

Levels of Reflection in Strength-Based and Weakness-Based STEM Faculty Peer-Observation

Amanda Lake Heath
Middle Tennessee State University

Sarah K. Bleiler-Baxter
MTSU

Fonya Scott
MTSU

Olena James
Belmont University

O. Theresa Ayangbola
MTSU

Grant E. Gardner
MTSU

Gregory T. Rushton
MTSU

The Teaching TRIOS project aims to promote strength-based faculty peer-observation of teaching for professional development. In this project, we present preliminary work from a comparative case study of two teaching TRIOS groups, one largely strength-based and the other primarily weakness-based. We seek to understand the levels of reflection facilitated by a strength-based and weakness-based approach to observation through the lens of the Onion Model for levels of change (Korthagen, 2004). Preliminary results indicate that a strength-based approach may promote more frequent reflection upon deeper aspects of oneself, such as beliefs, identity, and mission.

Keywords: Faculty Development, Peer Observation, Teaching TRIOS, Core Reflection

Many of our RUME colleagues are working to understand how to impact university instruction, at the level of the faculty (e.g., Yoshinobu et al., 2022), graduate teaching assistant (e.g., Ellis et al., 2019; Reinholz, 2017; Rogers et al., 2020), or through broad departmental change (Reinholz et al., 2020; Smith et al., 2021). In our work, we contribute to and extend this literature by providing an in-depth look into the discourse between university faculty when they are reflecting together upon one another's instruction, attending to the tone and content of their reflections. This research is in direct response to Esterhazy et al. (2021), who provided a call to action encouraging researchers to not only explore what works in collegial-level faculty development (CFD) but also how it works. In particular, they mentioned that the field is in need of greater understanding of "the actual interactions and the content of feedback provided during concrete [collegial faculty development] situations" (p. 255). Within this preliminary report, we explore the content of feedback provided during Teaching TRIOS debrief sessions, a Time-Sensitive (T), Reciprocal (R), Inclusive (I), Operative (O), and Strength-Based (S) instantiation of CFD that utilizes peer observation and has been used within the mathematics department, and more broadly across various STEM departments, at Middle TN State University (Bleiler-Baxter et al., 2021).

Within TRIOS teams, groups of three interdepartmental faculty observe one another's instruction and then meet to debrief. The goal is to unpack the strengths of the instructor observed during that class session. Unlike many traditional forms of peer evaluation, where the *observers* are positioned as coaches, the TRIOS model is intended to position the *instructor* as the coach and as an expert in their classroom setting. What we have noticed, though, is that some teams are more effective than others at debriefing in a truly strength-based way (i.e., attending to and unpacking the strengths of the instructor rather than identifying weaknesses or offering areas for improvement). In this research, we explore two such TRIOS teams, one team of

mathematicians that tended toward weakness-based reflection, and one team of biologists that tended toward strength-based reflection. We ask the following research questions:

1. In what ways and upon what content do undergraduate-level faculty reflect within TRIOS debrief sessions that utilize a strength-based approach?
2. In what ways and upon what content do undergraduate-level faculty reflect within TRIOS debrief sessions that utilize a weakness-based approach?

Theoretical and Analytical Framing

Providing negative, yet honest, feedback on a teaching session can lead to uncomfortable moments and cause considerable anxiety (Esterhazy et al., 2021). Through this study, we offer a converse hypothesis rooted in *positive psychology* (Seligman & Csikszentmihalyi, 2000): focusing faculty feedback on the strengths of the instructor can facilitate a deeper, more vulnerable and positive level of reflection and promote professional development.

The Onion Model for levels of change (Figure 1; Korthagen, 2004) describes six levels at which teachers may be influenced to change their classroom practices, and therefore provides us with a lens to qualitatively view instructor reflection. Within this model, reflection can range from the outer, external layers such as *environment*, *behavior*, and *competencies* to the deeper, core layers of *beliefs*, *identity*, and *mission*. Reflection centered on the core levels can create room for deeper introspection and learning (Korthagen & Vasalos, 2005).

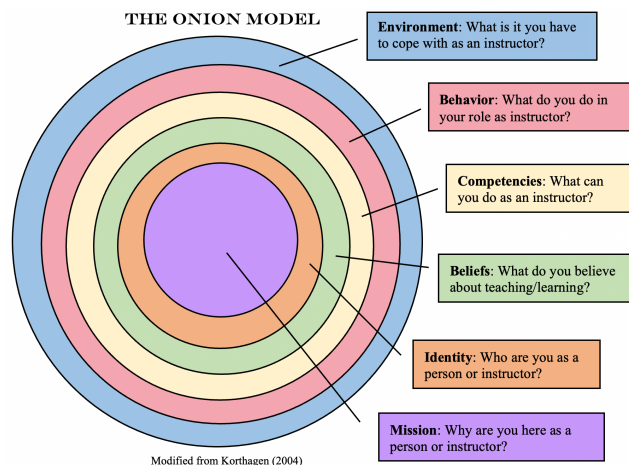


Figure 1. The Onion Model for levels of change, modified from Korthagen (2004).

Methods

Context and Data Collection

The study presented here is part of a state-level grant, awarded during the 2020-2021 academic year. The overarching objectives for the grant were to (1) support faculty in becoming more aware of and responsive to varied backgrounds, learning styles, and cultures of learners in STEM courses, (2) promote reflection among STEM faculty with respect to inclusive pedagogy, and (3) spark cultural change within STEM departments with respect to a focus on inclusion. We began the professional development (PD) program in Fall 2020 with nine faculty participants, three from Biology, three from Chemistry, and three from Mathematics. One of the faculty participants from the mathematics department was unable to participate in the program after the Fall semester due to a significantly increased teaching workload during Spring 2021, so the mathematics trio became a duo during the Spring 2021 semester.

One of the main levers of change in this program, especially with respect to goal 2, was a peer observation of classroom instruction initiative called Teaching TRIOS. In this manuscript we explore the Teaching TRIOS debrief sessions for the biology team (Betty, Bridget, and Brian) and the mathematics team (Margaret and Moby), which occurred during Spring 2021. We selected these two teams to highlight as cases in this manuscript because they illustrate clearly a strength-based approach (biology team) and a weakness-based approach (mathematics team) to debrief discussions, and hence provide us with insight into our research questions.

As this project was conducted during the COVID-19 pandemic, all TRIOS debrief sessions were conducted and recorded via Zoom. We did not collect recordings of the participants' class sessions, which were the topic of observation and discussion during the TRIOS debriefs. The six TRIOS debrief transcripts (three from biology, B1, B2, and B3, and three from mathematics, M1, M2, and M3) were edited, cleaned, and separated into talk turns. We define a talk turn to be the duration of one participant speaking until another participant speaks a complete word (i.e., interjections such as “hmm” did not separate a talk turn, but “yes” or “no” did). Transcript files were uploaded into Google Sheets to organize, classify, and analyze data.

Data Analysis

Our data analysis employed two layers of qualitative coding by talk turn. First, we coded each transcript to determine a quantitative description of the use of strength- or weakness-based approaches by each TRIOS team. Then, to compare the levels of reflection present within each TRIOS team, we coded the transcripts through the lens of the Onion model (Korthagen, 2004).

Strength-based and weakness-based reflections. Two members of the research team independently identified segments from the transcripts that demonstrated a strength or a weakness-based approach. After independently coding one transcript from each the biology and mathematics TRIOS teams, these researchers met to discuss their understanding of a strength-based and weakness-based reflection and developed the following definitions.

In a ***strength-based reflection***, an asset perspective on instruction is offered, often paired with a genuine interest in learning about instruction. These reflections are typically educative in nature. For example, Brian (B2) commented on Betty's risk-taking in the classroom,

I applaud you for it, because what you did, I think, for some people would be considered risky. Where, it's like, it's easier just “tell them what they need to know, give them multiple choice exam don't take risks”, and it's like, but that is not the world of how we need to develop people, and so I really applaud you for what you're doing. Yeah, I mean, my notes are so much for myself of, like, “how can I adapt these?” Because this pushes me to go in ways I hadn't thought about so I'm, I really... overall just really well done.

In a ***weakness-based reflection***, a deficit perspective on instruction is offered, often paired with interest in offering an alternative approach to instruction. These reflections are typically evaluative in nature. For example, Moby (M1) commented on Margaret's teaching, “Right there would have been another spot. Because you corrected [student] when maybe the class should have corrected [student].”

The same two researchers coded each transcript independently for strength- and weakness-based reflection and then met to discuss disagreements and reach consensus. Any talk turns where consensus could not be reached were reviewed by five team members and discussed to reach agreement. Each transcript finally received a sum total for the number of strength- and weakness-based reflections present in the transcript. In order to compare the transcripts, we then scaled the number of strength- and weakness-based codes each to the total number of strength- or weakness-based codes.

Levels of reflection: the Onion Model. We used the levels identified in the Onion model (Korthagen, 2004) to categorize faculty talk-turns as reflection upon environment, behavior, competencies, beliefs, identity, and/or mission. The entire research team coded two transcripts to refine our code descriptions for each of the six levels. The revised codebook was used by two researchers to evaluate the transcripts independently. Following the independent coding of each transcript, these two team members met to determine consensus. Any talk turns where consensus could not be reached were reviewed with five team members and discussed to reach agreement. Each transcript received a sum total for the number of codes from each category present. In order to compare the transcripts, we then scaled the number of codes per category to the total number of Onion Model codes.

Preliminary Results

Strength- and Weakness-Based Reflections

As stated above, we calculated the proportion of codes within a single transcript that demonstrated either a strength- or weakness-based reflection during the TRIOS debriefs for the biology trio and mathematics duo (Figure 2). Confirming our original impression, the biology trio largely embraced the strength-based reflection approach to the TRIOS debrief sessions, and although the mathematics duo illustrated more weakness-based reflections than strength-based reflections in their first two debriefs, their third debrief demonstrated growth in the use of a strength-based perspective.

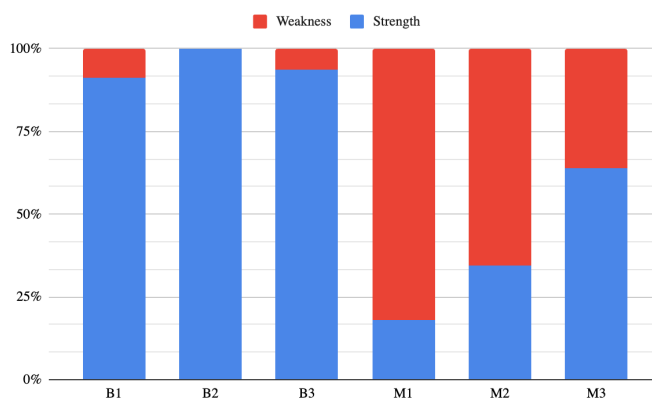


Figure 2. Proportion of codes demonstrating a strength- or weakness-based reflection by TRIOS debrief manuscripts for the biology trio (B1, B2, and B3) and mathematics duo (M1, M2, and M3).

This apparent change in approach is not surprising as all participants were reminded of the strength-based facet of the TRIOS program during whole-project faculty learning community sessions. It is also evident that the mathematics duo made fewer weakness-based reflections during each debrief. The third mathematics duo debrief (M3), in which 64% of coded talk turns included a strength-based reflection and 36% of coded talk turns included a weakness based reflection, was considerably shorter than other debriefs at 163 talk-turns compared to an average of 282 talk-turns across all six transcripts. Further, M3 still offered more weakness-based reflections than any of the biology team transcripts.

This observation regarding M3 along with the aggregate proportions of types of reflections for both the biology trio (95.3% strength and 4.7% weakness) and the mathematics duo (33.6% strength and 66.4% weakness) led us to consider the biology trio as an example of a group using a largely strength-based perspective and the mathematics duo as an example of a group using a

largely weakness-based perspective to frame our analysis of the levels of reflection present throughout the debrief sessions.

Levels of Reflection in TRIOS Debriefs

The analysis of the TRIOS debrief transcript revealed a slightly different distribution of levels of reflection present in the biology trio's and mathematics duo's discussions (Figure 3). Although for both teams, the largest area of reflection was behavior and the smallest area of reflection was mission, the strength-based biology trio had a higher proportion of reflections regarding their beliefs (18.31%), identity (4.92%), and mission (1.37%) than the weakness-based mathematics duo (12.19%, 1%, and 0.5%, respectively). This indicates that it is possible a strength-based perspective may lead to deeper conversations and facilitate safe environment that facilitates reflection upon the most core features of oneself.

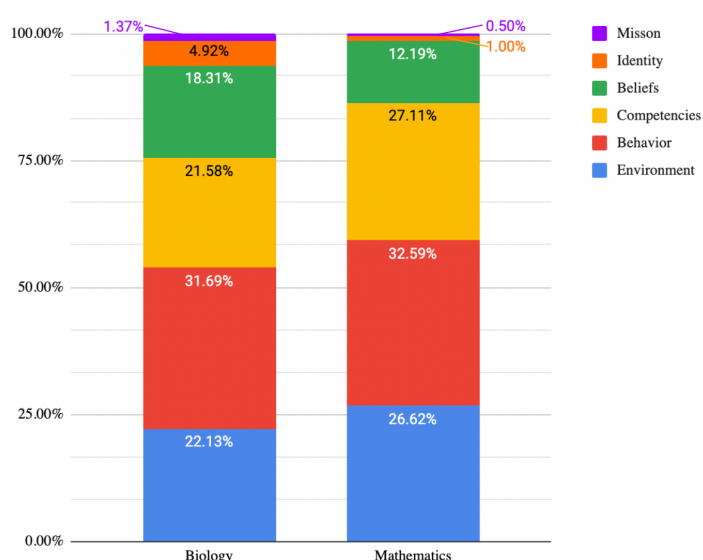


Figure 3. Proportion of levels of reflection across total Onion Model codes aggregated by biology (B1, B2, and B3) and mathematics (M1, M2, and M3) debrief transcripts.

Continued Research Plans

We have currently completed our coding and have explored the quantitative proportions of levels of reflection present in the two team debriefs, but we also plan to identify exemplary episodes for each level of reflection and consider the context of how a strength- or weakness-based reflection framed the subsequent conversation. This continued work will qualitatively respond to our hypothesis that focusing faculty feedback on the strengths of the instructor can facilitate a deeper, more vulnerable and positive level of reflection to promote professional development.

We also noted during our research team discussions a qualitative difference between certain strength-based and weakness-based reflections. Although we defined strength-based reflections to be *typically educative in nature* and weakness-based reflections to be *typically evaluative in nature*, we noted instances in which participants offered evaluative strength-based reflections. Future work distinguishing between evaluative and educative reflection may help us better respond to why a strength-based perspective alone may not promote deeper reflection.

Acknowledgments

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