Components of Reflection: A Longitudinal Analysis of Study Abroad Student Blog Posts

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Abstract:
Reflection supports actively transforming perspectives regarding study abroad experiences. The current study examines the "how" of reflection. Content of reflections is dictated by questions posed. The process of reflection is less prescribed yet revealing of paths to student understanding. Students posted to a web log (blog) over six time periods during their study abroad sojourn. Five reflection components were identified and tracked via cognitively complex processes and emotional aspects of their writings as analyzed by linguistic inquiry computer software. Changes in language usage revealed patterns of how students reflected. A precipitous drop in identifying distinctions between self and the host culture during immersion seemed to indicate an intense struggle attempting to make meaning of their experience. Also, findings highlighted markedly conflicted feelings both at pre-departure and upon reentry. Linguistic analysis proved promising for both assessment and design of reflective prompts.

Introduction
Reflection is emerging as a key component of student development in study abroad. Based on a constructivist view (Bennett, 2012), reflection supports students' transforming their perspective regarding study abroad experiences in ways that allow students to be an active construer of those events. "Moving from simply recording experiences to actively changing and designing them is a major factor in assessing learning" (Zull, 2012, p. 175). Experiences gain significance to the degree that students can ascribe meaning to them. Unexamined experiences do not rise to the level of learning that will result in meaningful outcomes; "our experience of reality itself is a function of how we organize our perceptions" (Bennett, 2012. p. 103).

Paige (2015, p. 566) states that "Virtually every program identified in the research literature as being effective in helping students develop their intercultural competence embraces reflection as a key principle of learning." Likewise, Engle and Engle (2003) list "guided reflection on cultural experience" as a key feature used to evaluate study abroad programs. Reflection emerges as a vital component of study abroad student development.

Two popular theories of learning place reflection at a key juncture in the learning process: Experiential Learning Theory (Kolb, 1984) and Transformational Learning Theory (Mezirow, 1991). Meaning making lies at the heart of both theories. Reflection is pivotal to the process of meaning making.
The current study examines the "how" of reflection by examining the language students use to report critical events during their sojourn. The content of their reflections is dictated by the questions posed to the students. The process of reflection is less prescribed yet revealing of the paths that students take in developing an understanding of their experience (Savicki & Price, 2017). Students posted to a web log (blog) over six time periods across the duration of their sojourn. Both the cognitive and emotional aspects of their writings revealed patterns useful in understanding how students used reflection and what the supports and hindrances to reflection were.

The goals of the current study are to suggest a framework for understanding what the effective components of reflection are, to link those components to specific language patterns, and to determine how study abroad students address these components of reflection by measuring the language they use in their attempts at reflecting upon their experience. Current findings suggest strategies to help students reflect more effectively, and give study abroad faculty and advisors guidance in dealing with their students regarding reflection.

Before reporting the methods and findings, we will review literature that discusses what reflection is, how it relates to study abroad, and what language expressions may indicate key components of the reflection process.

What is reflection?
Although study abroad professionals tout the importance of reflection, the process itself has been largely assumed. For the most part, it falls into the realm of "I know it when I see it," rather than a clearly defined process. We do not presume to offer a definitive explanation of reflection; however, one path to understanding what reflection "is" can be marked with instances of what reflection "is not." Drawing on work from Savicki & Price (2015b, 2017) and Price, Savicki, & Moran (2015), Table 1 shows five contrasts between examples of what reflection is and is not. An examination of student reflection essays and blog posts revealed these contrasts, though there may be more distinctions to be identified. We also draw upon guidelines for critical incident reflections such as the DIE (Description Interpretation Evaluation; Bennett, Bennett, & Stillings, 1977) and the OSEE (Observe State Explore Evaluate; Deardorf, 2012) to find characteristics illustrative of what reflection is.

<table>
<thead>
<tr>
<th>Reflection IS NOT</th>
<th>Reflection IS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumination</td>
<td>Shifted perspective</td>
</tr>
<tr>
<td>Overgeneralized</td>
<td>Disaggregated, well differentiated</td>
</tr>
<tr>
<td>Universal/unchangeable</td>
<td>Contextual</td>
</tr>
<tr>
<td>Unidimensional/intellectualized/disconnected</td>
<td>Integrative (Emotion, Behavior, Cognition)</td>
</tr>
<tr>
<td>Purely visceral</td>
<td>Descriptive</td>
</tr>
</tbody>
</table>

Rethinking an experience over and over again with no change (rumination) is not an example of what is usually thought of as reflection. Rather, reflection requires a shift of perspective (Pagano & Roselle, 2009; Mezirow, 1991). Most often such a shift comes from being able to step away from the event by looking back at it from a different time, or by virtue of having recorded it in some medium.
Overgeneralizations lack the detail necessary for a more nuanced consideration of experiences that students may be reflecting upon. Rather, reflection is aided by disaggregating events into well described, well differentiated elements. The more detail available, the more possibility to find aspects that pique interest and that offer threads of narration that lead to alternative interpretations; to delve beneath initial, simplistic impressions.

In a similar fashion, language that presumes that events are universal and unchangeable (that's just the way I am/they are) detaches contextual influences from the events that are being discussed. It is difficult to reach an alternative explanation of events when one's language presumes that they cannot be different. Rather, focus on the context of the experience presumes that events are changeable depending on the situation. Description of the external conditions in a study abroad setting also increases the probability of capturing cultural factors.

Descriptions of experiences devoid of emotional content (feelings, values, attitudes) lead to intellectualized, disconnected, and unidimensional statements that lack the full richness of human response. Following Ward (2001), the acculturation process during study abroad impacts affect, behavior, and cognition. As Zull (2012, p 173) suggests, "We gain knowledge through feelings that come with the sensory information." Strong reflections link the student's responses to the experiences they are writing or speaking about. Those events do not happen in a vacuum. Integrating one's self into reflections increases the probability of the meaning making, potentially transformational process (Hunter, 2008). Experiences can be evaluated, interpreted, acted upon by the reflector.

On the flip side of the coin, an emotions only report (It was awesome!) does not aid in an integrated, meaning making process. Clearly, all aspects of the self need to be addressed to enhance the meaning making process that is a goal of reflection.

Additionally, various brain capacities may be involved in reflection (Zull, 2012). "Reflection does not exclusively engage any brain function or anatomic area of the cortex. However, processing our experiences engages the integrative regions of the cortex" (p. 173). New study abroad experiences without mental processing can lead to "a shallow experiential base" (Zull, 2012).

Overall, we have some ideas about the mechanisms that undergird effective reflection (Savicki & Price, 2017). Both cognitive and affective components contribute. Cognitive complexity sets the stage for reflection both in terms of describing in detail distinctions observed and in terms of integrating all aspects of the self. For us, the components in the "is" column of Table 1 indicate richer, more in-depth reflection. Although the current formulation of reflection may add clarity, more is needed.
Measuring Reflection

Reflection has been an elusive construct to measure, since it resides in the minds of the students doing the reflecting. So far, in study abroad, reflection has mostly been assessed via qualitative means. Rubrics used by trained judges have been used to assess the content of various written products (essays, final papers, journals) seeking to quantify various aspects of reflection (Brewer & Moore, 2015; Gillespie, Ciner, & Schodt, 2015; Savicki & Price, 2015b). The Association of American Colleges and Universities (2010) has developed 16 well-constructed rubrics that apply to higher education, including Critical Thinking, and Intercultural Knowledge and Competence. While such rubrics may capture aspects of reflection, they require careful training and calibration of judges, and may be subject to issues regarding consistent application over time, as well as subjective biases of judges.

A different approach to content analysis of both written and oral language which avoids reliability and subjectivity concerns relies on objective observation of the actual language used by students who are examining their study abroad experiences. We attempt to operationalize cognitive processes, including reflection, as the use of specific patterns of language that students employ 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. The Linguistic Inquiry and Word Count (LIWC) method developed by Pennebaker and colleagues offers a fresh look at processes that may be involved in study abroad students' attempts to construe their experiences (Pennebaker, Booth, & Francis, 2007; Pennebaker, et al., 2007). The LIWC is a well-established research approach that has spanned 20 years with 117 publications listed in the LIWC manual (Pennebaker, et al., 2007). LIWC is a content analysis software program that counts the words that students write according to specific dictionaries formed to tap various assumed cognitive and emotional processes.

The current study attempts to link specific components of language to reflective writing by study abroad students. Table 2 associates specific LIWC dictionaries and factor analyzed factors to the reflection "is" components defined earlier. The first four LIWC variables listed (Interaction, Immediacy, Making Sense, and Making Distinctions) have been described as cognitive complexity factors. They were developed as a result of a factor analysis (Pennebaker & King, 1999). The factors incorporate both cognitive and affective language to describe higher order functional language usage. They help with the process of "differentiating and integrating constructs in more complex ways" (Bennett, 2012). As Bennett states "things become more real as we perceive them in more sensitive (i.e. more highly discriminated or complex) ways" (Bennett, 2012, p. 103). Prepositions and Conjunctions illustrate the expanded detail of description for the former and the linking of concepts for the latter. Positive Emotion and Negative Emotion (Anxiety, Anger, Sadness) indicate the richness of human experience that is especially relevant to study abroad experiences (Savicki & Price, 2015a), Table 2 also gives a very brief list of words that appear in the relevant LIWC dictionaries. Overall, 72 dictionaries were developed over time using judges to discriminate which dictionary the words fit into with a high degree of agreement. See the LIWC manual for full detail concerning the construction of the software and accompanying dictionaries (Pennebaker, et al., 2007).
The linkage of specific language categories with components of reflection is tested in the current study. We believe that this new way of thinking about the process of reflection will provide an avenue to understand the concept in more depth, and a way of assessing this elusive construct.

The current study is descriptive. It follows study abroad students over their sojourns by means of analysis of written electronic communications at six time periods. We look specifically at how students communicate rather than what they are communicating about. Our aim is to describe how components of reflection may change over time, and the interplay between them. By doing this we hope, in the long run, that we may be able to design reflection activities that promote deeper meaning making and transformation.

**Methods**

**Participants**

Participants were 36 university study abroad students across two academic terms. Seventy nine percent were female, average age was 21.7 years, 39% were juniors, 24% Seniors, and 30% Sophomores, 6% were freshmen or graduate students. Thirty nine percent studied abroad for two to four weeks, 25% for 5 to 8 weeks, 30% for an academic term or semester, and 6% for a complete academic year. Numbers of students in each of the duration categories were quite small. Future efforts to distinguish between duration groups on language use will require larger numbers of participants in each duration group. Meanwhile, because no one program or duration was isolated, average scores may be more representative of study abroad students overall than of specific subpopulations. Thus, the subsequent findings may be more generalizable.

**Measures**

The Linguistic Inquiry and Word Count (LIWC) content analysis software (Pennebaker, Booth, & Francis, 2007) analyzed the blog posts for language relevant to categories of cognition (Prepositions, and Conjunctions), categories of Affect (Positive Emotions, Anxiety, Anger, Sadness), as well as characteristics of the writing task (Word Count) (Tausczik & Pennebaker, 2010). Language categories were reported as percentages of total words for each writing task. In addition, factor analyzed cognitive complexity scales (Pennebacker & King, 1999) were computed using relevant language categories which measured factors of Making Sense, Making Distinctions,
Immediacy, and Interaction. These factors were comprised of several language categories based on a principle components factor analysis with varimax rotation. Language dictionaries representing distinct language functions (e.g. Exclusion, Inclusion, Causality, Insight) were based on range of U.S. language samples representing a variety of writing and speaking purposes. The LIWC has been used with U.S. study abroad student reflections only once before (Savicki & Price, 2015a).

**Procedures**

As a required assignment for a mandatory, graded course, students submitted blog posts at six designated times: prior to leaving on their study abroad, immediately upon arriving in their host culture, both early and late in the middle part of their sojourn, prior to the end of their sojourn abroad, and after reentry to their university life in the U.S. There was no length restriction, either minimum or maximum, on student responses. For almost all students, posting to a public blog posed no difficulties, but some students, who wished more privacy, submitted their posts via email only to the faculty monitoring the blog. The faculty gave brief feedback on each student's posts to offer guidance and to demonstrate the importance of the postings; also, there was some electronic interaction among students on the blog. Each student entry was coded as a single response unit, scored for the variables listed above. The specific prompts for the blog posts are listed in Table 3.

**Table 3. Prompts for student blog posts at specific time periods.**

*Pre-departure post:*
Describe what you think your host culture will be like and how you see yourself interacting with your host culture. Are you excited, apprehensive, uncertain? Why?

*Arrival post:*
Describe the scene that greeted you upon arrival in the airport and recount the behavior you observed. What bewildered, delighted, interested, amused, or frightened you? Why?

*While abroad posts:*
1. Post at least once a week.
2. These posts are open-ended and give you the opportunity to observe your new culture at a deeper level, using all of your senses—sight, sound, taste, smell, touch—to explore your environment. What do you observe that stimulates your curiosity? Use DIVE* in these posts. Describe what captured your attention; Investigate to see if you can discover the meaning, history, or purpose; Verify what you find out by talking to locals, going to the library, researching the internet, etc.; Explain what you discovered to the rest of us. Include links that you found helpful and that will help us as well.

*Prior to coming home:*
Refer back to your earlier pre-departure post. Has your host culture turned out to be what you visualized before departure, and have you interacted with your host culture as you thought you would at the beginning of your journey? Why or why not? Now that your program or internship is ending, how do you feel about returning home?

*Return home:*
Refer back to your earlier post about arrival in your host country. How does your arrival in the U.S. compare with how you felt arriving in your host culture?

*adapted from Gothard, Downey, Gray, & Butcher (n.d.)
Results and Discussion

Different components of reflection varied differently across the six time periods of the students' sojourns. The variations in their written responses to the reflection probes seem to indicate both an attempt at deep reflection, and several specific challenges to accomplish it. Repeated measures analysis of variance was used to test for changes over time.

Words written

Although the changes in actual number of words written in the blog entries across the six time periods did not reach statistical significance, the means in Table 4 indicate more words written while the students were in contact with their host culture than either at pre-departure or at reentry when they were back home. Subsequent analyses give suggestions about why this pattern may have emerged.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-depart</th>
<th>Arrive</th>
<th>Mid-early</th>
<th>Mid-late</th>
<th>Prep for Home</th>
<th>Back Home</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Count</td>
<td>348.139</td>
<td>506.324</td>
<td>520.727</td>
<td>566.655</td>
<td>551.969</td>
<td>477.966</td>
<td>1.418</td>
</tr>
<tr>
<td>Making Distinctions</td>
<td>1.406</td>
<td>-1.091</td>
<td>-1.031</td>
<td>-0.627</td>
<td>0.532</td>
<td>0.747</td>
<td>3.58**</td>
</tr>
<tr>
<td>Immediacy</td>
<td>2.632</td>
<td>-1.454</td>
<td>-1.948</td>
<td>-0.915</td>
<td>1.017</td>
<td>0.447</td>
<td>13.853**</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.335</td>
<td>1.495</td>
<td>1.059</td>
<td>0.997</td>
<td>0.833</td>
<td>0.852</td>
<td>2.139+</td>
</tr>
<tr>
<td>Making Sense</td>
<td>0.591</td>
<td>-0.118</td>
<td>0.149</td>
<td>-0.059</td>
<td>-0.256</td>
<td>0.535</td>
<td>1.729</td>
</tr>
<tr>
<td>Conjunctions</td>
<td>7.033</td>
<td>6.84</td>
<td>6.838</td>
<td>6.763</td>
<td>7.113</td>
<td>7.227</td>
<td>0.48</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.723</td>
<td>0.478</td>
<td>0.267</td>
<td>0.272</td>
<td>0.281</td>
<td>0.274</td>
<td>8.521**</td>
</tr>
<tr>
<td>Anger</td>
<td>0.123</td>
<td>0.158</td>
<td>0.155</td>
<td>0.123</td>
<td>0.085</td>
<td>0.19</td>
<td>0.561</td>
</tr>
<tr>
<td>Sadness</td>
<td>0.228</td>
<td>0.293</td>
<td>0.241</td>
<td>0.247</td>
<td>0.618</td>
<td>0.818</td>
<td>7.899**</td>
</tr>
</tbody>
</table>

+ p < .10, ** p < .01

Cognitive complexity

Figure 1 illustrates how the four factors of cognitive complexity varied over the six time periods of the student sojourn. The factor scores were transformed into z-scores (mean= 0, SD= 1) to put the factors on the same scale in order to facilitate comparisons. Across all time periods, students' blog posts showed a consistent effort on the Making Sense factor. This factor did not change significantly over time. Students did seem to be responding to the reflection probes with an attempt to understand their experience. The Interaction factor changed significantly over time (F= 2.139, p< .10) with the lowest level at Pre-departure when students had no host culture activity to report on. But once in their study abroad setting, student focus on chronicling social activity increased and stayed consistently high, with the highest level immediately upon arrival in their host culture when all social events were abundant with new behaviors and patterns.
Figure 1 and Table 4 indicate that the major statistically significant changes in cognitive complexity factors over time were in the Immediacy (F= 13.853, p< .01) and Making Distinctions (F= 3.58, p< .01) factors. Immediacy, which focuses on how ones' self may be involved in the here and now events being reflected upon, was very high at pre-departure and again at preparation for returning home and at reentry. The significant drop in Immediacy came upon arriving in the host culture and during the middle parts of the sojourn. One explanation for the changes in Immediacy may be an outward focus while in the study abroad host culture. That is, students may have been so focused on observing and reporting on external events in the host culture that it did not occur to them to include themselves and their reactions in their reports. These results are consistent with a study of changes in study abroad student national identity which found that students reported decreasing their exploration of their own national identity while studying abroad (Savicki & Cooley, 2011). The booming, buzzing confusion into which they landed overwhelmed their ability to incorporate their own evaluations. In contrast, both before and after the main immersion experiences of their sojourn, they had more opportunity to think about their own reactions in a less mind-boggling context, possibly allowing an easier shift of perspective.

Changes in the Making Distinctions factor roughly paralleled those of the Immediacy factor. That is, during the initial and middle phases of immersion in the host culture, students decreased their reports and descriptions of differences in comparison to the pre-departure and preparation for returning home, and reentry time periods. Clearly, differences exist between cultures. Why, then,
did students not discuss these differences more during their immersion? Again, they may have felt overwhelmed and attempted to minimize or deny the differences (Bennett, 1993). Or, they may have thought that their blog posts should focus only on the host culture without drawing distinctions between it and their home culture. In both the Immediacy and the Making Distinctions language factors, there are opportunities to increase the depth of reflection by prompting more of those kinds of language and thinking in student blog posts.

**Description and connection**

Prepositions and Conjunctions are indicators of more rich description of events and of connections between concepts, respectively. Overall, students used approximately twice as many prepositions as conjunctions. Prepositions changed significantly over time ($F= 2.180, p< .10$) with the highest point just after arrival in the host culture, and the low point during preparation for returning back home. Students were intensely outwardly focused upon arrival and spent much of their blog posts recording events in their new, host culture. Prior to returning back home, they were less outwardly focused. The low point prior to coming home was preceded by a steady decline in descriptive prepositions across the middle portion of their sojourn. The initial drive for description declined over time, until they returned home, at which point they had other things to describe. Reflection might be richer if efforts at description could be maintained throughout students' sojourn. Prompts for more description in posted reflections might aid this process. Although not significantly different over time, Conjunctions show a clear increasing trend from the middle of the sojourn through to reentry. More connections were being made later in the students' experience. In general, the more experience students have, the more connections we might expect them to be able to make. Thus the trend of change in conjunctions in this study seems useful for the integration aspects of reflection.

**Emotions**

Positive emotions far exceeded any of the negative emotions in student blog posts across all time periods, though there were quite telling increases in Anxiety and Sadness (Table 4). The ratio of positive to negative emotion is indicative of emotional health (Pennebaker, Mayne & Francis, 1997). Negative emotions were not ignored, yet positive emotion set the tone for student study abroad experience. Positive Emotion language showed significant changes over time ($F= 2.069, p< .10$). This language peaked at both pre-departure and at preparation for returning home. We might expect that the pre-departure peak was filled with excitement and anticipation of adventures to come; while the preparing to return home peak was filled with joy and anticipation of reuniting with family and friends. A large dip in Positive Emotion occurred upon arrival in the host culture. To clarify, negative emotions did not rise at this time; yet positive emotions dipped, potentially marked by struggles in adjusting to a new environment. Over the middle sections of the sojourn, positive emotions rebounded.

Both Anxiety ($F= 8.521, p< .01$) and Sadness ($F= 7.899, p< .01$) showed significant change over time. Anxiety peaked at pre-departure and dropped thereafter, to settle at a very low level from mid sojourn through reentry. Sadness peaked at preparation to return and was maximal at reentry. A spike in anxiety coincided with the uncertainty of what was to unfold during the study abroad. Sadness spiked with the realization that the sojourn was coming to an end and peers, teachers, home stay family and others would be left behind. It is interesting to note that the peak of Anxiety
coincides with a peak of positive emotion at pre-departure. Pre-departure is filled with intense conflicting emotions. Likewise, sadness coincides with a peak of positive emotion in preparation for return home and reentry. These stages are crammed with intensely conflicting emotions (Gray & Savicki, 2015).

In general, the ratio of positive to negative emotions indicates generally mentally healthy responses to the acculturative stresses of study abroad. The dip in positive emotions, and the spikes in negative emotions (Anxiety and Sadness) highlight stress points in the study abroad sojourn.

**Conclusions**

Several conclusions may be drawn from the findings of this study. First, the LIWC analysis seems to be sensitive to both cognitive and affective processes across students' study abroad experience. These findings make explicit the anecdotal descriptions of what typical study abroad students undergo as they move through their sojourn. This sensitivity paired with a higher level of reliability and objectivity make the LIWC a promising tool for research and assessment of study abroad reflection. The limiting factor in using the LIWC is translating the process oriented findings into prescriptions for coaching and feedback for students. LIWC output is content free, so study abroad faculty and advisors must ponder the "how" rather than the "what" of student writings or oral presentations.

Second, both cognitive and emotional components of reflection contribute to understanding how reflection might be impacted by the developmental process that students traverse. Clearly, the cognitive factor of Making Distinctions is central to effective reflections. Additionally, including one's self, through Immediacy, also plays a crucial role. "Learning and memory are greatest when cognition and emotion work together. In any educational setting, the goal is to activate this synergistic system" (Zull, 2012, p. 184). The integrated self (affect, behavior, cognition) contributes to a richer meaning making process.

Third, the drop off of the Immediacy and Making Distinctions factors seems to indicate the need for study abroad professionals to be active while students struggle to make sense during the intensity of their immersion. Students seem to need help in finding a protected space or time to enhance the probability of them being able to shift perspective. We need to help them find a way to step out of the fast flowing river of events, at least momentarily, so that they may be able to see those events with different eyes.

Fourth, study abroad professionals can find ways to affirm and respond to the intensely conflicted feelings that occur at pre-departure and upon reentry. Given the findings in this study, we propose combining both preparation for returning home, and actually being home within the definition of reentry. With the intensity of feeling and the likelihood of including one's self more easily in reflections during these two time periods, opportunities present themselves for more integrated reflection. It may be a time when students are most psychologically available for reflection.

Further research concerning the cognitive and emotional aspects of reflection might include larger, more diverse samples of study abroad students in placements of different duration, different levels of cultural distance, different expectations for language competency, etc. Also, focused
groupings, and focused reflection prompts might yield different patterns of description. Research using language analysis of reflection is in its infancy.

Finally, even perfectly phrased reflection prompts will not guarantee the kinds of learning outcomes that we might hope for. The observations made by students are inextricably intertwined with who they are as observers. The meaning they make of events depends on the interplay of who they have become at any specific moment, and what occurs in their environment. "Educators are most likely to succeed when they give their students the right kinds of experiences, those they cannot help thinking about" (Zull, 2012, p. 174). Study abroad professionals, can set the stage for reflection; they can guide students' attention and ask them to consider events using specific structures and language. However, each meaning maker will make his or her own unique meaning. Nevertheless, once they have acknowledged that other interpretations of events are possible, the door is ajar for transformation.

REFERENCES


