Study Abroad Reflection
Cognition and Affect Before, During, and After
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Introduction
Reflection can be seen as a fundamental expression of humankind’s “will to meaning,” the desire to make sense of life’s events. Reflective thinking has been proposed as an important feature of study abroad learning: the challenge to students to construct a meaningful understanding of events during their encounter with a different culture. The current study examines how study abroad students use reflection and other cognitive processes through their writings, and how the process of reflection may be affected by different experiences that are reflected upon. Affective responses will be examined along with cognitive processes. Engle and Engle (2001) in their framework for classifying study abroad programs give an important place to reflection as a key evaluation criterion. "Focused and reflective interaction with the host culture is finally what separates study abroad from study at home (p. 4).” Clearly, reflection is an important piece of the study abroad experience.

Reflection and language usage
At a relatively detailed level of specificity, it may be productive to operationalize cognitive processes, including reflection, as the use of specific patterns of language that students use in recounting their study abroad experiences. Overt use of language may imply internal thought processes: “Thinking can vary in depth and complexity; this is reflected in the words people use to connect thoughts” (Tausczik, & Pennebaker, 2010, p. 35). Language is the most common and reliable way for people to translate their internal thoughts and emotions into a form that others can understand, although the nature of word choices in the process of reflection is only a proxy for the meaning-making cognitive process and not the cognitive process itself.

Cognition and affect
Cognitive complexity can be illustrated by language choice when students include words that illustrate making distinctions between ideas (e.g. Exclusions, Discrepancies, Negations), making connections between ideas (e.g. Conjunctions), elaborating ideas (e.g. Prepositions), and seeking meaning (e.g. Insights). Language indicating these cognitive processes support the reflective activities of students.

Affective language can be illustrated by both positive emotion words (e.g. happy, content, excited) and negative emotion words (e.g. anxious, scared, sad, blue, angry, enraged). Such language is assumed to highlight the emotional state of the student.

Finally, the actual structure of student writing may yield clues as to the student’s meaning and intention in their writing. For example, long words (six letters or more) may indicate cognitive complexity, a larger word count may indicate a motivation to explain in more depth.

Reflection questions
Because the questions are intentionally designed to help students reflect back, to observe where they were prior to departure, to see how they changed while abroad and what new insights they have had since returning, students who take the time to respond to the questions are more likely to begin integrating their overall experience in terms of their personal progress and development.

Research Content areas questions over three time periods

Participants
Participants were 36 study abroad students from a university in the Western U.S. These students were 88% female with an average age of 22.4 years. Each student had completed their study abroad, as well as a parallel course in which they answered assigned questions aimed at provoking reflection concerning important aspects of their experience before, during, and after the sojourn abroad. Three specific content areas were selected for analysis: Academic Expectations, Cultural Expectations, Psychological Issues. Answers to these three areas were scored over the three time periods.

Methods
The Linguistic Inquiry and Word Count (LIWC) content analysis software (Pennebaker, Booth, & Francis, 2007) analyzed the questions for language relevant to categories of cognitive processes (Insight, Causality, Discrepancies, Tentativeness, Certainty, Inhibition, Inclusivity, Exclusivity, and Negations), categories of Affect (Positive Emotions, Negative Emotions, Anxiety, Anger, Sadness), as well as characteristics of the writing task (Word Count, Words per Sentence, and Long words (six letters or more)).

Results
Overall, students’ written expression, cognitive processes, and affective language indicate thoughtful written responses. Both changes over time, and differences between content areas indicate a nuanced, and psychologically healthy manner of processing study abroad experiences.

Written Expression
Word Count for both Academic Expectations and Psychological Issues peaked during the study abroad sojourn. However, the amount written for Cultural Expectations rose across all time periods, suggesting continued challenges to students in deciphering their study abroad and home cultures. Words per Sentence and Long words are consistently higher for Academic Expectations possibly reflecting academic jargon and attempts at a more academic approach to content. For Psychological Issues, all written expression indicators peak during the sojourn but are lower before and after, indicating struggles with psychological adjustment that may be neither anticipated, nor lingering, but rather demanding higher attention during the immediacy of demands of accumulative stress.

The following figures show reflection and cognitive processing that students employed in their writings before, during, and after their study abroad sojourn. The content areas are presented in separate sections with the means for each mechanism centered so that the zero point equals the Grand Mean of approximately 24,000 writers/speakers presented in the LIWC 2007 Manual. The centered means offer not only a comparison of how students in the current study varied over the three time periods, but also how they compared with a general norm group.

For Academic Expectations, students showed a somewhat similar pattern of cognitive processes before and after their sojourn, with fewer indications of reflective thinking during it. Students in the midst of struggling with academic requirements of their study abroad were less able to write about these struggles in an insightful and cognitively complex way.

For Cultural Expectations, the pattern of cognitive processing indicated both reflective and reactive thinking. Again, despite study abroad students showing cognitive complexity above the norm in most cases, cognitive processes employed during the sojourn often dipped in comparison with levels used before and after.

Conclusions
Reflective questions used in the current study, probing responses to specific content areas across three time periods, allowed students to demonstrate reflection and cognitive complexity in their responses. At most times students used insight, Discrepancy, Conjunctions, and Prepositions well above the level of the norm group. Clearly, they were attempting to process their reactions to the questions in detail, and in depth. The strategy of asking questions about content areas in this manner seems to have yielded meaningful student responses. The Psychological Issues content area showed the most distinctive responses, with its intense processing while students were experiencing the stressors of their encounters during the sojourn in the host culture. Similarly, Cultural Expectations showed continued intense thought during reentry, thus signaling the need for further processing of these issues. Affective responding seems to be a critical component of the processing that students did at all time periods. Focusing only on cognitive processes would have missed this dynamic interplay between cognition and affect.

The concept of reflection can be vague and elusive. How students thought in this study showed a variety of cognitive processes that gives some body to the workings of reflection. Especially useful is the finding that Exclusive language, Discrepancies, and Prepositions can be part of the process of articulating distinctions and relationships between ideas as a part of the activity of reflection. Insights do not necessarily spring full grown into the students’ minds, but rather may emerge as a product of pondering multiple ideas and connections both in relation to their current situation, and to their past meaning frameworks.