied to support the multiple assumptions proposed.

Overall, while inferential skills were observed, the extent to which the learners were capable was found to be confined to the learning of those linguistic items with fewer patterns of usage and meanings. Also, these learners were found to infer the patterns of lexical items more than lexico-grammatical ones. When semantic prosodies were involved, they were able to notice patterns but unable to describe what they noticed. Their search strategies in using the tool were also found to be inflexible as they usually stuck with one query and few strategies. Rigor and sound reasoning logic were also suggested for effective outcome and performance (Bernardini, 1998; Kenney and Miceli, 2001).

When the learners were given access to full text corpora, they were reported to access these without making an effort to infer lexico-grammatical patterns. Conversely. incorporating full text as part of the corpus was suggested to help pinpoint the "lexico-structural regularities" (Weber 2001, p.19). Close analysis of lexis or phrases using different corpora was recommended as a way to prompt genre awareness.

Below, I categorize these empirical studies into four groups by similar topics: (1) inductive learning using the tool, (2) cognitive strategies and linguistic pattern exploration with tool use (3) controlled learning task using the tool (4) pedagogical observation with the tool in use.

Inductive learning using the tool: Studies on whether inductive learning occurred with computer corpora showed generally positive outcome. A longitudinal study involving two students showed one was able to take advantage of the tool to infer linguistic patterns while the other did not (Turnbull and Burston, 1998). Significant improvements were also found in using corpora tools to infer collocational patterns on assigned questions among 81 non-native speaker (NNS) high school students. But when more difficult questions were assigned, no such significance was found between the two groups using inductive and deductive approach respectively (Sun et al, 2003a). Learners in another study were also found to be able to induce valid patterns from self-selected concordances and use these patterns to self-correct errors. This involved 25 postgraduate NNS students who were observed to be more successful with adjectives and with those lexical items with fewer patterns of usage or meanings (e.g. 'capable' VS 'following') (Todd, 2001).

Controlled learning task using the tool: This group of studies also reported general positive use of corpora tools and used very specific and confined tasks, e.g., learning of lexical items and grammatical error correction. Better performance and inferential skill was observed with these tasks. The multiple concordance lines, in a study to investigate the transfer of vocabulary, were found to enhance transfer among first-year Arabic-speaking university students in vocabulary learning compared to a control group who was given contextualized lexical information. And better performance was achieved with longer time and fewer questions answered (Cobb, 1997). Another study involved close-end questions related to grammatical error correction and stated that the participants, three undergraduate students', were prompted by the corpora tools to compare, group, differentiate, and infer (Sun, 2003b).

While reporting positive learning outcome, these studies concerned very specific and confined tasks, which the students' learning and thinking process were also circumscribed to attend only to the lexical and grammatical aspect of language learning.

Cognitive strategies and linguistic pattern exploration with tool use: This group of studies concerned the cognitive strategies employed in probing linguistic patterns of phrases in free and open exploration. Instead of seeking to quantify learning outcome, these studies described the learning process from observation and the linguistic patterns the learners explored as a result of use. First, in conducting corpora (re)search, the learners were less flexible in varying their queries and search strategies. Besides, the rigor in observation and reasoning logic played a key role in determining students' learning outcome (Bernardini, 1998; Kenney and Miceli, 2001). Second, in openly exploring the linguistic patterns of a given phrase, six third-year Italian undergraduate students were observed to apply inferential skills but depending on the level and nature of the tasks, they were less able to describe semantic prosodies and collocates they noticed and less observant on lexico-grammatical features than lexical ones (Bernardini, 1998). Third, when using corpora in checking the learners' own writing, 150 students in legal writing and drafting course were found to search for full legal documents rather than for patterns of lexical phrases when full legal documents were included as an option. The students also reported using corpora tools taxing on account of the exclusive focus on language or linguistic data of this learning approach. The study suggested that the abundance of linguistic data and the demand to conduct refined query can be daunting for learners at all levels (Hafner, 2007).

The use of corpora was also found to benefit higher-level learners more. In self-correcting writing errors using such tools, among the 14 advanced native English

undergraduate who participated, higher-level learners were reported to take advantage more than lower level ones, based on their self-report (O'Sullivan, 2006). Another investigation of similar interest studied first-year L2 undergraduate learners in learning about the use of "linking adverbs" and reported that while low-level students showed promising learning outcome, overall those learners scored very low in all types of learning conditions, with and without concordance tools, and reported difficulty in using authentic language to learn (Boulton, 2009). While the study suggested that low-level L2 learners could still benefit from corpora without training, it does not seem to contradict or expand the views held by many researchers that advanced learners tend to benefit more and that training contributes to optimizing corpora use.

Pedagogical observation with the tool in use: Studies aiming to describe the learning experience using concordance tools also reported advantages and effectiveness incorporating such a pedagogical approach. In exploring twenty L2 law undergraduate students' use of a small specialized legal corpus, they were reported to be at a better position to "pinpoint the lexico-structural regularities." This approach, by combining a lexis and genre-based pedagogy, gave the students "a firm foundation both in essay writing and in legal reasoning" (Weber, 2001, p.19). Another pedagogical design also used specialized corpora of academic writing and speaking to help four NNS doctoral students to develop rhetorical consciousness by compiling learner and expert corpora on their own. Instruction was provided both in using the tool and in inductive skills to exploit the data. The approach aimed at allowing the learners to play an active role in learning who can make their own discoveries (Lee and Swales, 2005).

In addition, using different corpora and analytical tools were reported to be beneficial in cultivating learners' consciousness both locally and globally in terms of the

applicability of language items across genres. The investigation involved ten L2 fourth year undergraduate students first in a carefully scaffolded learning process on how to discover using the tool. The learners were then introduced to gradually expanding context to explore target items. Comments from the students as a result of the pedagogical design were found generally positive (Bernardini, 2002).

Overall, these studies indicated positive learning outcome with corpora use, yet they also suggested favorable pedagogical conditions need to be considered for optimal learning outcome. These are discussed below.

Many studies pointed out other factors than the use of corpora can contribute to learning and these included training, guidance and time. In addition, the individual learner is also considered a variable in itself that affects learning. Providing training and guidance on concordacing strategies for optimal outcomes is considered important (Hafner, 2007; O'Sullivan 2006; Sun, 2003b; Turnbull and Burston, 1998). These can include providing the learners with a checklist to be explicit with them about their corpora use approach and complementing the use of corpora with text analysis to enable interpretation of semantic prosodies (Bernardini, 1998; 2002). Yet a short period of training or open-ended apprenticeship may still fall short in cultivating a rigorous attitude toward corpora use; instead, a more explicit education should be in place (Kenney and Miceli, 2001). Time is another critical factor that may contribute to better learning. Cobb discussed whether the required time in learning, in his study of vocabulary learning was meaningful as apparently those who performed better took more time (1997). Considering individuality and learning, learners' prior knowledge, cognitive and concordancing skills all matter in their performance (Kennedy and Miceli, 2001; Sun, 2003a; 2003b; Turnbull and Burston, 1998).

Implications drawn from these studies indicate the nature and kind of the tasks assigned, i.e. level of difficulty and targeted lexico-grammatical features to be learned, were critical in success. For example, in the context of academic writing instruction, is a collocational focus which explores the lexico-grammatical patterning at sentence level more beneficial or a textlinguistic level of exploration from a smaller specialized corpus more useful (Flowerdew 1998)?

While overall the studies reported positive outcome of the use of corpora, in what ways they are conducive to constructivist learning and the types of cognitive and metacognitive skills promoted were seldom engaged in the investigations. While there is a growing trend in pedagogically-oriented research in corpus linguistics where the "learners' voice has gradually come to be heard" (Chambers, 2007, p.3), Hafner (2007) and many other researchers observed, up till now there is yet little evidence about how students approach a corpus independently. Many of these studies relied on experimental designs to obtain quantitative results of learning outcome but such studies could hardly account for the rhetorical and discursive aspects of writing. When this was studied, the methods used were typically subjective observational account from the teacher-researcher.

In short, what falls short in studies of pedagogical consideration of corpus tools is how learning happens: how higher order cognitive skills such as inductive pattern finding are operationalized remains obscure. This is what the current study undertook to investigate, as it aimed to understand the cognitive processes/activities writers engaged in using corpora tools to give empirical evidence to support or contest the multiple claims addressing the benefits of computer corpora.

To summarize this chapter, the first part of the review, by examining the literature of academic writing challenges particularly those encountered by novice and (novice) L2 writers in their stance taking, reveals the complexities and accordingly multiple challenges they are presented with. Rendering explicit the rhetorical and discursive aspect of academic writing seems urgently needed. The second part of the review, in examining the potential of computer corpora in rendering explicit linguistic resources to stimulate inductive learning, reveals that while the outcome of learning is generally positive, how the learners learn using this approach remains unclear. While theoretically, computer corpora are proposed to promote inductive learning where learners take active role in investigating language patterns and regulate their own learning, empirically, evidence regarding if and how inductive learning occurs remains scarce. This therefore is a crucial aspect this study sought to address in order to better inform pedagogy.

In the next chapter, I will illustrate the premises and design of the stance corpus to assist with an aspect of academic writing, authorial stance taking. The iterative process of conceiving, designing, and testing the database is described, exemplified with key components in the tool. The processes of refining both the instructional materials and interface design to facilitate learning are also discussed in detail.

Chapter Three Design and development of the stance corpus

Overview: This chapter describes and discusses the theoretical foundation underpinning the stance corpus and the process of developing and finalizing it. It explicates with details about how data were chosen from published papers in social sciences and rendered into instructional materials. Briefly, introductions from selected published papers were first divided into the three move structures and then further divided into clauses. Each clause was then assigned a stance, using stance keywords in accordance with Martin and White's engagement system (2005). With move structure and stance identified, these data became learning materials that could be presented as multiple rhetorical move and clause/sentence-based examples. This phase of the stance corpus development involved both the modification of the conceptual linguistic framework to teach about stance and the organization of the instructional materials to be user friendly. The design and development process was also informed by a few rounds of trialing, which enabled a more intelligible and supportive learning environment. This chapter discusses these issues in sequence and is organized into five sections: (1) Theoretical foundation of this stance corpus, (2) Selection of instructional materials, (3) Instructional content development, (4) Major components in the stance corpus, and (5) Trialing of the corpus tool.

3.1. Theoretical foundation

Huh et al. (2005) proposed that in introducing technology in language learning, the primary concern should be directed to how exactly technology is used by the learners and

the learners' learning as opposed to technocentrism which centers on the evaluation of media or comparison of media to report the success of the technology (and far less often, the failure) which many studies focus on (p. 15). To avoid that pitfall, they advised researchers to always interpret their results by looking back to the theory that they base their studies on.

This study aims to test the effectiveness of a stance corpus designed in accordance with the theoretical assumptions of corpus linguistics for the purposes of improving stance-taking in second language (L2) writing. In particular, the study asks the question if the corpus tool promotes inductive language learning and discovery learning potentially facilitated by a constructivist corpus learning approach, which many researchers suggested computer corpora afford (Bernardini, 1998, 2002; Boulton, 2009; Chambers 2007; O'Sullivan 2006, 2007; Sun, 2003b; Turnbull & Burton 1998; Wolff, 1997).

To facilitate learning in semantic stance meaning making, the design and development of this stance corpus is also grounded in a linguistic framework. In particular, the design is grounded in Martin and White's appraisal system (2005) with a specific focus on the sub-system of 'engagement' critical to authorial stance (see Appendix A). The appraisal system, a theoretical framework from SFL, systemizes meanings into three semantic categories: attitude, engagement and graduation. Such a systematic orientation allows a ready rendition of the raw texts into instructional materials. The tool design seeks to expand the writers' pool of linguistic resources in stance meanings so they become aware of the rich choices they have in making these meanings.

In addition, the tool also draws on Swales' (1990; 2004) description of rhetorical move structures which illustrate three moves that characterize a typical introduction to a study or research proposal: Establish a Territory, Establish a Niche, and Present the

Present Work. Such a marriage of both linguistic expressions and rhetorical structures in “introductions” gives purpose to clause-based stance expressions which, if deployed effectively, accomplish the rhetoric purposes of each move.

3.2. Selection of instructional materials

The source data chosen for this database come from the “introductions” of research papers from the social sciences, encompassing the following fields: education, political studies, information science, communication studies and psychology. Currently it hosts 15 introduction texts. These fields provide appropriate source data because articles chosen from these fields are generally accessible or readable by a broader advanced graduate student audience (A contrast to this observation is, e.g. African studies, which might require more in-depth knowledge to understand). This decision came from surveying a great number of articles over an extended period of time. Aside from topics and fields, there are other important factors to consider to make the selection consistent: (a) the length of the introduction section ranges from 350 to 550 words and (b) the introduction section makes Swales’ three rhetorical moves explicitly. Those texts fitting the criteria can best demonstrate rhetorical move features consistently and explicitly to facilitate learning.

Biber (2006b), in discussing the role of both size and composition in developing a representative corpus, emphasizes that the size of a corpus must be large enough to “represent the occurrence of the features being studied” (2006). Composition wise, a corpus must have samples that are diverse enough to “represent the variation in the kinds of texts being studied” (2006, p.251-252). Yet pedagogically, larger corpora are not always effective if taking into account the learning goals and audience. Some researchers suggested small corpora for language learners if learning goals are those that smaller and specialized corpora might better serve. Tribble (1997) suggests that "the most useful

corpus for learners … is the one which offers a collection of *expert performances* [italics mine] in genres which have relevance to the needs and interests of the learners" (p. 3). The data from expert performances can exemplify “the results of the desired forms of language behaviour that learners are trying to achieve and will also constitute motivating starting points for language learning and language using activities” (Tribble, 1997). And these corpora do not have to be large to be useful. Flowerdew (2004) suggests that specialized corpora constructed for a particular purpose are better suited to understanding characteristic lexical and grammatical features of academic or professional discourse than general reference corpora (p. 15). Bloch (2009) in designing a specialized corpus to teach about reporting verbs for advanced academic writers, discusses his experience that smaller specialized corpora meet different pedagogical goals and purposes when tested on a small size of users. And he points out that tool design and production need to be evaluated and modified constantly to maximize its effect. Kennedy and Miceli (2001) in their empirical study also design a smaller corpus that carefully selects text types and topics for learners. Regarding text selection, Aston (1997) proposes that data selection should be restricted to familiar text types and topics (p. 62), not everything unfiltered. On the other hand, Hafner (2007) cautions that “such focused corpora of necessity provide a less balanced and representative view of the English language as a whole” (p.307).

The current design came a long way from first selecting, analyzing and then annotating the raw texts to testing and modifying repeatedly. As the design is iterative, the current size is also tentative which with continual evaluation and modification, can serve as a springboard to future expansion.

3.3. Instructional content development

In the very beginning of the design phase, materials were “raw,” with no textual

enhancement, the organization of the materials was straightforward, and above all, the materials were not filtered but randomly selected. Such raw albeit authentic materials, judging from the angle of corpora learning, can hardly facilitate learning by inferences. Todd discusses that learners using corpora would be prompted to focus their attention on examples illustrating the target language point, after which they proceed on to consciously generate rules or patterns from the examples (Shaffer, 1989; Todd, 2001, p.92). To aid in the generation of rules, examples should be carefully filtered and selected to draw learners' attention to the language focus (Todd 2001). Key items conducive to rule-generation should also be highlighted. These are all referred to as vital prerequisites for learning (Schmidt, 1990; van Lier, 1996). And the tool evolved in selecting homogeneous texts, comparable length, move rhetoric, and clear stance deployment to serve the move rhetoric.

The process of the tool development is so characterized. Examples were carefully selected which not only had the three-move structure more explicitly inscribed and comparable in length but the stance deployment was considered both clear and moderately challenging. Selection aside, stance keywords were highlighted both in clause/sentence based examples and in move-based examples. Annotation was added in the latter that indicates key move-making sentences, stance keywords in each sentence and also stance type corresponding to the keywords. All materials were thoughtfully organized, after a few rounds of iterative trialing and feedback, with the goal to facilitate pattern finding pertinent to each stance type and move.

In rendering these source data for learning, I started with identifying the three rhetorical moves which can range from a few sentences to one or two paragraphs. Not all sentences identified that form a move are key ideas to make the move. Only a few, mostly

one or two sentences, take such steps, in Swales' term, to make moves. These were then highlighted and annotated in the corpus. The annotations include specifying the steps these sentences take to fulfill a move and the stance each sentence takes. In the example below (Table 3.1), taken from the corpus, key move-making clauses or steps are identified in move 1 of an introduction of a published paper. These steps include "generalization" and "specification" or "specific focus." The first two sentences serve the rhetorical purpose of making generalization concerning how children learn. The fourth sentence specifies a form of learning, "intent participation," as the specific focal point here which the ensuing discussion centers on.

(Table 3.1. Move 1 and move-making clauses/steps)

	Title: FIRSTHAND LEARNING THROUGH INTENT PARTICIPATION
Steps in Move 1	Text
Generalization: how children learn	1. Children everywhere learn by observing and listening-in on activities of adults and other children.
Generalization: how children learn	2. Learning through keen observation and listening, seems to be especially valued in communities where children have access to learning from informal community involvement.
	3. They observe and listen with intent concentration,
	3.1 and their collaborative participation is expected
	3.1.1 when they are ready to help in shared endeavors.
Specific focus: "intent participation"	4. This tradition, which we refer to as *intent participation*, is prominent in many indigenous American communities

	4.1 and can also be seen in voluntary organizations, interactive museums, and collaborative schools in middle-class U.S. communities.
	5. Intent participation is a powerful form of fostering learning.
	6. It contributes to impressive learning such as that accomplished by young children learning their first language and continues in importance throughout life.

After moves were identified and annotated, I proceeded on to break the chunk of texts into clause units and assigned each clause a stance. Stance keywords were identified and color-coded in each clause. These clause/sentence examples were categorized by the four stances, 'high argumentative,' 'medium argumentative,' 'tentative,' 'non-argumentative,' and sub-categorized by stance functions in the corpus. For example, "non-argumentative" as a stance includes two functions: "to present fact" and "to present action".

Before applying each stance value to a clause/sentence, the theoretical linguistic system, i.e. Martin and White's engagement system, was modified to be pedagogically accessible. Based on the feedback from potential users, both the highly technical linguistic concepts and representation of the complex system had to be made more comprehensible to the users. While theoretically stance is usually mentioned as a collective result of the mobilization of different authorial voices (SEE Chapter 2), in this design, "stance" was operationalized as four stance values out of pedagogical and pragmatic concerns emerging from feedback from potential users. To them, the pure theoretical concepts were not only terse and dense but very hard to grasp. Appendix B shows the adaptation from the original linguistic framework to the pedagogical version used in the tool.

The instruction of stance is done by presenting stance in two ways in the tool: by the unit of clause/sentence and by each rhetorical move where multiple clauses/sentences are involved and so are stances. Users can find display of sentence examples of a particular stance (Figure 3.1) or any rhetorical move analyzed by the unit of clause and annotated with stances (Figure 3.2). Figure 3.1 shows examples in move which express "Higher frequency/level" meanings in "medium argumentative" stance. Stance keywords are in bold and each clause, once clicked, takes the user to the rhetorical move-context in which they appear.

(Figure 3.1. Sentence-level examples of "Medium Argumentative" stance in move 1)

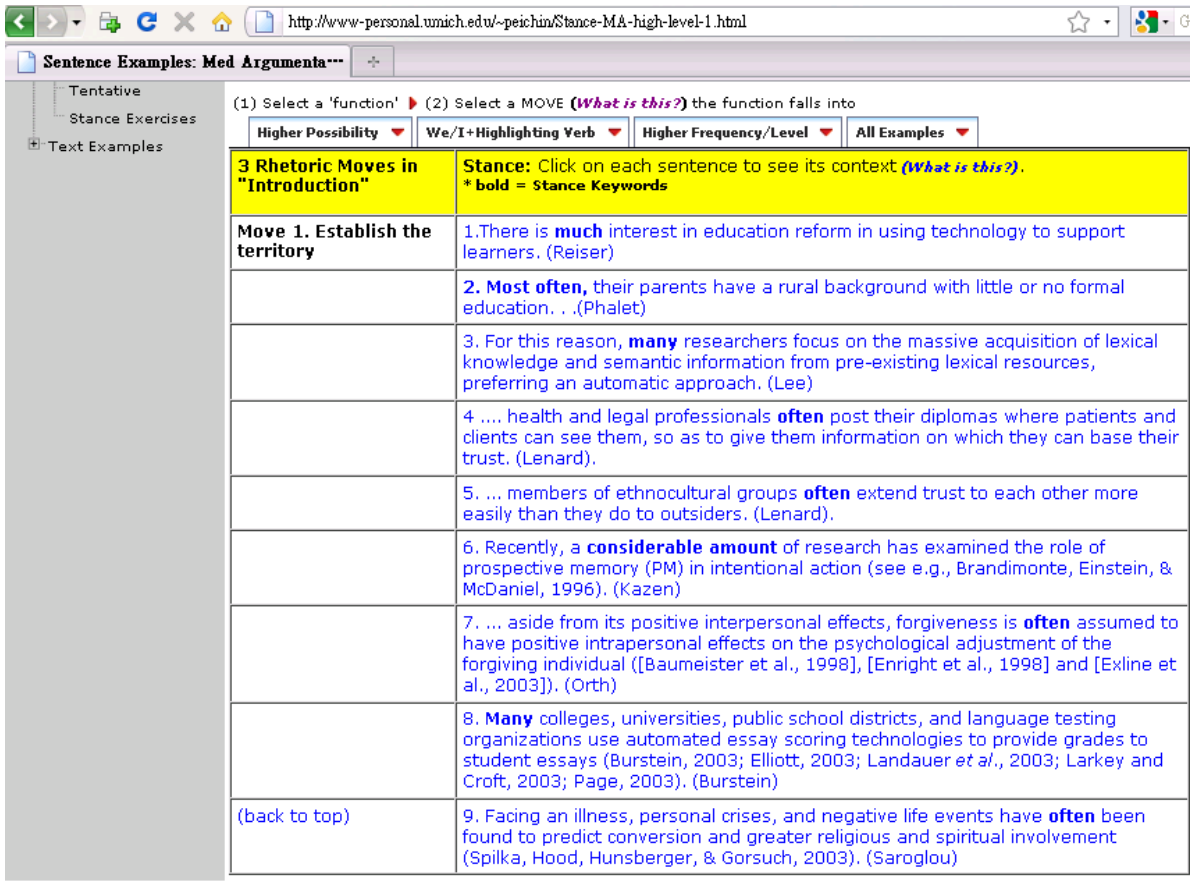
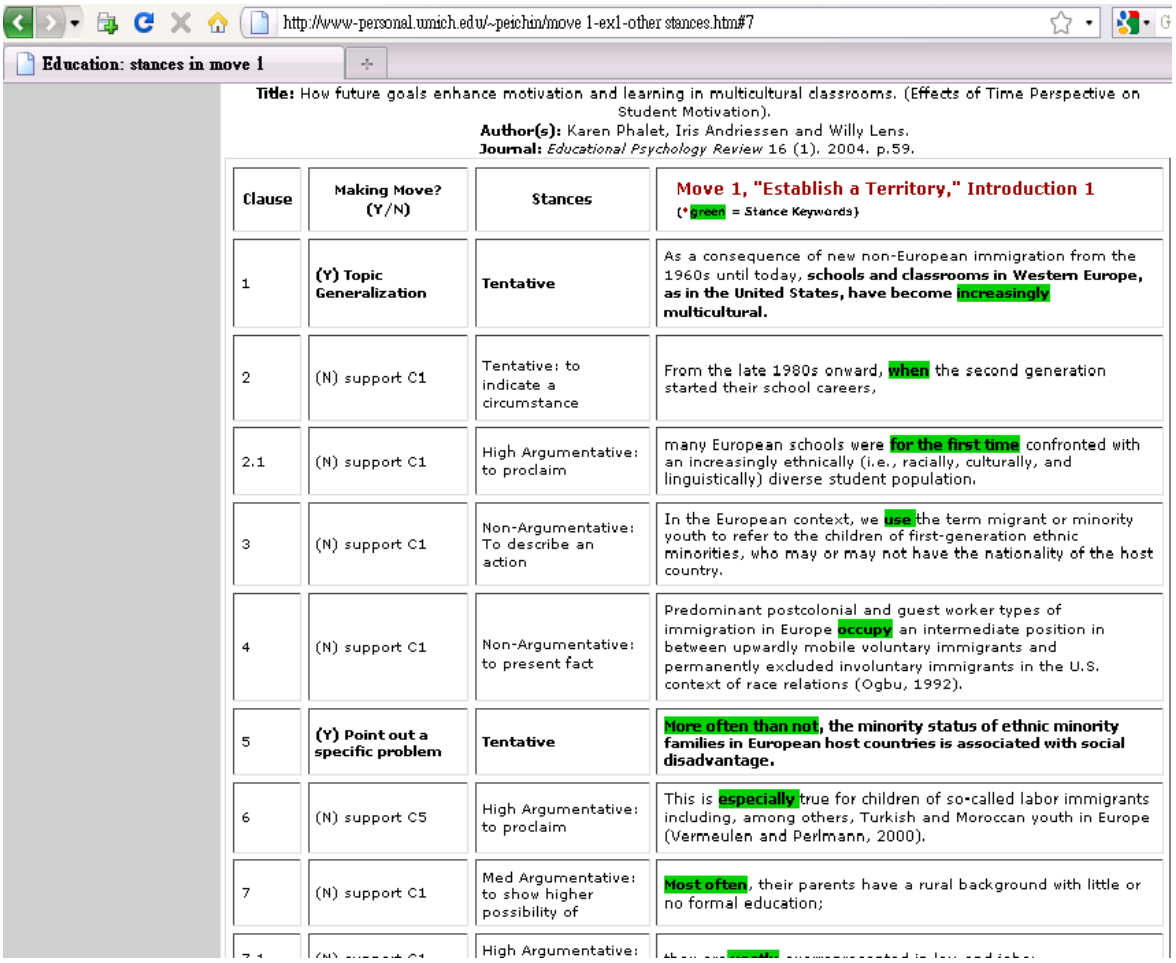


Figure 3.2 shows stances used in move 1 of an introduction of a published paper. This extended (con)text example is linked from clicking the second example in Figure 3.1

above. The text is segmented by clause and numbered. The second column identifies whether the clause contributes a step to make the move. In this example, the first two clauses are such move-making clauses each with stance, “non-argumentative” and “tentative” respectively identified. The fourth column presents the text by clause. Stance keywords are shown in bold and green shade.

(Figure 3.2. Text-level example: a Move 1 analysis)



Title: How future goals enhance motivation and learning in multicultural classrooms. (Effects of Time Perspective on Student Motivation).
Author(s): Karen Phalet, Iris Andriessen and Willy Lens.
Journal: *Educational Psychology Review* 16 (1). 2004. p.59.

Clause	Making Move? (Y/N)	Stances	Move 1, "Establish a Territory," Introduction 1 (*green = Stance Keywords)
1	**(Y) Topic Generalization**	**Tentative**	As a consequence of new non-European immigration from the 1960s until today, **schools and classrooms in Western Europe, as in the United States, have become increasingly multicultural.**
2	(N) support C1	Tentative: to indicate a circumstance	From the late 1980s onward, **when** the second generation started their school careers,
2.1	(N) support C1	High Argumentative: to proclaim	many European schools were **for the first time** confronted with an increasingly ethnically (i.e., racially, culturally, and linguistically) diverse student population.
3	(N) support C1	Non-Argumentative: To describe an action	In the European context, we **use** the term migrant or minority youth to refer to the children of first-generation ethnic minorities, who may or may not have the nationality of the host country.
4	(N) support C1	Non-Argumentative: to present fact	Predominant postcolonial and guest worker types of immigration in Europe **occupy** an intermediate position in between upwardly mobile voluntary immigrants and permanently excluded involuntary immigrants in the U.S. context of race relations (Ogbu, 1992).
5	**(Y) Point out a specific problem**	**Tentative**	**More often than not, the minority status of ethnic minority families in European host countries is associated with social disadvantage.**
6	(N) support C5	High Argumentative: to proclaim	This is **especially** true for children of so-called labor immigrants including, among others, Turkish and Moroccan youth in Europe (Vermeulen and Perlmann, 2000).
7	(N) support C1	Med Argumentative: to show higher possibility of	**Most often**, their parents have a rural background with little or no formal education;
7.1	(N) support C1	High Argumentative:	[illegible]

One of the challenges in rendering and coding stance for instructional purpose is to try to reduce the ambiguity in stance interpretation as much as possible. From the potential users’ feedback, quite understandably, the new linguistic concept of stance and its linguistic realization were challenging. In order to help them comfortably manage the

new knowledge, presenting clear-cut categories, percentage values to denote the strength of stance were more clarifying particularly at the initial learning stage, as the learners would have a difficult time tolerating ambiguity in meanings. So a decision was made to assign the same stance to each token of a particular lexical item, even when the meanings were slightly different. This aimed to equip the beginning learners with the foundation of stance meanings in the hope that, after they became versed in the foundation, they could move on engaged in more analytical learning and expand on that foundational knowledge, gradually being able to tackling ambiguities in stance meanings.

The following examples illustrate the challenges in taking account of both word form and meaning in assigning stance. Both examples use the verb "require," but with slightly different meanings; one closer to "the necessity of" and the other "advocate for". In the first example, the stance is more akin to a "non-argumentative" or monoglossic statement, whereas in the latter example, it leans toward a "high argumentative," communicating an authoritative plea:

Example 1. The necessity of: "In this way, therefore, democracies – through the mechanism of trust-dependent vigilance – **require** widespread trust relations in order to be effective".

Example 2. The advocate for: "To engage in development and study of design guidelines **requires** greater clarity concerning what is meant that a tool has scaffolded learners . . ."

I made the decision that designated "require" to be "high argumentative" similar to the (auxiliary) verb "need" at the expense of taking into account the more nuanced meanings that it can present, in order to make the interpretation of similar words consistent (e.g. "require" and "need").

Another issue concerns the selection of only one subset of the overall appraisal framework, which then does not seek to represent stance-taking fully. Appraisal meanings also evaluate attitudinal meanings, another sub-system, which are usually realized in the use of adjectives.

Example 1. “The questions of whether there should be a minimum voting age and, if so, at what age it should be set, are **significant** political issues, . . .”

Example 2. “Observation and listening-in are **important** for all children”.

Judging by the exceptionally complex meaning making associated with authorial stance, the design does not seek to provide comprehensive instruction on stance meanings. More urgent issue is to afford the learners to acquire a stance schema which can serve as a foundation for later modification or expansion. Having achieved this, the schematic foundation can readily pave the way for tackling more complex and advanced problems that are ambiguity wrought.

Having coded all of the data into moves and stances, the next step was to develop the stance corpus. The next section describes this process.

3.4. Main and supplementary components

The three main components of the corpus include

(1) rhetorical *move examples* (both in plain and annotated texts)

(2) *stance examples* (clause/sentence based) and

(3) integrated *(con)text examples* with stance annotations.

Other supplementary parts include

(4) *stance keyword tables*, organized by stance types

(5) *stance ratio graphs*, showing stance distribution in the three moves of all the text examples included in the tool

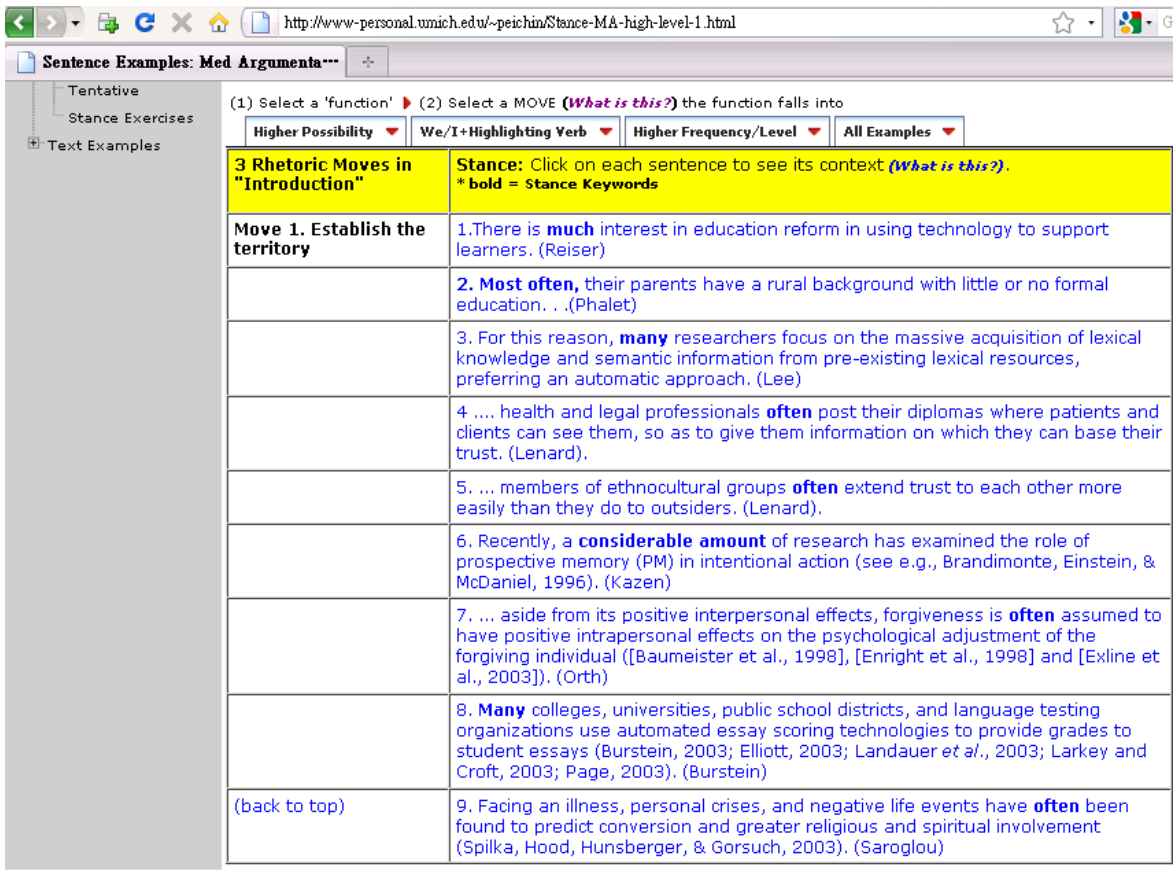
(6) *reference list* in the stance example pages, exemplifying processes to find patterns using the stance examples

(7) *distinguish the stances*, in four tables comparing the different linguistic resources used to convey a sentence in four voices/stances.

(8) *breaking into clauses*, instructing how to start with clause unit which is the most basic unit encoded with a stance

Below I provide a learning scenario of a learner when approaching this corpus to learn. A learner can access the tool from different entry points. Presuming s/he starts with examining the stance examples to familiarize him/herself with how a stance is represented linguistically. Figure 3.3 gives an example of this.

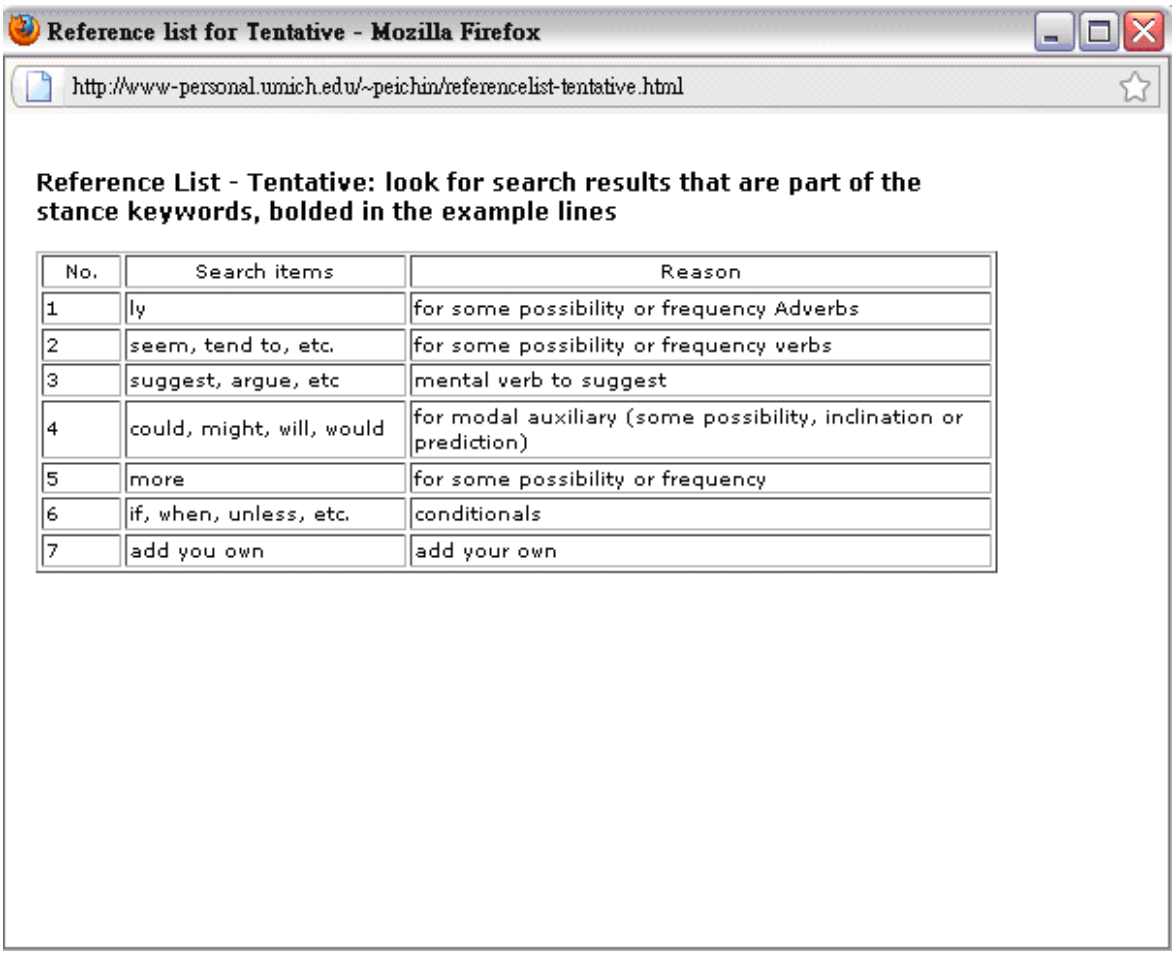
(Figure 3.3. Sentence-level examples of "Medium Argumentative" stance in move 1)



These examples are organized and categorized by the four stances and sub-categorized by the functions underpinning each stance. Stance keywords are in bold and each clause is linked to the contextual move to which it belongs. This page shows the examples, in clauses, expressing 'High Frequency/Level' meanings, one of the three sub-functions under "Medium Argumentative" stance. These examples appear in move 1.

On the top of such stance example page (not shown here), the learner finds a link, called *reference list*, that introduces him/her to possible steps suggested to find patterns from the multiple stance examples. Figure 3.4 shows such an example.

(Figure 3.4. Reference list for patterns found in "Tentative" examples)



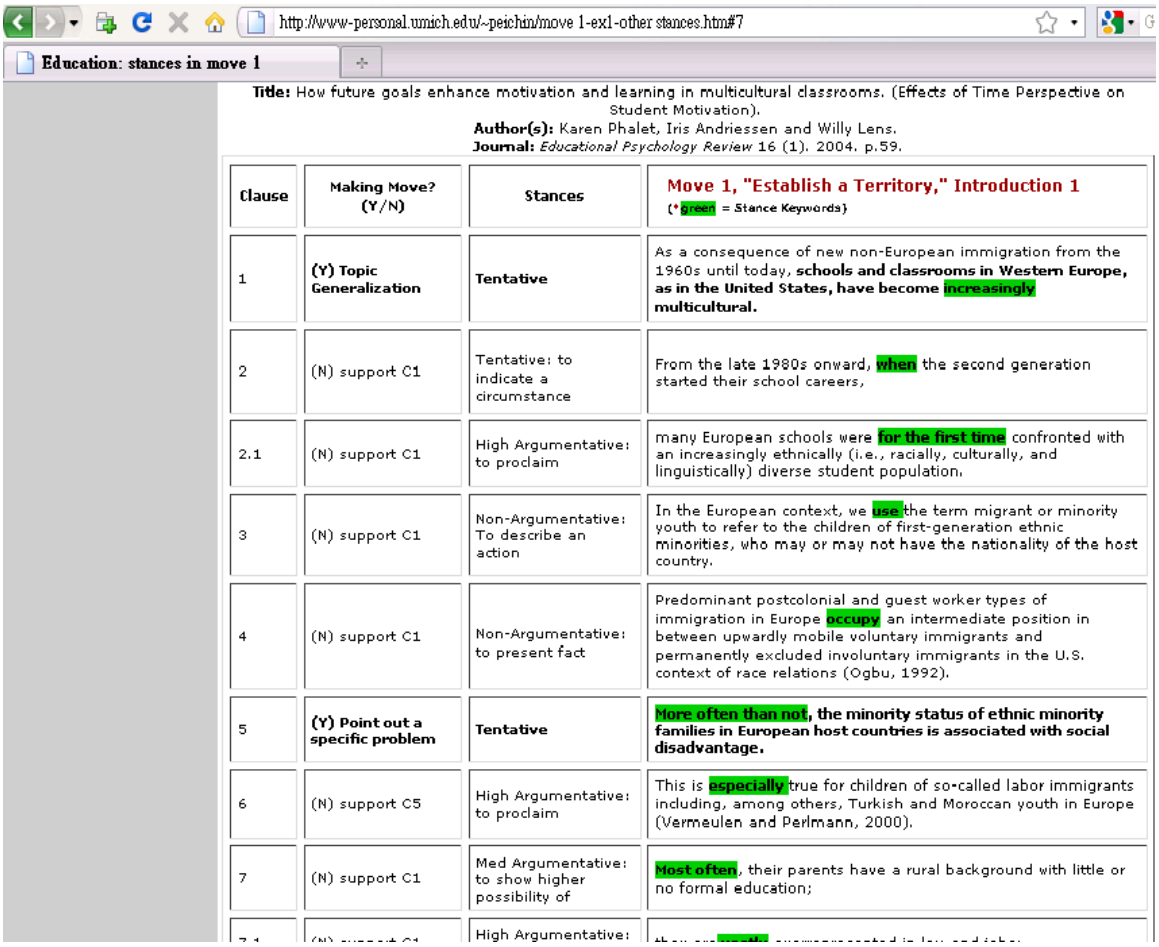
No.	Search items	Reason
1	ly	for some possibility or frequency Adverbs
2	seem, tend to, etc.	for some possibility or frequency verbs
3	suggest, argue, etc	mental verb to suggest
4	could, might, will, would	for modal auxiliary (some possibility, inclination or prediction)
5	more	for some possibility or frequency
6	if, when, unless, etc.	conditionals
7	add you own	add your own

Here s/he can get a sense of what type of patterns can be derived from the multiple

examples in “Tentative” stance. From here, s/he can try to discover patterns on his/her own.

Back to the stance page, the learner now clicks on clause No. 2 in Figure 3.3 above, s/he is then taken to the context example of the move it appears. Figure 3.5 is such an example.

(Figure 3.5. Integrated text example)

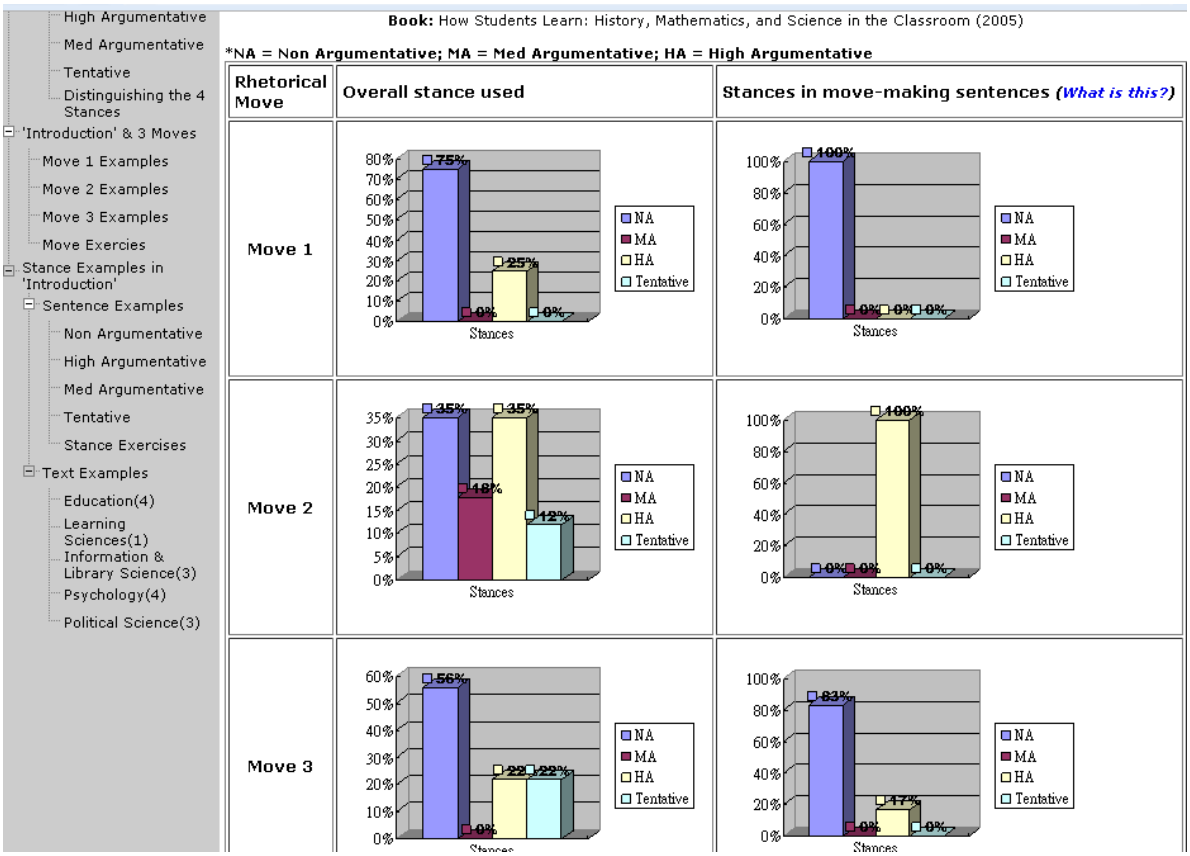


Here, the learner finds the clause number in the first column. The second column shows the move-making steps and other context in the move that does not make the move but to “support” the key move-making sentences. S/he finds clauses 1 and 5 make the move, to generalize and specify the issue respectively. Then in the third column, the types of stance

each clause serves are presented. The last column gives the original text analyzed by the unit of clause, with stance keywords in bold and green shade.

Having gained some sense about different stance types in different moves, the learner may explore the bigger picture of how different stances are distributed in the three moves. This then takes him/her to the visuals showing stance distribution in the three moves in all the texts included in the corpus. S/he can start to cultivate an "inductive" mindset by investigating the ratio information here. Figure 3.6 shows stance distribution in the three moves.

(Figure 3.6. Stance distribution in the three moves)



The first column lists the moves. The second column shows all stances used in move 1. The third column indicates only the stances used in the sentences that make the move. S/he finds of all stances used, in all three moves combined, stance 'Non-Argumentative' and

‘High Argumentative’ are more frequent. For the stances used specifically in the move-making sentences, s/he finds that for move 1 and 3, the key sentences to make the move are conveyed through “Non Argumentative” stance and in move 2, whose rhetorical purpose is to “indicate the gap,” “High Argumentative” is the stance to characterize the key move-making sentences.

The learner, still feeling the challenges regarding how to start writing, can move on to explore move examples to get a picture of how to argue aligned with the three move rhetorical purposes. Figure 3.7 shows such example.

(Figure 3.7. Annotated move 1 example)

Education | Learning Sciences | Information & Library Science | Psychology | Political Science

Education: Move 1 "Establish A Territory" analysis

Learning Objectives & Strategies:
Familiarize with the rhetorical steps in Move 1.
1. Look at the steps in Move 1 and consider how the bolded sentences fulfill these steps
2. Look at "Full Text" for this move to see what Move 1 does in the full text.
3. Repeat your exploration in other examples until you find pattern in making Move 1.
4. When ready, click here to take the exercises!

Steps in Move 1	Title: FIRSTHAND LEARNING THROUGH INTENT PARTICIPATION Author(s): Barbara Rogoff, Ruth Paradise, Rebeca Mej´ýa Arauz, Maricela Correa-Ch´avez, and Cathy Angelillo Journal: Annu. Rev. Psychol. 2003. (54):175-203.
Generalization: how children learn	1. **Children everywhere learn by observing and listening-in on activities of adults and other children.**
Generalization: how children learn	2. **Learning through keen observation and listening, seems to be especially valued in communities where children have access to learning from informal community involvement.**
	3. They observe and listen with intent concentration,
	3.1 and their collaborative participation is expected
	3.1.1 when they are ready to help in shared endeavors.
Specific focus: "intent participation"	**4. This tradition, which we refer to as *intent participation*, is prominent in many indigenous American communities**
	4.1 and can also be seen in voluntary organizations, interactive museums, and collaborative schools in middle-class U.S. communities.
Importance of "intent participation"	**5. Intent participation is a powerful form of fostering learning.**

In this page, s/he can concentrate on how to fulfill a rhetorical purpose, e.g. move 1, as this example shows. The steps to make move 1, “generalization” and “specific focus” are shown in the first column. The corresponding sentences are in bold shown in the adjacent column. S/he notices that not all clauses make the move. The first two clauses make “generalization” of the research and the fourth and fifth sentences zero in on the specific focus of the study.

Next, in the attempts to analyze the stances s/he puts to use, dilemma may arise regarding differentiating the four stance types. S/he then refers to the *stance keyword* tables showing the keywords grouped by the four stances. Figure 3.8 shows one of the keywords tables in “High Argumentative”.

(Figure 3.8. Stance keyword: High Argumentative)

How to express a stance: High Argumentative (90%+ Authoritative)

Authors take strong stance in High Argumenatitive. Make sure the **one of the following** linguistic items is used: **(1) modal auxiliaries**,
(2) proclaiming adverbs (and sometimes adjectives), and
(3) countering conjunctions.

Learning Objectives & Strategies:
Familiarize with the linguistic patterns for expressing High Argumentative stance.
1. Find the linguistic patterns for expressing High Argumentative below
2. Then search by the linguistic patterns (keywords, pre/suffix, tense, etc.) you found in the **"Stance Sentence Examples"**. Here is a **reference list** for you.
3. You can also compare the linguistic expressions across the 4 stances in **"Distinguishing the 4 stances"**)

(key linguistic expressions in red)

Sentence Types ***(What is this?)***	**Linguistic Expressions**	
	Modal Auxiliary	Proclaiming Adverb
1) Countering connectors (e.g. However, Although, But)	N.A.	N.A.
2) S.+ Active verb (e.g. contribute to, reflect, require, present)	should, have to, ought to, need to, do, etc.	clearly, particularly, obviously, Indeed, nevertheless, certainly, highly, also, so, very, quite, such, even, etc. [negative] never
3) S + (contending, proclaiming, or endorsing) V (e.g. This chapter emphasizes, We know, I do believe, They confirm)	same as above	same as above
4) Passive form (e.g. It is made of.., We are expected to...)	same as above	same as above
5) Be verb+ n or adj (e.g. This is a dilemma, The study is significant.)	same as above	same as above

Here, s/he has quick access to some, if not all, keywords characterizing "High Argumentative". As it shows, some types of "modal auxiliaries" and "proclaiming adverbs" characterize a "High Argumentative" stance as it is. Still unsure, s/he continues with the *distinguish the stances* tables to compare and contrast how the same sentence can convey different voices/stances with the presence and absence of some key linguistic items. Figure 3.9 gives such an example.

(Figure 3.9. Distinguish the four stances: High Argumentative)

Distinguishing the four stances: High Argumentative

Learning Objectives & Strategies:
Understand the differences between the 4 stances.
1. Look at each example in the different sentence types.
2. Look at the bolded stance keywards and what grammatical categories do they fall in (modal auxiliary, adverbs?).
3. Compare the keywords across the 4 stances.

Non Argumentative | High Argumentative | Med Argumentative | Tentative

Sentence Types *(What is this?)*	Linguistic Expressions	
	Modal Auxiliary	**Proclaiming Adverb**
1) S. + Active verb to pose action, describe procedures, cause and effect, etc. (Example 1) In the last two decades of learning sciences research, scaffolding **does** become prominent. (Example 2) In the last two decades of learning sciences research, scaffolding has become **clearly** prominent.	**does**	**clearly**
2) Passive form (Example 1) Many European schools **should be confronted** with an increasingly ethnically diverse student population. (Example 2) Many European schools **were indeed confronted** with an increasingly ethnically diverse student population.	**should**	**indeed**
3) Be + N, adj or to V (Example 1) Scaffolding **has to be** a key strategy in cognitive apprenticeship. (Example 2) Scaffolding is **obviously** a key strategy in cognitive apprenticeship.	**has to**	**obviously**
4) Countering connectors **However,** critics have disagreed vigorously about the goals and features of an improved pedagogy.	N.A.	N.A.
5) S + (contending, proclaiming, or endorsing) V. We (have to or greatly) **defend** that researchers should view this disciplinary division as an opportunity rather than an obstacle.	Maybe (have to)	Maybe (greatly)

By clicking on the labels of the four stances shown at the top of this page, s/he is introduced to the same examples s/he sees in this table except for the addition and absence of the key linguistic items characterizing the stance as it is.

Finally, for closer analysis of his/her stance use, s/he may choose to understand what makes a clause unit to track stances used by clause boundary. Figure 3.10 gives such an example.

(Figure 3.10. Break a text into clauses)

Tutorial - Teaching & Learning Strategies - Break a text into clauses

Steps in writing | **Start with clause** | **Finding the patterns**

The smallest unit to assign a stance to is clause. In deciding a stance, you will need to divide a text into clauses to see how stances are at work in any text. Follow the steps below to start writing or analyzing your stance.

1. Break your sentence into clauses if you have coordinating conjunctions like AND, BUT, OR, SO, THAT.

[Example] 1. Soloway et al. argued **that** | software designers need to consider scaffolding for the tasks learners perform and for the Tools and interfaces learners use.

[Example] 2. The reason for drawing on discussions of the Rushdie affair is **that** | the two cases are very similar in most of the relevant respects

[Example] 3. In the psychological literature, several definitions of forgiveness have been proposed, | **but** there is growing consensus **that** | forgiveness may be defined by prosocial motivational changes towards a transgressor.

[Example] 4. Distrust refers to a suspicious or cynical attitude towards others | **and** I will argue **that** |it is inimical to democracy.

2. Break your sentence into clauses if you have subordinating conjunctions like ALTHOUGH, AFTER, WHEREAS, BEFORE, SINCE, WHEN, BECAUSE, UNTIL,IF, EVEN THOUGH, UNLESS, etc.

[Example] 1. Future goals will motivate achievement in multicultural classrooms,| **if** schools and families succeed in fostering internal regulation along with positive perceptions of instrumentality.

[Example] 2. We even trust people more generally, people we have never met, | **as** we go about our daily lives.

[Example] 3. On the basis of these considerations, we defend the conclusion **that** | the voting age should not be lowered to sixteen, | **as** some have demanded.

[Example] 4. The Commission recommends **that** | **while** the age of candidacy should be lowered from 21 to 18, | the voting age should stay at 18 (Electoral Commission, 2004).

[Example] 5. **If** the formation, cognitive maintenance, initiation, and completion of intentions actually are self-regulatory processes, | we could expect **that** | individual differences in self-regulation play an important role in these processes.

This learning scenario provides a possible thread through the stance corpus tool in understanding how to make proper stance meanings. Multiple paths of discovery are possible depending on what specific goal(s) a learner set for him/herself.

The development of the corpus has come a long way and has gone through many rounds of major revision. Every trialing helped immensely in generating better learning

content and improving the interface. Section 5 below delineates this process in more detail.

5.5. Trialing of the corpus: an iterative process

The building of the tool was iterative, following the path of design, feedback and modification. The initial phases of trialing focused mainly on content development. The later phases involved more the interface design aspect. But in soliciting feedback at both phases, users gave useful information both in content and interface. And in reality, content and interface design is intertwined. The differentiation of the two phases or aspect is pragmatic. Not only is it easier to refer to the phase or aspect when reporting the trialing results but the existence of content is critical to the development of interface. Hence, this part of discussion gives information on the two general phases of trialing, including the goals, users and outcome for each phase. Then, the solutions offered to tackle the issues and concerns raised by the users are provided.

In the feedback gained at the initial stage, potential users provided valuable ideas by discussing their learning needs, their expectations for the data organization, and their responses to the technical terms, to help me better conceive this tool from a pedagogical angle. While feedback pertinent to material development was solicited during the process of production, overall interface design advice was sought at a later stage when the tool was developed to the extent that users could test how friendly, usable and useful the design was. This iterative process of creating and testing has been mentioned as an indispensable part of design (Bloch 2009; Krishnamurthy, 2007).

In designing and creating a corpus for EAP pedagogy, some recommended designing corpora as a browsing environment rather than simply as a reference tool, to sustain intellectual engagement (Bernardini, 1998; Krishnamurthy, 2007). The current corpus, due

to its introduction of a new linguistic concept in academic writing, is conceived both as a learning and reference tool. Users are prompted to learn about what stances are and after they become familiar with stance, they can refer to the tool for information they need.

Krishnamurthy (2007) proposed design principles of corpus development in EAP pedagogy of which relevant to the current design are: (1) the design is relatively straightforward, with simple sequential choices rather than simultaneous multiple choices; (2) the design includes constant reminders of what and why; (3) the design has suggestions about what to notice, and what to do next (p.370). These were principles closely observed in designing which were also among the feedback offered by the users involved in trialing. In addition, appropriate textual enhancement and visual displays such as charts and diagrams were also important factors considered in the design.

The long process of tool development aimed at providing a supportive user friendly environment for stance learning. Summing up the supports provided to the learner, some key concerns include,

(1) selecting and filtering materials carefully to promote linguistic pattern finding

(2) presenting clear-cut linguistic categories and varied strengths of stance in percentage values.

(3) modifying the theoretical linguistic system, i.e. Martin and White's engagement system, in more accessible terms (SEE Appendix B).

(4) designing tree-map navigation system and adding textual enhancement

The latest version allowed the users to find the information they wanted and understand stance meanings. They were guided to use the language the tool instructs and also drawn to find some patterns with success.

Table 3.2 gives an overview of the goals, users and outcome of the respective trialing phases, content and interface. The solutions proposed to tackle the feedback and concerns raised by the users are described in Table 3.3.

(Table 3.2. Trialing phases overview)

Trialing phase	**Goals**	**Users**	**Outcome**
1. Content development	1. To ensure the translation of theory into learning materials is understandable. 2. To ensure the presentation of the materials (in tables, by graphs, in numbers or in text) is understandable	Four L2 doctoral students in social sciences	The content was revised to be more pedagogically appropriate including the selection, organization, presentation, and simplification of the learning materials.
2. Interface design (usability test)	1. To ensure users get where they intend to visit. 2. To ensure users accomplish tasks assigned to them. 3. To ensure users understand the sequence and organization of the	Four L2 students (master, doctoral and professional school students)	The interface design, fonts, textual enhancement, navigation system, orientation of text, etc. were revamped.

	data presented.		

In content trialing, feedback was solicited from four L2 doctoral students in social sciences for an extended period of time. These L2 students being the audience I target for this design, their feedback was invaluable in informing the content and interface for subsequent design (Edelson, 2002, p. 106). Each of them used the tool at different points in the long process of development and pointed out the difficulties they encountered. Their questions and concerns specifically related to the content are summarized and solutions proposed are included in the first part of Table 3.3.

The interface design usability test was conducted after the tool was 90% developed which signifies that there was sufficient content and stabilized interface layout to test for. For this phase of usability testing, another four users were recruited. One is pursuing her master's degree in education and provided more comprehensive feedback besides the interface design. The other three represent three different fields: dental, pharmaceutical, and civil engineering respectively. They followed the usability test procedures closely (See Appendix C for usability test procedures).

Similar to the content trialing, all of them offered immensely helpful feedback that contributed to the renovation of the interface. Overall, as a result of the feedback, the interface design underwent modification in the navigation systems and the layout and in the organization and presentation of content, e.g. adding supplementary tables or graphs to better find or retrieve needed information. Those insightful comments beyond the scope and capacity of the current design, along with the feedback provided by the subjects of the official experiment in the post-task interviews, are discussed further in Chapter 6. Table 3.3 illustrates the questions, concerns and proposed solutions in the two aspects of trialing in the order of content and interface. For part one, questions and concerns for

content were drawn to the technical terms and concepts, the selection of appropriate learning materials to facilitate learning, i.e. pattern finding, the more clear-cut categorization of the stance values, etc. For part two, questions and concerns for interface design largely concerned the navigation system, the organization of text, textual enhancement, the presentation of data, etc. These issues were all addressed as solutions in the second column in the table.

(Table 3.3. Stance corpus trialing and solutions)

I. Questions and Concerns for Content	**Solutions**
(a) The theoretical concepts and framework, and technical languages related to stance expressions	Technical terms changed, resulting in adapted engagement system categories and sub-categories.
(b) The lack of clear pattern that each stance seems to convey	From a more random selection of published texts as learning materials to a careful filtering of such to manifest move-making and stance expression patterns
(c) the lack of definite features that can distinguish the four stances	(1) Each stance was attached with a percentage value to show their degree of authority; and (2) Examples comparing and contrasting the four stances
(d) the lack of a criteria to show to the users whether or not they have achieved in making good stance	Stance ratio pages showing which stances are used more in which move built.

(e) Lack of more categories and subcategories and quantification of the textual data (by scale, frequency, etc.) which encourages forming mental schemata	Technical terms changed, resulting in more clear categories with sub-categories. Each stance was attached with a percentage value to show their degree of authority and exemplified with examples to compare and contrast the four stances
(f) lack of consistently similar examples that may be conducive to pattern-generating.	From a more random selection of published texts as learning materials to a careful filtering of such to manifest move-making and stance expression patterns
II. Questions and Concerns for Interface	**Solutions**
(g) the lack of clear identifiers that characterize each rhetorical move	(1) textual enhancement (i.e. key phrase bolded) done to mark move-making sentences for each move in the published texts; (2) annotation added to remind which step is used to make a particular move; and (3) Annotation was also added to non-move-making sentences to contrast with move-making sentences
(h) the lack of a larger picture to show where they are in the corpus	(1) Navigation system re-designed. A tree-map type of navigation was made to better manifest the inter-relations between key categories and sub categories;

	(2) Site map added; and (3) Tabulated information added to give larger picture about steps to follow when users start to write.
(i) the lack of a clear sequence in the corpus to guide them the steps to follow in exploring about stances and moves	See (h) above

In sum, the process of the design and development aimed to render the raw materials pedagogically beneficial. In light of the instructional content development, the stance corpus underwent modifications to better conduce pattern finding. Examples were carefully selected, annotated with key stance linguistic items highlighted. Then the examples were organized, with enhanced navigation system, clearly by the four stance types and three-move structures on the basis of clause/sentences and chunks of text represented by each move. Overall this resulted in efficient retrieval of materials needed.

Having developed the tool, I proceeded on to recruit qualified participants to test the hypothesis that the corpus would afford opportunities for learning about stance and move in academic writing. The next chapter describes the research questions, subject recruitment process and methods used to collect and analyze the data to answer key questions about how learners would engage with this semantically organized corpus tool in learning about making stance meanings effectively.

Chapter Four Methodology

Overview: This chapter presents the research questions, process of and requirements for subject recruitment, and methods used to measure students' engagement with and learning from the stance corpus. This chapter is organized in two main sections. The first concerns the research questions, which are linked with the data collected to show how each question was explored, and the process of the experiment including (1) subject recruitment: criteria and process and (2) the process of data collection. The second section provides an in-depth account of the theoretical grounding of the methods used to analyze the data collected. This part discusses the methods used to orchestrate all the data with the goal to yield a richer description of the learning process and outcome the study sought to investigate. This section is further divided into two sub-sections: (1) the stimulated recall protocols and (2) text analysis on how these methods were operationalized.

4.1. Research Questions, Subject Recruitment and Data Collection

The study aims at testing the effectiveness of a pedagogical stance corpus, designed by the general principle of computer corpora. The corpus now has a corpus of 15 journal papers, each rendered by both clauses and the three rhetorical moves, after which each clause was coded with stance value and annotated with rhetorical functions. Fundamentally, it aims to afford inductive learning which typical computer corpora are suggested to afford and was designed in that vein. Empirical studies in this vein, though

present, are still far from sufficient to provide evidence of the widely held theoretical assumption that computer corpora afford inductive learning (SEE Chapter Two). More research is needed to understand in what ways computer corpora afford learning.

Grounded in two linguistic theories: systematic rendering of semantic resources informed by SFL and inductive learning promoted by computer corpora informed by corpus linguistics, the research asks the questions: In what ways does such a stance corpus support L2 writers' development of stance? Can learners become adept at deploying their stance use through this approach? Does students' writing improve through analytical pattern finding and inductive learning? Subjects were recruited to engage in intensive ways with the tool, and to investigate the affordances of the tool their cognitive processes and development of their writing was explored. The exploration with the tool was guided by the following research questions.

Research Questions

The overarching question probes whether computer corpora aid and prompt the language learners to find linguistic patterns, in this study, of stance meanings. While theoretical discussions have established the multiple benefits of adopting a concordance approach to teaching and learning, among these being fostering a constructivist environment, cultivating cognitive and metacognitive skills and awareness, fine-tuning search strategy, and prompting reflection on the problem-solving process (O'Sullivan 2006, 2007; Bernardini 1998, 2002; Boulton, 2009; Wolff, 1997), findings from the empirical studies, yet small in number, suggested more factors, pedagogical and individual, need to be considered when putting such tools to work. And one doubt is clear: Is inductive learning or discovery learning being encouraged?

The study sought to understand "In what ways does a stance corpus support L2 writers' development of stance?" Can learners become adept at deploying their stance use through this approach? Does students' writing improve through analytical pattern finding and inductive learning? What cognitive processes are stimulated in learning?" The question is broken down in the following:

1. Pertaining to the affordances of the stance corpus: How do the L2 writers use the tool to help them develop their stance in their introductory moves?

A. What type of cognitive activities do they engage in most frequently when interacting with the corpus tool and engaged in learning as a whole, particularly stance, and why?

2. Pertaining to their performance: How can the progress they make be characterized in terms of changes in move (rhetorical structure) and stance (lexico-grammatical choices)?

A. How is their move and stance performance different after using the stance corpus?

B. Do they use the four stances appropriately to fulfill the three different rhetorical moves expected in an introduction in their final drafts?

C. How accurate are the learners in identifying and labeling stances used in their drafts?

3. Pertaining to the effect of tool use on their learning outcome: What are the more frequent cognitive activities being encouraged and how is this related to their writing performance?

Subject Recruitment

The study recruited 7 subjects from the discipline of social sciences whose first language is Chinese. The relatively small sample size reflects the need for a homogenous group of participants in order to provide more interpretative power. In particular, through intensive investigation of their learning process in the experiment where they were engaged in stimulated recall of the cognitive process involved in learning, articulating the cognitive process in their native language, Chinese, became an important data collection and analysis strategy to minimize the possibilities of meaning distortions or cognitive overload (Bosher, 1998).

Ideal subjects fit the following criteria:

1. post-graduate students,
2. preferably in their doctoral pursuit,
3. those for whom publishing their research is of critical importance, thus motivated.

Pre-screening:

(1) Ideal subjects exhibit the following issues in their writing:

(a) weakness in stance: identified through analyzing the introductions the participants submitted before participating, using the scale reported in Wu (2007). (SEE Table 4.1 below), OR

(b) not aware of stance deployment: decided via pre-experiment interview which showed their being intuitive not analytical about stance writing, OR

(c) no clear move structure but argument developed and no major grammatical issues.

(2) They should be sufficiently metacognitive to the extent that they can discuss and identify their writing challenges or issues (identified through interview). These include:

(a) They can talk about discursive aspect of writing beyond vocabulary learning;

(b) They are conscious about how to structure an argument and express difficulties in this regard;

(c) They contemplate improving their writing and can verbalize their thinking;

(d) They received academic instruction recently, which helps them reflect on their writing.

Step 1 in Pre-screening: Text analysis.

This step sought to analyze potential participants' writing to find out if they demonstrate weaknesses in stance-making (See Table 4.1 below). The scale used to decide their writing performance is adapted from the findings of Wu's study (2007) which researched how high- and low-rated NNS deployed 'engagement' resources in a particular rhetorical style, 'problematization,' much akin to Swales' second move, to indicate a gap in the research.

Similar to my study, Wu also used Martin and White's engagement framework (2007) to evaluate these students' writing in the introductory paragraphs of essays and found that low-rated students demonstrated the weaknesses in their argumentative stance illustrated in Table 4.1.

Wu's finding should be interpreted in the context of Martin and White's engagement framework (See Appendix A). The terms used in the scale below are taken from their framework. An example of my evaluation of one of the subjects' pre and on-task drafts based on Wu's finding is provided in Appendix D. In evaluating, I automatically translated the terms used in the original engagement system into the adapted pedagogical terms adapted from the original system. This part of discussion is included in Chapter Two and the pedagogical rendition of the engagement system can be found in Appendix B.

(Table 4.1. Wu's finding on high- and low-rated students' stance writing)

Weaknesses in stance when the following conditions are met
1. monogloss (bare assertions) **>** heterogloss-entertain
2. proclaim-pronounce **>** disclaim-counter (in heterogloss-contraction)
3. less proclaim-endorse

In Wu's finding, she saw weaker writers employ more bare assertions, (or monogloss), than the more dialogical (or heteroglossic) engagement (the first one condition in the table) that seeks to soften a more subjective tone to argue about their positions. These writers also failed in arguing with contrasting data (i.e. to counter others' perspective less than to simply announce their perspectives as listed in the second condition in the table) to accentuate their edge in conducting their research. In addition, they sought less to back up their perspectives in endorsing other researchers (the third one in the table). Below I provide an example from my evaluation of one subject's pre and on-task drafts to exemplify how evaluation was done based on Wu's finding. Table 4.2 shows that first, every text was broken into clause units in the first column. After this, each clause was assigned a stance value. The second column shows how this is done by following the engagement framework. The third column uses the adapted pedagogical framework to assign the stance value. By adding up the different stance values, we obtain the distribution of stances used in a text. Appendix D gives an example of such an evaluation done on a subject's pre and on-task drafts.

(Table 4.2. Evaluation of one learner's stance based on Wu's finding)

Clause/Sentence	Martin & White's engagement values	Adapted stance

		values in the corpus
For example, Hickok (1993) maintained that . . .	Proclaim:endorse	HA
On the other hand, the NP *the wife* was reactivated following the presentation of the embedded verb *bumped*, suggesting that the relative clause reading was also computed.	Monogloss	NA
Tabor and Hutchins' (2004) computational self-organizing model (SOPARSE) proposes that . . .	Heterogloss: entertain	T
However, while the SOPARSE model maintains that . . .	Disclaim:counter	HA
. . .it should be more costly to reactivate a dispreferred structure of relatively low activation.	Proclaim:pronounce	HA

Step 2 in pre-screening: Pre-task Interview:

Using a structured questionnaire, the interview sought information on the participants' previous academic writing experience, academic writing courses taken, and views regarding writing issues and challenges. From these questions, I determined whether they were aware of authorial stance and able to articulate challenges and issues they experienced in academic writing, indicative of their metacognitive awareness in writing. (See the set of interview questions in Appendix E)

Emails and flyers were two major means used to disseminate the recruitment information. Those who responded and were disqualified were those in their undergraduate studies, those whose native language is not Chinese, those not in the discipline of social science (which sometimes took clarification back and forth to decide),

and one who, despite fulfilling all criteria regarding background, had never had experience in research paper writing. Most of her writing requirement fell into the genre of reports or memos.

In deciding on the seven final participants, some doubts regarding what fields compose the social sciences as a whole occurred. There was one participant from the school of natural resources who, at first sight, seemed inappropriate for the study. And as it turned out, however, her research was related to policy and sociology and therefore was relevant to this study. It was helpful to inquire about their previous majors, too, which also showed their social science inclination. Another subject came from an apparent engineering department, the department of Industrial & Operations Engineering, but after exchanging a few emails to clarify, it turned out that with a master's degree in cognitive psychology, her research was exploring cognitive aspects of engineering design. The journals she consulted for relevant studies all belonged to the field of cognitive psychology, so she was accepted as a subject. Below I give the basic background information of the 7 subjects recruited for this study.

(Table 4.3. Participants Background)

Name	Gender	Field: Program	Degree (D/M)	Year
PU	M	Ed: Literacy	D	5th
DG	M	Ed: Literacy	D	3rd
CG	F	Ed: Math	D	6th
HU	F	Ed: Math	D	5th
XG	F	School of Natural Resources &	D	1st

		Environment: environmental sociology		
HG	F	Dept. of Industrial & Operations Eng.: Center for Ergonomics - cognitive ergonomics (applied cognitive psychology) * master in applied psychology	D	1st
SY	F	Linguistics	D	4th

All subjects except one had academic writing classes in the first few terms of their studies here. While many of them had instruction on Swales' move structure before, none had integrated ideas about stance-taking (they reported that their instructors mentioned stance or a variation of that term only a few times during the course). Even with move structure, they mentioned that the instruction stayed at the conceptual level which did not give them practice to the extent that they were able to apply knowledge of moves in their writing.

All subjects had experience with academic writing and most of them had papers or projects developed for publication or dissertation research at the time of participation. This suggests that the writing they needed to develop was to meet important research goals and so they were motivated to improve their writing, making them appropriate subjects for this research.

Data Collection

This section is organized in two main parts. First, a delineation of the data collected, circumstances of data collection, and experiment sessions conducted. Second, the connection is made between proposed research questions and the data collected that aims to address the questions.

Data collection includes the following,

1. conducting a brief interview of subjects' academic writing experience, challenges and expectation
2. collecting subjects' writing samples before tool use
3. conducting Stimulated Recall to analyze the cognitive processes subjects employed in tool-use sessions
4. collecting three developmental drafts, along with three self-analysis sheets from the three tool use sessions
5. conducting post-tool use interviews for clarification, reflection, and recommendations about tool use

Both 1 and 2 were collected before the official experimental sessions; 3 and 4 were collected from the experimental sessions; and 5 was collected after the experiment was completed. Activities 3 through 5 were videotaped.

The majority of the data were collected during the experiment, as students engaged in interaction with the tool. Below I provide a more detailed account of what the experiment sessions entailed.

Experiment sessions

The sessions can be separated into two major phases: (1) orientation and exercise phase and (2) writing, self-analysis, and stimulated recall phase. (See also **Table 4.4** after this section for a summary of activities involved and data collected)

(1) Orientation and Exercise

Session 1: Tool overview and tutorial

The subjects were first introduced to the tutorial pages that guided them through the more global issues regarding using the stance corpus to learn about stance,

including, the over all organization of the corpus, and learning to find patterns using the corpus, how to express and analyze stance.

Session 2: Exercise and stance analysis

The subjects were given a brief overview of the functions included in the tool and where to locate them, and then they were given time to explore on their own. They were also asked to complete exercises on distinguishing the three move structures and to familiarize them with the four stances. Feedback, built into the tool, was given after they completed the exercises. After establishing familiarity with the move and stance concepts, I demonstrated, in the writing samples they submitted before this experiment, the move structure and stances their writing exhibited to deepen their understanding about move and stance. This also served as their baseline performance to be compared with their final draft composed during the experiment.

As opposed to the first overview and tutorial session, this second session was educational in preparing the subjects for their independent exploration in the next phase.

(2) Writing, Self-Analysis and Stimulated Recall

Session 3 to 5: Writing and learning

Participants spent one hour to compose and analyze their stance use and another hour to think-aloud from sessions 3 to 5. In the first hour, they wrote an introduction to any research they were conducting. The stance corpus was present for them to consult stance expressions and move structures. Besides composing their introduction, they were also asked to analyze their own stance and moves using a worksheet (SEE Appendix F). The main concern in asking the participants to write an introduction was for the activity to be as authentic and meaningful as possible.

Hafner (2007) in researching literature on active student use of corpora states that there is a clear concern to establish authenticity of task, in the sense that students interact with the corpus tools and resources to make meaningful discoveries (p.304). While the degree of task authenticity can affect motivation and learning outcome, according to Hafner, whether such task is potentially taxing for participants was an equally important concern in designing the task (2007, p.304). Yet opinions from an experienced ESL instructor and all the participants in their pre-task interviews assured me that writing an introduction, as an authentic task assigned in this study, was neither cognitively taxing nor difficult, as this is regularly encountered and required. And the same concern regarding the close tie between authentic task and motivation as Hafner points out, drove the current study to target the discursive aspect of L2 advanced writers' learning.

In the second hour, they engaged in stimulated recall to verbalize the cognitive processes they had just used while using the corpus tool. They were prompted by screen-capture clips that documented all the screen activities of the first hour. The key focus of this phase was to track their learning through the 3 learning sessions. The table below provides summative information regarding the tool-use phase data collection.

(Table 4.4. Summary of activities and data in the experiment sessions)

Activities	**Data Collected**	**Aims**	**Duration**
Overview and Tutorial	None	To acquaint the participants with the organization of the corpus tool and the concept of stance-taking and move structures.	1 hour

Exercise and Stance analysis	Analyzed pre-task introductions	To give the writers the preparation needed to proceed on independent learning regarding the concept of moves and stance	1 hour
Three writing and learning sessions	(1) 3 developing drafts/per participant; (2) 3 developing self-analysis sheets/per participant (3) screen capture of participants' composition and analysis activities (videotaped) (4) screen capture and audio of participants' stimulated recall protocol (videotaped).	To track participants' engagement with the tool and learning or improvement across the 3 interactions.	2 hours/per session

After the experiment, I conducted one-hour post-task interviews with each participant. Seeing that the whole experiment focused keenly on the process, both in terms of writing and thinking, of learning, this final interview was the opportunity for us to talk about the "whys," including the explanations, reasoning, reflections, and motivations for using the corpus tool to learn. This interview employed a semi-structured format to allow emerging topics to be followed-up if important (SEE Appendix G).

In sum, the study seeks to provide an in-depth look at learning facilitated by the stance corpus proposed for this study. It collected and conducted evaluation of students' pre and post-tool writing, their stance identification accuracy, in-depth textual analysis of the developing drafts, tracked and calculated the frequency of tool functions

accessed, the cognitive processes promoted by the tool and engaged in learning as a whole, and documented account of recurrent cognitive and stance learning patterns and issues from the drafts, recall protocols and interviews. All of these helped contribute to a rich description of individual and across individual learning profiles.

Table 4.5 below presents each research question and their relations to the data collected and briefly describe how the data were analyzed to answer the proposed question.

(Table 4.5. Research questions, data, and analyses)

Overarching question: In what ways does a stance corpus support L2 writers' development of stance? Can learners become adept at deploying their stance use through this approach? Does students' writing improve through analytical pattern finding and inductive learning? What cognitive processes are stimulated in learning?		
Research Questions	**Data Collected**	**Analysis**
1- Pertaining to the affordances of the stance corpus: How do the L2 writers use the tool to help them develop their stance in their introductory moves?		
RQ 1A: What type of cognitive activities do they exhibit more when interacting with the corpus and engaged in learning as a whole and why?	Transcribed stimulated recall protocol.	Transcripts were coded for cognitive activities to explore the cognitive process patterns engaged when using the tool in specific and in learning overall

Research Questions	Data Collected	Analysis
RQ 2 - Pertaining to the learners' performance: How is the progress they make in terms of move and stance?		
RQ 2A: What is the difference between their move and stance performance before and after using the corpus tool?	Pre and post-task introduction drafts	Both drafts were evaluated by move structure and stance deployment by two raters to establish an objective evaluation of the users' performance.
RQ 2B: Do they use the four stances appropriately to fulfill the three different rhetorical moves expected in an introduction?	Self-analysis sheets	Numbers of stances used and identified are added up individually. Accurate ones out of the identified are calculated.
RQ 2C: How accurate are the learners in identifying and labeling stances used in their drafts?	Three developing drafts and self-analysis sheets with tool use.	Close analysis was conducted to investigate how stances were deployed to fulfill the purpose of each rhetorical move, combined with investigation of recurrent

		patterns in stance learning.
RQ 3 - Pertaining to the effect of the stance corpus on their learning outcome: What are the more frequent cognitive activities being encouraged and how is this related to their writing performance?	Statistics of cognitive activities from RQ 1 and statistics from RQ 2 of stance use	The distribution of cognitive activities was correlated to that of their stance use to establish how they used the corpus tool and the learning outcome

4.2. Methods and Approach to Analysis

In this part of discussion, I discuss the methods used to collect data pertinent to this study in more detail. The plan and process of determining appropriate approaches to analyze the data are also explicated. The targeted data collected for this study include (1) Stimulated Recall Protocols (2) Texts/Drafts (3) Interviews.

Stimulated recall (SR) was employed to document learners' cognitive process in learning while interacting with the corpus tool. The data were coded and analyzed and inter-rater reliability checks were involved. Text analysis sought to measure both the learners' pre and on-task use performance demonstrated in their writing and the development of their move and stance learning evidenced in their three developing drafts. Their stance use was also quantified to seek the distribution pattern which was then correlated with their cognitive process to address the way they learn aided by the tool in relation to their performance demonstrated in their writing.

The first two are primary in measuring the learners' learning while the third, interviews, serves more as supplementary data to either provide reasons or

justifications for the protocol and text analysis whenever appropriate. These include the subjects' mention of learning in relation to the tool, reflection and suggestion of using the tool, and analysis of their own move and stance. In the following discussion, stimulated recall method and protocol analysis are introduced followed by how text analysis was conducted.

Stimulated Recall (SR)

Stimulated recall was used to track the cognitive processes each subject engaged in when on-task interacting with the corpus. A less intrusive form of protocol than the think aloud method, SR tends to minimize the interference from cognitive overload while the subjects were occupied with developing arguments and writing texts (Gass and Mackey 2000; Greene and Higgins 1994). It is done by playing back screen activity recordings of just-completed sessions. This study is interested in tracking how each subject interacts with the corpus tool to learn about new linguistic concepts; therefore, it is critical to be able to access their thinking process at the time of using the tool to learn. Gass and Mackey (2000) recommend that it was best to conduct such a process within the shortest time span possible from the time the tasks were completed. Doing this can generate the most valid account of the participants' thinking processes. Therefore, for this study, participants' stimulate recall data were collected immediately following their writing session.

There are, however, data that SR alone cannot render. Recall protocols as such are not meant to capture the "why" in the participants' minds. They are intended to capture, as faithfully as possible, the thinking process uninterrupted by clarification or interpretation. To complement this, a post-tool use interview was conducted in which the participants were able to give more contextual details and explain their learning

experience in causal terms. Greene and Higgins (1994) discuss that while concurrent protocols (think aloud) are useful in documenting what writers do, these are less helpful in explaining why (p. 118). Therefore, a retrospective account as afforded by interviews allows them to reflect and explain, which this study implemented.

In this study, SR was conducted by using the prompting from the hour-long screen activity capture while participants were on-task composing with the stance corpus present. Participants were prompted to recall immediately after they completed the one-hour writing task.

In the following discussion, the process of rendering the SR transcripts into data for analysis is discussed. First, I discuss issues related to finding an appropriate coding scheme. Then I discuss establishing inter-rater reliability to ensure the replicability and objectivity of the coding.

Deciding on a coding scheme

Initially, the transcribed SR data were coded for emergent themes and sub-themes. This effort helped established that a coding scheme pertaining to probing corpus-minded cognitive pattern would be relevant and needed. Such a coding scheme can address the research questions for this study. With the tool built on the corpus linguistics assumption that multiple authentic examples facilitate inductive and discovery learning which enhances analytical and even metacognitive ability in learning (O'Sullivan 2006), the study aims to find out if the subjects do apply those cognitive process usually involved in corpora learning.

Finding the right coding scheme is of supreme importance in order to more fully answer the research questions targeted in any study. A less precise or generic scheme

may still address the questions, but may not provide clear results and may even shift the focus of the study elsewhere not targeted or planned when it starts out.

Originally, this study applied the Revised Bloom's Taxonomy (RBT) by Anderson and Krathwohl's Taxonomy (2000). This RBT is comprehensive and has been used to set cumulative learning goals, from the lower to the higher thinking abilities, with which to evaluate the students' learning. While comprehensive, the RBT includes thinking abilities that are more generic than specific, (for example, "understand," "analyze," and "evaluate") identifying levels of general intellectual behavior in learning. Applying these to code corpus use behavior did not address the more generic learning outcomes but not the corpus-specific behaviors this study set out to explore. Therefore, a coding scheme based on O'Sullivan's extrapolation of the cognitive activities involved in corpora learning cognitive behavior was adopted.

O'Sullivan (2007) investigates conceptually process-oriented teaching and learning with the aid of corpora and recommended the approach for its constructivist and metacognitive underpinning. By way of corpora consulting, O'Sullivan formulates the types of cognitive skills involved. The list includes 'predicting', 'observing', 'noticing', 'thinking', 'reasoning', 'analysing', 'interpreting', 'reflecting', 'exploring', 'making inferences' (inductively or deductively), 'focusing', 'guessing', 'comparing', 'differentiating', 'theorising', 'hypothesising', and 'verifying' (O'Sullivan 2007). According to Boulton, O'Sullivan's list "provides an impressive list of cognitive skills which data-driven learning (DDL) may be supposed to promote. . ." (2010, p.20). This coding scheme is an appropriate tool for this study because it typifies those cognitive activities involved in learning with computer corpora which is exactly what this study sought to explore.

In practice, this list was refined by the two raters in the process of coding and reaching consensus. This step turned the list into a working coding scheme. Considering that this stance corpus introduced stance and move concepts new to the participants, each of whom spent varying amount of time performing such lower-level thinking skill as remembering/reviewing, I also incorporated remember/reviewing into the scheme. (SEE Appendix H)

Inter-rater reliability

The total of the 21 transcripts, three transcripts per subject, were subjected to coding, to track every learner's cognitive activities in learning, using the coding scheme adapted from O'Sullivan's corpora consulting skills list (2007). Before proceeding on identifying the learners' cognitive activities in the transcripts, 1/10 of the transcripts were subjected to inter-rater reliability check in two steps, first relating to the segmenting of the cognitive units and second to coding these cognitive units. According to Gass and Mackey (2000), doing inter-rater reliability prevents the researcher(s) from being "over-influenced by their research questions and hypotheses and therefore by their expectations about the data."

The process started with introducing the second rater to the background of the study, including background knowledge, technical terms and concepts. The second rater owns a master's degree in education and has been a secondary school teacher in Taiwan. Seeing that the participants of this study were all Chinese speakers, a second rater with a background in education and Chinese as first language was a best fit.

Both raters first sought agreement in parsing cognitive units or segments. A cognitive segment or unit was broadly defined as an independent cognitive activity seeing that cognitive activity is the key focus to identify in the SR protocols. This means

a segment or unit would only contain one cognitive act the participants used, e.g. exploring, reviewing, or making sense. In the process of segmenting, the two raters continued to refine the definition and agreed that a functional segment contains ***a verb*** related to ***learning*** more broadly, not specifically on thinking verbs as we initially configured. The following rules were observed:

(1) A segment contains basically one thinking verb with one topic/thing/issue.

(2) A segment contains basically one (other) verb, related to learning, with one topic/thing/issue.

(3) A segment can be in the form of questions.

The table below gives examples of some segments from the transcripts:

(Table 4.6 Examples of segmenting in the protocol analysis)

Segment	Content (key identifier is in bold)	Code
1.	**thinking** which keyword it is, "yet" or "develop"? **decided on "develop"**	Guessing
2	I want to make sure **if I memorize those (stance) keywords**	Remembering/ reviewing/ memorizing
3	**see** overall and move making stance ratio, . . .	Exploring
4	**hard to find pattern** so spend lots of time here	Making inference
5	**see** stance, what stance is used, **this is "propose a niche", using "na",**	Remembering/ reviewing/ memorizing

6	here I reported study result, what stance should I use? Affirmative or what? **See what others are wiring.**	Exploring
7	this part, **'largely'** is not . . , what, '**ma?' need to make sure**	Remembering/ reviewing/ memorizing

After segmenting was stabilized, the second rater and the researcher proceeded on to first group O'Sullivan's codes (2007) before applying the codes. Due to the larger number of the codes in the original version, simplifying the number of codes into the current 9 groups became prerequisite. In the process of the collaboration, the coding scheme was refined a few times more in the clarification of the meanings pertaining to the codes and some in the adding or eliminating of codes or groups of codes.

The list of codes from O'Sullivan is particularly pertinent to exploring the cognitive skills associated with a data-driven learning approach, mostly associated with the use of computer corpora. The original list includes up to 16 codes: *predicting, observing, noticing, thinking, reasoning, analysing, interpreting, reflecting, exploring, making inferences, focusing, guessing, comparing, differentiating, theorising, hypothesising, and verifying* (p. 277). These codes were not originally designed as a coding scheme and some of them seem too subtle to be a code of its own in application. Besides, some of the codes are more associated with behavior, usually not explicit when the participants were engaged in stimulated recall. They concentrated more on their thinking in talking than on their silent behavior, more obtainable by observation. Therefore, at the beginning of inter-rater reliability check, these codes were grouped into functional categories by the two raters.

One limitation of using this list is that all the skills are specifically related to "corpora consulting" behavior which more or less assumes that learners start to assume the role of investigators. For the purpose of this study, while exploring such a behavior is key to the study, the subjects were also engaged in learning a new concept, i.e., stance, aside from or aided by these skills. Seeing this, I assumed the learners would also engage in factual learning to a considerable extent. To reflect this, I incorporated codes of factual learning, 'remembering,' including reviewing, recalling, recognizing and memorizing, from the revised Bloom's Taxonomy (RBT) (Anderson and Krathwohl, 2001) and incorporated it here.

As a result, the final version of coding scheme includes a total of 9 groups. Table 4.7 shows the coding scheme in detail.

(Table 4.7. Coding scheme)

	Codes	Notes	Example of key verbs or expressions
1	Remembering / Reviewing / Recalling / Memorizing / Recognizing	to remember, review or memorize facts about stance and move.	**double check, make sure, what is it, thinking what is/should, etc.**
2	Guessing	random, not seem to base on any evidence or reasoning.	**Don't know…, feeling this is…, (the readers) might (not) know…, etc.**
3	Predicting /	more deliberate than (2)	**Predict, can be, should,**

	Hypothesizing	Guessing and usually base on some evidence or reasoning.	**etc.**
4	Exploring	concerns free and open action and more related to exploring concepts than facts.	**Look at/for, to find out, see how…, to know…, etc.**
5	Reasoning / Analyzing	usually involves comparing and differentiating and more complex concepts not facts.	**making judgment, consider, because/so, look similar/different, to connect, etc.**
6	Making inferences / Theorizing	Generates rule(s) successfully or not successfully from many examples.	**might not…basically, exception(al), use more…, more, most, etc.**
7	Verifying	decides if true or untrue, valid or invalid, usually succeeds hypothesis.	**make sure if, thinking if, find if, check, double check (complex concept), etc.**
8	Interpreting / Making sense	usually related to more superficial (e.g. on definition, types) learning, not engaging "analytical" or "inferential" ability; usually in statements not in questions.	**Might, should, may (be), seems, etc.**
9	Model	to use or apply examples directly.	**based on, I write…, want to use (the examples), can**

			I use (the examples), etc.

Below I give an example of segmenting and coding part of one transcript. All the cognitive segments identified and codes applied accordingly pertained to either stance or move learning. Those not stance or move relevant, despite cognitive skills present, were not included.

The subject was in her second session of writing and learning. In this part of the transcript, she had moved on to conceiving her move 3 and learning about the stances characterizing this move accordingly. The second column shows stance- or move-related cognitive segments identified, with key identifiers for coding highlighted in color. And the code(s) for each segment is displayed in the third column.

(Table 4.8. An example of segmenting and coding a part of one transcript)

Subject's main purpose	**Segments (code keywords in color)**	Codes
On Move 3 and its stance first and on composing and stance issue next.	**1) want to make sure what move making sentence (of move 3) is**, hm, now, feeling tired, feeling I have written much, [pause24sec], only around 200 words, quite a blow to me, [p12sec], thinking about move 3, originally I planned to write move 3 next time, now forced to write it, looking for examples [in move example pages], found, realized that, this type of [referring to text example pages] info is better, [p3sec], then,	(on stance) Remembering / reviewing

	2) thinking that move 3 might not have stance basically, so relieved, yes, reading down to here, and did not find many stance,	(on stance) Making inference
	3) there is "however", I did not delve closely, but **it is not for move-making, not introducing the present work**,	(on move) Making sense / Interpreting
	4)so I feel I can ignore this exceptional stance in move 3; [pause22sec],	(on stance) Making inference
	so, still thinking how to write on, originally I had a lot, so how do I condense? [p7sec], here, um, **5) feeling more stances are better***, originally, this condensed part did not cover a part of my original paper, but here, I need a sentence to talk about that [missing] content, I am talking about move 2, which needs some concluding remark from that original content about "what is needed" so . . . and this ["what is needed"] can be a stance [p5sec], (***** The subject mistook "stances" for mostly only High Argumentative ones from the beginning of the experiment and this remained her "sense" or "interpretation." Also from her talking here, she found those "HA" stances were used more in the	(on stance) Making inference & Making sense / Interpreting

	examples she explored so she was also “making inference” here)	
	6)here I saw/recalled your analysis on my initial writing, that “need” is a stance, so I can use it here, "need" [pause1min18sec],	(on stance) Remembering / reviewing
	here thinking how to condense my original stuff, [p14sec], might be on how to condense my original content to this paragraph, . . .	X

Among the total transcripts, 1/10 were randomly selected for inter-rater reliability check. In segmenting, the two raters segmented the selected transcripts and reached 78%-95% agreement. The key discrepancies were first related to the boundary of a cognitive unit and second to the types of cognitive activities to be included, with a wide range of these. Both were resolved after discussions and refinement of the definition. We agreed that a cognitive unit should generally represent one cognitive verb related to both learning- and thinking cognitive activities, as opposed to only those thinking-related one which were our key focus in earlier phase.

The same procedure was applied to coding and the agreement reached .927 (Cronbach's Alpha), and thus it is deemed reliable for the purposes of this analysis. Key discrepancies in coding included first, the lack of the general pattern of the cognitive verbs that we could refer to in coding and second, that the second rater was unsure about some contextual information wherein the subjects were engaged in thinking. These were resolved when a list of verbs was organized and refined in the process of learning and discussion pre-coding, shown in table 4.8 above and when the researcher

explained the fuzzier context, both of which resulted in better understanding and agreement from the second rater.

With sufficient agreements reached, the researcher proceeded on to code the remaining of the data.

Texts/Drafts

The drafts, including one pre-task and three developing ones produced in the learning sessions were analyzed in three ways. First, pre- and post-task drafts were compared and evaluated for performance on move and stance. A second rater was involved to establish an objective assessment. Second, the internal development specific to each subject's three developing introduction texts was closely and iteratively analyzed for both emergent and recurrent patterns. Third, their ability to identify and label the stances used in their drafts was probed by calculating numbers of stances used, identified and those accurately identified. Both their writing performance and stance identification accuracy were then closely investigated in relation to their cognitive learning patterns prompted by their interaction with the tool and engaged in overall learning. Final interviews were conducted to supplement what these analyses have not fully accounted for.

To conclude, this chapter has discussed the research questions, subject recruitment process, experimental sessions and the methods employed to collect data to address the questions. Approaches to interpret and analyze the rich data were delineated in more details particularly regarding the cognitive learning processes the learners were involved. Different approaches to analyze textual data were also described succinctly preceding a detailed account in Chapter 5. In the next chapter I will report the results based on the analytical approaches described in this chapter. In

response to the overarching questions this study sought to answer, the analysis will include, first, the types of cognitive activities promoted specifically and directly by the corpus tool; second, overall cognitive processes, which tool use cognitive pattern is an integral part of, engaged in both learning and writing; third, whether learning happened with tool use in relation to the learners' writing performance and stance learning outcome; and finally, building on the results obtained above, what the learners learned via close analysis of the three developing drafts for recurrent learning patterns and emergent issues.

Chapter Five Data Analysis and Results

Overview: This study seeks to investigate in what ways a stance corpus supports L2 writers' development of stance. Do learners engage in analytical pattern finding and inductive learning as they interact with the corpus? Do learners become adept at deploying their stance use through this approach? Does students' writing improve? What cognitive processes are stimulated in learning with the corpus tool?

Research in this area has generally suggested there would be positive outcomes from using a corpus approach in pedagogical practices, including creating a constructivist learning environment, where learners are prompted to actively engaged in discovery learning, exercising such higher order thinking skills as reasoning, analyzing and inferring, combined with reflection, to name a few. However, these suggestions remained conceptual and as a few researchers have started to point out, more empirical evidence is needed to support or contest the use of corpora tools in their potential in optimizing learning (Boulton, 2007; Hafner, 2007). A gap in research still exists between the conceptual claims and empirical evidence regarding the types of cognitive processes being promoted.

The instructional content development of this study draws on Martin and White's (2005) engagement framework, which describes the linguistic resources through which an authorial voice or stance is projected to engage the readers to varied extents. An effective authorial stance is realized through a balance between affirmation and

concession, or hedges and boosters in Hyland's terms (1998a, 2004, 2006). The engagement framework renders stance meanings in a systematic framework, which I found facilitative of a corpus learning approach. Seeing that stance deployment serves bigger rhetorical purpose, Swales' (1990; 2004) move structure was also introduced in the tool to give a conceptual or rhetorical outline to complement stance learning. The learning materials were organized in multiple clause/sentence examples and extended (con)text examples where textual enhancement was done on key ideas and annotations were given regarding stance and move features.

The study seeks to provide an in-depth look at learning facilitated by the stance corpus proposed for this study. It collected and conducted evaluation of students' pre and post-tool writing, their stance identification accuracy, in-depth textual analysis of the developing drafts, tracked and calculated the frequency of tool functions accessed, the cognitive processes promoted by the tool and engaged in learning as a whole, and documented account of recurrent cognitive and stance learning patterns and issues from the drafts, recall protocols and interviews. All of these helped contribute to a rich description of individual and across individual learning profiles.

In response to the overarching questions this study seeks to answer, the analysis is organized as follows: first, the types of cognitive activities promoted by the stance corpus tool are probed. Following that, overall cognitive processes are explored, which an integral part involves tool-prompted cognitive learning pattern. Combined with the learners' writing performance and stance learning outcome, this part further investigates whether learning happens with tool use. Finally, building on the above findings, what the learners learn is examined via close analysis of the three developing drafts for recurrent stance learning patterns and emergent learning issues.

5.1. Tool affordances in learning: cognitive activities prompted by tool use

This part first examines the assumptions of the multiple benefits associated with the use of corpora tools in probing linguistic patterns. Among these, it is suggested that the tools have great potential in eliciting higher order thinking such as reasoning and inferential skills. Based on and adapted from O'Sullivan's (2007) synthesized list of corpora consulting behaviors, "remember/review," "explore", "make sense," "guess", "model," "predict/hypothesis," "reason/analyze," "make inference," and "verify", the study investigated if these happened with this stance corpus. To obtain the results, first, each learner was tracked for the time spent on different components (i.e. text examples, move examples, stance examples, stance keywords tables, stance ratio graphs, reference list, breaking into clause unit, and distinguishing the stances. SEE Chapter THREE) they visited in the three sessions. I added up the time spent on each of these functions and the total time they actually spent on accessing the tool. Cognitive activities prompted by these functions were teased out from the recall protocols where the learners talked about their thinking processes in the three sessions. Only those cognitive activities directly related to tool use were counted.

Of the three mostly accessed components, the integrated (con)text examples component consistently prompted "exploring", "making sense", "making inference" and "reasoning" when the learners were interacting with the tool. Another component frequently used, the move examples which presents extended texts organized by rhetorical moves but without annotation of stance information, prompted for "exploring" more consistently. The third frequently used component, clause/sentence-based stance examples, was consulted mainly for "exploring," "making sense," and "reasoning". Table 5.1 below lists all cognitive processes prompted by the

functions in the corpus (Shading cognitive activities show consistent use across subjects and bolded ones show use within individual).

(Table 5.1. Tool functions and cognitive activities)

Functions used	**HG**	**DG**	**PU**	**CG**	**SY**	**XG**	**HU**	**Average time spent (min)**
1. text examples	Explore, Infer, **Verify, Make sense**, **Guess, Re-member,** Reason, Model	**Explore,** Make sense, **Reason**	**Explore**, **Infer,** Re-member, **Reason**, Model	**Explore,** Infer, Verify, Make sense, **Model** Re-member, Hypo-thesize	**Explore,** Infer Reason,	Explore, Verify, Make sense	**Explore,** Re-member, Model, Make sense	23:35 (43.85 %)
2. move examples	0	Hypo-thesize, **Reason**	**Explore**, **Infer**	**Explore**	0	0	**Explore,** Make sense	13:03 (24.26 %)
3. stance examples	0	**Explore**, Make sense, **Reason**	**Explore**, **Infer,** Make sense, Model Re-member, **Reason**	**Explore**, Verify, Infer, Make sense, Re-member, Reason, **Model**	**Explore,** Verify, Make sense, Re-member, Reason	0	**Explore**	8:09 (15.15 %)
4. Stance keywords tables	**Re-member, Make sense, Verify, Model, Guess**	Infer, **Reason**, Re-member, **Explore**, Make sense	Re-member, **Reason**, Make sense	Re-member, **Explore**, **Model**,	**Explore**, Make sense	0	**0**	4:21 (8.09%)
5. ratio page	0	0	**Explore**, **Reason**, **Infer**	Make sense	Explore, Infer	Make sense	**0**	2:02 (3.78%)

6. reference list	0	0	**Explore**, Make sense	**Explore**, **Model**	0	0	**0**	0:41 (1.27%)
7. distinguish the stances	0	**Explore, Reason**	0	0	0	0	**0**	0:34 (1.05%)
Total time (min)	**50:40**	**67**	**55:15**	**69:55**	**47**	**34**	**52:40**	**53.47**

The core learning materials are the examples organized and oriented differently, which happen to be the three most used components in the tool in the order of text examples (average minutes spent, 26 minutes and 6 seconds at 48.81% of total time), move examples (average minutes spent, 11 minutes and 9 seconds at 20.84% of total time) and stance examples (average minutes spent, 7 minutes and 44 seconds at 14.46% of total time), making up 83% of total time on tool use. Average total time spent on tool use was 53 minutes and 29 seconds in approximately total 2 hours and twenty minutes to 3 hours of writing and learning sessions.

Judged by the integrated information given on *text examples* and much more time dispensed here, it is reasonable that learners were prompted to apply more cognitive strategies here. By comparison, *move examples*, offered both in full text and by individual move annotated with key move-making ideas only, prompted exploration in general and did not engage other activities as consistently.

Different functions used by frequency in minutes are documented in table 5.2. On average, they spent 83% of the total time in the examples, including text, move and sentence-based stance examples, the core materials and assumptions for this study.

Individual learner wise, CG and DG are the ones who spent most time in using the tool, over an hour, aside from composing. With regard to cognitive activities

consistently used, SY and HU, “explored” mainly. With “exploration” consistently in use, DG also “reasoned”, CG, “modeled,” XG, “made sense,” PU, “inferred” and “reasoned.” Different from others who “explored” often, HG was engaged in “verified”, “made sense,” “guessed” and “remembered/reviewed”.

Some exceptions are found first in HG who, other than the examples, spent 1/4 of her time on *Stance keywords tables*, more deductive rule-based rendition of stance keywords by stance types in four respective tables. Second, DG consulted text examples infrequently at 2.99% of his total time, whereas all other subjects spent considerable amount of time here. He also topped all others in consulting move examples, spending over half of his total time.

Both DG and CG consulted *move examples* only in the first sessions. Here they relied on the conceptual scaffold of move structures to help conceive their arguments without delving into stance concepts directly. This attempt coincided with their cognitive activity to “explore” the examples here more than applying other cognitive activities. As a few learners pointed out, making their argument had to precede linguistic deployment. Without argument or ideas to argue with, it was difficult for them to consider linguistic issues.

Regarding the amount of time spent on learning, XG was found to spend the least time and CG the longest. Taking into account the learners’ writing performance and stance learning accuracy, discussed later in this chapter, XG ranked No. 6 in her stance learning accuracy and showed less improvement from pre-tool draft. CG ranked No. 2 in the former and stayed around the same from pre to post-tool drafts. And if also considering those who showed consistently greater improvement and better accuracy in

stance learning, HG and DG, time seemed to play a role here. But HU, who showed lowest performance in both, spent around the average amount of time on learning.

Judging that the study was conducted in a short timeframe, 3-hour in total 3 sessions only, it is hard to conclude that longer time spent has a positive effect on learning.

(Table 5.2 Frequency of different tool functions used in all 3 sessions)

Functions used	**HG**	**DG**	**PU**	**CG**	**SY**	**XG**	**HU**	**Average time**
1. text ex	31:40 (62.50%)	2 (2.99%)	19 (34.39%)	30:55 (44.22%)	21:30 (45.74%)	29 (85.29%)	31 (58.86%)	23:35 (43.85%)
2. move ex	6 (11.84%)	36 (53.73%)	10:50 (19.61%)	17:30 (25.03%)	2 (4.26%)	2 (5.88%)	19:40 (37.34%)	13:03 (24.26%)
3. stance ex	0	15 (22.39%)	10:05 (18.25%)	12 (17.16%)	18 (38.30%)	0	2 (3.80%)	8:09 (15.15%)
4. stance keyword tables	13 (25.66%)	10 (14.93%)	5 (9.05%)	5:30 (7.87%)	2 (4.26%)	0	0	4:21 (8.09%)
5. ratio graphs	0	0	8 (14.48%)	1:30 (2.15%)	3:30 (7.45%)	3 (8.82%)	0	2:02 (3.78%)
6. reference list	0	0	2:20 (4.22%)	2:30 (3.58%)	0	0	0	0:41 (1.27%)
7. distinguish the stances	0	4 (5.97%)	0	0	0	0	0	0:34 (1.05%)
Total time	**50:40**	**67**	**55:15**	**69:55**	**47**	**34**	**52:40**	**53.47**

(min)								

5.2. Overall cognitive learning behavior and stance learning

Having explored the collective and individual cognitive patterns prompted directly by tool use, I continued on to investigate if the learners learned as a result of this intervention. This was carried out by exploring the relationship between tool use, overall cognitive learning behavior and the performance and outcome of stance learning.

Overall cognitive processes designate what the learners were engaged both in tool use and all other tasks (e.g. writing, stance learning). These are obtained through the learners' recall protocols while engaged in learning in the three sessions. To obtain objectivity of interpretation on the cognitive types, adapted from O'Sullivan's (2007) list of corpora consulting behavior, inter-rater reliability was conducted (SEE Chapter 4). And the researcher coded all the remaining protocols to obtain the cognitive types distributed in each session where the learners were engaged in learning.

Investigating overall cognitive processes is presumed to give an expanded look at learning as a whole which tool use cognitive processes were an integral part of. The learning associated includes evaluation of pre and post-tool drafts and stance identification accuracy. Generally, effective performance and learning were found in all the learners in which a positive relationship between improved stance knowledge and overall writing performance is observed. Regarding overall cognitive activities engaged, "explore", "reasoning/analyzing" and "make sense" are most frequent. It seems effective learning requires the learners to also engage consistently in "modeling", "verifying", "remembering" and "inferring" aside from those frequently applied by all the learners.

In the following discussion, whether learning occurred as a result of the intervention is examined first. Next, overall cognitive activities involved in learning are presented and discussed in relation to tool use cognitive patterns discussed earlier.

First, the evaluation conducted of the learners' writing performance from pre to post-drafts shows that all learners showed improvement with some salient and some subtle. The ones who improved the most were **PU, HG and DG.** Detailed description of how the evaluation was conducted is given below in 5.2.1. Second, stance identification accuracy, probing the extent to which the learners were able to identify the stances they deployed associated with conscious learning, reveals that **DG and HG** rank highest, with **CG and PU,** close in margin, rank third and fourth, in their ability to identify more stances accurately. **HU and XG** are lowest far below average (7.27% and 9.67% respectively versus the average of 14.82%). Detailed description of how the evaluation was conducted is given below in 5.2.2. Overall, these results suggest a positive relationship between improved stance knowledge and overall writing performance.

Overall cognitive processes engaged both in tool use and all other tasks show that these learners with better performance demonstrate the tendency of applying the following cognitive skills most frequently (Table 5.3 gives the frequency of overall cognitive learning processes):

(1) PU: "explore", "infer" and "remember/review" among which the latter two topped the rest in the same categories.

(2) HG: "make sense," "model", and "verify" among which the latter two topped the rest.

(3) DG: "reason" and "make sense" among which "reason" topped the rest.

Those who are lowest in stance accuracy, HU and XG, show improvement nevertheless. And they constantly put the following activities to work:

(1) HU: “explore”, “make sense” and “guess” among which “make sense” topped all others in the same category.

(2) XG: “guess”, “explore” and “make sense” among which “guess” topped all others.

Table 5.3 shows average individual cognitive activities used in the three sessions. The cognitive activities are organized by higher order thinking skills and their particular relevance to corpora consulting behavior to lower ones (The numbers in bold show most frequent activities applied by each learner and the shading numbers show the highest frequency in each cognitive type).

(Table 5.3. Frequency of overall cognitive learning processes)

Name	Predict, hypo-thesize	Make inferences	Verify	Reason, analyze	make sense , Interpret	Model	Explore	Re-member, Review	Guess
HG	11%	3%	**16%**	1%	**22%**	**22%**	8%	11%	6%
DG	5%	2%	0%	**55%**	**29%**	0%	8%	2%	0%
PU	1%	**15%**	3%	14%	13%	7%	**22%**	**24%**	1%
CG	2%	10%	2%	4%	**29%**	12%	**27%**	**13%**	0%
SY	0%	3%	6%	**31%**	**40%**	0%	12%	4%	4%
XG	0%	0%	10%	6%	**23%**	3%	**26%**	0%	**33%**
HU	0%	1%	0%	6%	**44%**	4%	**23%**	1%	**20%**
Average	2.76%	4.76%	5.29%	16.71%	28.48%	6.90%	18.14%	7.90%	9.05%
(Ranking)	9	8	7	3	1	6	2	5	4

STDEV	0.041	0.055	0.060	0.197	0.108	0.079	0.084	0.088	0.125
(Ranking)	1	2	3	9	7	4	5	6	8

Along with the results obtained earlier probing tool use activities, from the same learners with better performance, the following patterns are observed:

(1) PU: “explore”, “infer” and “reason”

(2) HG: “verify”, “make sense,” “guess” and “remember/review”

(3) DG: “explore,” and “reason”

And with HU and XG, lowest in performance, it was found,

(4) HU: “explore”

(5) XG: “explore” and “make sense”

Table 5.4 integrates all the information given above and gives overall individual learning profiles, which combine tool use cognitive processes studied earlier, overall cognitive processes, writing performance and stance accuracy. **Where improvement is salient, these learners also show better stance accuracy and vice versa.** Frequency of both overall cognitive learning processes and those prompted specifically by the tool show similar patterns of cognitive processes. The former include “making sense”, “exploring”, and “reasoning”, and the latter, “making sense”, “making inference” and “reasoning” and “exploring”.

(Table 5.4. Overall learning profiles: Cognitive learning patterns and performance)

Name	Overall improve-Ment	Stance accuracy	Cognitive activities (Tool use)	Cognitive activities (Overall) (1)	(2)	(3)	Note: Other functions used frequently than the examples
HG	1	2	Verify, make sense, guess,	Model	Make sense	Verify	Stance keywords

			remember				tables
DG	2	1	Explore, reason	Reason	Make sense		Stance keywords tables
PU	1	4	Explore, infer, reason	Remember	Explore	Infer	ratio pages
CG	=	3	Explore, model	Make sense	Explore	Remember	NA
SY	=	5	Explore	Make sense	Reason	Explore	NA
XG	3	6	Explore, make sense	Guess	Explore	Make sense	NA
HU	3	7	Explore	Make sense	Explore	Guess	NA

Combined, the three who perform better, HG, DG and PU, also demonstrate unique patterns in their cognitive processes, in addition to the use of the cognitive activities found frequently used by all:

(1) HG, while "verifying" and "making sense" more frequently and consistently, is also keen on "modeling", which, along with "verifying," topped all other learners in frequency.

(2) DG also "reasoned" so frequently that he tops all others by high margin while "explored" and "made sense" of his learning.

(3) PU is frequent in "remembering/reviewing", which along with "inferring," also tops the rest, aside from more consistently and frequently "exploring" and "reasoning".

In addition, these three learners show unique use of the tools to some extent. While the examples were most frequently used by all, HG and DG respectively also spent more time on the rule-based tables containing stance keywords. This might suggest a relation to their higher accuracy performance given the time constraint. Here they could access the "correct" use of stance keywords without spending time on exploring the examples.

PU also shows most frequent visit of the ratio pages where all the percentage of stances used in all texts is shown here.

To conclude this section of discussion, effective performance and learning are found in the learners. Those who are high in stance identification accuracy also demonstrate greater improvement from their pre-tool drafts. And regarding cognitive activities engaged in learning, it seems effective learning also requires the learners to engage constantly in **"modeling," reasoning," "remembering" and "inferring"** aside form those consistently applied, "exploring" and "making sense", by all other learners. Finally, the more frequent access to the **rule-based** information regarding stance learning might contribute to better stance learning judged by the accuracy rate DG and HG achieve.

5.2.1. Conducting evaluation on writing performance

As aforementioned, the study combines both the products and process the learners were engaged in while learning. With the findings suggesting learning and better performance occurs with tool use, this section gives detailed account of how evaluation of performance was conducted. Two aspects of performance are established from the written products. First, general evaluation comparing the pre and post-tool drafts was conducted by the researcher and an experienced academic writing instructor. Second, stance identification accuracy was calculated to reflect the learners' conscious learning of stance delineated in 5.2.2 after this.

This section delineates the evaluation of learners' pre and post-task drafts by the researcher and a second rater to establish a bigger picture of whether improvement occurred. The pre-task drafts were submitted before they started the experiment and the post-task ones were taken from the final drafts of the total three developing drafts

they composed in the experiment. The discussion below is organized by move evaluation first followed by stance evaluation.

To evaluate move structure, both raters adopted the scale developed by the researcher based on Swales' move model which the second rater endorsed and used. With respect to stance evaluation, each rater developed a rubric based on their professional experience and their discussion about stance as part of this project. The results showed overall the intervention led to improvement in the learners' deployment of both move and stance, with some more salient and some subtle.

Evaluation of move

The researcher and a second rater from an established English language education institute[2] evaluated the total 7 sets of pre- and post-task drafts. Both evaluated the rhetorical move structure based on Swales' model (1990, 2004; See Appendix I). A rating scale, approved by the two raters (referred to as "the researcher" and "the second rater" in the rest of this section), was developed for this purpose.

(Table 5.5. Move structure evaluation scale)

Scale	4 Fully Developed	3 Sufficiently Developed	2 Partially Developed	1 Under Developed
Definition	Every step characterizing each move is	Every step characterizing each move is	***Every or some*** steps characterizing	Steps characterizing each move are

[2] The second rater has been an ESL lecturer and has served on both the teaching and testing divisions at a University-affiliated English language institute for the past 8 years. She is an instructor of speaking, writing, and pronunciation courses for both students and visiting scholars as well as an instructor for a teacher training class in ESL. She had worked as an ESL instructor teaching ESL for business and academic purposes in her previous position for 12 years.

	carried out with appropriate supporting rhetoric like elaboration, explanation, etc.	carried out with ***some*** appropriate supporting rhetoric like elaboration, explanation, etc.	each move are present with ***little or inappropriate*** supporting rhetoric like elaboration, explanation, etc.	obscure or not found

The scale generally defines four levels of development along with descriptions of how each score should be assigned. Both raters gave one of the four values to the eight sets of writing along with a short comment noting the differences/improvement the pre- and post-task drafts exhibited. The second rater offered to apply, additionally, "+" and "-" to the four values to indicate that she saw aspects of the level above or below. This way, the scale would be broad enough that she could see how the scores may lean in a higher or lower direction.

Prior to rating, the different types of introductions, varying in purpose, scope and length were clarified to ensure the validity (i.e. comparing different types of introductions) of the evaluation. In particular 3 of the pre-task introductions did not follow the basic move structure and were very lengthy, making them difficult to compare with the post-task drafts. In these cases, both raters agreed to analyze whether the post-task drafts were successfully distilled from the lengthier version.

In table 5.6 below I give the list of the types of introduction the subjects submitted pre-task and those they worked on for the study

(Table 5.6. Subjects' type of introduction)

Name	Pre	Post
PU	Introduction to a literature review	Introduction to a study
CG	Lengthy introduction to the dissertation proposal	Condensed introduction to the dissertation proposal
SY	Lengthy introduction to a paper to be published	Condensed introduction to a paper to be published
HU	Introduction to a paper to be published	Same
HG	Introduction to a paper to be published	Same
XG	Introduction to a paper	Same
DG	Background to a proposal	Introduction to a proposal

Due to the very different types of pre and post-task introductions, the evaluation can hardly be operationalized blinded. A blind evaluation seems unrealistic seeing that the two sets of drafts are visibly different. While the pre-task drafts all vary in length, genre, and style, the post-task drafts are all consistently similar in terms of word limit (around 500 words) and rhetorical style (empirically inclined as conformed to Swales' move rhetoric). As a result, for the sake of operationalizing and standardizing the evaluation, the process was carried out on the two sets of drafts distinctly labeled.

Generally, in contrast to their pre-task drafts, almost all of the writers exhibit explicit move structures in their final drafts and become more conscious and mindful in planning their rhetorical structure in introduction (See Appendix K for scores, along with comments, from the raters). This indicates that the explicit rhetorical scaffold in the three moves supported the writers when they organized their argument. On closer look, their move structure performance is not contingent on their linguistic and rhetoric ability alone. Even though most of them were able to model on the three move

structures, some of their claims are either not well developed, or supported with evidence. Seeing this, mature writers do not merely rely on their rhetorical caliber but significantly on their ability to conduct a well-rounded research to produce a satisfactory argument. This is shown, for instance, in PU, who did not yet have a complete research agenda in mind and the demand of the three move rhetoric seemed over-stretching. He was at a stage of conceiving his research through extensive literature reviews and not ready to carry out an empirical study yet. By comparison, both SY and CG are more mature and advanced in their research and as a result, they were more able to argue with confidence the gap they aimed to tackle and the steps they planned to undertake to conduct the study.

The stance expressions are linguistic fulfillment that captures the positioning of themselves as credible researchers-authors while the move structure serves as a conceptual scaffold to the writers' development of argument. With the evaluation of their performance on move structure established, it is then easier to frame and relate their stance performance to the different rhetorical purposes in their move structure.

Evaluation of stance

Judged by the different takes on what stance suggests (SEE Chapter Two), no common evaluation criteria such as that of move can be operationalized. Different researchers have adopted a variation of terms and lexico-grammatical resources to talk about 'stance'. Seeing this, the researcher and the second rater independently specified their definitions, criteria and scales in evaluating stance and proceeded to evaluate based on these.

The researcher adopted Martin and White's definition to evaluate stance-taking (See the "engagement framework" in Appendix A). She applied Wu's (2005) findings

concerning stance used in move 2, to evaluate those in subjects' texts (See Chapter 4 Methodology). For stances in move 1 and move 3, she evaluated by the extent to which their deployment of both monogloss and heterogloss effectively fulfilled the rhetorical purposes serving each move. For example, move 1 requires the writers to move from generalization to specific focus of their studies. Appropriate stances to best fulfill that rhetorical purpose are therefore closely examined. Generally, they should be able to make clear generalized statement using such stance as "Non Argumentative," found most frequent in the database examples. They may use a variety of stances when moving from the generalized statement to the focal point, i.e., 'specificity' in Swales' term as demonstrated in some examples in the tool.

Such a two-step evaluation is needed, related to the nature of the different rhetorical purposes characterizing each move. Wu's finding comes from closely evaluating 27 high- and low-rated students' writing based similarly on Martin and White's engagement framework and is therefore an ideal set of criteria that the evaluation of move 2 can be based on.

(Table 5.7. The researcher's definition of stance and evaluation criteria)

Definition	It concerns how the author-writers project themselves, incorporate and manage different voices or sources of voices in the form of monogloss or heterogloss to engage with the readers. Martin and White (2005)
Evaluation criteria	For move 1 and move 3, evaluate the extent to which subjects' deployment of both monogloss and heterogloss effectively fulfill the rhetorical purposes serving each move.

	For move 2, evaluate whether the writers consistently displayed disproportionate use of stances specified in Wu's study of weaker writers (See the scale below)
Evaluation scale	Move 1 and 3: (S) Satisfactory: stances are deployed appropriately to fulfill the rhetorical purpose of moves (LS) Less satisfactory: stances are deployed somewhat. (W) Weak: stances are not deployed properly. Move 2[3]: weaker writers exhibit, 4. monogloss (bare assertions) **>** heterogloss-entertain 5. proclaim-pronounce **>** disclaim-counter (in heterogloss-contraction) 6. less proclaim:endorse (Wu 2007)

The second rater adopted Hyland's view of authorial stance and evaluated by the concepts of "writer positioning" and "reader engagement" aligned with Hyland's proposition. Her definition and criteria[4] is given in Table 5.8.

(Table 5.8. Second rater's definition of stance and evaluation criteria)

[3] To translate this part of the evaluation into the scale of S, LS and W, those who demonstrated the three weaknesses were given 'W', two weaknesses, 'LS' and one or zero weakness, 'S'

[4] The second rater offered a disclaimer regarding the evaluation of stance:
"This development can lead to credibility and thus authority; however, mention must be made that there are disciplines and subjects within those disciplines that lead writers to improve stance through what is NOT there, an area much harder to measure via analysis from an outsider like me. As a result, stance is a system of balance that is appropriate in tone for the field, the discipline and the subject matter. It cannot be wholly separated from the content and the context for that subject or the depth and the level of research. Granted, there is more room for a stronger voice of authority as one becomes a leader within a field, perhaps something, we don't worry too much about when teaching our graduate students."

Definition	"Writers seek to offer a credible representation of themselves and their work by claiming solidarity with readers, evaluating their material and acknowledging alternate view, so that controlling the level of personality in a text becomes central to building a convincing argument. Put succinctly, every successful academic text displays the writer's awareness of both its readers and its consequences." (Hyland 2005)
Evaluation criteria	Writers are better able to develop or highlight their position, stance or authority by using items that both position writers (i.e., hedges, boosters, attitude markers and self mentions) and align with their readers (i.e., reader pronouns, personal asides, appeals to shared knowledge, directives and questions).
Evaluation scale	On the scale from 1 to 6. 6-Clear evidence of positioning the writer and reader alignment. 1- evidence of these two not as apparent or not used often enough to be markedly noticeable.

Based on the definition, criteria and scales developed for evaluating move and stance, we proceeded to evaluate the eight sets of writings independently.

Generally, most participants show development in their stance-taking according to these ratings, except SY and CG. Among them, PU and HG obtain consistent ratings by the two raters and exhibit greatest improvement (SEE Appendix K for scores and comments by the two raters). DG shows good improvement and is more favorably rated by the 2nd rater whose stance performance progressed exceptionally from 1 to 5. The

rest are more or less consistently rated. Paired T-test indicates that there is a significant difference between the pre and post scores for rater one and rater two at 5% significance level.

Table 5.9 summarizes evaluation both on move and stance from the two raters (Numbers in bold show greater gaps found in pre and post scores). In the case of PU, for example, he moves from “0” to “2” on the first rater’s scoring scale and from “4” to “6” on the second rater’s scale. The same applies for move evaluation, where he moves from “1” to “3” by the first rater and “1.66” to “3.66” by the second.

(Table 5.9. Evaluation of pre and post-tool drafts)

	PU		HG		DG		HU		XG		CG		SY	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Stance-1ST rater	**0**	**2**	**0**	**2**	1	2	0	1	1	2	2	2	1	1
Stance-2nd rater	**4**	**6**	**4**	**6**	**1**	**5**	**1**	**3**	**4**	**6**	6	6	6	6
MOVE-1ST rater	**1**	**3**	2	3	2	3	2	3	2	3	4	4	2	3
MOVE-2nd rater	**1.66**	**3.66**	**1.33**	**3.33**	2	3.33	1	2..33	1	2.33	3	4	3	4

When they started, the learners either had no explicit three-move rhetoric or had obscure structure with ideas scattered in different places in their pre-task drafts. In their final drafts, most of them show very clear move structure and rhetoric. This contributed to their bringing forth their stance more explicitly. However, SY seems to regress particularly in her move 2 stance performance. Despite the chart showing no improvement in her stance performance by the two raters, examining her drafts reveal

that her heightened awareness about “High Argumentative” stance in the final draft is sometimes offset by her misuse of such stance. In this sense, she tends to “over-learn” about stance[5] when she considered stance equivalent to “proclamation”, a type of “High Argumentative” expressions. She therefore used this device more, resulting in strong and subjective claims except for places where she gave background and described the research.

Move and stance performance: An example

An example is given below to account for how improvement is made and rated. PU demonstrates great improvement from pre to post-task writing, both in move structure and stance deployment. The improved move rhetoric, as is also visible in other learners, brings with it more effective stance deployment. The following two examples, taken from PU’s pre and post-task examples, illustrate this point.

[5] SY determinedly believed that stance is about putting forth a strong authorial voice. This prompted her to revise her stances, whenever uncertain, to “high argumentative” ones.

PU: Pre-task draft

Title: The development of morphological awareness

My earlier review of metalinguistic awareness literature **indicates** several important issues to address when reviewing the literature of different aspects of metalinguistic awareness.

First, metalinguistic awareness **consists of** cognitive control and linguistic knowledge by definition. **However,** the exact cognitive mechanism and linguistic knowledge require further investigations and (the exact cognitive mechanism and linguistic knowledge) **are likely to** vary among different aspects of metalinguistic awareness. Thus, the nature of morphological awareness **requires** further examination, **even** if morphological awareness is . . .

Second, the relation between metalinguistic awareness, other language ability, and reading **largely** depends on the operational definition. . . Any interpretations **must** take these into consideration.

Therefore, when reviewing the research . . , operational definitions and measurements **must** be discussed in order to draw meaningful comparisons.

Third, to understand how schooling or instruction contributes to morphological awareness and reading, theoretical assumptions regarding morphological development **need to** be examined.

Fourth, metalinguistic awareness studies **indicate** metalinguistic awareness moderately relates to most language and cognitive abilities.

As a result, the importance of morphological awareness **must be** discussed in comparison to other language and cognitive abilities.

***words in bold are keywords to represent stance**

Analysis: Even though this is an introduction to a literature review piece, PU could still have framed it in a way that accentuates the value of the work using the three-move structure. Instead, the rhetoric just itemizes of key points. Listing these points, however, fails to construct it as an argumentative piece with a vantage point the author argues from. Stance deployment switches back and forth between monogloss (e.g. indicate, consists of) and strong imperative or proclaiming devices (e.g. even, must, need to), making it more of a subjective account allowing little room for the readers to contest the construed implicit argument.

PU: Post-task draft

Title: What can research on morphological awareness suggest for reading education in Chinese?

Reading **is** one of the most important skills for children's success in school. It **influences** almost every aspect of children's school performances **[M1: Generalization]**. For example, research **has shown** . . . Among all reading components, vocabulary **is** essential and critical for children's reading performances **[Specificity]**. Children **are expected to** learn from few words to thousands of words in their elementary years. . . It **is assumed** that metalinguistic awareness, especially, the morphological aspect of metalinguistic awareness, **may** account for this. Research on morphological awareness in English **indicates** that children's morphological awareness **predicts** their reading performances at later ages.

With its thousand characters, Chinese language has been thought that one could only learn via rote learning. Current research on metalinguistic awareness **largely**

refutes this myth. . . Several aspects of metalinguistic awareness have been investigated . . . It **is believed** that morphological awareness **may** be one of the important factors to this development.

In last two decades, the studies of morphological awareness **have emerged** as one major topic in the research literature of Chinese reading. . . **However,** more studies and clarification are needed before concluding the relations among morphological awareness, vocabulary development, and reading **[M2:Gap in literature]**. First, as Carlisle (2003) pointed out in her review . . . Second, current study has focused on children below fourth grade. . . Third, morphological knowledge **may** include several aspects of morphology knowledge, not all them have significant effect on children reading. **Although** current research has explored some aspect of this knowledge, there **may be** more to study.

This review intends to address the above concerns and focus on examine what current literature can offer for further research. . .**[M3: Present the present work]**

***words in bold are keywords to represent stance; words in [] my indication of move; words in ☐ are indicated to show the linking of the key idea.**

Analysis: Three-move structure is apparent in this post-task draft, as indicated in brackets. Generalization is made and then the specific focus follows. When he narrows down to the key point of this writing, “morphological awareness,” the idea is brought up a few times, linking the argument effectively. The stance was appropriately deployed to match with the rhetoric. Move 1 in order to describe the background was infused with monoglossic statements. When shifting the generalized statement toward the specific focus regarding the role “morphological awareness” might play, he switched from statements to tentative claims using “may”. Discussions revolving around this key point,

“morphological awareness”, were made concessive relatively, even though with persistent linguistic resource, “may”, to make such meaning. Also, in indicating the gap in research, an appropriate stance was put forth, first through “however” and toward the end of move 2, he reminded the readers of the gap again using “although” and a concessive “may.” Stance use is more diverse than in the early draft and is matched with appropriate rhetoric. While PU used predominantly proclaiming and monoglossic devices, resulting in a strong and subjective product in the first draft, here he deploys quite effectively monogloss (for background), countering (for gap indication), and tentative (to indicate possibilities, tendency, and to concede) devices pertinent to the strength of his argument.

PU shows progress from listing his argument to constructing an effective argumentative piece manifest in his move and stance development after the learning experience. With the conceptual scaffold of the move rhetoric, PU is effective in depicting the moves realized by the smaller steps to make the moves (e.g. “generalization” and “specificity” in move 1). Because of this, he is also able to contend, describe and withdraw from full commitment using appropriate stance expressions, matched with the rhetoric. In this sense, his improvement is quite salient.

To conclude this section, the evaluation of stance performance in relation to the move rhetoric reveals that generally, after engagement with the tool, the subjects become more effectively deploying stances to fulfill the different types of distinct move rhetoric. They incorporated the four stance types explicitly compared to their pre-task drafts where stances were often implicit and narrative-like, a tendency found in novice and (novice) L2 writers (SEE Chapter Two).

Also, in the post-task drafts, both raters observed more salient authorial interpolation. Application of hedges and boosters, concepts the second rater adopted to evaluate stance, was duly noted. Some writers tended toward superficial learning by arbitrary use of these (e.g. simply adding stance keywords in their sentences such as "indeed", and "in particular" to boost and "tend to", "may" to hedge) and some endeavored to consider more complex issues such as prosodies (e.g. whether stance values were used properly in the immediate context to sustain the voice they carried throughout a move).

However, most prominent in move 2, the locale where authors are expected to set forth a salient authorial stance by the rhetoric of problematization, some of the subjects, CG, SY and HU, tend to "over-learn" by mistaking the concept of stance as equivalent to strong contention. In such cases, whenever they mentioned stance, they referred to the need to contend in order to show that they took a stance. As a result, their linguistic realizations overused "proclaiming" or "pronouncing" devices, reflecting their misconception of what stance is about. This will be discussed further in the next chapter.

In sum, evaluating of authorial stance-taking is very challenging because no objective criteria could be operationalized. As the second rater pointed out, stance is a system of balance that is appropriate in tone for the field, the discipline and the subject matter. It cannot be wholly separated from the content and the context for that subject or the depth and the level of research. The deployment of stance is context-bound, and can hardly be reduced a set of objective values or codes to ease an objective evaluation. The evaluation therefore involves a process from specifying definitions about stance by the two raters, who then devised a scale to rate the learners' performance

independently. In a way, this enriches the outcome of the evaluation because different perspectives on stance-taking are considered. This may allow communicating the outcome of stance evaluation to a wider audience. On the other hand, this is also a limitation to the evaluation judging that the two raters did not perceive stance in exactly the same way. Seeing the concept of stance-taking covers no small ground, it is reasonable why varied interpretations would exist among different researchers.

5.2.2 Stance identification accuracy

Having established the learners' surface move and stance performance, this part examines these learners' conscious learning of stance via their stance identification accuracy. Overall, the learners score higher in "High Argumentative" and "Non-Argumentative" stances, the two "extreme" stances as opposed to the other two, "Medium Argumentative" and "Tentative", intermediate meanings applied to withdraw from full commitment and make concessions.

This part of the evaluation considers three variables: each stance used (which may not register with consciousness), stance type identified from use (which concerns conscious learning but can be accurate or inaccurate) and third, accurate stances identified (which indicates conscious learning accurately). In the sessions, the learners identified and labeled their stance use by the unit of clauses/sentences. These are calculated along with the total stances they actually used but not identified. Then of the stances they identified and labeled, I calculated the number of accurate ones.

Below, their accuracy performance is discussed and its validity when taking into account the stance use distribution is also explored.

Higher accuracy on "Non-Argumentative" and "High Argumentative" stances

On average, these learners are able to identify, in the order of accuracy, best "Non-Argumentative", at 29.25% probability accuracy, then "High Argumentative" at 17.33%, yet with both exhibiting higher variability. "Medium Argumentative" and "Tentative" are revealed as low in accuracy among the learners more unanimously (SEE Table 5.11 below). The ones who are higher in probability accuracy are **DG, 21.44%, HG, 17.25%, CG, 16.95% and then PU, 16.13%**, taking into account of actual stances used, those they identified and those they identified accurately**.** Table 5.10 below shows the results in the order of best performer to the worst.

Particularly in view of those who demonstrate more improvement and learning throughout, DG, HG and PU, despite an average higher accuracy of "Non-Argumentative" and "High Argumentative" identification, HG and PU show below average accuracy in "HA" (10.40% and 6.25% respectively versus the average of 17.33%). Yet, PU stands out in the two more challenging stances, "Medium Argumentative" and "Tentative", scoring above average on both. DG and CG exhibit the learning of three stances only with zero accuracy in identifying one of the stances, "Tentative", and very low accuracy in "Medium Argumentative" respectively. HU and SY were found to learn about "High Argumentative" and "Non-Argumentative" only.

(Table 5.10. Stance identification accuracy percentage)

	Stance	**Non-Argumentative**	**High Argumentative**	**Medium Argumentative**	**Tentative**	**Average**
DG	Actual Use	47.62%	33.33%	14.29%	4.76%	
	Accurate /Identified	71.43%	83.33%	37.50%	0.00%	

	Identified : Actual Use	**1.4**[6] : 1	0.86 : 1	**2.66** : 1	1 : 1	
	Probability accuracy	**47.62%**	**23.89%**	**14.25%**	**0.00%**	**21.44%**
HG	Actual Use	55.17%	20.69%	17.24%	6.90%	
	Accurate /identified	100.00%	75.00%	57.14%	100.00%	
	Identified : Actual Use	0.75 : 1	0.67 : 1	**1.4** : 1	0.5 : 1	
	Probability accuracy	**41.38%**	**10.40%**	**13.79%**	**3.45%**	**17.25%**
CG	Actual Use	55.88%	23.53%	2.94%	17.65%	
	Accurate /identified	57.14%	80.00%	100.00%	85.71%	
	Identified : Actual Use	0.74 : 1	**1.25** : 1	1 : 1	**1.17** : 1	
	Probability accuracy	**23.63%**	**23.53%**	**2.94%**	**17.70%**	**16.95%**
PU	Actual Use	52.08%	8.33%	25.00%	14.58%	
	Accurate /identified	73.91%	60.00%	66.67%	60.00%	
	Identified : Actual Use	0.92 : 1	**1.25** : 1	1 : 1	0.71 : 1	
	Probability accuracy	**35.41%**	**6.25%**	**16.67%**	**6.21%**	**16.13%**
SY	Actual Use	40.00%	25.00%	5.00%	30.00%	
	Accurate /identified	66.67%	84.62%	0.00%	100.00%	
	Identified /Actual Use	**1.13** : 1	**1.3** : 1	0 : 1	0.08 : 1	

[6] DG over-identified his “Non-Argumentative” stance by 1.4 times, which means apart from the “Non-argumentative” stance he used and identified accurately, he also went over those and (mis)identified other stances as “Non-argumentative” stance.

	Probability accuracy	**30.13%**	**27.50%**	**0.00%**	**2.40%**	**15.01%**
XG	Actual Use	31.82%	27.27%	9.09%	31.82%	
	Accurate /identified	42.86%	66.67%	30.00%	40.00%	
	Identified /Actual Use	1 : 1	0.75 : 1	**2.5** : 1	0.36 : 1	
	Probability accuracy	**13.64%**	**13.64%**	**6.82%**	**4.58%**	**9.67%**
HU	Actual Use	22.58%	38.71%	19.35%	19.35%	
	Accurate /identified	44.44%	83.33%	0.00%	0.00%	
	Identified /Actual Use	**1.29** : 1	0.50 : 1	0 : 1	1 : 1	
	Probability accuracy	**12.94%**	**16.13%**	**0.00%**	**0.00%**	**7.27%**
MEAN	Actual Use	44.64%	25.11%	13.11%	17.13%	
	Accurate /identified	69.56%	75.99%	37.46%	56.96%	
	Identified /Actual Use	0.9 : 1	0.94 : 1	**1.22** : 1	0.69 : 1	
	Probability accuracy	**29.25%**	**17.33%**	**7.78%**	**4.91%**	**14.82%**

Overall, the finding corresponds to studies conducted to investigate student writers' control with "hedging" and "booster" devices in advanced academic settings (Hyland 1998a; 2004a; 2006). "Hedging", a linguistic device much akin to the clime of "Medium Argumentative" and "Tentative" stances introduced in this study, is pointed out as the most challenging for learners, particularly second language learners. "Booster", instead, similar to "High Argumentative" stance, is found relatively easier to manage.

Discrepancy among scores in stance performance

Of the four stances, “Tentative” has the seven learners’ scores closely clustered around the mean, suggesting more or less similar low accuracy performance in deploying “Tentative”. Table 5.11 gives the results. In contrast to “Tentative”, “Non-Argumentative” shows the subjects’ accuracy exhibits more discrepancy than homogeneity, even though by average “Non-Argumentative” is highest in accuracy.

(Table 5.11. Standard Deviation of accurate stance identified)

Stance	Non-Argumentative	High Argumentative	Medium Argumentative	Tentative
Stdv	0.1332	0.078619	0.070999	0.06083

5.3. Recurrent patterns in move and stance writing

Findings from 5.1 and 5.2 suggest overall effective performance and learning of the learners. Those who are high in stance identification accuracy also demonstrate greater improvement from their pre-tool drafts. And exploration of cognitive activities engaged indicates that aside form those consistently applied, “exploring” and “making sense”, by all other learners, effective learning also requires the learners to engage constantly in “modeling,” “verifying”, “reasoning,” “remembering” and “inferring”. Also, the more frequent access to the rule-based information of stance provided in the tool connotes potential in better stance learning.

This final part of discussion aims to probe deeper for what was learned in addition to the fact that learning did happen indicated by the results reported earlier on. To this end, I conducted analysis of the learners’ patterns in move and stance learning iteratively to investigate what changes and progress they had made in the three developing drafts for recurrent patterns in learning. Following an iterative process, this part of the analysis involves the following processes but not limited to these,

(1) The three drafts were initially tracked for their additions, deletions and revisions.

(2) The changes made were carefully reviewed many times for recurrent patterns, with the changes made to the moves tracked using Theme/Rheme analysis and Participant tracking (Martin & Rose, 2003)

(3) Learning patterns as demonstrated in the drafts were connected to subjects' pre and post-task interviews to understand how their writing habits, prior training or experiences mentioned verbally might contribute to or hinder their learning about moves and stances.

Stance and move development were analyzed separately. In analyzing move development, "Theme/Rheme" and "Participant Tracking" are appropriate analytical methods applied to decide if ideas were well connected to reflect the rhetorical purpose of each move. Theme/Rheme and participant tracking are the tools for tracking meaning in text to see how a writer construes the experiential and textual meanings. Their metafunctions, ideational and textual, can track how and if the ideas are well connected and presented to form a convincing argument. Participant tracking is a way to evaluate if the ideas are well connected, carefully unpacked and elaborated and "Theme-Rheme" analysis is to trace the linkage moving from clause to clause to investigate if the flow of argument is smooth and convincingly connected, uninterrupted by unrelated ideas or exhibiting gaps left undeveloped or unexplained.

Close analysis reveals that while move 1 was quoted as very challenging by some, PU and HG succeeded in sorting out the more general and overarching concepts and narrowing down to the more specific focus. CG, however, expressed difficulty in structuring move 1 into two steps due to a conceptualization dilemma. In making transitions from move 1 to move 2, SY was able to re-organize her argument in move 1

and 2 to make more precise the rhetorical purpose expected in each move regardless of her blurry argument between the two initially. As a result, she is effective in anticipating the gap prior to move 2.

DG delivered effective rhetoric in three-move structure because of a well researched study in place. By contrast, without a more mature empirical study in shape, PU found it challenging to construct move 3 where specific steps leading to the completion of the proposed study are expected. Table 5.12 below gives a summary of the observation present in the learners draft development.

(Table 5.12. The learners' development of rhetorical move structures)

	What was learned
HG	Successful with move 1 and move 3. Move 2 brief and under-developed.
DG	Effective rhetoric in three-move structure and apt transition from move 1 to anticipate the gap in move 2.
PU	Successful with move 1 and move 2. Move 3 less developed.
CG	Effective with the three moves but struggled hard with move 1. Move 2 a bit dense.
SY	Successful with move 1 rhetoric and very effective transition from move 1 to leading the gap in move 2. Move 3 is also properly developed.
XG	Multiple participants to follow in move 1 yet nice transition made within. Move 2 very brief, under-developed.
HU	More developed and clarifying move 1. Move 2 and 3 also more logical. Struggled hard particularly with precise meaning and wording.

Overall, the conceptual move structure does prompt the learners to be conscious in deploying their argument in alignment with the three specific rhetorical purposes.

They all show good connection of their ideas and explicit three-move rhetoric. What the conceptual framework falls short is in helping them fill in details with precise concept, wording, and phrasing. The 15 move examples provided in the database seem to be helpful mostly to the extent that the learners found matching styles, content or argument as some of them filtered their learning by fields without consulting more examples. However, to most of the learners, the examples serve as instantiations of the conceptual framework which give clear ideas what a move does, which they needed for a more solid understanding.

In analyzing stance learning from the three drafts, the analysis applies the same theoretical framework used to render the instructional materials for the database, the engagement framework. The analysis shows a general pattern that most learners are less able to control their “Medium Argumentative” and “Tentative” stances. Other important issues include where to look for and mark their stance is difficult for many of them. They tended to mark stance keywords randomly or by intuition, not following a consistent rule as exemplified in the database. This directly affects if they could accurately identify stances.

The following recurrent patterns in stance learning are observed:

(1) The learning of extreme stances related to proclaiming and factual expressions more than the intermediate ones which concede or make tentative the argument,

(2) Problems with handling and identifying stances when a projection clause is involved,

(3) Attention to how meanings radiate and are prosodic and the effort to account the overall impact of stance deployed, and

(4) The appeals to intuition and intended meaning for stance judgment.

Each point is discussed in detailed below.

(1) The learning of extreme stances

Generally, all subjects show weaker control of their “Medium Argumentative” and “Tentative” stance performance and learning. They either used less such stances or failed to identify use accurately as opposed to their “Non-Argumentative” and “High Argumentative” performance. Particularly with those who demonstrate more improvement and learning throughout, DG, HG and PU, despite an average higher accuracy of “Non-Argumentative” and “High Argumentative” identification, HG and PU show below average accuracy in “High Argumentative” as aforementioned. Yet, PU stands out in the two more challenging stances, “Medium Argumentative” and “Tentative”, scoring above average on both. Particularly, along with CG, PU was able to use “Medium Argumentative” a lot more and accurately and the same with CG in “Tentative”, than the others. DG and CG exhibit the learning of three stances only with zero accuracy in “Tentative” and very low accuracy in “Medium Argumentative” respectively. Others, HU and SY were found to learn about “High Argumentative” and “Non-Argumentative” only.

A detailed look at their using these stances, CG, similar to HU, used only one “Medium Argumentative”, “may”, which is the most common one used in such a stance. HU used, other than ‘may’, ‘can’ and both of which were common in Chinese speakers in their English expressions. Hyland (1997) found similar patterns in the student L2 writers in a study he conducted. Chinese L2 writers tend toward confident prediction while native speakers use more tentative expressions. For example, in terms of the proportion of probability and possibility devices, these writers use twice as many ‘may’ and more ‘will’ as opposed to ‘would,’ whereas the native speakers use more modifiers to withhold full commitment to claims (Hyland 1997). This is aligned with the findings here.

While ‘may’ and ‘will’ are used in many of the subjects’ writing, ‘would’ is used far less. Moreover, when ‘will’ is used, many of the subjects ignored its modality which seeks to make tentative the claim or proposition but assimilated it to the verbs that followed.

(2) Problems with handling and identifying stances when a projection clause is involved:

Both DG and PU exhibit the issue with stances when a projection clause is involved. This type of clause is always preceded by a saying or thinking verb projection an issue or topic. In contrast to PU, DG was very conscious with the dilemma of using such clause, and explicit about the issue. The dilemma involves the introduction of an outer source not his own. He was then puzzled how he could differentiate the stance encoded in the introduced source from his own. In the example below, even though he encoded his stance by way of a non-argumentative verb (“pointed out”), he was unclear how to tackle the strong obligation (“should accept” and “should”) followed from the referred source, not his own. By using the strong obligatory modality ‘should’ that denoted what the policy mandated, he felt that his own stance, encoded by ‘pointed out’, a “Non-Argumentative”, was confounded seeing that he did not intend to endorse the strong stance.

Stances in bracket below were labeled by DG.

The 2003 Notice on Further Strengthening Rural Education **pointed out [NA]** that urban public school **should accept [NA/HA?]** migrant children; moreover, migrant children **should [HA?]** be treated equally with urban children using the same academic standards and education goals.

PU displayed the same puzzle in identifying stances in such clauses. He was not consistent in identifying stance keywords when a projection clause was involved. In

contrast to DG, PU was not explicit about this, which might suggest his lower level of consciousness with the issue. In the examples below, sometimes he marked keywords in the projection clause (example 1), sometimes in the main clause (example 4 & 5) and other times in both clauses (example 2 & 3). PU seemed to mark keywords when he saw one. As opposed to DG who was very conscious with distinguishing his own stance from the introduced source, PU did not show such level of awareness.

(Table 5.13. Stance keywords identification in projection clause: PU)

No. of Clause, Draft	Clause, Stance KW, and Stance (HA: high argumentative; MA: medium argumentative; NA: non argumentative; T: tentative)	Suggested usage in the database: Clause Unit, Stance KW, and Stance
3, 1	…research has shown that children…**usually** ["T"] have difficulties…	C1. research **has shown** [NA] that C2. children . . . **usually** [MA] have difficulties
6, 1	With the large number…it is less **likely** that ["MA"] teacher **can** ["MA"] teach those words to children…	C1. With. . . it is **less likely** [T] that C2. teacher **can** [MA] teach those words
8, 1	It is **assumed** that metalinguistic awareness **may** [MA] account for this, **especially [HA],** the morphological aspect of metalinguistic awareness	C1. It is **assumed** [NA] C2. metalinguistic awareness **may** [MA]
9, 1	Research on morphological awareness in English **indicate**s ["NA"] that	C1. Research on . . **.indicates** [NA] that

	children's morphological awareness can predict. . .	C2. children's morphological awareness **can** [MA] predict
14, 3	It **is** ["NA"] believed that morphological awareness may ["MA"] be more important…	C1. It **is** [NA] believed that C2. morphological awareness **may** [MA] be more . . .

DG's dilemma points to the complexities involved in taking stance. The complexity with stances resides in the need to learn at clause/sentence level and at the same time, at the discursive level. The expression of stance is not a clear-cut issue achieved by one clause or sentence. Succeeding in distinguishing the author's stance from that of the referred source in a projection clause, in DG's case, is probably not sufficient to predict the author's stance as it takes a chunk of context to make it clear. This issue is referred to as control of 'prosodies', the extended use of certain linguistic features to achieve a consistent attitude (Hood, 2006). Mere sentence level analysis fails to capture fully this quality of these writings.

PU demonstrates similar problem related to projection clause. His inconsistent identification of stances when a projection clause is involved is context-dependent. That suggests while identifying keywords, he might just go by those that reflected his stance radiated from the neighboring contexts. For both, the issue with stance is prosody.

Specific to DG's dilemma about untangling his authorial stance from that of the referred source, he might need to re-interpret the referred statements in accordance with his own stance. Simply identifying others' stance is therefore insufficient and more has to be done to repackage the stance in the author's own.

(3) Attention to how meanings radiate and are prosodic and the effort to account for the overall impact of stance deployed

Aside from attending to prosody within a sentence, as is the case with DG in considering projection clauses, both SY and DG were also attentive to the prosodies of stance use in their overall argument. SY constantly mentioned issues and doubts regarding whether she used contrasting or cumulative stances between sentences. In her drafts, regardless of the need to consider stances respectively for each clause/sentence unit, she nevertheless marked all clauses/sentences the same if she considered that section of argument pertaining to the same stance. She considered her stance automatically radiating across a certain length of her argument, dictated by the clause/sentence that headed the section or determined by the stance of the key move-making clause/sentence. Prosodies involve the consistent presentation of values to build up a convincing authorship. Novice writers are often found to fail in having values previously encoded picked up and reinforced through extended text, not to mention using discordant values, which as a result weakened their argument (Hood 2006). SY demonstrated this with inconsistent values used in building up her argument.

In the example below, in move 3, Draft 3, SY marked 'aim to' differently in two places, presumably affected by the surrounding stances. The first "aim to" in No.1, Table 5.2.5 was marked "Non-Argumentative" while when used again in No. 2, Table 5.2.6, it became "High Argumentative". Apparently, the first "aim to" was used to describe while the second one following a contention, headed by "While." With the "while" clause marked "High Argumentative", the same stance radiates to the next one despite the same use of 'aim to'.

SY mentioned a few times that she went by intuition when analyzing her stances which seems resonant with her idea that stance would automatically radiate to the neighboring clauses. Words in bracket are stances labeled by SY.

(Draft 3) In this light, our experiment aims to investigate [NA] whether processing difficulty is caused by the revision of a strongly favored structure as a dispreferred one. [NA]

(Draft 3) **While [HA]** the length of ambiguous regions played an important role in determining revision costs in Hsieh et al. (2008), the current experiment aimed to investigate [HA] whether, across the same number of words, the revision difficulty would increase as more constrains support the initially preferred structure. [NA]

Similarly, in the concluding remark of the draft, SY proposed a hypothesis and marked the following chunk of clauses all as "Tentative" which the word, 'hypothesized' represents. While the hypothesis is certainly tentative, she used 'should' in the second clause starting "the difficulty of recovery", making it a "High Argumentative" and so not consistent to the tentative voice.

We **hypothesized [T]** that, given a fixed length of ambiguous regions, the difficulty of recovery form the misanalysis should rise [T], as the activation level of the initially preferred analysis increases [T],

which is calculated based on the strength of the syntactic and semantic constraints supporting each analysis of a structural ambiguity.[T]

DG also considered the prosodic effects in relation to his stance deployment. For stance to flow smoothly, the deployment of stance should best be cumulative. This is seen in the example below where he replaced "suggested" to "revealed" for consistence in his stronger proposition in transition to gap indication in the next sentence. Words in bracket are stances labeled for DG.

Draft 1: Previous research **constantly suggested** that families' economic constrains

greatly depress migrant families' demand for children's education in public schools (Sa, 2004; Nielsen, 2006; Lu, 2007) **[MA]** Draft 3: Previous research **constantly revealed [HA]** that families' economic constrains **greatly [MA]** depress migrant families' demand for children's education in public schools (Sa, 2004; Nielsen, 2006; Lu, 2007)

DG's effort and consciousness in making consistent of stances when projection clause is involved are clear. Different from SY who believed intuitively that her stance would radiate across a few lines without manipulating her linguistic expressions, DG made conscious effort in this regard. Yet despite such consciousness, both struggled with appropriate linguistic expressions to reflect the stance they intended to take and this seemed challenging according to them.

(4) Stance judgment by meaning and intuition

Many subjects determined their stance use by the meaning they intended even when it did not conform to what the database exemplifies. In addition, as L2 writers themselves, it is challenging to make specific the meaning they intend using appropriate linguistic expressions, which usually caused them to get stuck between the stance they should identify and the imprecise meanings they made. For instance, HG exhibited the pattern of changing her stances and as a result changing the rhetorical purposes of her sentences, i.e., from move-making to non move-making sentences and vice versa.

In Table 5.14, the comparison is made between similar clauses in draft 1 and 2. This clause stayed the same in her final draft. In clause 1, draft 1, she marked "potential" as the stance indicator and as "tentative" stance. She saw this clause as not making the move. In clause 3, draft 2, however, she marked the same word, "potential" as the stance keyword and as "medium argumentative" stance this time. This can be

attributed to her having rephrased this sentence and seeing it as a key move-making sentence.

(Table 5.14. Judgment of stance by meaning: HG)

1	1, 1	The sense of touch has the **potential [T]** in sensor substitution and elimination of visual and auditory sensory overload in situations such as military context, operation room, and complex display and control systems	N	The sense of touch **has** [NA] the potential in sensor substitution
2	3, 2	Tactile displays, which are based on the sense of touch, have the **potential [MA]** in sensor substitution and elimination of visual and auditory sensory overload in situations such as military context, operation room, and complex display and control systems	Y	Tactile displays, which are based on the sense of touch, **have** [NA] the potential in sensor substitution

Another example is XG who was confused over the course of the learning about attitudinal meanings (usually manifested by adjectives) and stance meanings (seeking to engage or disengage the readers by monogloss and heterogloss). While both meanings are housed under the overarching appraisal system, XG went beyond the resources the database offered due to the constraint of the database which did not highlight for them

attitudinal meanings. Because she referred to “stance” as judgment made by an author, she singled out adjectives as keywords most of the times.

Similar to XG, CG also identified some of her stances by the meaning she intended in mind irrespective of the grammatical forms that are also critical in deciding on a stance value. For example, despite CG’s intention to contend, in No. 1 and 2 below, the linguistic expressions did not match the high argumentative stance she intended, as both used passive voice which in actuality renders the stance neutral, thus “NA”. By the same token, in examples 3 and 4 below, she again used “be” verb, “there is a need to” instead of the active verb, “need to” in one example to convey a strong stance.

(Table 5.15. High Argumentative & Move-making sentences: CG)

No. of Clause, Draft	Clause, Stance KW, and Stance (HA: high argumentative; MA: medium argumentative; NA: non argumentative; T: tentative)	Suggested usage in the database: Clause Unit, Stance KW, and Stance
1, 1	The ability to understand students’ thinking and learning is considered **fundamentally [HA] important** in competent teaching,	The ability . . . **is considered [NA]** fundamentally important
2,1	and its significance **has been stressed [HA]** in various policy documents and studies.	Accurate
6, 1	that teachers **need to [HA]** know their students, students’ interests and learning difficulties to better assess and facilitate students’ learning (Ball, 1997).	Accurate
17, 2	Therefore, there is **a need to [HA]** provide a	Therefore, there **is [NA]**

	situated opportunity to involve prospective teachers in the work of teaching practice, and to support their development of knowledge for teaching.	a need to provide

To conclude, the analysis suggests that overall more effective writing and stance learning are observed. Yet while positive learning outcomes were found, the learners are generally not frequent in making inferences, the cognitive behavior usually suggested to be promoted in a corpus learning environment. Among the more successful learners, only PU shows consistent tendency in making inferences while the other two, DG and HG demonstrate individualist patterns in learning in which making inferences is not frequent.

In consulting the tool, all the subjects mainly accessed the examples, which are also the core content and assumptions this tool is founded on. But HG and DG also show more frequent access to the rule-based information about stance, which connotes the potential of this information in contributing to better stance learning.

Close analysis on these learners' developing drafts reveals the following stance learning patterns: First, these learners demonstrate the learning of extreme stances related to proclaiming and factual expressions more than the intermediate ones which concede or make tentative the argument. Second, they show problems with handling and identifying stances when a projection clause is involved. Third, they attended to how meanings radiate and are prosodic in their attempts to account for prosodic effect and stance deployed, and fourth, they tend to appeal to intuition and intended meaning to identify stances.

The learners who show best performance and learning, HG, DG and PU, also were found to exhibit some unique features in learning. HG and DG both consulted more rule-based tables containing stance keywords than others. HG scores high in stance identification accuracy and shows most frequent use of “modeling” and “verifying” her learning. DG mentioned spending more time reading and making sense of the rhetorical move examples to get a sense of what each text meant and the logical ties formed. This explains why he spent much time in the first session reading move examples to get an overall picture. He was shown to be versed in reasoning the deployment of his stances, particularly in differentiating stances adopted by himself and by the referred source. Though he did not resolve the issue in the course of the sessions, he was very conscious and analytical in reflecting on these issues. Yet overall, he shows no learning, similar to many others, in one of the intermediate stances, “Tentative”, which compromises his overall stance learning accuracy.

PU mentioned the need to memorize in order to be more automatic in applying stances. This is reflected in his involvement with “remembering/reviewing” and “exploring” more. His extensive exploration did not seem to help him solve a few issues he encountered in stance writing. Like DG, he was unsure when handling stances in projection clauses. His judgment seemed random or meaning-based at times. Despite this, he was very effective in identifying stances, particularly with the more challenging ones, “Tentative” and “Medium Argumentative”.

The other learners, SY, CG and HU conceived stance as those that made strong claims only.

As a result, SY and HU mainly exhibit the learning and use of the two extreme stances. Besides, SY, along with CG, tends to see chunks of her text as automatically prosodic,

showing the same stances despite different keywords used which resulted in different stances.

XG spent the least time in consulting the tool and seemingly under the constraint of time, she resorted to intuition, thus “guessing” more. As a result, she shows below average accuracy in all four stance types. Her persistent conception of stance as conveyed through adjectives also makes learning difficult.

HU, similar to XG, showed less careful learning style aside from holding strong misconception about stance. She is also occasionally over-confidence in her self-assessment, which prevented her from learning well. Her preconception about stance, which mainly dwells on the presence of “High Argumentative”, kept her from attending to other stances particularly the intermediate meanings of “Tentative” and “Medium Argumentative.” The negligence resulted in the learning of two stances only. Her constant mention of the difficulty of making her argument succinctly and effectively also made her stick to her meanings and filtered the examples in the tool based on close affinity to her meanings. As it turned out, only few examples could fit into her argument and these are associated with “High Argumentative” stance.

While the assumptions of the tool design explore whether pattern finding is stimulated by the multiple stance and move examples, and if so, whether the learners’ performance therefore improves, the findings suggest a more complex picture of the learning of stance. The learners used the integrated text examples most frequently, which consistently and frequently prompted three types of cognitive skills: **“explore,”, “reason”** and **“make sense”**. Among the best performers, HG seems more careful and attentive in her learning in her frequent engagement with “modeling” and “verifying” in her learning. XG, instead, shows random and a few times careless learning in finding

information she needed to confirm use. Similarly, while PU has “making inference” top all other learners, he was sometimes inattentive in learning. This seems to compromise the higher-level cognitive activities he applied.

In the next chapter, I will generalize the findings and discuss these learners’ learning issues, stance learning and tool use. I will offer implications and suggestions for future tool expansion drawn from the generalized picture of the learners’ learning experience.

Chapter Six Discussion, implications and conclusions

Overview: Findings reported in Chapter 5 reveal that overall, more effective writing and stance learning was promoted by interaction with the stance corpus. While positive learning outcomes were found, no positive relationship can be established between performance and the application of inferential skills in consulting the tool, the core cognitive type the study set out to investigate. Making inferences was infrequent, divergent from what was predicted by the theoretical claims and assumptions. Even when pattern finding was observed in the learners' learning, it did not dictate better learning and deeper understanding. The learners on average mainly managed to explore the new concepts and the tool, make sense of the linguistic data, and reason about it, in the limited time they had to engage with the new knowledge.

Regarding the stance knowledge these learners demonstrated as a result of learning, two patterns are salient and recurrent: First, they demonstrated the learning of extreme stances related to proclaiming and factual expressions more readily than the intermediate ones which concede or make the argument tentative. Second, they attended to how meanings radiate and are prosodic when considering their stance deployment. This can be associated with their most frequent consultation of the (con)text examples component, which displays the different stances deployed in the extended context of a rhetorical move to fulfill varied rhetorical purposes.

Overall, the learners accessed the examples, the core content and assumptions this tool is premised on, more often than other components. One exception worth noting is that two of the more successful learners also accessed the rule-based information about stance more frequently compared to others, which suggests the potential of this type of information in contributing to better stance learning.

Further research is needed to explore other supports and scaffolds that might better assist advanced L2 writers in using the discursive-based context examples. Despite their frequent use of these examples, the writers were also found to struggle in making sense of the contextual examples, dividing their cognitive resources between composing and learning, and making inference from the rich resources. These issues need to be addressed through more support from the learning tool.

This chapter is organized as follows: First, I recap the findings reported in Chapter 5 by each research question, followed by discussions in three key domains: stance learning, overall writing performance and tool design and affordance. Implications are then drawn relating to the areas of instructional tool design and advanced academic writing, computer corpora, cognition and second language writing, and advanced writing tasks. Limitations in conducting the study are then discussed.

Summary of findings and discussion

RQ 1. Pertaining to the affordances of the stance corpus: How do the L2 writers use the tool to help them develop their stance in their introductory moves?

1A. What type of cognitive activities do they engage in most frequently when interacting with the corpus tool and engaged in learning as a whole, particularly stance, and why?

The subjects showed an average of higher percentage of “explore”, “reason/analyze” and “make sense” cognitive skills devoted to the overall learning and writing experience. A further cognitive process stimulated directly by interacting with the tool, “infer,” is found to be applied consistently but infrequently by the learners when accessing the component in the tool they used most frequently.

The learners with better performance also frequently demonstrate “infer” and “remember/review” (PU), and “model” and “verify” (HG) cognitive skills, along with the ones all learners use frequently. Those lowest in stance accuracy, HU and XG, show improvement nevertheless. Apart from those cognitive skills frequently applied by all learners, they were found to “guess” more than others.

Overall, the learners’ frequent engagement with “exploring”, “making sense” and “reasoning” suggests the fundamental need to get oriented at the early phases of approaching new concepts and knowledge. They explored often both to get a sense of what the tool had to offer and also to review all the rich linguistic data presented to them. While doing so, they interpreted and tried to make sense of the data.

Even when they embarked on drawing inferences from investigating the examples, they generally lacked sound pattern-finding plans or targets and found it challenging to infer patterns from the linguistic resources. Their attempts tended to be more random and intuitive than well-planned. While it is presumed that a corpus tool offers an environment that can stimulate learners in active investigation and construct their knowledge accordingly, in reality, there is a gap to be bridged. The process to construct new knowledge is shown, in actuality, to be full of uncertainty and doubts of various kinds.

Recognizing multiple paths to take to generate patterns, the learners were puzzled regarding the degree of validity of the numerous patterns that can be possibly generated. Presented with the tool alone, some learners demonstrated more fragile and superficial understanding and were less inclined to draw inferences which, according to Olson, is critical in cultivating deeper understanding (2003). This suggests the connection between the use of computer corpora and inductive learning cannot be assumed automatically.

RQ 2. Pertaining to their performance: How can the progress they make be characterized in terms of changes in move (rhetorical structure) and stance (lexico-grammatical choices)?

2A. How is their move and stance performance different after using the stance corpus?

Overall the subjects showed improvement both in move and stance. In terms of stance, more salient authorial interpolation was observed as the learners refined their drafts, applied to meet the different rhetorical goals required by each move, in contrast to their pre-task drafts where stance is often implicit, resulting in narrative-like diction, a tendency found in novice and novice L2 writers (SEE Chapter Two). After the intervention, with increased awareness, they all showed more purposeful deployment of stance.

In terms of move, the subjects started with vague or implicit or even lack of rhetorical move structures in their drafts pre-task. Later, with the intervention, they were not only able to demonstrate more explicit move structures but became very conscious about the rhetorical steps each move calls for.

2B. Do they use the four stances appropriately to fulfill the three different rhetorical

moves expected in an introduction in their final drafts?

Apart from the improved performance, these learners became conscious about the types of stance appropriate for each move and were able to translate that consciousness into more effective writing. Some learners were encouraged to consider more advanced issues such as prosodies in planning their stance deployment. For example, move 2 requires the writers to indicate the gap in the research, so these learners carefully planned, toward the end of move 1, to anticipate that gap to open move 2. This planning makes the transition between the different rhetorical purposes each of the moves requires more smooth. While some learners operationalized "however" as the key stance resource to open move 2, the more effective learners were more concerned with the flow of argument surrounding move 2, recognizing that controlling the prosodies surrounding or leading up to presenting the gap is equally important in making the moves.

2C. How accurate are the learners in identifying and labeling stances used in their drafts?

Among the four stance types, the learners show more accurate performance in and frequent use of "non-argumentative" and "high argumentative" stances. Overall, the learners score higher in "High Argumentative" and "Non- Argumentative" stances, the two "extreme" stances as opposed to the other two, "Medium Argumentative" and "Tentative", intermediate meanings applied to refrain from full commitment and make concessions. Some subjects considered the expression of stance equivalent to that of "High Argumentative" stance, which compromised their learning considerably.

Hyland (1998a; 2004a; 2006), in conducting investigation of student writers' control of "hedging" and "booster" devices in advanced academic settings, also reports

that “hedging”, a linguistic device much akin to the cline of “Medium Argumentative” and “Tentative ” stances, is most challenging for the learners, particularly L2 learners. “Boosters”, similar to “High Argumentative” stance, were found relatively easier to manage.

The learning of the extremes can be attributed to some of the learners’ strong pre/misconceptions about what stance meant, observed in their learning. The idea of stance was dichotomized as the deployment of “Non-Argumentative” and “High Argumentative” expressions only, which accordingly drove their learning of stance. This bias can be perpetuated when a learner tends to consult the examples to confirm his/her use and (mis)understanding, and then filters out meanings that do not support the (mis)conception.

Metz (2000) points out that when presented with unfamiliar ideas, adults may be more resistant toward altering their preconceived ideas and conceptual schemes, which my investigation observes. Such resistance may be well-founded if the learners are not presented with alternative views in the form of feedback to challenge their misconceptions. To guide the learners better, ways of providing feedback or other forms of instructional intervention to complement the tool should be considered, to enable the learners to notice the gaps in their knowledge. Otherwise, under the pressure of completing the pragmatic goal in a limited time frame, they can proceed on with the pre/misconceptions (Reiser, 2004).

Apart from the tendency toward gaining better control of the extreme stances but not the intermediate meanings, some learners are also found to be perplexed when clauses involving saying and mental/thinking verbs are used. Under these circumstances, they were confused first about which clause encodes their stance and second about

how to maintain critical distance from the outside sources introduced in the clauses. Even with a sufficient level of consciousness to articulate this issue, in practice, they failed to manage their stances appropriately to untangle their authorial stance from that of the referenced source in linguistic terms.

Taken together, the learning experience reveals a positive relation between improved writing and stance understanding. Those who show greater improvement in their writing are also those who are higher in their stance identification accuracy. This suggests that a better understanding of stance knowledge can potentially contribute to the presentation of more effective arguments in both stance and move deployment.

RQ 3. Pertaining to the effect of the tool on their learning outcome: What are the more frequent cognitive activities being encouraged and how is this related to their writing performance?

As discussed above, the frequencies and consistencies of both overall cognitive learning processes and those prompted specifically by the tool converge in these three: “making sense”, “exploring”, and “reasoning”. Table 5.4 from Chapter 5 integrates the results and gives overall individual learning profiles, which combine the tool use cognitive processes studied earlier, overall cognitive processes, writing performance and stance accuracy.

(Table 5.4. Overall learning profiles: Cognitive learning patterns and performance)

Name	Overall improve-Ment	Stance accuracy	Cognitive activities (Tool use)	Cognitive activities (Overall) (1)	(2)	(3)	Note: Other functions used frequently than the examples
HG	1	2	Verify, make sense, guess,	Model	Make sense	Verify	Stance keywords

			remember				tables
DG	2	1	Explore, reason	Reason	Make sense		Stance keywords tables
PU	1	4	Explore, infer, reason	Remember	Explore	Infer	ratio pages
CG	=	3	Explore, model	Make sense	Explore	Remember	NA
SY	=	5	Explore	Make sense	Reason	Explore	NA
XG	3	6	Explore, make sense	Guess	Explore	Make sense	NA
HU	3	7	Explore	Make sense	Explore	Guess	NA

Where improvement is salient, these learners also show better stance accuracy and vice versa (the first two columns). The cognitive activities most frequently applied, relating to exploring the corpus, making sense of and reasoning with the new knowledge in the examples, suggest factual or declarative understanding is what the learners managed to achieve at this phase. This tendency outweighs the application of more advanced corpus-related consulting skills, such as “hypothesize”, “make inference” and “verify.”

Even though the learners were prompted by the context-based examples to infer patterns occasionally, this is far less frequent. It seems reasonable, however, that such higher order cognitive skills as making inferences is usually grounded in some initial exploration and interpretation which lay the foundation for more advanced cognitive strategies. Given this, the frequencies of cognitive activities involved have to be interpreted judiciously.

Also due to the time constraints and the pressure to complete a written product, the learners could be drawn to reaching the pragmatic and short-term goal by finding examples to model on and to use instantly instead of taking time to allow deeper understanding to happen by making hypotheses and inferences and then verifying the

tentative predictions. This mindset can also lead them to disregard instances that they find do not apply to their argument and need. Focusing learning on a limited set of linguistic resources and then seeking to confirm the very limited linguistic items focused on and put to use, can compromise learning considerably.

All in all, with more urgent and impending goals to reach, the learners can attend to superficial learning more than probing deeper, as Reiser (2004) also suggests. And this may be one of the reasons that accounts for why “making inference” is rarer on average.

At this stage of learning, with a total of only 3 one-hour sessions, superficial and fragile understanding of stance is observed, despite improvement in the learner’s writing. The following stance learning patterns are found: (1) Stance taking as a result of arbitrary addition of keywords, (2) Failure to consider lexical meanings and grammatical forms simultaneously, and (3) Keyword overriding issues.

First, some of the learners tended to add a stance keyword to convey a stance as it is, for example, adding ‘need’ to strengthen his/her stance. This is valid only to the extent that s/he also handles the grammatical function of the word properly to make such an assertive claim and that no other stance keywords are used which weaken the claim. In the case of ‘need’, when used as a verb, it projects a strong stance, whereas when used as a noun, it is usually not the keyword that determines the stance. And even if it is accurately used as a verb to convey a strong stance, if the sentence starts with such adverbs as “likely” and “possibly,” the sentence ceases to be a strong claim, as the adverbs turn the sentence into a tentative claim.

The superficial learning observed indicates that the learners were yet at the threshold of acquiring the declarative level of the stance knowledge, at which stage they

have not been capable of seeing the underlying stance structure and reflect on their use (Reiser 2004). To understand the knowledge well requires consideration of multiple layers of linguistic issues, including knowledge of the clause unit, the consideration of grammatical forms and the web of stance meanings which convey varied strengths. It also requires the learners to go beyond these and manage the flow of argument at the discursive level.

Their superficial understanding, however, does not seem to be predicted by the extent to which they applied inductive skills. The learners who were more frequent in inference-making did not show deeper understanding. Instead, due to the seemingly multiple possibilities and paths of finding patterns, they were found to be puzzled regarding finding valid patterns. This finding is aligned with other research conducted in this regard, which suggests training and guidance on concordancing strategies can therefore play a crucial role in optimal outcomes (Hafner, 2007; O'Sullivan 2006; Sun, 2003a; Turnbull and Burston, 1998). Other factors, for example, individual learning styles and habits, seem equally critical in determining effective learning outcomes.

Individual learning styles were observed to have great effects on the learning outcomes. Among equally competent learners, their different learning styles, habits, and rigor in learning can set their performance apart to a larger extent (Kenney and Miceli, 2001). Where a learner is more attentive and careful in learning, their learning tends to outperform those who are not. And if a learner comes with a strong preconception about what is to be learned and also is inattentive and careless, all these combined compromise learning considerably.

In a word, assuming an automatic equation between the exploration of computer corpora and inductive pattern finding can be problematic and needs to be re-evaluated.

More research needs to be done to better understand the kind of training and support needed to equip learners to learn from making inferences. In addition, the equation between inductive learning and deeper understanding also needs re-consideration. Inductive learning based on unsound evidence and reasoning can rarely lead to effective learning, let alone deep understanding.

In sum, while the current study was intent on providing explicit resources to facilitate learning, one of the critical propositions many researchers suggest to inform L2 language learning (Kenney and Miceli, 2001; Pho, 2008), other factors, no less important, all play a role: time (Cobb, 1997), learners' prior knowledge, and cognitive and concordancing skills (Kennedy and Miceli, 2001; Sun, 2003a; 2003b; Turnbull and Burston, 1998). In future investigations, it would be interesting to engage the learners in using the tool for a more extended period of time to observe if their patterns of cognitive activities change over a longer term after moving beyond the phase of learning the fundamentals of stance. After the learners become familiar with stances, what would be the next phase for them? How would they use the tool to refine their take on stance? What role will making inferences play in the intermediate or advanced phases of stance learning? These are inquiries worth pursuing in the future. Such results can better inform appropriate scaffolding design and resources to be incorporated to assist with learning at varied phases (i.e. declarative learning phase and procedural or metacognitive learning phase).

In the next part of discussion, I zero in on tool design and affordance and their impact on learning. Suggestions to refine and expand the current version to better assist learning are offered next.

Tool design and affordance

The learners almost unanimously accessed the *(con)text examples* most frequently and show heightened awareness of the discursive aspect of writing, for example, the radiation of meanings across extended text and transitions in argument. By comparison, *move examples*, offered both in plain full text and by individual move, annotated with key move-making ideas, prompted more general exploration for the conceptual scaffold of move structures to help conceive the arguments and did not prompt stance learning explicitly. The component of stance clause/sentence examples comes third in frequency of use and was consulted mainly for making sense of stance types and meanings.

Originally, the tool was designed to afford the expansion of the writers' pool of linguistic resources in stance meanings by way of the multiple stance sentence examples. The results, however, reveal that the learners accessed the integrated (con)text examples much more frequently to learn about both stance expressions and deployment. It seems that the making of stance meanings became so intertwined with the discursive consideration of these meanings that to really make sense of stance deployment, these learners found the need to explore the textual, discursive terrain to make stance meanings. This suggests that the learning of stance is critically contingent on the surrounding contexts. With these, the learners are able to see how stances are deployed to fulfill the different rhetorical moves effectively, which the lexico-grammatically based examples component cannot render.

The fourth most frequently used component, the *stance keywords* tables, while far less frequent in use, was consulted relatively frequently by learners who performed well. In stark contrast to the example components, this component is the deductive rule-based rendition of stance organized by stance types in four respective tables. This exception in tool use suggests some intrinsic value of the lists of stance keywords and to

the learning of stance. First, under the pressure of finishing the writing task in time, resorting to the list of keywords seems a way to accelerate the completion of the task. On the other hand, presuming the learners have advanced their learning to the extent that reading through each example is superfluous and unrewarding, the list serves as a quick organizer of the keywords, which can be especially useful after the learners have explored the examples quite sufficiently and such a list becomes a highly efficient resource to remind them of a range of choices for stance expressions.

Overall, while more discursive resources were accessed, from the learners' learning and performance, it is found that more support is needed to assist them in making the most of the discursive resources. This support might include training in inferring patterns from these resources, scaffolds such as assistance in decoding the authentic texts, feedback systems to enable noticing the gaps in their knowledge and to support self-correction, quick lists of stance keywords and so forth. Without these, the learners seemed to grapple with limited mental resources divided in making sense of the complex linguistic materials in a second language and composing their argument at the same time, which constrains their overall performance (Skehan & Foster, 2001). Notably, possibly because of the difficult learning task and also compounded by the requirement of finishing their task by the third session, they exhibited the learning pattern of resorting to intuition in learning, identifying stance types by the meanings they intended but not by the linguistic items they actually laid down on paper. They tended also to identify such lexico-grammatical items as stance keywords in ways that were more intuitive, focusing on salient and meaning*ful* (i.e. most obvious being adjectives), which does not agree with what the tool exemplifies.

Metz (2000) posits that adult learners, when presented with unfamiliar domain knowledge, in this case, the complex linguistic knowledge of stance taking, revert to a more primitive mode of cognition, that of concrete operation of thought, due to having less resources and experiences to draw on. To prevent this mode of cognition to recur, it is all the important to reduce the cognitive burden in a learning task. More support to assist the learners in accessing the discursive examples might enable this, and this approach should be implemented after careful evaluation of the learners' learning needs.

Corpus-related instructional material development

In accessing the corpus, some of the learners leaned toward locating examples of close disciplinary and rhetorical relevancy. To help cut down the time and effort they may need to undertake in filtering the materials, such a pattern in learning should be taken into account when developing learning materials for a corpus-based tool. In the current corpus, which only hosts 15 texts, the learners, when not finding examples of close relevancy in rhetorical style and discipline, were not prompted to change their rhetorical style and follow suit, having no representative patterns of argument to back up their decision to do so. Presenting representative patterns by sufficient examples therefore seems critical to stimulate the learners into action.

Suggestions for tool refinement and expansion

Based on observation, results of the learners' learning and the learners' feedback, I enumerate some suggestions below which the current tool can improve in.

1. A synthesized list of all stance keywords: According to the learners, this will be helpful after they have consulted the examples a few times and on occasion need quick access to the key information.

2. A feedback system: Such a system could diagnose and return results performed on a given text (either novice or expert), with stance keywords color-coded and the range of stance frequency percentage in each move shown. When it comes to novices' drafts, the system could also diagnose disproportionate stance use and provide a list of most frequently used stances grouped by grammatical forms.

3. Assimilating stance resources to the writing process in a way that the resources do not interfere with the composition process. This responds to the need to account for the high cognitive demand of handling both writing and learning at the same time. Hafner (2007) argues that while corpora learning calls for digesting authentic linguistic materials, and points out that the degree of task authenticity can affect motivation and learning outcome, he also suggests that such tasks can also be potentially taxing for learners. In designing the learning task, this is an important factor to consider. To help the learners digest the learning materials more effectively and efficiently, and thereby make the learning experience less taxing, supports pertinent to decoding the authentic text examples would be beneficial.

4. Sufficient examples should be included to the extent that the users would consider different ways to argue but not immediately filter the materials by relevance to their rhetorical approach and discipline.

5. More instruction on and scaffolding of the learning of the intermediate meanings, "Medium Argumentative" and "Tentative" stances.

6. Instruction about the targets and paths to take to find valid linguistic patterns should be included.

7. Scaffolding in general should account for the different phases of learning that best characterize a learner's need: those still attending to the more fundamental aspect of

knowledge (e.g. declarative and conceptual level) and those who apply more advanced cognitive and metacognitive skills in their learning, having acquired the essentials of the knowledge.

Implications

The findings of this study seek to inform the following areas of research: (1) Instructional tool design and advanced academic writing (2) Computer corpora and second language writing (3) Cognition and second language writing (4) Advanced academic writing task.

Instructional tool design and advanced academic writing

In designing for advanced academic writing instruction, particularly for L2 writers, more support beyond rendering explicit the complex linguistic and discursive resources should be considered. While encouraging deeper learning via inductive learning is recommended as a constructivist learning environment, the learners need a variety of supports even at the initial phase to familiarize themselves with the declarative aspect of the knowledge. They do not start to see patterns when presented with the multiple examples. While it is true that offering discursive resources is a potentially beneficial approach in academic writing instruction, the learners need further support beyond textual enhancement and annotation in making sense and inferring patterns from the rich authentic materials.

2. Computer corpora and second language writing

While computer corpora have been proposed to encourage inductive learning, in practice it takes training to infer valid patterns, which involves a process of formulating questions, gathering evidence, proposing hypotheses and verifying the hypothesis. And only after the learners are better equipped to infer sound and valid patterns can further

investigation or hypotheses be made regarding the relationship between inductive learning and performance.

Quite positively, the constructivist learning environment of corpora tools shows great potential to facilitate writing instruction when expanded and designed in a way that renders the linguistic data at the discursive/textual level. Under these circumstances, the writers can access the structural aspect of an expert's text, which, along with annotation and textual enhancement, can stimulate their attention to the prosodic effect of the professional writings, critical to a writing task.

3. Cognition and second language writing

When rendering explicit the linguistic resources for L2 writers, more has to be considered regarding the cognitive burden these writers may experience in digesting and making sense of authentic linguistic data, which is a taxing learning agenda on its own. The study suggests that rendering explicit the linguistic resources of stance-taking for L2 writers does not make learning thereby self-explanatory. Instead, it is incumbent on the writers to digest and understand the rich authentic learning materials in order to understand how stances are deployed. When the learners are engaged in writing at the same time, each task alone can demand immense mental resources, and expecting the learner-writers to write with the presumed help of the explicit resources seems so taxing that the tasks can interfere with, not complement, each other.

In designing ways or tools to help these writers, examining how learning and writing can reinforce, not interfere with, each other is therefore crucial.

4. Instruction of advanced academic writing task

Instead of tending to the bits and parts (e.g. lexis, lexico-grammar, phrases) in writing instruction and research, it is critical to consider writing an ecological task which calls for

holistic strategies to suggest to the writers. This study found that the writers relied enormously on the integrated context examples to assist with the writing task, which usually required simultaneous considerations of rhetorical move making, the prosodic flow of an argument, and the linguistic realization of stance to accomplish effective moves. These tasks are all intertwined which makes investigating the bits and parts of writing inadequate.

The rendition of the stance resources in the current corpus has a semantic orientation which has been shown to increase the learners' consciousness not only at the lexico-grammatical but more importantly and automatically, the discursive level, concerning the attention the learner-writers engaged in to the prosodic effects of the arguments. We should therefore consider the instruction of academic writing in an ecological lens which may benefit the writers in an integrated effort to attend to the broader textlinguistic level of advanced academic writing (Flowerdew 1998).

Limitations

The study had the following limitations: First, while Swales' move structure is a highly effective and useful rhetorical scaffold, we also need to be mindful about its applicability. In the process of collecting suitable examples from the journals, I spent much time finding the types of introductions that fit Swales' move structure. This wide variation in move structure can be attributed to the type of studies the authors engage in–whether theoretical, conceptual, or empirical studies–as well as to the individual ways they conceived an introduction. Usually, a theoretically and conceptually oriented paper is not equipped with the three-move structure, as the 3rd move "present the present work" is absent. While Swales' model, convincingly, entails a more

reader-friendly rhetorical style in introduction writing, in practice, not all professional writers choose to adopt that style.

On closer look, the writer's move structure performance is not contingent on their linguistic and rhetoric ability alone. Even though most of them are able to model on the three move structures, some of their claims are either not well developed, or supported with evidence. Mature writers do not merely rely on their rhetorical caliber but significantly on their ability to conduct well-designed research to produce a satisfactory argument. This is shown, for instance, in PU, who does not yet have a complete research agenda in mind, and so the demand of the three move rhetoric seems over-stretching. He is at a stage of conceiving his research through extensive literature reviews and not ready to carry out an empirical study yet. By comparison, both SY and CG are more mature and advanced in their research and as a result, they were more able to argue with confidence the gap they aimed to tackle and the steps they planned to undertake to conduct the study.

Another limitation concerns the difficulty of generalizing cognitive patterns from the sequence of cognitive activities performed in the experimental sessions. While such sequences can be documented and tracked over time, better tools to reveal the cognitive sequence over time across participants could produce a more objective picture of the dynamics of the cognitive sequence to allow better understanding of whether a particular way to sequence cognitive process may lead to better learning (e.g. the learning sequence of hypothesizing, inferring and verifying usually brings about more successful learning).

In addition, the evaluations of the learners' stance performance is difficult to objectively establish, seeing that the two raters did not perceive stance in exactly the

same way. The concept of stance-taking covers no small ground and varied interpretations have existed among different researchers coming from slightly different theoretical assumptions, making a more universal interpretation of stance unrealistic at this time.

And finally, due to the small sample size, 7 subjects in total, the observations made are only tentative, not conclusive. In addition, as the study was conducted in a short timeframe, 3-hour in a total of 3 sessions only, it is premature to conclude whether time has an effect on performance and whether, if more time is allowed, the learners' performance would be different. Multiple studies of varied scale could help generate a more convincing picture of overall writing performance as writers engage in stance learning.

Conclusion

The writers who participated in this study reported that, compared to the academic writing classes they had previously taken, the stance corpus tool promoted deeper learning as they explored multiple examples of stance meanings. These examples enabled them to probe deeper and understand how to deploy stances. By contrast, in those classes they had, instruction tended to be more general, focused to cater to a wide audience and covering a broader range of topics. This makes it difficult for the instruction to go deeper when mostly students only receive general guidelines about writing. More importantly, the absence of relevant corpora makes exploring multiple examples related to effective stance-taking impossible. Writing instructors can at best suggest a few examples and at the same time also seek to diversity this small pool of examples to accommodate students from various disciplines. The participants in this study reported that the instruction they had received on such an advanced and

important concept as stance had had little impact on their learning. The concept did not register with them deeply enough that they would be able to begin to deploy stance meanings effectively to improve their argument as a whole.

It is therefore critical to present such a corpus that exemplifies the stance meanings composed of complex linguistic data to the advanced learner-writers. The presence of the stance corpus in this study has led to improvement and heightened consciousness in the learners' stance deployment, which was not achievable through a regular writing class.

It has to be reiterated that judging by the exceptionally complex meaning making associated with authorial stance, the design did not claim to provide comprehensive instruction on stance meanings. It is therefore an urgent issue to further develop such a resource that affords learners opportunities to acquire a stance schema which can serve as a foundation for later modification or expansion.

This exploratory study sheds light on the writing processes involved in the development of rhetorical, semantic and discursive aspects of writing. These are challenging issues for advanced writers, novice native and (novice) L2 writers alike and a no less challenging agenda to undertake in research. While numerous existing studies probe lexical or lexico-grammatical features in writing, these can not address the multiple challenges writers experience every time they write, from conceiving an argument to mobilizing precise linguistic resources to accomplish such a cognitively demanding task. The pedagogical design this study aimed to provide semantic resources in authorial stance-taking in systems that would provide learners with ready access to the language they need in writing, and the results suggest that this is a promising direction for further development.

The findings suggest, however, that multiple issues in regard to learning need to be addressed to strengthen this approach: improving the overall pedagogical design, developing the learner training (i.e. in consulting and engaging with a corpus), investigating occasions where learning happens, exploring the quality of learning (e.g. whether sound and sufficient evidence is found to reason about a pattern), learners' attention, and learners' learning style, all of which were shown in this study to play critical roles in the outcomes.

More has to be done from this juncture, and research in the learning sciences can inform more nuanced ways to fine-tune the learning experience with a more refined tool that affords deeper understanding. Cross-fertilization between the advanced second language learning and learning sciences communities could well benefit both fields, yet it seems advanced language learning is still invisible as a focus of attention in the learning sciences. There are few scholars of language learning who contribute to the learning sciences literature and few scholars in learning sciences who deal with advanced second language learning in an explicit way.

Technological tools can never be panaceas that solve all learning issues. But where the tool falls short, human intervention can step up to optimize learning. As Reiser points out, tools should not be the only venue to effect learning. Learners, tools, and teachers should all work together as a system to optimize the experience (2004, p. 298). At certain point, learners need teachers who provide feedback, clarify questions and concepts, and support learners' progress. Without this, as the learners in this study demonstrate, they became unsure about the knowledge they constructed and the progress they made.

Stance-taking is a critical feature of argumentative writing which can affect whether an argument is presented professionally and effectively or not. More supports and scaffolds need to be developed to optimize the learning experience of L2 writers, and these scaffolds and supports need to recognize that writing is a process of making sense via judicious deployment of assertive and tentative claims. This study has demonstrated that a stance corpus tool based on semantic principles can assist advanced L2 writers in developing the complex linguistic resources associated with stance-taking. For future investigation, the critical agenda and issue to consider and facilitate are to refine the corpus tool for instruction and allow more time for learning to observe possible changes in learning patterns and outcomes.

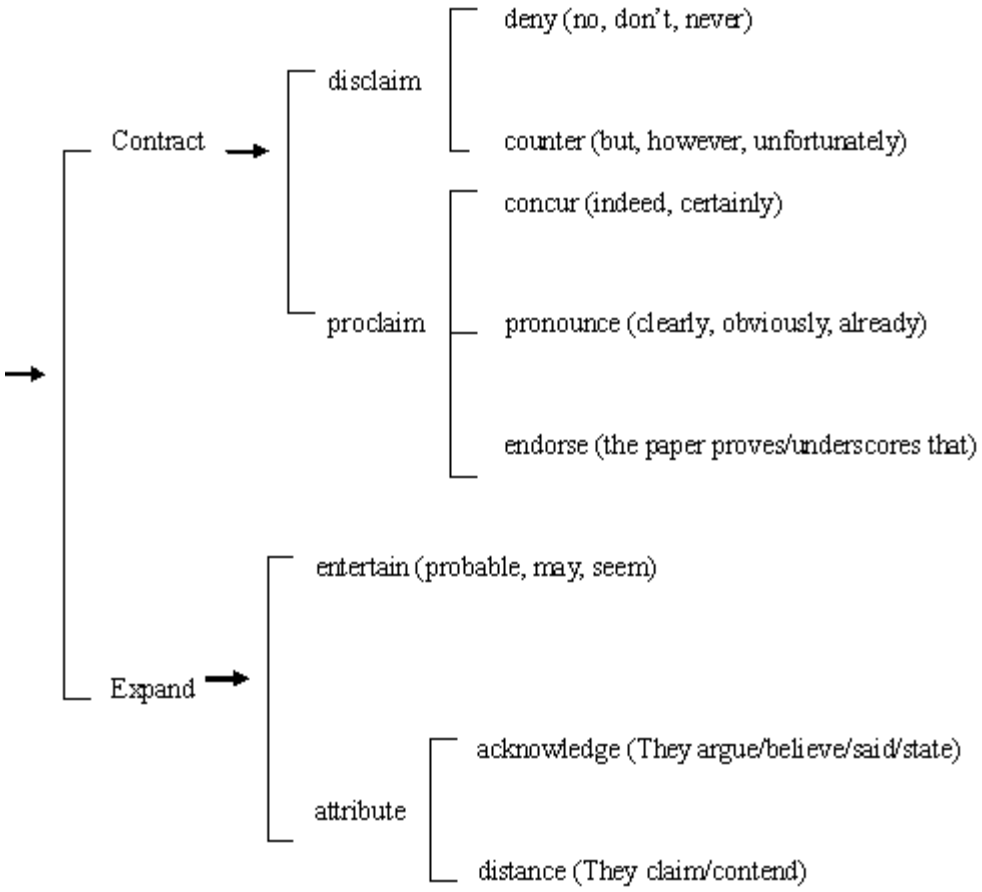
Appendix A

Martin & White's Engagement System

Martin and White (2005)

Monogloss: Bare assertions; self-evidently right and just, descriptive, report-like, and impersonal.

Hetergloss: Dialogic,



Appendix B

Pedagogical adaptation of the Engagement System

Stance	Degree of Authority	Room for the readers to contest	Purposes
Non Argumentative	Factual and Monologic	0%	**1.** Report facts to set up background or **2.** Describe actions or procedures undertaken in the study
High Argumentative	90%+	10%-	**1.** To counter **2.** To contend, proclaim, or endorse
Med Argumentative	50%~90%	10%~50%	**1.** To suggest higher possibility of **2.** To suggest higher level, frequency, amount, or number of **3.** To highlight using first-person pronoun + highlighting verbs
Tentative	50%-	50%+	**1.** To soften a subjective statement by suggesting SOME possibility, frequency, or degree of **2.** To suggest or hypothesize **3.** To present conditions **4.** To pose questions

APPENDIX C

USABILITY TEST PROCEDURES AND QUESTIONS

(The "Answers" column was jotted down by the researcher at the time when the users performed the tasks or responded with answers)

Part I. FIND THE FOLLOWING PAGES

1. stance rule and definition page

Questions	Answers
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can't they redress?	
Were you stressed or confident finding the information?	

2. move-making example page: find move 2 examples

Questions	Answers
(1) how many examples in total are there, for move 2?	
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	

d. How many steps and fail	
e. Why? Where do they get stuck? Why can't they redress?	
Were you stressed or confident finding the information?	
(2) from where you are, switch to any move 1 example page.	
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can't they redress?	
Were you stressed or confident finding the information?	
(3) find move-making example page with all stances listed, not just move-making stances.	
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can't they redress?	
Were you stressed or confident finding the information?	

3. stance example page

Questions	Answers

(1) Go to “median argumentative” stance: sort by higher level/frequency function	
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can’t they redress?	
Were you stressed or confident finding the information?	
(2) Go to “non-argumentative” stance: sort by suggestion/hypothesis	
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can’t they redress?	
Were you stressed or confident finding the information?	
(3) Go to “high argumentative” stance: sort by proclaiming, click on a sentence example in move 3, is this sentence a move-making one?	
Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	

b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can't they redress?	
Were you stressed or confident finding the information?	

4. "starting to write guide" page?

Can they get there? YES, then a. b. c.; NO, d.e.f.	
a. How many steps?	
b. How long does it take? (average time? who takes too long?)	
c. What mistakes they make? How they redress the mistakes?	
d. How many steps and fail	
e. Why? Where do they get stuck? Why can't they redress?	
Were you stressed or confident finding the information?	

Part II. PERFORM THE FOLLOWING TASKS

1.find page 3, move 2, information and library science text:

a. what are the stances?

b. where is the outline of this text?

c. how to find all other stances in that move?

2. If you want to learn about stance:

a. what are the three features/characteristics of "non-argumentative" stance?

b. name two “modal verbs” that “high argumentative” stance takes?

3. find a stance example page

a. what are those examples sorted by?

4. find a context where a stance sentence example is linked to.

a. what are the stances for move-making sentences?

b. what is the overall stance ratio in this move?

5. find the guideline to learn about how to analyze stance.

a. what are the first three steps? Do you know what they mean?

6. when you are starting to write, what function can guide you step by step?

a. what are the two things you should pay attention/carry out in your writing?

b. can you find examples here about what rhetorical steps to take?

7. can you find a function that shows you different paths you might follow to learn about stance?

8. find “non-argumentative” stance example page, then sort by action/procedures, then go to First example in move 3, click on it:

a. is the sentence a move-making one?

b. what is its stance?

Appendix D

Pre and Post-task stance evaluation on the subjects' move 2 writing – An example

Subject: SY

(Adapted from Martin and White's engagement system, "HA," high argumentative = proclaim and counter; "NA," non-argumentative = monogloss; "MA," medium argumentative = entertain of varied degree; "T", Tentative = entertain of varied degree)

Pre-task draft: Move 2. Establish the niche

Clause No.	**Text**	Stance used
1	Despite widespread adoption of serial parsing assumptions, there have been some empirical results suggesting that ranked parallelism provides a better account of garden path effects.	Ha
2	For example, Hickok (1993) maintained that	Ha
3	the parser computed both the preferred sentential-complement and the dispreferred relative clause representations in parallel when processing the ambiguous sentence "*The psychologist told the wife that the man bumped that her car was stolen*."	Na
4	On the one hand, the parser was garden-pathed	Na
5	when the disambiguation required the assignment of a relative clause structure of the ambiguous region, suggesting that the sentential-complement reading was preferred.	T
6	On the other hand, the NP *the wife* was reactivated following the presentation of the embedded verb *bumped*, suggesting that the	Na

	relative clause reading was also computed.	
7	Tabor and Hutchins' (2004) computational self-organizing model (SOPARSE) proposes that	T
8	each new word of a sentence activates possible attachments in parallel and	Na
9	that these structural alternatives compete	Na
10	until one of them reaches stabilization.	T
11	The structural alternatives are largely determined on the basis of lexicalized syntactic knowledge.	Ma
12	Under this account, attachments corresponding to both the RC and the CC would be activated	T
13	as *de* is perceived during the processing of the ambiguous string *Verb* NP_1 *de* NP_2.	Na
14	SOPARSE is a type of ranked parallel processor,	Na
15	because there are temporal intervals during which multiple analyses are partially active and no analysis has reached a stable state.	Na
16	Furthermore, SOPARSE predicts greater "digging-in" costs the longer the ranking has been established because, even without additional supporting evidence,	Na
17	the initially preferred attachment continues to grow in activation strength via a "rich-get-richer" feedback mechanism designed to elevate the activation of the selected structure to a stable state over the course of several words.	Na

Post-task draft: Move 2. Establish the niche

Clause No.	**Text**	Stance used
1	**However**, while the SOPARSE model maintains that	HA
2	the "digging-in" cost increases with the length of time committed to an incorrect structure,	Na
3	we **believe** that	Ma
4	the effect varies	Na
5	even if the time is held constant.	Ha
6	Based on Green and Mitchell's (2006) findings, the critical factor that affects misanalysis difficulty is the relative activation strengths of the candidate analyses.	NA
7	Within the same amount of time the misanalysis difficulty **should** increase	HA
8	when the candidates are activated to approximately the same extent.	T
9	In other words, **even if** the time is held constant,	HA
10	it **should** be more costly to reactivate a dispreferred structure of relatively low activation.	HA

Pre and post-task evaluation based on Wu's (2007) study (in numeric values)

Weaknesses in Stance	Pre-stat	Post-stat
7. monogloss (bare assertions) **>**	Yes (10 > 5)	Yes (3 > 2)

heterogloss-entertain		
8. proclaim-pronounce **>** disclaim-counter (in heterogloss-contraction)	No (0 > 1)	Yes (4 > 1)
9. less proclaim:endorse	No (1/2)	Yes (0/5)

Appendix E

Pre-tool Use Interview

1. How many years have you been writing academic papers using English?

1.1. What is your experience with academic writing classes taken before?

2. What is the key challenge for you when you write an academic paper?

2.1 Why is it challenging?

3. How do you express yourself, as an author?

3.1. Do you imagine arguing with an audience?

3.2. Do you imagine persuading them to your side of argument?

4. When do you feel confident about your writing?

4.1. What do you think is a good research paper? What are the most important features? (Linguistic? Argument? Logic? Rhetoric? Evidence?)

4.2. What do you think you need to improve the most to write a satisfactory research paper?

Appendix F

Self-analysis Sheet

Evaluate your learning:

In the table below,

(1) Divide your 'Introduction' into three moves.

(2) Then break your writing into sentences or clauses (visit "Start with clause" under "Tutorial," "Teaching&Learning Strategies").

(3) Start assigning stance values!

An example is given below.

(*****NA= Non-Argumentative; HA= High-Argumentative; MA= Med-Argumentative; T= Tentative)

Clause or Sentence No.	**Moves and Stance keywords**	**Move-making sentence? (Y/N)**	**Stance*: NA, HA, MA, T**
	Move 1. Establish the territory		
	For example: Language acquisition **can be** speeded by explicit instruction.		**MA**
1			
2			
3			
4			
5			

6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	Move 2. Establish the niche		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

13			
14			
15			
	Move 3. Present the present work		
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Appendix G

Post-tool Use Interview

1. What is your experience using this tool

1.1. What is most helpful? What is not?

1.2. What have you gained from the tool?

1.3. What remains puzzling to you in this database?

1.4. What poses as challenges for you to learn in this database? (Concept? Navigation?)

2. Are you more aware of taking an authorial stance in your argument? Why or why not?

2.1 How and when are you becoming more aware of using stance and moves?

2.2. Do you think you improve your academic writing as a result of learning to project effective stance? Why or why not?

3. How will you continue on using this tool to help with your writing?

3.1. What can be built in/removed to help you with learning in this database?

3.2. Would you suggest incorporating the tool to a writing class, not as a stand-alone? Why or why not?

4. what do you do if you cannot find exact match in stance keywords?

5. how did my instruction impact/influence your learning/tool use?

6. what functions are beneficial, highly recommended by your and what are not? Why?

7. what are most difficult/challenging part for you?

8. what is needed in this tool and learning?

9. compared to your past writing classes/lesson, same and difference? Useful or not?

10. what would you do differently later? Your writing process? Your use of the tool? Etc.

11. Start from blank and start from 1st initial draft, which do you think better reflect your learning? How?

12. breaking into clauses? Did not see you go over the page to learn or to make sure, why?

13. What does it mean to you by good research writing now?

14. Is it easy to use and quick to learn?

Appendix H

Swales' move model

Swales (1990, 2004)

Three Rhetorical Moves in "Introduction"

There are three key moves in "Introduction" according to Swales (1990; 2004). Each move has its own rhetorical function. The steps a writer can take to fulfill each move are listed below.

Learning Objectives & Strategies:
Understand the concept of the 3 rhetorical moves.
1. Pay attention to the steps each move does. Imagine what you might do applying these steps.
2. When ready, look at examples by following the link for each move.

(1) Move 1: Establish a territory [citations required] VIA

Step 1. Topic generalizations of increasing specificity

Where: Usually in the ***first*** few paragraphs in an introduction

(2) Move 2: Establish a niche VIA

Step 1A. Indicating a gap OR

Step 1B. Adding to what is known;

Step 2. [optional] Presenting positive justification

Where: Usually in the ***middle*** paragraphs in an introduction

(3) Move 3: Present the present work [citations possible] VIA

Step 1. Aannouncing present research descriptively and/or purposively

Step 2. [optional] presenting RQs or hypotheses

Step 3. [optional] definitional clarifications

Step 4. [optional] summarizing methods

Step 5. [optional] announcing principal outcomes

Step 6. [optional] stating the value of the present research

S7. [optional] outlining the structure of the paper

Where: Usually in the ***final*** few paragraphs in an introduction

Appendix I

Tool demonstration and exercise

Introduction

We will go over my analysis of your draft complemented by the tool. The tool can offer explanations and examples necessary for understanding the analysis. I will give explanations while using the tool to demonstrate my analysis. To analyze your writing, I divided it into sentences and clauses and assigned each with a stance. We will see what stances you used and the functions they achieved. After this demonstration, I will give you a sample writing for you to analyze, using the tool. I will provide feedback when you are done.

Demonstration: Analyzing stance writing (Stress on the *meaning*, as given as functions under each stance, of the stance decision)

Let's look at the stances you make in each move. You made X kinds of stances in move 1. Each stance denotes varied strength of argument. So you have X stances that convey XX statements, etc. (look at the introduction pages for stance-taking, example pages for each stance and "differentiating the four stances" page)

Some errors in making the stances are XXX. Overall, you deploy your stances properly and achieve a XX authorial stance (or not properly and fail to project a convincing stance).

Exercise: analyzing a writing sample (similar question set will be applied to the time when the subjects start writing using the tool)

The participant will be given a writing sample to analyze. They will use the tool to find the information they need to do the analysis.

Appendix J

Subjects' activities in the three experiment sessions: An example

HG in session one

	Time span	Duration	Locale	Activity	Note
1	4:10-4:39	29 min	WORD	Composed argument	
				Mechanical issue	
				Synonym / vocabulary use	
				Composed argument	
2	4:39-4:40	1 min	Tool	Navigated a bit and paused in 'Linguistic Expressions': Lost not finding something; how to write move 2	
3	4:40-4:54	14 min	WORD	Wording / phrasing	
				Composed argument	
				Wording	
4	4:54-5:10	16 min	Self Analysis Sheet & 'Linguistic Expressions' (back and forth)	Mechanical issue	Asked if "S, which …, V" is a clause and I replied, as long as "1S+1V", yes.

				Breaking clauses and identifying stance keywords	
				Finding in the tool move keywords	
				Confused where to find what she wanted	
				Clause breaking and stance assigning and confirming these in the tool	

Appendix K

Move and Stance evaluation

Evaluation of pre- and post-task move performance

Rater 1

Name	Rating		Comment	
	Pre	Post	Pre	Post
PU	**1**	**3**	Move structures obscure or not developed due to the sub-genre (i.e. a literature review) that he worked in.	The three-move structure is satisfactory but the 3rd move, the actions/purpose for the current study, is not well developed because a comprehensive study has not taken shape.
CG	**4**	**4**	Long introduction with moves developed with proper support and elaboration.	For 1st move, in the step of 'specificity,' more support/elaboration can be added. The other two moves are well developed.
SY	**2**	**3**	Move 1 and 2 are present but lacks Move 3 to discuss work undertaken. The language is highly technical and so is the connection of ideas, making distinguishing moves more difficult. Long discussion of various technical issues before zeroing in on the	3 move structures in place but the language is highly technical and dense.

			gap. Readers can easily get lost as to what the gap is the author identified.	
HU	**2**	**3**	Move 1, with only 1 sentence, is under developed; Move 2 is among the three moves most well-developed and elaborated; Move 3, with only two but lengthy sentences, needs support and unpacking.	All moves are satisfactorily developed but the final move lacks a closing remark or future projection and ends abruptly after the steps to conduct the research proposed are provided.
HG	**2**	**3**	Move structures not clear or obscure mostly due to the connection between ideas being weak or confusing: Move 1 is long and no clear boundary between general and specific concerns and ideas are loosely or illogically connected; Move 2 and Move 3 are intertwined and brief. With too many ideas mentioned in Move 1, a gap is not clearly indicated in Move 2. M3 is short and scattered and needs better organization.	Move 1 is developed but can be elaborated or unpacked more in terms of the ideas presented and technical terms used; Move 2 has only 2 clauses and can be elaborated more; Move 3 is developed but ideas given at the end seem redundant.

XG	**2**	**3**	Move 1, ideas loosely connected (as opposed to post-task) and the step of 'specificity' not clear; Move 2 is more based on conjecture not research and can be better organized; Move 3 is not clearly organized to present purpose/action for the study but is combined with issues/problems and possible solutions.	Move 1 is clarifying when shifting from general to specific issue/concern; Move 2 can be expanded using more elaboration (e.g. the proposed solution, CDM, in M3 can be moved to M2 to justify the urgent need of a way out). Doing so will also leave Move 3 a more focused account of actions/purposes proposed for the current study.
DG	**2**	**3**	Move 1 and 2 are present but scattered and intertwined. Better organization is needed. Background and multiple issues are presented which can be better organized to lead to the gap to be indicated. Due to the many threads raised in move 1, it is hard to identify what the gap exactly is. Move 3 is not present.	Moves are explicit and better organized. The gap(s) supposed to be indicated primarily in Move 2 seems, however, to be picked up in Move 3 again too.

Rater 2

NAME	**Rating**		**Comments**	
	Pre	**Post**	**Pre**	**Post**
PU	2-	4-	No citations, self-referential. Must	Covers the outline- uses a lot of

			read body of work (4 papers) to understand aspects of the paper.	appropriate rhetoric, but misses rhet. in crucial spots.
CG	3	4	Elaborates and articulates using some rhetorical positioning. Organization good, but wanders a bit	Purposeful prose to match moves appropriately.
SY	3	4	Moves are there and are well elaborated, but not organization is interesting.	Clear and well elaborated. A bit more direct, but makes its points clearly.
HU	1	2+	Step 1 is there. Step 2 is missing or misstated (Move 1). Move 3, Somewhat but rhetoric?	Moves are there, but rhetoric doesn't match the move, so it could confuse the reader.
HG	1+	3+	Good rhetoric. Elaborates well, particularly on move 1 in Lit review. But flips from 1 to 3, 1 to 2. No reasoning for why.	Lit review is slim, yet rhetoric supports the moves. Move 2 is solid, yet a very weird finish.
XG	1	2+	Rhetoric elaborates, but organization moves from 1-2, then 1-2, and then policy piece? Confuses the reader.	misses how to characterize 2, already prescribes ideas, however, 1 and 3 are better. More purposeful in how they are articulated and elaborated upon.
DG	2	3+	Solid lit review skills. There is a disorder to the steps – even within the steps – does not continue to narrow, and rhetoric is missing.	Better rhetoric, yet while organization contains the ideas, it still needs assemblage.

Evaluation of stance

Rater 1

	Score or Rating		Comments	
Name	**Pre**	**Post**	**Pre**	**Post**
PU	W	S	Both M1 and M3 are obscure, blending with M 2. M1 lacks proper rhetoric in presenting the background or generalization. Stance deployment is "fleeting," switching from fact-reporting to strong countering abruptly. Move 2 uses too many "proclaiming" and lacks endorsing devices. Move 3 is under-developed and uses too many strong imperative stances.	M1: Effective mix of monogloss to give background and entertain to concede or suggest possibility. M2: Uses more entertaining and countering devices. M3: Clear monoglossic description of the goal and action to be undertaken.
CG	S	S	M1: Nice deployment of stance with citations appropriately incorporated. M2: too monoglossic and few endorsing device. M3: balanced tentative stance with descriptive facts and projection.	M1: similar but highlight the specific focus explicitly. M2: similar M3: similar
SY	LS	LS	M1: Appropriate deployment of monoglossic stance. Citations are	M1: Neat deployment of stance, more monogloss to give the

			used wherever pertinent. M2: a bit high on monoglossic use M3: Absent	background, and some attempts of strong authorial interpolation. M2: Less monoglossic but increase in “proclaiming” devices. Lack endorsing device. M3: Presenting issues and action to be undertaken properly using monogloss.
HU	W	LS	M1: only one sentence. M2: A bit more proclaiming yet less endorsing devices. M3: Plans need to be broken down to smaller concrete steps. Stance not well developed.	M1: More stances deployed but some inappropriately strong. M2: An increase in proclaiming and decrease in endorsing devices. M3: stance deployed appropriately to discuss steps and the reasons supporting these.
HG	W	S	M1: narrative-like. M2: obscure move rhetoric. M3: scattered and under-developed (only two sentences).	M1: Proper use of citation and reasoning M2: appropriate deployment of stance. M3: appropriate deployment of stance but the few sentences added in final draft do not flow

				well.
XG	LS	S	M1&M3: three-move structure obscure making a better presented authorial stance hard to find. Narrative-like. No concrete and explicit steps present in move 3. M2: A bit more proclaiming device.	M1: Argument carefully crafted to introduce the severity of the issue. M2: similar and lack endorsing device. M3: steps to conduct the research clearly laid out, and so is stance deployment.
DG	LS	S	M1: lengthy and monoglossic. Implicit authorial stance makes it hard to detangle the author's voice from the monoglossic statement. M2: Rhetoric scattered and authorial stance implicit and monoglossic. M3: Actions to be undertaken with appropriate stance yet endorses or uses tentative devices in discussing significance.	M1: Salient in authorial stance with apt discussions of the severity and urgency. M2: High on monoglossic statements and a bit short of endorsing device. M3: Concise and confident.

Rater 2

	Score or Rating		**Comments**	
Name	**Pre**	**Post**	**Pre**	**Post**

PU	4	6	Lots of modes for hedging, boosters etc. to position writer. Engaging reader is minimal	More reader engagement through directives. Nice asides as well.
CG	6	6	Uses a lot of directives and questions, hedges and boosters.	Virtually about the same.
SY	6	6	Alignment and Positioning Clearly used within moves	Again, Clearly used and in a more direct piece.
HU	1	3	Very few instances of reader engagement or author positioning, except hedges.	More instances of positioning, and asides, but not enough yet.
HG	4	6	Some positioning and a bit of alignment used with readers	Engages reader. Uses directives –even uses an aside. Uses some more positioning.
XG	4	6	Able to connect to positioning through hedging and pronouns.	Does a lot more with reader engagement as well as broader writer positioning.
DG	1	5	Lack of stance, anecdotes, connectedness to reader – often times reports at length from other research, but without positioning, lacks importance.	Many more chunks to develop reader engagement and boosters.

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