

more teaching experience (3 or more years) tend to score at a higher level on the Participant Outcomes measures (both pre and post), but their gains on these items are similar to more novice instructors; the same is true for those with high levels of belief in the effectiveness of active-learning pre-workshop. Thus, our evaluation measures provide evidence that the workshop is valuable for diverse faculty, but indicate an influence of incoming experience.

V. DISCUSSION AND FUTURE WORK

We have developed a Theory of Action of the NFW which posits that the workshop design will improve faculty's short-term perceptions of active learning and confidence in enacting it, thus leading to long-term, broad use of evidence-based teaching practice in the discipline. Our measures are able to provide evidence in support of the ToA, indicate the successes of the workshop, and suggest areas that can be improved. We claim that the evaluation design addresses the needs of multiple stakeholders, providing a voice for the participants, showing return on investment for the funding agency, as well giving guidance to the organizers. Multiple data sets, and concise visuals, are used to substantiate recommendations.

The main measurable impact is in increased *knowledge* of active learning strategies, and participants particularly comment that they benefit from the broad exposure to teaching techniques. Common critiques have begun to be mitigated, and the workshop is equally effective regardless of teaching experience or gender. We find that participants have high levels of incoming interest in using active learning, and that the NFW impacts their knowledge of EBIPs. Thus the *knowledge*, *belief in the effectiveness* and the *motivation* aspects of our ToA need less attention than *self-efficacy*, *skill*, and *social support*.

We find that participants are somewhat diverse, representing undergraduate-serving and R1 institutions, many have tried an EBIP, and some have substantial teaching experience. This diversity has led the evaluation to recommend differentiated instruction in the NFW, such as a "tracked" schedule, as well as more opportunities to share this experience through peer discussions.

Our ToA allows us to put common complaints into a theoretical framework: Comments that active learning is being "over-sold" may suggest that the NFW is erroneously focusing on *motivation*, which can sometimes prompt a negative response among participants, consistent with self-regulation theory [6]. Additionally, a presenter who is focused on "convincing" can be more cautious about highlighting challenges of EBIPs and aspects of successful implementation [1-3]. Given participants' interest in a broad survey of techniques, and their 50/50 split on needing more time to practice what they learned, the evaluation has recommended providing some sessions with an explicit focus on *knowledge* (e.g., broad survey sessions), but explicitly focus others on *skill* and *self-efficacy*, with a goal of encouraging participants to be more self-reflective teachers. Another workshop [8] demonstrated higher levels of gain in *skill*, and included hands-on activities, work time, and video observations. The NFW is in the process of incorporating more of such strategies, including online faculty learning communities [12], which may enable further gains in this area.

A main limitation of the measures is their self-report nature, though responses are quite consistent across workshops. Another limitation is the small room for growth on our Participant Outcome measures, limiting observable effects, and suggesting the need for alternative tools. Additional data, with our finalized instruments, will allow further investigation of participant outcomes and the influence of background variables. Use of the newly developed real time workshop observation protocol [13] may give additional insights into practice within individual workshop sessions, and how they support the ToA. Future evaluations will examine whether the workshop achieves long-term goals of impacts in reported teaching practice.

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