A Capstone Experience: Impacts of a Behavioral Style Learning Unit on Soft Skill Development and Team Dynamics

M’Randa R. Sandlin1, Melissa R. Price2 & Kauahi Perez3

Abstract

The integration of hard and soft skills has become increasingly important to employers. Colleges of agriculture and natural sciences can facilitate the development of these skills in their students. The purpose of this study was to explore impacts of a behavioral style learning unit on soft skill development with 15 students enrolled in a senior-level undergraduate capstone course. The research objectives were to (a) explore students’ preflections and reflections for indications of soft skill development, (b) explore team dynamics, and (c) identify best practices for integrating a behavioral style learning unit into a capstone course. Qualitative content analysis methods and basic quantitative methods were used to examine the preflections and reflections of the students. Students found the behavioral assessment improved understanding of their own behavioral needs, and allowed them to flex their style to meet the needs of team members. Relationship compatibility, based on behavioral styles within teams, correlated with the ability of team members to accurately perceive their contributions to tasks, relative to peer-based perceptions of contributions. Based on these results, it is recommended that a behavioral style learning unit, or a similar psychological type unit, be integrated into courses where soft skills are a desired student learning outcome.

Keywords: behavioral style; soft skills; capstone course; team dynamics; team project

Introduction

Now more than ever, employers are searching for applicants who possess soft skills—sometimes called 21st century, interpersonal, or transferable skills (Bennett, 2002; Jones, 1996; National Research Council, 2012)—in addition to technical competencies. These 21st century skills include critical thinking, problem solving, teamwork, collaboration, effective communication, and self-management (Crawford, Lang, Fink, Dalton, & Fielitz, 2011; Jones, 1996; Roberts, Harder, & Brashears, 2016). Soft-skill competencies once expected of seasoned employees are now the expected norm of graduates when they enter the workforce (Clem, Doerfert, Akers, Burris, & Brigham, 2014; Connaughton, 2015; Crawford et al., 2011; Hart Research Associates, 2015), yet employers believe the interpersonal skills of current graduates are poorer than in previous generations (Bennett, 2002).

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Despite the importance of effective collaboration to professional advancement, many natural science degree programs (i.e., hard sciences or technical sciences) lack learning units aimed at soft skill development (Sample, Bixler, McDonough, Bullard, & Snieckus, 2015; Scanlon, Bruening, & Cordero, 1996). Crawford et al. (2011) identified seven soft skills clusters—including teamwork and communication skills—deemed important for recent graduates to be successfully competitive for employment in agriculture, natural resources, and related careers. These same soft skill competencies were again identified in 2015 as critical for successful employment in natural resource management (Sample et al., 2015), as employability skills for graduates of a college of agriculture (Robinson & Garton, 2008), and as important training requirements for in-service agriculture teachers (Davis & Jayaratne, 2015). Thus, 21st century students must be equipped with these competencies upon graduation if they expect to be competitive in the workforce (Bennett, 2002; Connaughton, 2015; Dunne & Rawlins, 2000).

Instructors in colleges of agriculture and natural resources can facilitate the development of soft skills in their students by incorporating them into existing learning experiences, including field experiences, in-service training, study abroad, and service learning (Bennett, 2002; Lamm, Carter, & Melendez, 2014; Mars, 2015; McCubbins, Paulsen, & Anderson, 2016). Team-based projects are one of the most common educational experiences (Dunne & Rawlins, 2000; Herreid, 1998; McCubbins et al., 2016; National Research Council, 2012; Perry, Paulsen, & Retallick, 2015) and may facilitate students’ understanding of interpersonal communication, self-management, teamwork, and collaboration skills (Dunne & Rawlins, 2000; Lamm et al., 2014; Mars, 2015; McCubbins et al., 2016).

When team-based projects are utilized as an instructional method, instructors and students benefit from an awareness of team composition and the behavioral or psychological types of each team member. Research on psychological type and team composition has shown that, while personality cannot predict team effectiveness or performance, it is an influencing factor (Varvel, Adams, Pridie, & Ulloa, 2004). Further, these authors found that students’ awareness of their team members’ psychological type allowed for “effective communication, trust, and interdependency” (p. 146) and students were able to better tolerate types that were unlike their own. In terms of specific aspects of personality, a meta-analysis conducted by Peeters, van Tuijl, Rutte, and Reymen (2006) found that the presence of higher levels of agreeableness and conscientiousness in teams resulted in higher performance.

Behavioral style assessment, an assessment used to identify one’s observable behavior profile (i.e., whether a person exhibits high or low dominance, influence, steadiness, and compliance behaviors), is another tool that can enhance collaboration and teamwork, improve communications, and facilitate overall improvement in team performance (Bonnstetter & Suiter, 2011; McKenna, Shelton, & Darling, 2002). Information on team dynamics can also prove beneficial for instructors when managing teams, as “ineffective teams may be the product of inappropriate team composition” (Bradley & Hebert, 1997, p. 1).

Context of the Study

The Department of Natural Resources and Environmental Management (NREM) at the University of Hawai‘i at Mānoa teaches a natural science-based curriculum and is working to integrate social science components to produce holistically prepared graduates. Capstone courses require students to integrate and apply material from their discipline (Hauhart & Grahe, 2015) and offer learning experiences wherein social science components can be incorporated. The undergraduate capstone course, NREM 494, integrates a project to allow students to apply the
The students in NREM 494 self-selected teams based on topic interest, including wastewater mitigation, food waste reduction, management of marine wildlife-human conflicts, management of an invasive pest species, and sea level rise adaptation for a coastal city. The teams identified a project mentor at the city, county, state, or federal management level, and defined a problem of interest that was under the jurisdiction of the mentor. The students framed their projects using the structured decision-making process, as described by Conroy and Peterson (2013). Through this process, students were to engage decision makers and stakeholders, work with stakeholders to identify fundamental objectives and potential solutions, gather available information from peer-reviewed literature and subject experts to weigh potential solutions, and identify an optimal solution for the set of defined objectives (Conroy & Peterson, 2013).

A behavioral style learning unit was included in the curriculum of NREM 494 to support social content integration and facilitate soft skill development and team dynamics. In this unit students took the DISC Behavioral Style Assessment (DISC), participated in a lecture with a certified DISC practitioner who interpreted the individual results and integrated lessons for teamwork and general interpersonal interaction, and provided written responses to preflection and reflection prompts regarding integration of behavioral style knowledge into the capstone course. The behavioral style learning unit was incorporated to help students (a) understand personal motivations, strengths, and areas where growth was needed; (b) recognize and avoid the potential for negative interactions among student team members; and (c) increase students’ abilities to understand others’ behavioral styles and flex (i.e., temporarily alter) their own behavioral styles to create effective working relationships with team members and decision makers.

Although this study is a content analysis of the student preflections and reflections, we believe it is important for the reader to have a basic understanding of the DISC model and instrument. The DISC model is often used to improve team dynamics and understand communication styles in team situations (Bonnstetter & Suiter, 2011). The DISC model categorizes how people behave into the four dimensions of Dominance (D); Influence (I); Steadiness (S); and Compliance (C) for how one behaves naturally (Natural) and how one behaves in a particular setting, for instance, at work (Adaptive). The students were asked to focus on their adaptive style during the preflection and reflection. The dimensions are on a continuum from low to high expression of each dimension’s characteristics. Individuals are a combination of all four dimensions; a person’s dimension combination results in a unique behavioral pattern, also called the behavioral profile (Bonnstetter & Suiter, 2011). The letters are listed in descending order of a person’s behavioral dimension scores. It should be noted that although individuals may have the same behavioral profiles (order of letters), each profile is unique in terms of expression level in each of the dimensions, as well as characteristics not measured by this instrument (e.g., personality, culture, environmental conditions, life events, etc.).

The DISC instrument is validated and published by Target Training International, Ltd. (TTI). The online instrument is comprised of 24 items. Each item presents respondents with four behavioral phrases and asks them to rank the behavior from 1 = Most like you to 4 = Least like you. Upon completion, a personalized computer-generated report is sent to a certified DISC practitioner for review. This allows the practitioner to check for any abnormalities and/or errors before distributing the profiles to the participants in a workshop setting. A database of 16,950 responses was used to run the reliability and validity statistics (TTI, 2012). The internal reliability was found to be good for each of the four scales: Adaptive D ($\alpha = .89$); Adaptive I ($\alpha = .85$); Adaptive S ($\alpha =...
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.86); and Adaptive C ($\alpha = .83$). Content validity, criterion-related validity, and construct validity tests were used to establish instrument validity (TTI, 2012).

Theoretical Framework

The framework for this study was Kolb’s theory of experiential learning (Kolb, 1984) with the addition of preflection (Jones & Bjelland, 2004). Experiential learning, the process of learning through structured and/or unstructured experiences, facilitates concept internalization, application, and concept use in future situations (Dewey, 1938; Kolb, 1984). Preflection, as defined by Jones and Bjelland (2004), is the “process of being consciously aware of the expectations associated with the learning experience” (p. 963). Facilitated preflection primes students to learn from their experiences, and thus increases their capacity to reflect upon their experience. Consequently, this enhances students’ overall learning experience. When used as a starting point in Kolb’s theory of experiential learning, preflection enables students to “reflect upon concrete learning experiences in a greater degree than will those students who receive no preflective facilitation” (Jones & Bjelland, 2004, p. 963).

When applied to this study, facilitated preflection allowed students to be cognizant of the expectations regarding the application of their behavioral profiles in the context of their capstone projects. The students were then guided through their capstone project with the stages of Kolb’s theory of experiential learning (Kolb, 1984). Students implemented their capstone project (concrete experience) and reflected on their project experiences (reflective observation), learned from their experiences (abstract conceptualization), and conceptualized the learned information for future interactions (active experimentation). These principles also align with andragogical learning, as adults prefer to learn information that is relevant to their situation and prefer to learn through hands-on activities (Knowles, Holton, & Swanson, 2011).

Purpose and Objectives

The purpose of this study was to explore impacts of a behavioral style learning unit on soft skill development in a team project. The research objectives that guided this study were to (a) explore students’ preflections and reflections for indications of soft skill development through the inclusion of a behavioral style learning unit in a capstone course and project, (b) explore team dynamics in the capstone project, and (c) identify best practices for integrating a behavioral style learning unit into a capstone course.

According to the 2016-2020 American Association for Agricultural Education’s National Research Agenda, Research Priority 3 aims to develop a sufficient scientific and professional workforce that addresses the challenges of the 21st century, and Research Priority 4 is concerned with meaningful, engaged learning in all environments (Roberts et al., 2016). Our study aligns with these two priorities by examining needed competencies for an agriculture and natural resource workforce; testing effective methods, models, and programs in preparing people to work in a global agriculture and natural resource workforce; and identifying how we can make team-based learning more relevant and contemporary in agriculture and natural resources.

Methods

In this mixed-methods study, qualitative content analysis methods were used to examine the preflections and reflections of the study participants. Participants were purposefully selected (Merriam, 2009) based on their enrollment in NREM 494. These students were in their last semester in the NREM Department. All 15 students who were enrolled in the course gave consent to analyze
their responses. Names were redacted from the documents and coded (S1-S15) to ensure confidentiality. Since the prereflection and reflection prompts were given as course assignments, consent was obtained during the last class period, after all assignments were submitted, so as not to influence their responses. There were two researchers, including the course instructor and the DISC practitioner, who is a faculty member in a different department in the college that provided an impartial perspective of the students’ responses.

Each student completed a DISC Behavioral Style Assessment in the first week of the course. Table 1 shows the behavioral profiles for each student in the context of their self-selected teams.

Table 1

<table>
<thead>
<tr>
<th>Team</th>
<th>Behavioral Profile</th>
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</thead>
<tbody>
<tr>
<td>Team 1</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>ISCD</td>
</tr>
<tr>
<td>S5</td>
<td>CSDI</td>
</tr>
<tr>
<td>S6</td>
<td>DICS</td>
</tr>
<tr>
<td>Team 2</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>SICD</td>
</tr>
<tr>
<td>S4</td>
<td>CISD</td>
</tr>
<tr>
<td>S8</td>
<td>CSID</td>
</tr>
<tr>
<td>S11</td>
<td>SCDI</td>
</tr>
<tr>
<td>Team 3</td>
<td></td>
</tr>
<tr>
<td>S10</td>
<td>CSDI</td>
</tr>
<tr>
<td>S13</td>
<td>SICD</td>
</tr>
<tr>
<td>S15</td>
<td>IDSC</td>
</tr>
<tr>
<td>Team 4</td>
<td></td>
</tr>
<tr>
<td>S7</td>
<td>CSID</td>
</tr>
<tr>
<td>S9</td>
<td>CSID</td>
</tr>
<tr>
<td>S12</td>
<td>ISDC</td>
</tr>
<tr>
<td>Team 5</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>ISCD</td>
</tr>
<tr>
<td>S14</td>
<td>ISCD</td>
</tr>
</tbody>
</table>

Students then participated in a lecture that interpreted their results and presented information as to how behavioral styles interact with one another to create team dynamics. After the lecture, students preflexed on the potential impacts of their behavioral styles on team project success by responding to four prompts. The prompts asked students to describe their behavioral style and their personal reaction to the results, describe how they could potentially use the...
information from their profile and the lecture in their project, consider how their behavioral style could contribute to the success of the project, and consider how they may need to flex their style to promote project success. After the prereflection was completed, there was no further incorporation of the behavioral style learning unit content into the course until the reflection at the end of the semester.

After completing the team project, students reflected on their experience by responding to five prompts. The prompts guided students to reflect on how the information from their behavioral profiles and the lecture was used during their projects; describe which aspects of their profile were most useful in their team efforts; if they had to flex their style, describe how they did so and why; project how information from the behavioral style learning unit could be applied in a future career; and provide recommendations for the use of the behavioral style learning unit in future iterations of NREM 494. As previously indicated, because the prompts were course assignments, consent was obtained during the last class period, after all assignments were submitted, so as not to influence their responses. The University of Hawai‘i at Mānoa IRB approved this study.

The data were analyzed for indications of soft skill development by categorizing student responses (Glaser & Strauss, 1967; Merriam, 2009). Lincoln and Guba’s (1985) standards of trustworthiness were used to establish rigor. Trustworthiness was upheld through credibility, transferability, dependability, and confirmability. Credibility was established through triangulation of the data between sources and by incorporating participant quotes (Lincoln & Guba, 1985), transferability was established by using a purposive sample (Dooley, 2007) and thick description (Geertz, 1973), and a dependability audit and a reflexive journal were used to ensure dependability and confirmability (Lincoln & Guba, 1985).

Team Dynamic Analysis

At the end of the course, we conducted an analysis of the students’ peer evaluations in comparison with behavioral style compatibility information found in the DISC training materials (Leadership Resources and Consulting, n.d.). For the peer evaluations, students had to distribute a total of 100 points among all of the members of their team based on how they perceived each member contributed to the team. Calculations were then conducted to identify the difference between each student’s self-score and the average of their peer’s scores of their performance. Negative values indicated that individuals overestimated their own contribution to team tasks when compared to the perception of the rest of the team, positive values indicated that individuals underestimated their own contribution relative to the perception of the rest of the team, and a zero indicated that individuals scored their contribution equally to the perception of the rest of the team.

The behavioral style compatibility materials (Leadership Resources and Consulting, n.d.) show the anticipated work relationships between two individuals based on their primary behavioral style. The relationships are categorized as Great Relationship, Requires Effort, or Requires Work. For example, an S - C pairing is anticipated to have a Great Relationship while an I - I pairing is anticipated to Require Work. We identified the anticipated style compatibility pairings in each team (see Table 2).
Table 2

Anticipated Working Relationships Between Team Members of Each Team

<table>
<thead>
<tr>
<th>Teams</th>
<th>Great Relationship</th>
<th>Requires Effort</th>
<th>Requires Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team 1</td>
<td>XXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team 2</td>
<td>XXXX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team 3</td>
<td>XX</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Team 4</td>
<td>X</td>
<td>XX</td>
<td></td>
</tr>
<tr>
<td>Team 5</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

The peer evaluation scores in combination with the anticipated working relationships in each team were used to draw conclusions about team dynamics.

Findings

Soft Skill Development

Students’ preflections and reflections were explored for indications of soft skill development. In preflection, the students were found to be generally self-aware of their soft skills (S1-S15). It reinforced (S1, S3, S5, S11, S13) or put into words (S2, S8) what they already knew about themselves and provided students with the language to describe their soft skill abilities. For example, Student S2 stated, “It was insightful to see all of the words that the assessment used, because it is sometimes hard to find the right words to describe yourself.” To this same point, there were some instances of disagreement with the DISC assessment. Student S1 disagreed with the assessment of her ability to be organized and students S2 and S12 disagreed with the assessment’s description of their communication abilities. “According to the assessment…there is a likely chance that I would chat rather than get work done. However, I like to believe that I have a little bit more self-control than that” (S12).

Students were also able to identify areas for development in their soft skills. Areas of improvement were in reference to how they receive/react to feedback (S3, S5, S15); their potential display of emotions (S1, S5, S6); or their confidence (S12), or lack thereof. “The hardest thing for me to read was essentially that I am a doormat…. I don’t like making people upset or causing unpleasant situations” (S12).

In terms of the team project, the students preflected that they would use their soft skills to create a conducive environment by leveraging and/or accommodating each member’s skill set (S4-S5, S7, S9, S13-S15). Student S15 stated, “With my ability to motivate and inspire urgency, I hope to encourage my team to make consistent and meaningful progress, while also having fun along the way.” Student S14 indicated, “The positivity I bring can keep the mood up when things aren’t exactly going our way and no dream is too big for us to try and achieve.”
Other comments were about improving communication and interaction with their team and with their project stakeholders. For example, knowing about behavioral styles will “give me insight to knowing how to communicate better with [my team members] in order to make better more efficient use of our time and resources” (S13). Students S4, S9, and S15 also wrote that understanding their behaviors and being able to read the behaviors of others would help in their stakeholder interactions. “It will help when reaching out to prospective decision makers to be able to relate to them to form a good professional relationship” (S9). Student S15 wrote, “In facilitating stakeholder discussion, I will be careful not to manipulate the conversation.”

Reflectively, the students found that the combination of the behavioral style learning unit and the capstone project gave them an opportunity to purposefully practice their soft skills. Students were able to identify how their behavioral characteristics contributed to the capstone project processes (S1-S15), and found the DISC assessment helped them to understand their own behavioral needs (S1-S15) and flex their style to meet the needs of their team members (S2-S3, S8-S9, S11, S15) as they engaged in their projects. The students found that they were more aware of team dynamics (S1-S15) and therefore able to recognize areas to improve project efficiencies (S8, S10) and to create an environment conducive to project success through improved communications with their teammates and stakeholders (S1-S15). Student S10 wrote, “It helped me prepare and adapt to potential situations” (S10), and student S4 wrote, “Compared to the beginning of the semester...I now know how to actually use [behavior-specific] methods of communications. I learned and applied [the taught] communication skills.” Similarly, the students were able to recognize behavioral styles and cues in their teammates and stakeholders (S1, S2, S4, S5, S9, S10, S13, S14) and adjust their message and/or flex their behavioral style to achieve desired outcomes and positively impact work efficiency (S1, S4, S5, S6, S11, S13-S15). “By strategically using the information from the assessment, I was able to meet certain demands in my personal and work environment for the project” (S4). Student S9 wrote the following.

I was able to analyze [teammates’ and stakeholders’] behavior to understand how to communicate effectively with them. It also helped me to figure out my role in the group and where I could play up my strengths if one of my group members was lacking in that area. (S9)

In reflection, the students also identified areas where they could use further improvement. Students S3, S5, and S12 found that the combination of the behavioral style learning unit and the capstone project helped them realize they need more development in their communication skills. Student S12 wrote, “During this project I learned that I am definitely a poor listener (I didn’t believe the DISC assessment at the beginning of the semester).” Student S7 and S12 realized they need more opportunities and training to develop their team member motivation skills.

Team Dynamics

For the second research objective, team dynamics were explored relative to the peer evaluation scores and the anticipated working relationships of the team members predicted by DISC training materials (see Table 2). Teams in which a majority of the relationship pairings were predicted to be in the Great Working Relationships category (Team 2 and Team 3) had individuals that perceived their contributions to team tasks similarly to other team members in the peer evaluation, with differences in perceived contribution ranging from -3 to 6 points. Teams in which a majority of relationships were predicted to be in the Requires Effort category (Team 1 and Team 4) consistently overestimated their own contributions to team tasks compared with other team members’ perceptions in the peer evaluation, with differences in perceived contribution ranging
from -2 to -15 points. Team 5 was excluded from this set of analyses as there were two team members and one student did not return the peer evaluation.

**Best Practices**

The third research objective aimed to identify best practices for incorporating a behavioral style learning unit to facilitate students’ soft skill development. While the students in this study suggested that other students engage in a similar learning experience (S1-S15), they did identify areas of improvement when incorporating a behavioral style learning unit. They suggested that the experience be offered earlier in students’ academic careers (S8, S15) to allow more time to “refine my strengths and better my weaknesses before entering the professional work environment” (S8). In terms of process and structure, they wrote that the interpretation lecture given by the DISC practitioner should resemble a workshop with a teamwork focus (S9) and focus on how to deal with behavioral gaps in teams (S5). Lessons from the behavioral style learning unit should also be incorporated and referenced throughout the semester (S1, S12, S13, S15).

For future instructors, I would advise having an assignment in between the first reflection and the last, asking the students to identify as best they can the behavioral profile of their stakeholders. Or at least some sort of assignment to keep the students thinking about the DISC assessment throughout the course of the project. (S13)

The students suggested the course instructor also take the DISC assessment and share his/her experiences in relation to his/her profile so students can understand how DISC is relevant to someone they know in the professional world (S10, S15). Student S4 suggested that instructors use the knowledge of their own DISC profile and the profiles of their students to improve teaching, learning, and general communication in the classroom.

In addition to best practices, the students identified disadvantages of incorporating a behavioral style learning unit into a capstone course. The most frequently mentioned disadvantages had to do with self-analyzing. Students wrote that knowing your behavioral style makes you aware of your weaknesses, and this can lead to using them as a crutch (S1, S7). “If we knew we were not strong in a certain area, we would almost use that ‘weakness’ as an excuse...instead of working on the areas [of the project] that we needed to work on” (S7). Being aware of their weaknesses could also contribute to negative self-analyzing (S12) and lead to altering a personal characteristic that does not need to be changed (S3, S11).

The drawback to knowing my [profile] from the DISC assessment was constant self-analyzing and being petrified that my behavior was coming off badly on other people. At first, I was just worried about in person interactions, but then I started worrying that my email interactions were too dominant or that my fear of conflict was showing to all the professionals I emailed. (S12)

Students S3, S7, S8, S10, and S14 reflected that the DISC behavioral style profile summary should be “taken with a grain of salt” (S8), noting that the document is a summary, not a rulebook. When referencing their team and stakeholder interactions, students realized that they could incorrectly read people (S9, S14) and that they could use behavioral style as an expectation of team role (S6) instead of a pattern of behavioral norm.

Overall, the students (S1-S15) wrote that the experience and information prepared them to be more successful in a working environment. They indicated it would be a reference tool for
understanding others (S9, S13, S15), improving collaboration skills (S7), and would help them better communicate to create a positive working environment (S3-S4, S6-S7, S13).

Conclusions, Implications, and Recommendations

The first objective was to explore students’ preflections and reflections for indications of soft skill development through the inclusion of a behavioral style learning unit in a capstone course and project. Soft skills, including teamwork, collaboration, effective communication, and problem solving (Crawford et al., 2011; Jones, 1996; Roberts et al., 2016), are an expected skill set of graduates (Clem et al., 2014; Connaughton, 2015; Crawford et al., 2011; Hart Research Associates, 2015) upon entering the agriculture and natural resource workforce (Crawford et al., 2011; Sample et al., 2015). Based on the findings of this study, it can be concluded that the inclusion of a behavioral style learning unit in a capstone course and project was an effective platform for teaching students soft skills. The team capstone project was a way to facilitate the development of soft skills (Dunne & Rawlins, 2000; Lamm et al., 2014; Mars, 2015; McCubbins et al., 2016) by giving students a venue to purposefully experiment with them and experience successes, failures, and problem solving in a relevant situation (Knowles et al., 2011; Kolb, 1984).

More specifically, the behavioral style learning unit impacted team and stakeholder communications and general teamwork in the capstone projects in NREM 494. Davis and Jayaratne (2015) and Robinson and Garton (2008) identified that students in agriculture and natural resources need training for communication skills. In accordance with the findings of previous studies using similar psychological and behavioral assessments (Bonnstetter & Suiter, 2011; McKenna et al., 2002; Peeters et al., 2006; Varvel et al., 2004), the students in this study reported improved team and stakeholder communication and provided evidence of team member consideration and/or accommodation as a result of their contact with the information from the behavioral style learning unit. There were three points of contact with the information: (a) the lecture; (b) the preflection; and (c) the reflection. As an extension of recommendations made by the students, we recommend increased points of contact with the information from the behavioral style learning unit throughout the learning experience.

It should be pointed out that, while few, some students found some aspects of their behavioral profiles difficult to read. A behavioral style profile belongs to the individual who completed the assessment and, therefore, their sharing the information is a voluntary decision. We recommend that instructors who incorporate this or a similar assessment into a team project situation make clear the students’ ability to withhold or share information. The lesson should also be structured so students do not feel pressured to share if they do not wish to do so.

The second objective was to explore team dynamics based on peer evaluation scores and the behavioral styles of team members. Previous studies found that teams comprised of diverse psychological types were more effective (Neuman, Wagner, & Christiansen, 1999; Peeters et al., 2006). In accordance with the DISC behavioral style compatibility information (Leadership Resources and Consulting, n.d.) and the findings of this study, it can be concluded that team dynamics can also be related to team member behavioral style compatibility. Teams that had a majority of their members’ relationship pairings in the Great Working Relationships category had accurate self-perceptions of their project contributions. Teams with a majority of relationship pairings in the Requires Effort category all overestimated their contribution in relation to their peers’ perceptions of their contributions; this may be an indication of dysfunctional team communication and a lack of clear team member expectations. DISC is an ideal tool to help team members communicate and collaborate efficiently (Bonnstetter & Suiter, 2011; McKenna et al., 2002); therefore, we recommend that team members use DISC to create a team performance plan.
This plan should identify how the team will communicate with each other and their stakeholders, role/involvement expectations, etc. We also recommend that instructors use DISC for team management. Instructors can use DISC to help teams identify their performance issues and inform their solution strategy.

The third objective was to identify best practices for integrating a behavioral style learning unit into a capstone course. Based on the findings, it is recommended that a behavioral style learning unit, or a similar psychological type unit, be integrated into courses where a group-based project is the learning method and the development of soft skills is a desired student learning outcome. Similar to the findings of Varvel et al. (2004) and Peeters et al. (2006), this study finds that, while behavioral style does not necessarily predict team effectiveness, it does foster the development of soft skills. In terms of process, it is recommended that, after the initial lecture, the content be threaded throughout the course. While Jones and Bjelland (2004) encourage prereflection before an experience and Kolb (1984) places reflection after the experience in the theory of experiential learning, the students in this study suggested that periodic reflection points on the behavioral style learning unit throughout the semester would be beneficial to keep the information current in their minds. Similarly, we recommend that instructors relate the content from the behavioral style learning unit to team-specific situations throughout the learning experience because team dynamics contribute to the desire to learn, peer motivation, critical thinking, and communication (McCubbins et al., 2016).

Employers from various fields seek to hire employees with hard and soft skills. Sample et al. (2015) and Scanlon et al. (1996) identified that natural science degree programs, including fields of study associated with agriculture and natural resources, lack learning units to develop students’ soft skills. In response to this identified deficit and the overall findings of this study, we recommend that instructors in natural science degree programs investigate their curriculum to identify where a similar behavioral style learning unit could be incorporated to develop students’ employability skills upon graduation. This study demonstrates successes and provides suggestions to address the need for students in the natural sciences to gain experience in developing soft skills through the deliberate incorporation of a behavioral style learning unit in a capstone course.

References


of forestry employers, graduates, and educators. *Journal of Forestry, 113*(6), 528-537. 
doi:http://dx.doi.org/10.5849/jof.14-122

doi:10.5032/jae.1996.02017

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9cd8b00/1445964711304/tech_report_tti_behaviors.pdf

individual Myers-Briggs personality dimensions. *Journal of Management in Engineering, 