

An Exploration of Reflection: Expression of Learning Style in an International Experiential Learning Context

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Experiential learning techniques have been used in agricultural education programs for decades. An essential part of this experiential learning process is reflection. Kolb (1984) stated “knowledge results from the combination of grasping experience and transforming it” (p. 41) in a process that involves using reflection. Few researchers have tried to understand how learning style affects reflection when experiential learning techniques are employed. Using Kolb’s theory of experiential learning, the researchers explored how adult learners reflected during an experiential learning program in Costa Rica, based on analysis of reflective journals. Participants also completed the Kolb’s learning style inventory to determine individual preferred learning styles. The researchers examined the journals of participants for evidence of their expressed learning style and used content analysis to interpret the categorical thematic expressions of the participants. Results indicated that themes surrounding learning style were evident throughout the journals and varying levels of reflection were discovered. The results of this research imply educators should consider multiple methods of reflection when developing experiential learning programs.

Keywords: learning style; experiential learning; reflection; study abroad; undergraduate students

Introduction

Experiential learning techniques have been used in agricultural education for decades and can be traced back to an ancient Chinese proverb as cited in Hersey, Blanchard, and Johnson, (2001, p. 36): Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand. Experiential education is defined as “a philosophical orientation toward teaching and learning that values and encourages linkages between concrete educative activities and

abstract lessons to maximize learning” (Warren, 1995, p. 239).

Many studies have examined the practice of experiential learning (Arnold, Warner, & Osborne, 2006; Enfield, Schmitt–McQuitty, & Smith, 2007; Wulff–Risner & Stewart, 1997). Experiential learning techniques encourage students to directly apply what they are learning, engage in reflection, and then be able to generalize the information outside of the learning environment (Beard & Wilson, 2006). Kolb (1984) emphasized that experiential

learning employs the perspective that learning is best conceived as a continuous process, grounded in personal experience. According to Kolb (1984) “knowledge results from the combination of grasping experience and transforming it” in a process that involves using reflection (p. 41). Therefore, from an experiential learning perspective, reflection is critical. Past research has shown adult learners preferred to gain new knowledge through experiential opportunities, which allow them to reflect upon the principles of the learned information (Richardson, 1994).

Multiple research studies have documented the successful impact reflective journaling has on the learning experiences of a variety of students. Grennan (1989) pointed out that because the process of journaling is not specific to a particular discipline, it can be applied across a range of areas of study. Mezirow (1990) noted that reflective journals are effectively used in educational settings to promote individual growth among learners and the practice has been identified as a way to promote students’ thinking and reflection skills (Andrusyszyn & Davie, 1997; Xie et al., 2008). Reflective journaling can also help students progress through Kolb’s experiential learning cycle (Hubbs & Brand, 2005).

Several research studies have noted the effectiveness of reflective journaling in helping students build and nurture higher order critical thinking skills (Baker, 1996; Boud, 2001). Indeed, the field of nursing education uses reflective journaling to improve clinical practice. Thorpe (2004) asserted “reflective learning journals are recognized as a significant tool in promoting active learning” (p. 327).

In the field of agricultural education, Ball, Martin, and Endress (2006) conducted a study in which learners in a two-semester experiential learning course in environmental sciences wrote reflective journals about their experiences. Their findings confirmed Kolb’s (1984) belief that over the duration of the experiential learning activity/course students increase their reflective thinking skills. Importantly, Andrusyszyn and Davie (1997) concluded that reflection and learning are symbiotic; if one’s ability to reflect expands, so too does one’s learning.

Journaling can also be helpful for students learning to understand connections between themselves and the rest of the world (Vygotsky, 1986). The practice of recording one’s thoughts, ideas, and experiences in a reflective journal allows students to consider what they know and combine it with what they have experienced. Hubbs and Brand (2005) suggested that journaling “provides students practice in the art of reflection that is important in learning new material and essential for transformative learning” (p. 64) and that “reflective journaling can provide instructors with glimpses of the inner workings of the students’ minds” (p. 65).

While research regarding the use of experiential learning techniques in agricultural education curriculum is plentiful, researchers have not explored the question of how learning style differences impact the reflection process when students are exposed to situations focused on experiential learning (Knobloch, 2003). Since reflection is essential to the learning process, gaining an understanding of reflective differences based on learning style can allow agricultural educators to implement reflective activities in their educational programs that meet the needs of a diverse student population. As assessing the effectiveness of educational programs in agricultural and life sciences is part of the National Research Agenda: Agricultural Education and Communication, 2007–2010 (Osborne, 2007), a study exploring reflection and the ways in which learning styles are illustrated in the reflective portion of the experiential learning cycle can yield valuable data and provide direction for future practice.

Theoretical Framework

The theoretical framework for this study is based on the experiential learning theory of development (Kolb, 1984) which includes the experiential learning cycle and learning styles.

Experiential Learning Cycle

Kolb’s (1984) theory of experiential learning includes a model of the learning cycle that identifies four stages learners need to experience for learning to take place (see Figure 1).

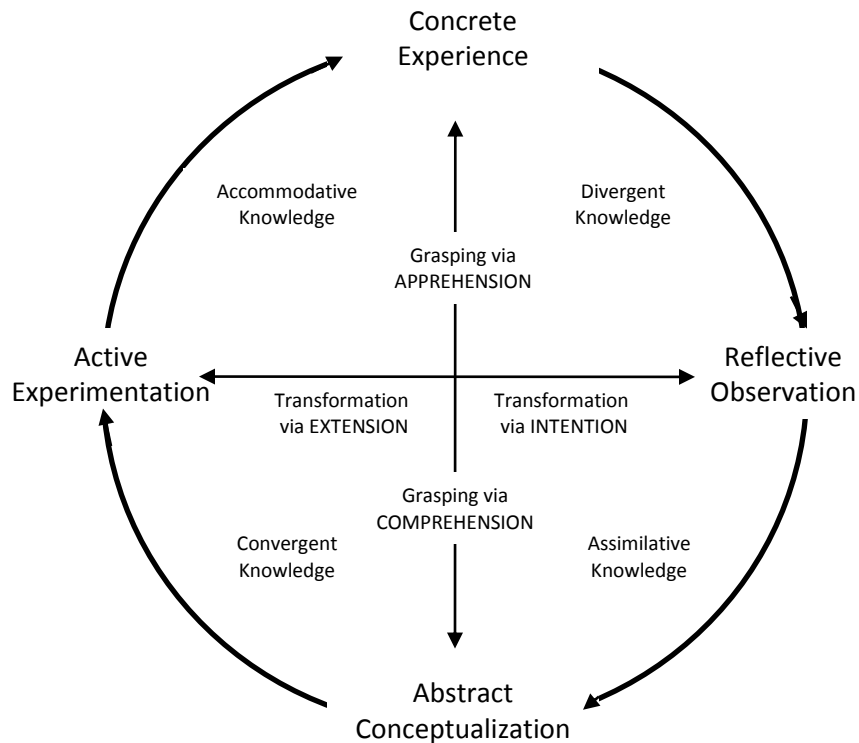


Figure 1. Kolb's (1984) model of the underlying process of experiential learning.

These stages include (a) concrete experience, (b) reflective observation, (c) abstract conceptualization, and (d) active experimentation. According to Kolb (1984), learners can begin at any point in the cycle and complete the process effectively. The purpose of the learning cycle is to show how reflecting upon their experience allows learners to synthesize their cognitions into new ideas and concepts which are then tested in new situations to assist the learner in making decisions and judgments (Kolb, 1984). This study primarily focuses on the impact the observation and reflective portion of the model has on the entire learning process.

Learning Styles

In addition to the experiential learning cycle, Kolb (2007) developed a learning style inventory dividing learners into four categories: accommodators, assimilators, convergers and divergers. The inventory categorizes learners by examining the degree to which the individual naturally tends to use reflective observation

(RO), abstract conceptualization (AC), active experimentation (AE), and concrete experience (CE) when engaged in the learning process. A higher score in one of these areas signifies a preference for that characteristic when learning. Typical characteristics are then associated with each of the four categories.

Individuals preferring AC and AE when learning are categorized as accommodators; individuals who put practiced ideas into action and have an ability to find multiple uses for the information they learn. Learners preferring RO and AC are categorized as assimilators, who use learned information to create larger ideas developing models and theories. Those exhibiting AC and CE preferences are categorized as convergers and are able to see problem situations when learning and who view knowledge as a way to piece together solutions. Individuals who prefer CE and RO are categorized as divergers. These individuals examine situations from multiple perspectives, using new knowledge to create alternative solutions by diverging from traditional patterns.

Regardless of learning category, all learners must complete the entire process, moving through concrete experience, reflective observation, abstract conceptualization, and active experimentation, to make the most of the experiential learning opportunity.

Purpose

The purpose of this study was to explore how and at what depth learning style is expressed in reflective journaling during an experiential learning course. This purpose drove the research question: How were learning styles expressed by students in their reflective journals?

Methods

This study utilized qualitative research methods to address the research questions. Content analysis of participant's journal entries was used to examine how reflective statements expressed during an experiential learning course related to their preferred learning style (Neuendorf, 2002). The unit of analysis was student journals written during a study abroad course to Costa Rica. The course included three weeks of educational sessions combining lectures and field work on agricultural topics with an emphasis on plant medicine, agronomics, crops, animal nutrition, environmental issues, soils, entrepreneurship, and sustainability. An experiential learning focused project was included as part of the course. Students were assigned to work with Costa Rican farmers, creating sustainable agricultural business plans, solving unique problems on their farms. They applied the knowledge and skills gained throughout the educational sessions to enhance farmers' current production practices.

As part of the course, participants were required to keep daily journals. The journals had minimum requirements, but students were encouraged to take the freedom to develop their own journaling style. It was requested that their journals be methodical, substantive, and introspective. They were asked to consider the following questions while journaling: What were your expectations? What questions did you anticipate? How did the actual experience

develop, and how did it compare to your expectations? Were your questions answered? Did new questions arise? If so, why and what were they? How might these questions be pursued (during or after the course)? How might the day's experience and reflections bear upon subsequent visits or experiences within the course? Aside from these broad guidelines, the participants had the freedom to record and share whatever they thought might be relevant to their experience in their journal writing.

The participant journals served as the medium for content analysis. They were used to explore how learning styles are presented in reflective journaling and then used to describe the commonalities and disparities found among individuals exhibiting the same learning style when reflecting about an experientially-rich learning experience. Content analysis divides data into groups *a priori* based on predetermined typology from theory (Lincoln & Guba, 1985). In this study, the experiential learning theory (Kolb, 1984) was used to divide the journals into four sets based on the participant's preferred learning style: assimilating, accommodating, converging, and diverging.

Once learning style was established, content analysis was conducted by two coders to lower the amount of observer bias (Lincoln & Guba, 1985). One of the coders did not have any contact with the course planners or the participants themselves. This coder was unfamiliar with the course content, had no interaction with the participants, and was not informed of the participants' exposure to instructional techniques prior to data analysis. The second coder was a part of the course planning team, had contact with the participants at the conclusion of the course, and was familiar with the instructional techniques applied throughout the course.

Prior to reviewing each journal independently, the coders reviewed generalities about specific learning styles together to gain consensus on the identified theme (Kolb, 2007). Patterns, themes, and relationships within the data were then identified (Lincoln & Guba, 1985). At the conclusion of reading each journal, the coders identified each pattern, theme, and relationship found within the text with a one-sentence generalization. The two coders performed member checks and discussed the

journals and their generalizations, identifying consistent patterns, themes, and relationships (Lincoln & Guba, 1985). After each set of journals were reviewed, the coders discussed the commonalities and disparities in the patterns, themes, and relationships among individuals exhibiting the same learning style and came to consensus.

Participants in this study were college age adult learners participating in the Promoting Sustainability: Training Agricultural Practitioners in the Humid Tropics course at EARTH University the summer of 2009. Demographic data was collected online to describe the population following procedures outlined by Dillman, Smyth, and Christian (2008). The 17 participants recruited to take part in this project represented Purdue University, the University of Florida, Texas A&M University, and North Carolina State University. Eleven of the participants were female and six were male, ranging in age from 20 to 27 years of age. Thirteen participants were undergraduates, with two sophomores (12%), seven juniors (41%), and four seniors (24%). Four of the participants were graduate students (23%). Eleven of the participants were White (non-Hispanic), three were Hispanic and the other three reported *other* as their ethnicity. The participants represented a variety of educational majors including agricultural business ($n = 2$), agricultural education ($n = 2$), animal sciences ($n = 2$), biology ($n = 2$), economics ($n = 2$), plant medicine ($n = 2$), biochemistry ($n = 1$), environmental science ($n = 1$), environmental engineering ($n = 1$), horticulture ($n = 1$), and mathematics ($n = 1$).

Participant learning styles were determined through the use of the Kolb's (2007) Learning Style Inventory (LSI). The LSI consists of a 12-item questionnaire designed to identify learning style preferences within four categories: concrete experience (CE), active experimentation (AE), reflective observation (RO), and abstract categorization (AC). Scores within each category range from 12 to 48. A high score within a specific category signifies preference. Since Kolb introduced this inventory in 1974, multiple research studies across disciplines have established a coefficient alpha level of reliability ranging from .73 to .86 (Ruble & Stout, 1990). The participants in this

study represented each of the four categories. Three were identified as accommodating, six as assimilating, four as converging, and four as diverging.

Results

Two general themes emerged between the different learning styles within the students' reflective journals. One was related to how their learning styles were expressed in the reflective journals and the other was specific to the type of instructional techniques the students preferred.

Expression of Learning Style in Students' Reflective Journals

Assimilators. Participants 1, 2, 3, 6, 16, and 17 were assimilators. As a group, the participants categorized as assimilators organized their journals in an orderly manner, illustrating a characteristic of their group – an emphasis on logical thought. This logical thought progression was evident in their statements regarding agricultural production. Participant 17 simply stated “it will be interesting to see how they ‘customize’ other aspects of production to fit their climate and resources.” Participant 3 stated:

Another thing that came to mind while listening to him speak was the fact that as we move toward increased centralization in animal production – with few companies owning a larger range of means of production – that also creates less of a risk for the producer.

These participants tended to enjoy the combination of lecture and field work, and saw the value in having both included in the study abroad experience. Participant 2 reflected that “today’s lectures with [Dr. Bradley] and [Doug] were short, but full of information. I wish that there had been more time spent on their lectures” and “[Dr. Snodgrass’s] lecture was awesome. She took us out to actually look at things. The soil example was awesome.”

All of the assimilators communicated interest in having specific opportunities during the experience. Participant 1 reflected “I just didn’t believe I would have been able to have accomplished what I wanted to accomplish

today, which was communicating one on one with the farmers and find out the problems they are having.” Participant 2 commented “I really wanted to do something I had never done before...I think the experience was great, especially getting to work with the other [university] students.” While they seemed to enjoy opportunities to engage with non-Americans they did not discuss experiences and interactions with others in the context of culture. As a group, the assimilators included no interpersonal reflection in their journals.

Divergers. Participants 4, 5, 8, and 14 were divergers. Divergers characteristically enjoyed the cultural aspects of their study abroad experience and were highly inquisitive. “I have so many questions, and I was thinking so fast while I was there trying to take everything in that it was hard to remember them” noted Participant 8. Their journals contained both lists and paragraphs of questions. For instance, Participant 14 included the following list of questions in one of her journal entries “It made me wonder how I would be in their shoes. Would I be as happy? Could I adapt? How much do I take things for granted?” Participant 5 queried:

Now these things are all good ideas of how to improve animal production, but maybe the farmers don't have the time to cut and carry, or the space to confine the animals. And if we aren't taking these things into consideration, then are we really improving their situation when it requires lots of change? Can we really help when we walk in with the attitude that things must change drastically? How can we begin to help these people with their agriculture when we barely understand it...? Is any of it really transferrable to the real tropical farmer?

As a group, these individuals reflected mostly on positive aspects of the experience rather than negative issues. Participant 8 commented “after dinner we got to have conversation night with the EARTH students! It was so fun! One of my favorite things we have done so far.” Participant 4 reflected on the amount of physical work the students did on one of their farm visits, noting:

Planting and learning about the agriculture process was very tough but also very rewarding. I now have a new found respect for farms and the degree of difficulty physically that it takes to not only grow things but to grow them sustainably.

All of the divergers wrote journal entries that seemed to paint pictures of events and experiences. Participant 4 described his entry into the country in great detail:

Beauty everywhere. On the plane you could see the agricultural differences from the air. In Nicaragua crops from the air are brown giving the landscape a darker color. Crop circles are seen in Nicaragua which are apparently an irrigation process not used in Costa Rica. As soon as you cross the border you can tell there is a difference. There is lush green.

Interestingly, learners in the diverger category did not reflect on interpersonal relationships in their writing. Generally, the divergers were open-minded and appreciated new experiences, typical characteristics of the category. Each participant included a number of comparisons in their journals where they evaluated concepts and ideas from multiple perspectives. Participant 14 reflected that she was “forced to reevaluate my stance on a number of issues based on other students’ comments, but that’s good because it forces me to keep my mind open.” Participant 5 commented that “hearing that little conversation made me begin thinking about the many differences between America and other countries.”

Finally, participants in the diverger category did not express enjoyment working in group settings, contrary to Kolb’s type descriptions. Specifically, Participant 14 commented:

I know I volunteered to do the PowerPoint but it still made me a little upset that I ended up doing all of it. I was hoping that my group members would at least offer input but aside from periodic drop-ins I barely heard from them ...it’s moments like this when I prefer to work solo.

Accommodators. Participants 9, 13, and 15 were accommodators. Participants categorized as accommodators were overwhelmingly interested in the hands-on experiences during the trip and preferred this work to time spent in a classroom. Specific mention was made appreciating field work over lecture time. “I never thought I would be stuck in a classroom for a whole day while in Costa Rica” reflected Participant 9. “...we also went and worked some of the different farms on campus with the students which was really fun.” Participant 13 commented that he “[liked] the fact that we get to be so hands on, this is a unique experience.”

In general, accommodators enjoyed engaging with people and often mentioned the locals they interacted with by name. They valued personal communication more than group interaction, which is typical of accommodators. Participant 13 specifically mentioned “I think I met my favorite Costa Rican citizen today. [Antonio], the owner of the farm...I have never really been interested in these things but his passion rubbed off on me.” Participant 9 commented:

[Anita] actually took us over to a different part of the farm and was telling us how they had planted this garden and labeled all the different varieties of plants they had. That finca was such a special place and I think spending those three days with them was some of the most fun I’ve had in a while.

Participant 15 described a personal interaction:

...then [Domingo] approached me. He told me to put on my boots and come with him. I was the only one he wanted out of the five of us. At first I was nervous but he just needed help with his cattle. We moved them to the pastures to graze. He also let me feed the Tilapia ponds and he showed me where a caterpillar had been eating all of his trees.”

Among accommodators the amount and quality of reflective journaling varied. Data indicated that only one participant in this category relied on intuition when analyzing problems, and one other was specifically interested in carrying out plans.

Convergers. Participants 7, 10, 11, and 12 were convergers. Learner participants in this category were highly typical in their logical and methodical approach to journaling about their experiences during the course. All convergers wrote journal entries that were more an account of their experiences rather than reflective in nature, and none included thoughts about personal relationships. Participant 11’s daily journal illustrates this as she seemed to list the day’s activities:

We began the class by describing a farm in Latin America...After each group’s discussions, we went to a local rural farm to answer assumptions...We also discussed Michael Pollan’s book...After the farm visit, we got cleaned up and went to lunch.

Overall, while these participants enjoyed the experiential learning activities involved in the course, they wanted hard facts, data, and background information regarding subjects discussed which is representative of the converging learning style. Participant 10 commented that “I do not believe a word of what she talked about today with regards to philanthropy...she would need to offer a significant amount of proof, which she did not, in order to convince me.” Participant 12 also exhibited this characteristic when he wrote:

I like the idea that the professors are attempting to bring up, the fact that there are a lot of perspectives to take into consideration when looking at poverty, but then they still seem to be pushing a single avenue.

Another example was offered by Participant 11:

I must say, that I am really disappointed with the way the sessions are being taught. I feel like I haven’t learned anything about Latin American reality except the first day when we went to the farms. Other than that, we have had these misinforming lectures with wrong facts and too many generalizations.

Instructional Technique Preferences

During content analysis, the researchers found most participants reflected about their preferences regarding the instructional techniques used in the course. For the most part, participants expressed preferences related to experiential learning versus lecture. Variation in the way this theme emerged based on participants' learning styles was explored to gain an understanding of differences in perceptions regarding instructional techniques by learning style.

Assimilators. Assimilators generally enjoyed the combination of lecture and field work and wrote about their appreciation for the logical facts and figures offered by formal lectures. Participant 16 wrote "then [Dr. Snodgrass] lectured about soils and we go to go out and talk about the soils while identifying them ourselves." Participant 3 elaborated "[Dr. Snodgrass's] lecture was awesome... I think that time like this in the field is imperative to understanding agriculture. After all, if we are to understand the farmer, we must see what he sees."

These learners were interested in big picture ideas, but with specific attention to information and experiences that coincided with projects and interests of their own. Participant 16 wrote about her knowledge and interest in organic farming: "We started off going to the library and listening to [Professor Elgin] speak about organic farming and took a quiz on it, which I did really well on. I realized how interested I am in organic farming." Participant 1 related the information on entrepreneurship to his personal goal of starting a nonprofit organization by stating "I liked [Dr. Mackenzie's] lecture on entrepreneurship because I am starting a nonprofit organization...I could relate a lot of her lecture to my engineering design class I had last year."

Divergers. Divergers articulated their enjoyment of experiential learning in their journals. Participant 8 noted "I think I have learned the most interacting with the EARTH students and the local farmers" and specifically commented that she would have preferred more time in the field: "I think it would be nice if a lot of the class work was done prior to the trip so that there could maybe be shorter review of the subject before going out into the field to see it." Participant 5 commented "Going to today's farm

was one of the best and most interesting things that I have done." Concurring about the value of field experiences, Participant 14 noted "readings and lecture cannot replace actually being in the field and experiencing everything." Participant 4 reflected upon an opportunity to gain an understanding of the food production process through farm work experience:

Planting and learning about the agricultural process was very tough but also very rewarding. I now have a new found respect for farms and the degree of physical difficulty that it takes to not only grow things but to grow them sustainably.

In their journal entries, divergers illustrated how experiential learning techniques encouraged them to reflect about what they learned in Latin America and how they saw those ideas and concepts fitting into the larger world. Participant 8 reflected "I think that a lot of these techniques can and should be used in the United States to help farms run more efficiently and be more environmentally friendly." She continued "to me it seemed as though the definition of organic here was based more on what the animals ate, no use of pesticides and sustainability, as compared to us with regulations on hormones shelter and growth."

Participant 5 wrote about differences between his expectations and what he discovered at his work on one of the farms. "I thought they would be really uptight about weeds and other things like gardens are at home. The cows and buffaloes were just let out into the pasture to randomly graze. Maybe it's just the way farms are here." He also wrote about his reconsideration of some ideas he had coming into the experience:

Looking at [the farm] I began to think about the work that many Americans do when wanting to do international work. That's when I began to reevaluate what I have originally been thinking about and how we can improve tropical agriculture. Lots of the reports that I read about tropical cattle seemed to attempt to make the animals more 'American.'

Two participants specifically noted the contrast between American organic standards and those in Costa Rica. Participant 14 reflected “it was interesting to compare American organic standards to Costa Rican organic standards.” Participant 4 noted the differences and saw them as a benefit for his own experience “though organic standards of this university are very different from those of the US, someone with minimal exposure and knowledge like myself can take a lot away from hands on organic programs like this.”

Divergers also reflected upon their experiences by considering multiple perspectives. Some noted these perspectives were new to them. Participant 8 wrote:

From her lecture I think we will be more prepared to think outside the box and look at different aspects of the farm from different points of view...just combining all these things for the holistic view is a little new to me and very interesting. Like a puzzle.

Participant 14 reconsidered what she knew/thought previously after one of the group reflection sessions. “I was forced to reevaluate my stance on a number of issues based on other students’ comments but that’s good because it forces me to keep my mind open.”

Participant 5 seemed to reflect on his experiences rather deeply, noting the universality of some of the ideas that came to his mind following one of his on-farm experiences:

Everyone dreams the same. We all dream big. We make plans, write them down, and put our hopes into them. We speak of them with pride. And hopefully, we eventually accomplish pieces of them. And although those pieces may not be as big or giant as our original plans, we are still immensely proud of them. Dreaming is universal.

Accommodators. Accommodators wrote about wanting more experiential learning opportunities and expressed a strong preference for hands-on field work. Participant 9 commented “both lectures were interesting but we’ve been asking to go out in the field.” Participant 13 also expressed his desire for hands-on, outside of the classroom experiences

when he stated “the group activities make things better, because the classes can get long and boring just sitting there taking notes.” Continuing in the same journal entry, Participant 13 noted “I enjoyed the lab in the afternoon. It was a good way to become associated with some of the things we discussed in class.”

Strong support for field experiences continued in the journals of Participant 9 and 15. Participant 9 commented “the best part of the day was yet to come. The field work was so great!!! It way exceeded my expectations.” “The best part was harvesting the pineapples. We got to pick our own and then use the machete to cut the outer layer off and eat them right there on the farm” wrote Participant 15.

Accommodators also placed value on engaging with people and learning through interpersonal communication as a part of the experiential learning process. Participant 13 wrote about his desire for student-to-student interaction. “I think we would be better served to do more interacting with EARTH professors and students.” He eventually took it upon himself to have interaction with other students at the university:

It is getting to the point now where I feel comfortable sitting with EARTH students at dinner. I told a few of them about facebook and that we need to stay in touch. This way, if they want to come to the United States they would have a connection. That is largely what this trip is about.

When the group had a session with EARTH students, Participant 13 wrote “after dinner we had the opportunity to engage in conversation with EARTH students. It was a lot of fun for me.” Participant 9 also enjoyed this interaction and noted “after dinner it was nice to meet and talk to the EARTH students.”

Convergers. Convergers reflected upon their enjoyment of experiential learning instruction through the direct application of concepts. Participant 10 wrote “the hands on experiences that we get from this course are much better ways to learn than sitting in the classroom. I enjoy getting the chance to apply our knowledge in the field.” She continued “the most genuine learning that we have are the ones that are off campus and at least somewhat in the real world

of Latin America and not in a sheltered environment.”

Participant 12 wrote about the first farm visit and noted “this was probably the best day we had as a collective group. We were able to observe on our own what was happening on the farm from different angles.” Following the second farm visit, he noted:

Today was our workday at our farms. This was a really good day because we were not only able to help the farmers that are giving us a chance to learn through our labor but also because we were able to get an idea of how hard they have to work every day. This I feel gave us a good chance to not only study but actually be in the shoes of the people we are studying.

Participant 11 particularly enjoyed the reality of settings where she could see concepts being employed. “I liked this activity because we were able to apply what we learned in a real setting.” She continued:

I feel that this day was the true Latin American Reality. We have been visiting small, rural farms the entire trip, talking with farmers about how the government has bailed on them. We’re learning about their sustainable, cultural practices. Then we go visit Monsanto, the biggest company in the world, changing farmers’ ways of life, not promoting biodiversity, focusing on big operations which sometimes leaves the little guys in the dust. That is Latin American reality.

Conclusions

In general, daily journal entries reflected the themes identified within participants’ preferred learning styles. This manifested in the way participants organized their journals, formatting of participants’ statements (ie. including lists of questions or lists of daily activities), and the amount of interpersonal reflection exhibited. Maturity level and level of reflection varied among participants’ journals and across learning styles.

In addition, the amount of reflective thought varied across learning styles. Assimilators were

logical in their statements, including reports of experiences rather than writing about application of those experiences in the context of culture or interpersonal relationships. Divergers were highly inquisitive in their journals and reflected a great deal on the application of the material beyond themselves. Accommodators’ reflections were more in-depth but primarily focused on personal communications rather than their physical experiences. Convergers took a logical and methodical approach to their journals, reporting an account of their experiences with very little elaboration.

Participants of all learning styles reflected on their enjoyment of experiential learning techniques utilized throughout the course. However, assimilators preferred a combination of lecture and experiential learning, seeing the value of getting hard facts prior to the application of concepts. It is interesting to note that while participants were provided prompts for reflection at the beginning of the course, none responded directly to these prompts in their journals.

Implications

This study further confirms previous research illustrating adult learners prefer to gain new knowledge through experiential learning opportunities, including using the process of reflection to enhance their own learning (Richardson, 1994). Regardless of learning style, all participants in this study favored learning by directly applying information. While assimilators appreciated the logic associated with formal lectures, they did so only in conjunction with the opportunity to engage in experiential instructional techniques.

As Hubbs and Brand (2005) suggested, reviewing reflective journals can provide educators with a glimpse of the inner workings of a student’s mind. As expected, participants with the same learning style reflected similarly to one another and common themes emerged. However, individuals exhibiting certain learning styles did not express themselves within their journals in a way that promotes reflection, or their progression through the experiential learning cycle (Kolb, 1984). Assimilators and convergers were logical in their journals,

reporting their experiences rather than using it as an opportunity to reflect and learn.

According to Vygotsky (1986) reflective journaling assists students in understanding connections between themselves and the rest of the world. This study showed only participants with a divergent learning style made these connections, reflecting on the application of what they were learning beyond themselves within their journals. The other learning styles did not use the journals as an opportunity to use their new knowledge to make decisions about the larger world as the experiential learning model would imply (Kolb, 1984).

Previous research has also shown reflective journaling assists students in nurturing higher order critical thinking skills (Baker, 1996; Boud, 2001; Thorpe, 2004). The results of this study indicate that one form of reflective practice may not fit the needs of all students. Assimilators and convergers did not reflect as deeply in their journals as the accommodators and divergers. Educators should consider using multiple methods of reflective practice to accommodate a variety of learning styles when trying to guide students through the experiential learning cycle. For instance, learners with an accommodating style may feel more comfortable reflecting in a social group session where they can use dialog to converse with other participants rather than reflecting on their own through journaling.

Students have previously reported difficulties in sustaining reflective practices over time without support from instructors (Harri-Augstein & Thomas, 1991) and this may have occurred with the students in this study. While prompts were provided to the participants, the topics and content of reflective journals in this study were left fairly open-ended, and students were not provided dedicated writing time during the course. Perhaps students need more direction and instruction about how and when to reflect to

reach the higher order critical thinking required to progress through the learning cycle.

Recommendations

Due to the environment in which the data for this research study was collected, (i.e. learning experienced in an international setting) the researchers recommend that a similar study be conducted in a domestic setting using the same research methods. Previous research indicates that participants involved in uncomfortable situations tend to rely on or revert to their natural cognitive abilities and behave according to type (Kirton, 2000). A change in course environment (international to domestic) may impact the ways in which students reflect and to what degree.

While reflection activities, specifically written journals, are often time consuming for students and instructors, it is important to devote sufficient time and energy to them in order to ensure that the final result is effective in aiding learning (Thorpe, 2004). Mallik (1998) instituted a strategy whereby students were provided dedicated time for reflection at the end of each day. Therefore, the researchers recommend that in future similar studies, instructors provide more structured support to facilitate student reflections. Additionally, students should be provided a dedicated time for reflective journaling, similar to the time designated for group reflective sessions.

Furthermore, an analysis of a group reflective sessions could be compared to a typological content analysis of individual reflective journals to gain insight into the benefits of individual and group reflections. This could potentially illustrate how participants exhibiting various learning styles reflect differently given the social setting of group reflective sessions.

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