Supporting college student self-determination through motivational interviewing

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Abstract

Purpose – This study was intended to investigate a small-scale School-based Motivational Interviewing (SBMI) pilot with first-year college students. This approach honors student autonomy, supports self-determination and has the potential to impact educational outcomes in higher education. Motivational Interviewing (MI) is an evidence based conversational skill set, defined as “a collaborative conversational style for strengthening a person’s own motivation and commitment to change” (Miller and Rollnick, 2013, p. 12). Student perceptions of satisfaction with the faculty-student mentoring intervention were sought. Relational aspects of MI (partnership, empathy and alliance) were also explored.

Design/methodology/approach – A mixed-method approach was used for the SBMI study, focused on college students with recent academic setbacks (N = 19).

Findings – The intervention was deployed with high levels of MI technical fidelity and relational quality. Participants reported high satisfaction with the intervention. The relational aspects and participant perceived alliance with their faculty were highly correlated across the intervention, adding to the discussion of the mechanisms of MI that contribute to its effectiveness.

Research limitations/implications – This work is formative, yet at this point is not generalizable given the scope of the study.

Practical implications – Findings are encouraging for further development of this innovative pedagogical approach. Possible future applications of research are provided.

Social implications – Discussed herein, SBMI has the potential to meet the needs of traditionally underrepresented student groups.

Originality/value – The reported study is the initial portion of a larger intervention development project.

Keywords Motivational interviewing, First-year students, Self-determination, Mechanisms of MI

Paper type Research paper

The persistence and retention of students in American higher education institutions declined during the COVID-19 pandemic to their lowest levels since 2012 (NSCRC, 2021). This decline is a setback, not only for students and institutions, but also for research that attempts to understand what supports and/or hinders student persistence, retention, and degree attainment. A student’s first year in college seems to be pivotal, and institutions continue to face the problem of retaining students beyond this critical year. Academic performance and engagement during the first year play key roles in determining if a student persists and eventually graduates (Shoulders et al., 2020). Those that underperform academically in the first year are susceptible to early departure (Nieuwoudt and Pedler, 2021).

When students with the highest need rise in a tiered-system of support, evidence-based practices are needed (Ziomek-Daigle et al., 2016). In a college setting, tiered-support may be deployed to mitigate student departure. Various theories regarding behavior change exist since acceptance of this article, the following author(s) have updated their affiliations: Jon Lee is at Early Childhood Research Center, University of Louisville, Louisville, Kentucky, USA.
that help explain the motivation necessary to change behavior. One that is germane with the first-year college student population is self-determination theory (SDT) (Deci and Ryan, 2002), a novel approach that is highly considerate of the student’s own perspective and needs.

**Self-determination theory**

Self-determination theory (Ryan and Deci, 2000) holds that autonomy is a basic human need, and thus people have the desire to act of their own volition; even if their personal decision is to rely on the advice of another (autonomously dependent). As noted by Ryan and Deci (2017), when behaviors are autonomous, they are “experienced as emanating from, and an expression of, one’s self” (p. 14). SDT posits that when environments support and satisfy human psychological needs, people will thrive. Theoretically, such conditions will foster the autonomous motivation in people. Empirically, this is supported in first-year students (Vergara-Morales and Del Valle, 2021). The autonomous motivation of first-year students is associated with academic behaviors and disposition, and predictive of outcomes including achievement and persistence (e.g. Fokkens-Bruinsma et al., 2021). Autonomous motivation is raised as pedagogical practices, services and teachers support the autonomy of their students (Guay, 2022).

An intervention utilizing an evidenced-based practice that allows for pedagogical techniques rooted in self-determination (in particular, autonomy) seems applicable for underperforming college students. Recently Peng and Wang (2019) and Wang and Lu (2020) used Motivational Interviewing (MI) (Miller and Rollnick, 2013) as a value-added technique embedded within a mindful agency coaching program and found a positive effect on college student learning dispositions. The mixed-method approach utilized by these researchers provides an understanding of the coaching process, but does not delineate the role of MI in the intervention. Thus, SDT focused research that can isolate the impact of MI in this population is needed, as there is a lack of reproducible SDT interventions in college settings (Reeve and Cheon, 2021). Interventions utilizing MI offer an innovative opportunity to practice SDT and has been suggested as an individualized MI coaching approach which may be particularly effective for first-year students (Peng and Wang, 2019).

The current study being reported encompasses a small-scale feasibility pilot study to investigate using MI as a component of a success course for underperforming first-year students. The intervention materials were adapted from previous School-Based Motivational Interviewing (SBMI) studies with different educational populations (Hanks, 2021; Shum, 2020). As the use of SBMI in our target population is new and innovative, the following describes an initial attempt to gain insight into the mechanisms of an intervention utilizing MI deployed for underperforming post-secondary students who have experienced recent academic failure; one that honors outcome expectation and autonomy through the self-expressed personal goals of the target population. SBMI has been applied in one-to-one, small group, and large group settings internationally to undergraduate students struggling with online learning, students on academic probation/alert, students with procrastination problems, and students receiving coaching (Lee et al., 2022; Oram et al., 2022; Shahbaazi et al., 2021; Wang and Lu, 2020). Researchers have yet to explore the student perceptions of MI as a stand-alone strategy while fully reporting implementation fidelity.

The specific research questions addressed, and further explored in this article, were [RQ1] to what extent can a MI intervention for college students be deployed with technical fidelity and relational quality, [RQ2] to what extent are college students on academic probation satisfied with the intervention, and [RQ3] how do measures of alliance between faculty and students associate with measures of coded relational skill of the faculty delivering the intervention.

Our hope is that with the refinement of all technical components and measures, a tertiary SDT-based intervention, delivered through MI within a tiered-support system targeting
student academic achievement behavior will increase student grade performance, in turn increasing retention and graduation rates. A randomized control trial is the charge of the future iterations of the project. Although not possible from the current study, the long-term intention of the researchers is to offer a generalizable evidenced-based intervention, with demonstrated outcomes, considerate of underrepresented student groups, to colleges for implementation within tiered-support systems.

Motivational Interviewing

Motivational Interviewing is an evidence-based conversational strategy that can be used in supportive student-faculty relationships [1]. The use of MI in postsecondary settings offers the opportunity to raise a student’s motivations to; (1) address specific academic and social behavioral problematic areas, (2) evoke the benefits and importance of the self-identified areas for change, and (3) create individualized plans for the change in turn raising self-efficacy.

Both a clinical practice and a conversational style, MI is founded on the belief that how one interacts with a client (hereafter called student) affects that student’s motivations for change. This counseling technique promotes specific interviewing skills (technical skills) and processes that can be applied in a variety of settings to promote behavior change. Additionally, a particular spirit in which to impart those processes (relational skills). Motivational Interviewing is centered on the idea that a student’s readiness for behavior change can be gauged by the way they talk about the behavior in question. The theory of MI identifies two types of speech that indicate their readiness for change. The first is change talk, or utterances that favor the target behavior for change. The second is sustain talk, or utterances that favor the status quo. These two types of speech are empirically related to the relational and technical skills used by the faculty member.

Research from the fields of substance abuse and healthcare demonstrate that change and sustain talk are highly responsive to faculty member’s style, and its proportionality is predictive of behavior change (Frey et al., 2020). Essentially, a student’s use of change talk rather than sustain talk indicates that they are internally motivated to make a change, and are therefore more likely to be successful in doing so. The technical and relational skills of MI are associated with increased change talk when applied with fidelity. In this way, MI can be thought of as a process that helps the student acknowledge their own ability to change. The faculty cultivates internal motivations for change by developing a supportive relationship and evoking change talk. Thus, school personnel whose “many hats” include supporting students in considering some form of behavior change, will benefit from the skills of MI in order to cultivate change talk, soften sustain talk, and build a supportive working relationship that honors the student’s own motives for change.

Technical and relational skills

The technical skills of MI are represented by the acronym OARS, which stands for Open-ended questions, Affirmations, Reflective Practice and Summaries. Faculty use of open-ended questions helps to facilitate student discourse related to the behavior change of interest, and focus the overall interview on the student’s own reasons for change. Affirmations provide recognition of student values, goals, effort and persistence; when applied appropriately, affirmations can bolster student confidence. Reflective practice is at the heart of a motivational interview and is relied heavily upon by practitioners. Appropriately utilized reflections add complexity to student’s utterances – particularly those in favor of change (change talk). “Simple reflections” is a tool that can be utilized by the practitioner to respond to student sustain talk so that conversations regarding the status quo do not receive
unintended emphasis and so are softened. Finally, summaries are an important conversational skill whereby a practitioner can consolidate the change talk that has been expressed by the student. This allows the student to hear again the change talk they have produced – helping to solidify commitment to the change process.

Effective use of these technical skills is essential, but in order to be considered proficient in MI, a practitioner must also exhibit a spirit of partnership, acceptance, compassion, and evocation. This “spirit of MI” constitutes the relational aspect of the technique, and is essential in building a supportive working relationship with the student.

Finally, MI provides a set of conversational processes that act as a roadmap, guiding the student and faculty through a series of four steps that are necessary to contemplate change fully. The processes are engagement, focusing, evocation, and planning. Although these are not purely sequential, they would roughly follow the above outline - chronologically. Beginning first with Engagement, the faculty member works to build a collaborative relationship, discover the participant’s values, and affirm those values while supporting student autonomy. Focusing involves exploring the participant’s current condition, advocating benefits of change as opposed to the consequences of the status quo, and possible behavior change targets. This work is an ongoing process of seeking and maintaining direction towards change during which the faculty member serves as a guide rather than a director or follower. The goal of focusing is the shared identification of a change goal. Evocation requires the faculty member to bring forth the argument for change from within the student themself. To evoke is to ask questions that are likely to encourage the student to articulate their own reasons and motivations for change. In essence the faculty member guides a student in talking themself into change. Evocation requires a specific behavior focus and is not efficient when applied in a general sense (e.g. when the behavior change focus is too broad). A faculty member supports the participant in building a rich and detailed narrative of change, moving the conversation regarding specific behavior change from preparatory to mobilization, while attending to self-efficacy, confidence, and autonomy. Once the participant has begun to voice a commitment to change, a natural process of Planning can begin during which a review of possible barriers is conducted along with the supports necessary for the change to take place.

The exact knowledge of the mechanisms of behavior change within MI are still an area needed in research. Frey et al. (2020) noted that relational aspects of MI in a clinical setting have desired results, such as clinician partnership and empathy and client alliance to the clinician. Alliance in a school-based setting (e.g. faculty and student) is a collaborative effort demonstrated by the ability to agree on targeted goals and tasks (Hanks, 2021). Frey et al. (2020) suggest that MI frameworks may operate differently in different contexts; clinical settings may have different mechanisms than MI in educational settings. Without knowledge of mechanisms in different settings, outcomes remain hazy. Exploration of mechanisms is a novel endeavor in SBMI.

A model was crafted to visualize the relationship between the MI Spirit in SBMI and SDT. For SDT practices the researchers used a recently created taxonomy (Ahmadi et al., 2023), of teacher behaviors that support or thwart student autonomy, connectedness, and competency. Taxonomy behaviors that are supportive are hypothesized to meet student psychological needs and increase autonomous motivation. Then the researchers reconciled relational behaviors defined and measured in the MITI 4.2 (Moyers et al., 2015), which are intended to measure the spirit of MI in a conversation. A discussion over possible alignment, and a frequency count of MI behaviors that could be considered in-step with the taxonomy behaviors led to hypothesized alignment between MI and SDT. As provided in Figure 1, the weight of the dashed line indicates the hypothesized alignment based on frequency. A full description of the creation of the model is provided in a supplemental white paper (Supplementary Material). The current study aims to provide an initial exploration to see if
student-faculty alliance using MI may be attuned to supportive teaching behaviors in SDT, through a small-scale intervention development study that is described below.

**Methods**
The current IRB approved study draws upon Wang and Lu’s (2020) and Shum’s (2020) studies and uses a mixed method approach to ensure that student experience was embedded within the research, in addition to the analysis of the quantitative measures. Qualitative open-ended response data was used to contextualize the quantitative indicators and to shape future iterations of a testable SDT and SBMI model. Recorded audio was also scored, and findings were used to consider aspects (i.e. mechanisms) of MI on the alliance variable, in a similar approach to Hanks (2021). The faculty member for this study (the lead author) was a white male career educator with 17 years of student success specialization, trained to proficiency in MI by the second author, an MI expert and member of the Motivational Interviewing Network of Trainers.

Participants were recruited from a mandatory “success” course at a large American Southwest public university for first-year students on academic alert during the Spring 2021 semester. Participants (N = 19) were male (10; 52.6%) and female (9; 47.4%), with 47.4% of students being first-generation status. Ethnicities included Native American (15.8%), Asian or Pacific Islander (10.5%), Latine or Hispanic (26.3%), and White (47.4%). The intervention in this study was moved to Zoom, an online meeting tool (www.zoom.us), as a precaution due to COVID-19, where participants and the faculty member met for two, one-on-one meetings, six weeks apart, ranging from 30 to 75 min.

At the start of the intervention, participants were asked to complete a short demographics questionnaire (see Figure 2). The first meeting used a protocol, designed by the first author and modified from O’Brennan et al. (2020), intending to provide a framework for fidelity of implementation and the quality of MI utilized. The protocol included example OARS skills, and elements of the MI spirit that could be utilized across each MI process. At the conclusion of the first meeting participants and the lead author completed an alliance survey; completion time was less than 10 min. The second meeting took place between weeks 8 and 12 of the semester; one student dropped from the study before the second meeting. The protocol for the

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**Figure 1.**
Model of MI spirit in SBMI and SDT

Note(s): Measurements used in the study are shaded in grey
Source(s): Author’s own creation/work
second meeting guided the faculty through a discussion of the action plan, to celebrate successes, and to consider any modifications to the action plan that the student was interested in. At the conclusion of the second meeting, participants and the faculty member completed an alliance survey.

Measures

**MI fidelity and quality measure.** Professional coders, blind to the intervention and independent from the research team, analyzed the audio from the faculty-student meetings. The Motivational Interviewing Treatment Integrity (MITI 4.2; Moyers et al., 2015) code was utilized to measure the technical and relationship quality of the MI conversation. This tool is widely used, robust, and has strong alignment with MI theory (Hurlocker et al., 2020). Relational global scores consider the interaction from a bird’s eye view, by listening for the faculty member’s attempts to build partnership with the student, and the demonstration of empathy. These are scored on a five-point scale and are combined to form a rating of relationship quality (partnership and empathy) and technical ability (cultivating change talk and softening sustain talk). Competence in technical global areas has been set at 3, and proficiency is considered 4. Competency in relational global is set at 3.5, and proficiency is at 4. A percent of complex reflections is calculated by dividing the number of complex reflections by the total number of reflections. Competency is measured at 40%, above 50% is proficient. Reflections to questions are measured in a ratio. A 2:1 ratio is considered proficient, and a 1:1 ratio is considered competent.

**Satisfaction questionnaire.** Participant satisfaction surveys and open-ended questions drew from publications resulting from an IES grant (R305A150543; O’Brennan et al., 2020; Shum, 2020). Psychometric properties are provided in the technical manual associated with O’Brennan et al. (2020). Quantitative data was gathered through responses provided in a 5-point Likert scale from low to high (T1 $\alpha = 0.64$; T2 $\alpha = 0.92$) (e.g. “I would recommend these meetings to other people”, “I felt comfortable during this meeting”). Qualitative participant satisfaction data were elicited through open-ended questions (e.g. “What were the good parts of the meeting?”, “What were the bad parts of the meeting?”).

**Alliance measure.** The Therapeutic Alliance Quality Scale (TAQS, and clinician version TAQR; Bickman et al., 2010) was used to measure the participants and faculty’s perspective of therapeutic alliance between the faculty and the participant. This scale has been shown to be reliable and valid with youth and clinicians in one-to-one settings, and has undergone rigorous psychometric testing (Bickman et al., 2010). The 5-item self-report 5-point survey included five questions from participants (T1 $\alpha = 0.60$, T2 $\alpha = 0.52$), and six questions for faculty (T1 $\alpha = 0.95$; T2 $\alpha = 0.85$). (Student: e.g. “Did you and your coach work on problems together in this meeting?”, “In this meeting, did you feel that your coach would stick with you no..."
matter how you behaved?”. Faculty: e.g. “In this meeting, how do you think the student will describe your relationship with them?”.

**Analysis and results**

The first research question sought to find if a MI intervention could be deployed with technical fidelity and relational quality. To determine this the audio of the meetings was analyzed [2]. In accordance with the MITI 4.2 analysis, the coders selected a random 20-min segment of the recording (a procedure recommended by the MITI user’s manual). Coders scored 78.3% of the meetings; the nine remaining did not fit the length needed for coding. The findings from this analysis were that MI proficiency was evident in both global technical fidelity (M = 4.20, SD = 0.41) and global relational quality (M = 4.30, SD = 0.30). The percent of complex reflections to simple reflections was proficient across meetings (M = 0.60, SD = 0.19). The ratio of reflections to questions was above competent (M = 1.2, SD = 0.55). The available MITI scores indicate that MI conversational practice was applied with proficiency during the intervention; representing both fidelity of the technical skills and quality of relational skills.

The data to answer RQ2 was collected through post-meeting questionnaires. The combination of quantitative and qualitative data was analyzed and interpreted. Participants reported high levels of satisfaction (M = 4.86 on a scale of 1–5) across the intervention on the quantitative data from survey questions.

To analyze the qualitative data the researchers used a grounded theory approach with open coding and a constant comparative method (Glaser, 1965). The researchers began by independently reading responses and identifying key words that would describe participant responses thematically. The researchers then met to compare the keywords. At this point, there was slight discrepancy, however applying a constant comparative method accounts for discrepancies that naturally occur when coding independently (Glaser and Strauss, 1967, p. 105). Thus, the researcher’s discussion led to possible common themes and definitions of the themes. Consistent terminology agreement was reached through discourse. The researchers then independently coded the responses a second time using the consistent themes. Again, the researchers met to compare findings and account for drift. Seven themes with subthemes emerged from the analysis (see Table 1). The researchers then considered all

<table>
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<th>Themes</th>
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<td>1. Developing goals</td>
<td>Having Agency</td>
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<td></td>
<td>Feeling Empowered</td>
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<td>2. Conversation</td>
<td>Sharing Personal Struggles</td>
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<td></td>
<td>Discussing Process and Feeling Affirmed</td>
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<td>Collaborating</td>
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<td>Discussing Feelings</td>
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<td>Broad Topic</td>
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<td>Discussing Study Techniques</td>
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<td>3. Supportive mentor behavior</td>
<td>Acceptance</td>
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<td></td>
<td>Demonstrating Genuine Interest</td>
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<td>Outside of Academic Scope</td>
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<td>4. Strengths-based approach</td>
<td>Clarifying Thoughts</td>
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<td>5. Feeling supported</td>
<td></td>
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<tr>
<td>6. Developing self-regulation practice</td>
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<tr>
<td>7. Meetings were helpful and good</td>
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Source(s): Author’s own creation/work

| Table 1. | Themes and subthemes from open-ended responses |
responses and coded them as either positive (131 responses) or negative (5 responses) to participant satisfaction with the intervention. The participants had high satisfaction with the intervention.

Scores on the participant and faculty survey questions related to alliance were used to develop a mean score from each meeting, and then used to calculate a mean score across the intervention. Overall, participants reported high alliance \( (Bickman et al., 2010, p. 103) \) across both meetings \( (T1 M = 4.77, T2 M = 4.83) \). The faculty alliance following the two meetings was medium \( (T1 M = 4.51, \text{and } T2 M = 4.72) \).

The third question sought to explore relational aspects of the intervention through a correlation between measured variables (see Table 2). Global relational MITI scores and participant alliance were significantly positively correlated \( (r(19) = 0.58, p < 0.01) \). Positive non-significant relationships were found between MITI global relational and faculty reported alliance \( (r(19) = 0.25) \).

**Discussion**

The current study first intended to find if a SBMI intervention could be deployed with technical fidelity and relational quality. Professionally coded audio indicated that innovative SBMI interventions can be delivered in this setting with fidelity and quality. Reporting of intervention implementation data is an area of need in order to advance this line research. What sets this study apart from any previous study in this area is the high percentage of coded audio completed by outside professional coders.

This study found that participants were satisfied with the student-faculty SBMI intervention. Participant quantitative post-meeting satisfaction responses were high, which aligns with findings from O’Brennan et al. (2020) and Shum (2020) for a SBMI intervention for struggling Advanced Placement/International Baccalaureate high school students. Although, the mean findings for the current study are slightly higher. Considering the open-ended responses, participants in the current study seemed to value the topics of conversation that provided agency and individual focus, and the general approach of the meetings. For example, one participant mentioned “I liked the workshopping and freedom of the conversation”. The themes and subthemes of “goals” and “collaborating” in the current study are also found in Wang and Lu’s (2020) qualitative analysis, whose intervention employed a coaching technique using SBMI as a value-added approach for college students. In consideration of the SDT taxonomy (Ahmadi et al., 2023), many of the themes seem to speak to the functions of supportive teaching behaviors, including “supportive mentor behavior.” For example, one participant responded, “[My mentor] really helped me turn around my entire overall health and my grades followed,” a result of the student-focused conversation using MI, and could be SDT relatedness function under the taxonomy. In regards to SDT competence, participants in the current study reported that they felt “reassurance that I was actually bettering myself”, a “moral boost” that affected “mental health and confidence”, “affirmed” and “accomplished”, after the second meeting. These findings are

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<tr>
<td>1. Participant alliance</td>
<td>–</td>
<td>0.39</td>
<td>0.58**</td>
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<tr>
<td>2. Faculty alliance</td>
<td>–</td>
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<td>0.25</td>
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<td>3. MITI global relational</td>
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**Table 2.**

Correlation analysis of outcome variables

**Note(s):** *p < 0.05, **p < 0.01

**Source(s):** Author’s own creation/work
promising for the use of MI as a SDT technique in college faculty-student relationships, and have implications for future pedagogical research. All participants in the current pilot study recommended the continued use of this approach for future students.

The study also explored the association of relational aspects of MI. This area is largely unexplored; the analysis in the current study aimed to gain initial insight into the mechanisms at play. The mentor’s empathy and partnership (MITI Global Relational) measured through audio coding tended to have a strong positive relationship with student perception of alliance. This finding adds initial evidence that in a college educational setting, relational aspects may function similarly to findings in clinical settings (see Frey et al., 2020). Iarussi (2013) suggested that many relational aspects of MI align with college students’ developmental needs while honoring their autonomy. Further research may provide insight into relational aspects and college student outcomes (proximal variables of behavior change).

To expand the use of this innovative technique, training systems for MI exist; development of training programs for school staff has been the focus of much of SBMI research to date (see Frey et al., 2013, 2017). Frey and colleagues developed the Motivational Interviewing Training and Assessment System (MITAS), which consists of a multi-session workshop series, simulated practice routine, authentic practice, and learning community. The MITAS is designed to teach a wide variety of school personnel how to use MI with teachers, parents, adolescents or students. The workshops can be delivered flexibly, depending on the needs of the participants; all professional development scenarios are contextualized to represent situations school-based interventionists might encounter when working with caregivers, teachers, administrators, adolescents or students. Lee et al. (2014) explored the theoretical support for MI as a behavior change theory to guide coaching practice and research in school settings. The activities and skills of MI were used as a conceptualization of the coaching process to increase implementation fidelity within the context of a coaching relationship. Both the MITAS and the framing of MI as a coaching model were important to this work, as the interventionist for this project, Shum (2020), and Hanks (2021) were trained using the MITAS, while the intervention protocols were influenced by the framework set out by Lee et al. (2014). Training plays a significant role in the delivery of MI with technical fidelity and relational quality; its importance cannot be overlooked in SBMI research.

**Implications**

The results of this small-scale study support the further exploration of using MI in student-faculty conversations. As a SDT intervention, further research in the alignment of SBMI and SDT is ripe. The initial model developed (Figure 1) should be revised to include MI skills and MI processes. The MITI may be useful for measurement of MI skills and this portion of a revised model could be tested, possibly through the coding of MI audio with a SDT lens. Careful consideration is needed to find a measurement of MI processes, as this a limitation of using the MITI. Selection of measurement of psychological needs under STD is also needed. Taken together using a SBMI intervention as a SDT practice will provide some initial insight into functions. A SDT-based SBMI tertiary intervention may fit well in a strengths-based collegiate tiered-support system. Further development is needed in this area, as the findings in this pilot study are formative, yet not generalizable.

A poignant aspect of future iterations of this MI intervention is its potential to target traditionally underrepresented populations in higher education. Motivational Interviewing may be particularly effective for students from marginalized groups (Bahafzallah et al., 2020), especially those with an experience of societal pressure and hardships (Lundahl et al., 2010). Motivational Interviewing has been hypothesized to have a more effective impact if the MI conversation is recognized as a contrast to how others have treated the student (Miller and Rose, 2010).
Motivational Interviewing is nascent in school-based college settings; however, there is a growing interest in applications for various intentions like academic advising (see Ogles et al., 2021). In accordance with the spirit of MI, it is critical that the interest of the student be held paramount, not the institution’s own agenda. This may run counter to the institutional goals of retention and persistence, where the focus ultimately is on retaining the student from semester to semester, year to year. Institutions may be reminded that the provision of autonomy by parents and college personnel has been found to benefit college students across a number of interrelated areas (Kins et al., 2009; Niemac and Ryan, 2009; Pelletier et al., 2001; Young, 2005).

Limitations in this study include small sample size and attrition throughout the study. These concerns are noted limitations from previous SBMI studies (Snape and Atkinson, 2016). The mentor was the lead researcher and was the single MI provider in the study, which may have confounded or contaminated the findings. Another limitation are the unknown effects of COVID-19 on the findings. Future iterations of the intervention will address these issues.

Conclusion
This study found that an SBMI intervention can be deployed with quality in a college setting, and that participants were satisfied with the SBMI intervention. Independently coded relational aspects (i.e. empathy and partnership) and perceptions of alliance from the participants’ perspective were highly correlated. The use of SBMI with college students has a promising future to support college students’ self-determined paths.

Notes
1. The term faculty will be used throughout this article, but is meant to be inclusive of a wide range of school personnel who can be trained in MI for this purpose, including advisors, first year experience staff, and counselors.
2. MITI coding was completed by Dr Margaret Sibley’s team at University of Washington Seattle Children’s Hospital.

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**Supplementary material**

**The relationship of the MI spirit using SBMI and SDT teaching behaviors**

The following report describes the development process of a graphic used to visualize the relationship between the MI spirit using SBMI and SDT. Two researchers (experts in MI) read and discussed Ahmadi *et al.* (2023) and conjured the application to their research of SBMI with college students. On page 39 of the manuscript it reads, “Future researchers could assess the concordance between the expert opinions here and efforts to collate the meta-analytic data for intervention effects”. The researchers found this to be a perfect summation of their current research agenda exploring the SDT taxonomy, the MITI codes, and possible SBMI intervention development. Dr Michael Noetel, the corresponding author, agreed with this line of thinking. The authors moved forward and the following provides narrative to the process.

Initial stages were to consider the SDT taxonomy offered in Ahmadi *et al.* (2023), of teacher behaviors that support or thwart student autonomy, connectedness, and competency. Taxonomy behaviors that are supportive are hypothesized to meet student psychological needs and increase autonomous motivation. In all, 57 behaviors were grouped by their supporting or thwarting the three psychological needs under SDT; the need for autonomy, connectedness, and competency (Ryan and Deci, 2017).

Motivational Interviewing is an evidence-based clinical practice and a conversational technique defined as “a collaborative conversational style for strengthening a person’s own motivation and commitment to change” (Miller and Rollnick, 2013, p. 12). An underlying and critical component for faculty to honor throughout an MI conversation is the “spirit of MI”. The spirit is vital in maintaining a supportive working relationship with the student through partnership, acceptance, compassion, and evocation (empowerment). Then the researchers reconciled relational behaviors defined and measured in the MITI 4.2 (Moyers *et al.*, 2015), which are intended to measure the spirit of MI in a conversation. When using the MITI, global relational scores consider the interaction from a bird’s eye view, by looking at the clinicians attempts to build partnership between client and self, and the demonstration of empathy. These are scored on a five-point scale and are combined to form a rating of relationship quality (partnership and empathy). Competency in relational global is set at 3.5, and proficiency is at 4. Thus, the spirit can be measured in practice using the MITI. At this point, the researchers felt that both the taxonomy and the MITI offered tools for measurement of the relationship between SDT and SBMI for possible future research opportunities.

To develop hypotheses of the relationship, the researchers started by looking at Ahmadi *et al*’s taxonomy of the teacher behaviors, considering the example, and thinking about it in a suppositional MI conversation. A discussion over possible alignment, with possible application in practice emerged. Each code was marked with an X in a spreadsheet if it could align with an aspect of the MI spirit. Table S1 offers the taxonomy codes/behavior numbers that are aligned with MI spirit using SBMI in a hypothetical conversation.

<table>
<thead>
<tr>
<th>MITI spirit</th>
<th>SDT teacher behaviors (Ahmadi <em>et al.</em>, 2023)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership</td>
<td>AS1,2,5,6</td>
</tr>
<tr>
<td>Acceptance</td>
<td>AS1,2,4,10</td>
</tr>
<tr>
<td>Compassion</td>
<td>AS1,6,10</td>
</tr>
</tbody>
</table>

Table S1. SDT teacher behaviors by MI spirit
A frequency count of MI behaviors that could be considered in-step with the taxonomy behaviors led to hypothesized alignment between MI and SDT. Table S2 offers frequency counts resulting from the discussion.

<table>
<thead>
<tr>
<th>MITI spirit</th>
<th>SDT teacher behaviors (Ahmadi et al., 2023)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomy</td>
</tr>
<tr>
<td>Partnership</td>
<td>5</td>
</tr>
<tr>
<td>Acceptance</td>
<td>4</td>
</tr>
<tr>
<td>Compassion</td>
<td>–</td>
</tr>
<tr>
<td>Evocation</td>
<td>6</td>
</tr>
<tr>
<td>Frequency total</td>
<td>15</td>
</tr>
</tbody>
</table>

Table S2. Frequency of SDT teacher behaviors by MI spirit

Next a model was conceived, where the dashed line indicates the hypothesized alignment based on frequency from Table S2.

A study is proposed to provide an initial exploration to see if student-faculty alliance using MI may be attuned to supportive teaching behaviors in SDT, through a small-scale intervention development study. Within the model, the possible measures to be used in the investigation are shaded in grey.

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