Measurement of Mentors' Perceived Support and its Relationship to Mentor and Mentee Outcomes

A Dissertation Presented to the Graduate Faculty

of the Curry School of Education

University of Virginia

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

By

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August 2014

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APPROVAL OF THE DISSERTATION

This dissertation, "Measurement of Mentors' Perceived Support and its Relationship to Mentor and Mentee Outcomes", has been approved by the Graduate Faculty of the Curry School of Education in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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ACKNOWLEDGEMENTS

My research has been devoted to understanding pathways of support, and I would be remiss to not mention the great support that I have received during this process.

I would first like to thank my advisor, Winx Lawrence, who has always helped me to see the forest when I was seeing trees. I have benefited greatly from your perspective, your insight, and your equanimity. This work would not have been possible without your consistent guidance.

I would also like to thank my dissertation committee, Joanna Lee Williams, Nancy Deutsch, Ann Loper, and James Peugh for their contributions to this work as well as to my personal and professional development. James Peugh deserves particular mention for upholding his promise, made several years and manuscripts ago, to follow this project through to the end. Your expertise and encouragement have been invaluable at every step of this process and I can say with certainty that it made a difference.

To the YWLP team and especially Janelle Peifer, Hillary Morin, and Molly Davis: I am amazed by your strength, perseverance, and humility, and I am grateful for your contributions to my work. You are the kinds of women we hope our YWLP mentees become and I have so enjoyed the opportunity to work together as colleagues and friends.

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Within the past few decades, mentoring has become an increasingly popular intervention for at-risk youth (MENTOR, 2006), often with the overarching goals of promoting positive academic, mental health, and behavioral outcomes (DuBois, Portillo, Rhodes, Silverthorn, & Valentine 2011; DuBois & Silverthorn, 2005; Grossman & Tierney, 1998). In return, mentors are also afforded powerful opportunities for learning and growth. Service-learning experiences, such as youth mentoring, are associated with benefits such as self-efficacy, advanced knowledge and skills, and a more advanced understanding of—and sensitivity to—issues related to diversity (Bringle & Steinberg, 2010). However, mentoring is a challenging endeavor. Youth who are referred for mentoring programs may have difficulty forming close relationships (Rhodes, 2002), and they often differ from their mentors in racial and socioeconomic domains (DuBois, Neville, Parra, Pugh-Lilly, Povinelli, 2002; Herrera et al., 2007). When mentors enter the relationship with unrealistic expectations or struggle to manage cultural differences, it increases the likelihood of relationship failure (Spencer, 2007).

These issues may be especially pronounced for college student mentors. College students have become a popular source of youth mentors because of their access to university resources, empathy for young populations (Jekielek, Moore, Hair, & Scarupa, 2002), and their motivation to become engaged in service-learning pursuits (Eyler & Giles, 1999). However, their unpredictable schedules can limit the consistency that is required for relationship success (DuBois & Rhodes, 2006), and they may have difficulty managing the cultural differences that are common between themselves and their mentees (DuBois et al., 2002). If these and other associated challenges are not handled appropriately, neither member of the mentoring dyad will benefit from the experience. More importantly, at-risk youth are especially vulnerable to

relationship disruptions, and relationships that end prematurely can actually have harmful effects for them (Grossman & Rhodes, 2002). In order to optimize the benefits that can occur for both mentor and mentee, and to reduce the potential risks of unsuccessful relationships, it is important that mentors are effectively supported during the mentoring experience.

The literature on mentoring and on service-learning both emphasize the importance of volunteer training and support (e.g., Eyler & Giles, 1999; Kupersmidt & Rhodes, 2014; MENTOR, 2009), and specify that support is most effective when it is ongoing (DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000). Support is usually provided by program staff or, when the volunteers are college students, university faculty (Astin, Vogelgesang, Ikeda, & Yee, 2000; Sipe, 1999). Peer support for college student mentors could enrich their experience while reducing program reliance on staff and faculty for support, though this is an area that remains relatively unexplored. Further, the concepts of support, training, and supervision are not clearly distinguished, and they are often not defined in the studies that assess them. As a result, studies assessing mentor support may not be evaluating the same construct, making it difficult to form conclusions about how support influences outcomes. With the goal of shedding light on these issues, the first two studies assess the relationship between mentors' perceived peer support and mentor and mentee outcomes. This and other research on mentor support is limited, however, by the absence of a validated measure to assess this construct. Thus, the third study focuses on developing and evaluating the psychometric properties of a scale assessing mentors' perceived program support.

The first study, *Mentoring as Service-Learning: The Relationship Between Perceived Peer Support and Outcomes for College Women Mentors,* examines the relationship between peer support and outcomes for college women who serve as mentors for adolescent girls. The

outcomes of interest were college students' ethnocultural empathy and their sense of competence, relatedness, and autonomy, the three basic human needs that promote well-being according to Self-Determination Theory (SDT; Ryan & Deci, 2000). The sample included 227 college women mentors involved in the Young Women Leaders Program (YWLP) across three academic years; their outcomes were compared to those from college women with (n = 230) and without (n = 105) alternative community service experience. Based on participants' responses on a self-report survey, our results showed that mentors' level of perceived peer support was associated with stronger outcomes in autonomy as compared to college women with alternative community service involvement and in ethnocultural empathy as compared to both comparison groups. These findings reinforce the importance of mentor support and suggest that mentors' peers, a relatively untapped resource in many youth mentoring programs, may be able to provide effective support for each other.

Building upon these findings, the second study, *College Women Mentoring Adolescent Girls: The Relationship Between Mentor Peer Support and Mentee Outcomes,* sought to examine whether mentors' perceived peer support was also related to positive outcomes for their mentees. The mentee outcomes we examined were self-reported improvement, as well as academic functioning, behavior problems, self-esteem, and depression. With an understanding that mentee risk can influence mentoring success, we also examined initial level of mentee risk as a potential moderator of the relationship between mentor support and mentee outcomes. The sample included 162 pairs of college women and adolescent girls participating in YWLP across three academic years. The results indicated that mentors' degree of perceived peer support positively predicted mentee self-reported improvement; this relationship was not moderated by mentee risk. These results indicate that mentor support may influence mentors' ability to promote positive

outcomes in their mentees above and beyond training alone, a feature that all mentors received equally. However, results also showed an interaction between mentors' perceived peer support and mentees' self-esteem such that mentor peer support was associated with higher mentee self-esteem only for those mentees who began the program with above average self-esteem; for those who had below average pre-program scores, mentor support was associated with lower self-esteem at the end of the program. There are several possible explanations for this finding, all of which point to the need for a more robust measure of mentor support. This manuscript has been published in *Mentoring & Tutoring: Partnership in Learning* (Marshall, Lawrence, & Peugh, 2013).

With the goal of filling this gap, the third study, *Mentors' Perceived Program Support Scale: Development and Initial Validation,* focused on developing and evaluating the psychometric properties of a new measure, the Mentors Perceived Program Support Scale (MPPSS). Item development was based on the mentoring, social support, and professional supervision literature, all of which identify four categories of support: emotional, informational, tangible assistance, and appraisal. MPPSS items addressed these four categories and were further modified through focus groups and professional consultation in order to better address relevant issues for youth mentors. Youth mentor supervisors completed a sorting task on the inventory to determine the goodness-of-fit of the items in their hypothesized categories. The evaluation stage of the study was based on survey responses from 664 mentors and included a factor analysis, item response theory analysis, and an evaluation of the convergent and discriminant properties of the scale. A closely related instrument in the literature, the Programmatic Subscale of the Match Characteristics Questionnaire (MCQ), version 2.2 (Harris & Nakkula, 2008), was also assessed so that its properties could be compared to those of the MPPSS. Findings indicated that the

modified 11-item version of MPPSS has strong indications of reliability and validity and may have several advantages over the MCQ's Programmatic Support subscale. Reliability analyses suggested that the MPPSS may be most useful in identifying mentors who are feeling generally unsupported and may benefit from intervention; this has implications for program directors as well as researchers assessing "best practices" in mentor support.

This line of research expands on the existing literature of service-learning and mentoring by indicating that college student service-learners who engage in mentoring may be able to provide effective support for each other. This has implications for their own civic and interpersonal development as well as for their mentees' growth. Additionally, the newly developed MPPSS addresses an important gap by enabling research on mentors' sense of program support with greater precision and stronger validity indices as compared to existing instruments of its kind. Mentoring is a multi-layered and complex experience, and the literature on best practices for mentor support is still evolving. Taken together, these three studies contribute to the growing literature on the ways in which programs can prepare and support their mentors as they navigate the challenging and meaningful intricacies of mentoring relationships.

Mentoring as Service-Learning: The Relationship Between Perceived Peer Support and Outcomes for College Women Mentors

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Abstract

This study examined whether peer support, formally integrated into a service-learning mentoring program, was related to psychosocial outcomes for college students serving as youth mentors. The outcomes of interest were college students' ethnocultural empathy as well as their sense of competence, relatedness, and autonomy, the three basic human needs that promote personal well-being according to Self-Determination Theory (SDT; Ryan & Deci, 2000). Data included self-report questionnaires completed by college women mentors (n = 227) and college women with (n = 230) and without (n = 105) alternative community service involvement. Our results showed that mentors' level of perceived peer support was associated with stronger outcomes in autonomy as compared to college women with alternative community service involvement and in ethnocultural empathy as compared to both comparison groups. These findings extend the literature on avenues through which college service-learning programs can effectively support participants, particularly as they navigate the cultural challenges of mentoring.

Keywords: service-learning, higher education, mentoring, peer support, self-determination theory, ethnocultural empathy

Introduction

Colleges and universities are seen as ideal settings for service-learning programs not only because of colleges' historic commitment to promoting democratic citizenship (Bringle & Steinberg, 2010), but also because college students are in a transformative stage of cognitive, psychosocial, and identity development (McEwen, 1996), which makes them opportune candidates for the type of personal enrichment that service-learning can provide (Rhoads, 1997). Accordingly, the popularity of service-learning initiatives in colleges has increased exponentially in the past few decades (e.g., Kronick & Cunningham, 2013). Though the descriptions of service-learning are numerous and broad, Bringle and Hatcher (1995) have provided a widely accepted definition:

> A course-based, credit-bearing educational experience in which students (a) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility. (p. 112)

Benefits of service-learning

Bringle and Steinberg (2010) have identified and defined the "civic-minded graduate" (CMG) as a university-graduate who develops the interest in and ability to collaborate with others in working toward a common good. There are several cognitive, affective, skills-based, and behavioral features that comprise the CMG and are considered central in civic education (Bringle & Steinberg, 2010). Research has shown direct connections between service-learning experiences and outcomes in these domains.

For example, a study by Eyler, Giles, and Braxton (1997) found associations between service-learning participation and citizenship confidence, tolerance for others, and perceptions of social justice. Similarly, service-learning has been associated with a reduction in negative stereotypes (Eyler & Giles, 1999), more open-mindedness (Jones & Abes, 2004), and a greater understanding and awareness of others from different backgrounds (Hughes, Welsh, Mayber, Bolay, & Southard, 2009). Second, associations have also been found between service-learning and self-efficacy (Bringle & Steinberg, 2010), which has been defined as "one's belief that she or he is capable of making meaningful community service contributions" (Reeb, Folger, Langsner, Ryan, & Crouse, 2010, p. 459). For example, service-learning participation has been found to increase students' confidence in their capacity to make a difference in the community (Eyler et al., 1997; Simons & Cleary, 2006).

Emerging literature has shown that mentoring as a service-learning experience is associated with similar gains. A qualitative study by Banks (2010) indicated that college student mentor benefits included valuing of the all-female setting, recognition of cultural dynamics, learning to negotiate group dynamics, confirmation of abilities and knowledge, and career guidance. A larger and more recent quantitative study found associations between service-learning mentoring and outcomes related to the development of civic-mindedness: civic attitudes, community service self-efficacy, self-esteem, interpersonal problem solving skills, civic action, and political awareness (Weiler, Haddock, Zimmerman, Krafchick, Henry, & Rudisill, 2013).

Despite its potential benefits, however, service-learning can be a challenging experience for college students. Students must be adequately supported in order to learn from their experience and not become overwhelmed by its associated challenges (Eyler & Giles, 1999). While faculty support has been associated with positive outcomes for students (Astin,

Vogelgesang, Ikeda, & Yee, 2000), the level of support they can provide is contingent on sufficient institutional assistance (Eyler & Giles, 1999). Given the explosion of university interest in service-learning programs in recent years (Campus Compact, 2011), additional ways of supporting students in their service-learning experiences while lessening their reliance on faculty would be important.

Research and theory on college student development emphasize the importance of peer support and collaboration (Astin, 1993; Chickering & Reisser, 1993; Friedlander, Reid, Shupak, Cribbie, 2007), raising the question of whether peers can effectively support each other in a structured service-learning context. In order to explore this possibility, the present study examines whether peer support formally integrated into a service-learning mentoring program moderated outcomes for college women serving as youth mentors. First, we review the literature on theoretical frameworks for understanding service-learning benefits and the value of student support, particularly in the context of mentoring.

Connecting theory and service-learning benefits

Interpersonal relationships are an important feature of any service-learning experience (Bringle, Studer, Wilson, Clayton, & Steinberg, 2011), and they are overtly relevant in youth mentoring. Service-learners in general—and mentors in particular—often have socioeconomic and cultural backgrounds that differ from the youth they serve (Bringle et al., 2011; Herrera, Grossman, Kauh, Feldman, & McMaken, 2007). Among the college population, this presents an opportunity for students to develop empathy, understanding, and positive feelings about individuals who are different from them, all of which are precursors of future helping and altruism and are also key features of the CMG (Bringle et al., 2011). It would be useful to assess

whether service-learning mentors develop empathy as both a mentoring relationship feature and as a valuable outcome with positive implications for their civic development.

Additionally, Self-Determination Theory (SDT) provides a useful framework for understanding the psychosocial and civic-minded outcomes of university service-learning experiences. According to SDT, humans have three basic needs—to feel competent, related, and autonomous—that are central to personal growth and the internalization of motivation (Ryan & Deci, 2000). Ryan and Deci (2000) define intrinsic motivation as, "the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn" (p. 70). Such internalized motivation is a core feature of the civic-minded graduate (CMG), as it is the driving force between the necessary integration of one's identity, educational experiences, and civic experiences that leads to civic-mindedness (Bringle et al., 2011). When environments promote students' feelings that they can be efficacious in performing desired activities (competence) and that they have a sense of freedom in their choices and behaviors (autonomy), it sets the stage for the natural proclivity toward intrinsic motivation (Ryan & Deci, 2000). Relatedness, or a sense of belonging and security, is the third aspect of SDT that may be more distally related to intrinsic motivation (Ryan & Deci, 2000).

Considering SDT and CMG theories together, competence, relatedness, and autonomy can be thought of as both a tri-fold outcome indicative of psychosocial well-being (Deci & Ryan, 2000) and as necessary precursors to intrinsic motivation and civic development (Bringle et al., 2010). Autonomy and competence may be particularly important for intrinsic motivation. Thus, the three SDT features would be a useful gauge for assessing meaningful outcomes in student service-learners.

Challenge and support in service-learning

While service-learning programs have the potential to positively influence college student development, researchers and educators caution that simply performing service does not necessarily ensure that significant learning or beneficial outcomes will occur (Jacoby, 1996; Kendall, 1990). For example, although contact with individuals from different cultural and socioeconomic backgrounds can result in interpersonal growth, it can also challenge students in novel ways (Eyler & Giles, 1999; Hughes, Steinhorn, Davis, Beckrest, Boyd, & Cashen, 2012, Kronick & Cunningham, 2013). This may be especially true when college students enter into mentoring relationships with youth. Illustrating this point, a study on a service-learning mentoring program for low-income youth showed that it was common for students to experience a state of "shock" when they first entered into the high-poverty environments in which their mentees lived (Hughes et al., 2009). For some students, initial contact with these environments can expose deep-seated negative feelings about certain cultures or socioeconomic environments (Rockquemore &Schaffer, 2000). It is important that mentors learn how to effectively navigate these differences not only for their own growth, but also because prejudicial stereotypes and deficient relational skills can cause mentoring relationship failure (Spencer, 2007), which can have a detrimental impact on vulnerable youth (Grossman & Rhodes, 2002).

In order for students to effectively manage difficult situations and to experience positive growth, service-learners' experience of challenge must be balanced by a sense of support (Eyler & Giles, 1999, Rockquemore & Schaffer, 2000). The literature on youth mentoring mirrors this concept and emphasizes that mentor training and support is essential for relationship success (DuBois, Neville, Parra, & Pugh-Lilly, 2002; Herrera, Sipe, & McClanahan, 2000; MENTOR, 2009; Sipe, 2002). The existing research on support for service-learners has focused primarily on that from faculty (Astin et al., 2000; Eyler & Giles, 1999; Eyler et al., 1997, Rockquemore &

Schaffer, 2000). However, faculty members often have difficulty providing adequate student support on their own. In cases where service is an optional course component, support and feedback from faculty may be especially minimal. For example, Eyler and Giles (1999) found that across twenty universities, only 21% of surveyed service-learning students reported receiving frequent feedback from faculty.

Peer support. Students' peers are another potential source of support in service-learning endeavors. A study on first year students' adjustment to college found that increased peer support over the first two semesters was associated with increases in personal-emotional and social adjustment (Friedlander et al., 2007). In his examination of less intimate student-student contact (e.g., discussing course content, tutoring other students, participating in student clubs or organizations), Astin (1993) found that these interactions had positive effects on leadership development, overall academic development, self-reported growth in problem-solving skills, critical thinking skills, and cultural awareness. Service-learning researchers consistently cite interpersonal relationships as playing a key role in students' psychosocial and civic development (Bringle et al., 2011; Eyler & Giles, 1999; Rockquemore & Schaffer, 2000). However, peer support within the service-learning context is less common in the literature. While discussion groups or class dialogue have served as a proxy for peer support in service-learning research (e.g., Astin et al., 2000, Rockquemore & Schaffer, 2000), an investigation of peer support that is formally integrated into a service-learning model is needed.

The Young Women Leaders Program

This study attempts to shed light on the influence of peer support for college student service-learners by focusing on mentors in the Young Women Leaders Program (YWLP), a research-based mentoring program in the southeastern United States that has trained and

supported over 1200 college students to be youth mentors since 1997 (Lawrence, Levy, Martin, & Strother-Taylor, 2008). Designed as a service-learning experience for the college women mentors, YWLP incorporates numerous opportunities for reflection and support through a combination of one-on-one and group mentoring as well as ongoing training and supervision. The college women are paired with an at-risk middle school girl for the academic year and commit to four hours per month of one-on-one mentoring and weekly two-hour group mentoring with six to ten mentor-mentee pairs at the middle school. Undergraduate or graduate student facilitators lead the group through a standardized curriculum that addresses issues facing adolescent girls such as body image, academics, and relational aggression (Lawrence, Sovik-Johnston, Roberts, & Thorndike, 2009). Mentors and facilitators also meet for one hour weekly without their mentees for peer supervision, support and reflection. The YWLP college participants also enroll in a two-semester course that focuses on theory and research on issues facing adolescent girls, developing cultural competence, and best practices in mentoring.

The demographics of the girls served in YWLP reinforce the importance of supporting the mentors' development of cultural competence and empathy. Like most mentoring programs that serve youth at risk for poor academic and social outcomes (DuBois, Neville, et al., 2002), the mentees' demographics differ from the mentors in important areas. For example, of the mentees who were matched to the college women in the current sample, 77% were of color, 64% qualified for free or reduced-price lunch, and 49% had mothers with a high school education or less (Levy, Deutsch, Henneberger, & Lawrence, 2011). Demographics for the college women are presented in Table 1.

Present study

This study seeks to build on previous research citing the benefits of service-learning through mentoring (Banks, 2010; Weiler et al., 2013) by examining the association between peer support in service-learning and outcomes for college students who serve as youth mentors. Through its weekly academic class, opportunities for verbal and written reflection, peer supervision, and group mentoring sessions, YWLP provides college women mentors with ample opportunities to work with and support each other during their mentoring experiences. By comparing YWLP mentor outcomes to those from a demographically similar comparison group of college women with or without community service involvement during an academic year, our goal was to answer the following research questions: (a) Does the type of community service participation make a difference in college women's ethnocultural empathy and SDT development? (b) Among YWLP mentors, does the level of perceived peer support moderate their SDT and ethnocultural empathy outcomes?

Methods

Participants

This sample included 641 college women at a university in the southeastern United States assessed across three academic years: 2007-08, 2008-09, and 2009-10. Roughly one-third of these women (n = 227) were involved in the Young Women Leaders Program (YWLP), an eight-month service-learning program that pairs at-risk adolescent girls with college women mentors enrolled in a course on issues facing adolescent girls. The remaining college women (n = 414) were not involved in YWLP and served as a comparison group.

This study was conducted as part of a larger ongoing evaluation of YWLP. College women interested in volunteering as YWLP mentors completed a written application, an interview with YWLP staff, and a government background check. School personnel from four

local middle schools were asked to identify 7th grade girls who they believed were at risk for social, emotional, and/or academic problems and would benefit from having a college student mentor. Girls were paired with college women mentors based on scheduling availability and self-reported interest compatibility. College women from the comparison group were recruited from large undergraduate classes within majors that resembled those of YWLP participants (e.g., education, social science).

The mentors and comparison women completed self-report online questionnaires in the fall before the program began, and in the spring upon completion of the program. The questionnaires included demographic information such as ethnicity and year in college, as well as measures assessing ethnocultural empathy and various areas of psychosocial development. In the spring survey, the comparison students were asked to report whether they performed community service that year. The spring survey also included items that assessed mentors' perceived program support. Comparison women who did not indicate whether they were involved in community service were excluded from analysis (n = 79), resulting in a comparison group of 335 students.

Measures

Ethnocultural Empathy. The 15-item *Empathic Feeling and Expression* subscale of the *Scale of Ethnocultural Empathy (SEE)* (Wang et al., 2003) uses a 6-point Likert scale (1 = Strongly Disagree, 6 = Strongly Agree) to assess internal feelings about expression of cultural empathy and support. Items include, "I seek opportunities to speak with individuals of other racial or ethnic backgrounds" and "When I see people who come from a different background succeed, I share their pride." This subscale was found to be the strongest predictor of overall

Ethnocultural Empathy among all four factors on the SEE; internal consistency was α = .91 (Wang et al., 2003).

An EFA on the pre-program data was conducted in Mplus version 7.11 to better understand the underlying factor structure for this sample. The results indicated either a one or two-factor solution (Eigenvalue 1 = 6.64, Eigenvalue 2 = 1.45). For the single factor solution, the three negatively-worded items were the only items without significant loadings. The two-factor solution indicated that the second factor consisted of another three items that, upon examination of content, were not clearly distinct from the remainder of the scale. Therefore, the three negatively-worded items were deleted and the EFA was conducted a second time. The results indicated a single factor (Eigenvalue 1 = 6.28, Eigenvalue 2 = 1.01), which was confirmed in the CFA on the pre-program data (RMSEA = .076, CFI = .96, SRMR = .038) and on the post-program data (RMSEA = .108, CFI = .927, SRMR = .044). The factor score determinacies for the pre- and post-program data were .96 and .97, respectively; scores closer to one indicate better measurement of the latent construct by the observed items. Reliability was also calculated with Cronbach's alpha; pre-program α = .91 and post-program α = .92.

SDT Outcomes.

Competence. According to SDT, competence refers to a sense of mastery and efficacy that arises from interacting with challenging environmental stimuli (Deci & Ryan, 1985). The four-item *Scholastic Competence* subscale of the *Self-Perception Profile for College Students (SPPCS)* was used to assess this construct (Neemann & Harter, 1986). The SPPCS has been widely used to measure college students' sense of competency and overall self-worth. A psychometric evaluation of the *Scholastic Competence* subscale showed that the internal consistency was α = .84 and it significantly correlated with students' global self-worth (r = .45)

(Neemann & Harter, 2012). Each item includes two contrasting statements (e.g., "Some students feel confident they are mastering their coursework. Other students do not feel so confident"); students are asked to choose the statement that best pertains to them, and then indicate whether the statement is "really true" or "sort of true" for them.

An EFA and CFA were conducted on the *Scholastic Competence* subscale with the current dataset in order to determine the factor structure for our sample. The results of the EFA on the pre-program data indicated that a one-factor structure was most likely the best fit (Eigenvalue 1 = 2.20; Eigenvalue 2 = 0.73). A CFA was also conducted on the pre-program data and confirmed the one-factor solution (RMSEA = 0.08, CFI = .982, SRMR = .025). The factor score determinacy was .87. A CFA for a one-factor solution was also conducted on the post-program *Scholastic Competence* subscale and yielded similar results (RMSEA = .025, CFI = .999, SRMR = .013) with a factor score determinacy of .90. Reliability was also calculated; Cronbach's alpha for pre-program scores was $\alpha = .71$, and was $\alpha = .73$ for post-program scores.

Relatedness. SDT defines relatedness as an individual's sense of connection to others, as well as the belief that one can interact comfortably and maintain close relationships with others (Deci & Ryan, 2000; Levesque, Zuehlke, Stanek, & Ryan, 2004). The *Social Acceptance* subscale from Neemann and Harter's (1986) *SPPCS* was used to assess students' sense of how they related to others. The *Social Acceptance* subscale has 4 items in the same format as the other *SPPCS* subscale described previously. Items include, "Some students find it hard to make new friends. Other students make new friends easily" and "Some students feel that they are socially accepted by many people. Other students wish more people accepted them." Internal consistency reliability for the *Social Acceptance* subscale was found to be $\alpha = .80$, and it was

also found to be significantly correlated with students' global sense of self-worth (r = .56) (Neemann & Harter, 2012).

Similar to our procedure with the Competence subscale, an EFA and CFA were conducted on the four items to determine the factor structure for the relatedness construct. Eigenvalues calculated in the EFA on the pre-program indicated the presence of a single factor (Eigenvalue 1 = 2.85, Eigenvalue 2 = 0.45), which was confirmed in a CFA of the pre-program data (RMSEA = .069; CFI = .995; SRMR = .012). The factor score determinacy was .94. A CFA on the post-program data also indicated a one-factor solution (RMSEA = .042, CFI = .998, SRMR = .010), with a factor score determinacy of .92. Cronbach's alpha was $\alpha = .85$ for pre-program data and $\alpha = .83$ for post-program.

Autonomy. According to SDT, autonomy is not synonymous with independence. Rather, autonomous individuals can integrate their beliefs and values with their actions, allowing them to fully endorse their behaviors (Deci & Ryan, 2000). Following this definition, *Noom's Modified Version of Becker's Scale of Autonomy* (Noom, 1999) was included as an indicator of college students' general confidence about decision-making and goal setting. Noom's scale consists of five functional autonomy items that assess the ability to strategize to achieve one's goals (e.g., "I go straight for my goal") and five attitudinal autonomy items that assess the ability to conceptualize one's options and make a decision (e.g., "When people ask me what I want, I immediately know"). Students rated each item on a 5-point Likert scale (1 = Never True, 5 = Almost Always True). Noom (1999) found internal consistency to be $\alpha = .64$ for functional autonomy and $\alpha = .71$ for attitudinal autonomy for his sample of Dutch adolescents, with a positive correlation between the two subscales ($r = .48$, $p < .01$).

Because we were using this scale on a different age population from that on which it was normed, the appropriateness of the inferences we could draw from its results were contingent on establishing psychometric reliability and validity on this sample. To do so, we first conducted an EFA to allow the data to guide our understanding of the factor structure for current sample. The results of the first EFA on the pre-program data indicated the likely presence of a two-factor solution from the Eigenvalues (Eigenvalue 1 = 3.90, Eigenvalue 2 = 1.66) and factor loadings, though item six did not load onto either factor. This item was removed and a second EFA was conducted (Eigenvalue 1 = 3.65, Eigenvalue 2 = 1.64), which showed that five items significantly loaded onto the first factor (attitudinal autonomy) and the remaining four significantly loaded onto the second (functional autonomy). A CFA on the pre-program data confirmed this two-factor structure (RMSEA = .015, CFI = .998, SRMR = .023). The factor score determinacies for the attitudinal and functional autonomy factors were .95 and .83, respectively. A CFA was also conducted on the post-program data and had the following fit indices: RMSEA = .071; CFI = .97; SRMR = .034. Attitudinal autonomy had a factor score determinacy of .95; functional autonomy had a determinacy of .84. Cronbach's alpha for attitudinal autonomy was $\alpha = .81$ on the pre-program data and $\alpha = .83$ at post-program. The internal consistency for the functional autonomy factor was $\alpha = .76$ for pre-program data and $\alpha = .78$ at post-program.

Perceived Peer Support. In order to measure the degree to which mentors felt supported by members within their YWLP mentoring groups, nine items were included on the spring post-program questionnaire that evaluated mentors' perceptions of encouragement and respect from their mentoring group members. Sample items include, "As a member of YWLP, how often did you feel supported by others in YWLP?" and "How often did you think the group seemed really

interested in you and the things you were thinking about?" Mentors rated each item on a 5-point Likert scale (1 = Almost Never, 5 = All the Time).

An EFA was conducted on these items and indicated a one factor structure (Eigenvalue 1 = 4.47, Eigenvalue 2 = 1.023). All items except one significantly loaded into a single factor. This item was deleted and another EFA was conducted, and results confirmed the presence of a single factor (Eigenvalue 1 = 4.44, Eigenvalue 2 = .926). Results from a CFA conducted on these eight items also indicated a one-factor solution (RMSEA = .069, CFI = .97, SRMR = .036). The factor score determinacy was .95. Reliability was also calculated (α = .66).

Data Analysis

The comparison group was first divided into two subgroups based on the students' reports of their participation in non-YWLP community service. Within this group, 230 women reported that during the academic year they had participated in at least 1 hour per week of community service (CS), and 105 reported no community service participation (No CS). The first research question was addressed by comparing outcomes for YWLP, CS, and No CS participants using multivariate analysis of covariance (MANCOVA) models in Mplus version 7.11. Mplus was chosen for these analyses because of its ability to (a) ensure that the MANCOVA assumptions of homogeneity of multivariate response variable variances, as well as the assumption of homogeneity of covariate regression slopes, are met by imposing the appropriate parameter estimate constraints, (b) correct for possible Type-1 errors resulting from non-normally distributed response variables by using parameter estimation algorithms (MLR) that correct for non-normality, and (c) handle missing data via maximum likelihood estimation under the assumption that the data are missing at random (MAR). Missing data ranged between 8.5% and 23.8% for all response variables.

Our first analysis addressed the research question of whether the type of community service participation makes a difference in college women's ethnocultural empathy and SDT development. A MANCOVA compared differences between the YWLP and No CS groups on ethnocultural empathy and the four post-program SDT measures (Scholastic Competence, Social Acceptance, Attitudinal Autonomy and Functional Autonomy). The model included pre-program scores on each of these measures, year in college, and ethnicity as covariates. The second MANCOVA used the same model to compare the YWLP and CS groups. To control for type I error, we used the false discovery rate (FDR) correction procedure on these ten comparisons (Benjamini & Hochberg, 1995).

The second set of analyses addressed our second research question on the potential moderating effect of perceived peer support for YWLP mentors. First, we calculated an interaction variable for each of the five outcomes of interest (Scholastic Competence, Social Acceptance, Attitudinal Autonomy, Functional Autonomy and Ethnocultural Empathy) by multiplying the latent pre-program score by the peer support latent score (via the XWITH specification in Mplus; see Muthén & Muthén, 1998-2012, p. 687-688). We then conducted a structural equation model that regressed each of the five post-program scores on the corresponding interaction term (e.g., pre-program score * peer support). This model also included year in college and race as covariates to control for their influence.

Results

Descriptive Statistics

The largest proportion of YWLP mentors were in their second year in college while the largest percentages of students from both comparison groups were in their third year (Table 1). About 24% of the students in the No CS group were in their first year; this represented the largest proportion of first year students among the three groups. The YWLP group had a larger

percentage of Black/African American students than either of the two comparison groups. However, between 21% and 30% of respondents from each group did not provide their ethnic identification, limiting our understanding of the ethnic variability of each experimental group.

Distribution of year in college was similar for each of the three YWLP support groups; however, the percentage of second year mentors increased as peer support increased from low to high, while the percentage of third year students decreased. Distribution of ethnicity was fairly consistent across levels of YWLP support. In addition to pre-program scores on the areas of interest, year in college and ethnicity were also included as covariates in all comparison models to control for any possible influence on the outcomes that were assessed.

[Insert Table 1]

YWLP Participants vs. Comparison Groups

The first set of analyses assessed our question of whether YWLP mentors would have greater outcomes in ethnocultural empathy and the three SDT areas compared to college women with and without community service involvement. Two MANCOVA analyses were conducted to compare mean differences between outcomes for YWLP mentors vs. No CS and vs. CS comparison groups.

[Insert Table 2]

The results of the first MANCOVA (YWLP vs. No CS) showed that YWLP mentors scored significantly higher than comparison women on Scholastic Competence; Ethnocultural Empathy approached significance. Though neither of these two findings was significant after the FDR correction, they had small effect sizes (see Table 2). The results of the second MANCOVA (YWLP vs. CS) favored YWLP participants for both Attitudinal and Functional Autonomy as well as Ethnocultural Empathy, all of which had small effect sizes. Only the Functional

Autonomy comparison remained significant after FDR correction (see Table 2 for all effect sizes).

Peer Support in YWLP Mentors

The second set of analyses addressed the question of whether perceived peer support moderated three SDT and ethnocultural empathy outcomes for YWLP women. A structural equation model was conducted that regressed each of the five post-program scores on the interaction term of the pre-program score * peer support. The only significant finding was for scholastic competence (b = -.130, p = .043), indicating that peer support moderated outcomes in scholastic competence for YWLP women. The remaining regressions were non-significant (all p's > .05).

To further investigate this finding, we examined the descriptive statistics for the outcomes of interest and found low variances in post-program scores among YWLP women (Range: .399 – .981). In order to minimize the influence of this low variance, we conducted additional analyses to determine whether perceived peer support was associated with an increased magnitude of difference between YWLP mentors and both comparison groups in the outcomes of interest. To do this, YWLP mentors were first divided into three sub-groups based on their latent scores on the Perceived Peer Support scale: (a) scores at or below -0.5 *S.D.* from the mean (Low YWLP Peer Support; n = 54), (b) scores between $\pm$.5 SD from the mean (Medium YWLP Peer Support; n = 68), and (c) scores at or above +0.5 *S.D.* from the mean (High YWLP Peer Support; n = 68). Thirty-seven YWLP mentors did not respond to the Perceived peer Support scale and thus were not included in these analyses. A total of six MANCOVAs were conducted using the three YWLP subgroups: Low- Medium- and High YWLP Peer Support vs. No CS, and Low- Medium- and High YWLP Peer Support vs. CS. These analyses used the same

dependent variables and covariates as the first set of MANCOVAs. A FDR was conducted on each of the three MANCOVAs that compared the three YWLP subgroups with the No CS and CS subgroups to control Type-1 error inflation.

Low, medium and high YWLP peer support vs. no CS. Three MANCOVA analyses were conducted to compare each of the three YWLP subgroups (i.e., Low Support, Medium Support, High Support) to the No CS group. Table 3 provides the results for these analyses. Low Support mentors did not score higher than comparison women on any of the measured outcomes. Medium Support mentors scored higher than comparison women on Scholastic Competence; although this was non-significant after FDR correction, the comparison maintained a small to moderate effect size (d = .39). High Support mentors had significantly higher Ethnocultural Empathy post-program scores as compared to college women. This comparison remained significant after FDR correction and had a moderate effect size (d = .47). Scholastic Competence and both measures of autonomy also favored High Support mentors before FDR correction. Although these results were non-significant after the FDR, effect sizes were small to moderate (d = .28 to .35).

[Insert Table 3]

Low, medium and high YWLP peer support v. CS. Three additional MANCOVAs were conducted to compare outcomes for the Low, Medium, and High YWLP peer support groups to non-YWLP comparison women with community service involvement. Table 3 provides these results. All outcomes for Low Support vs. CS were non-significant. The significant differences between comparison women and Medium YWLP Support mentors—Social Acceptance and Functional Autonomy— became non-significant after FDR correction and had small effect sizes. On the other hand, mentors in the High YWLP Support subgroup

scored significantly higher than comparison women on both measures of Autonomy and Ethnocultural Empathy. All of these findings remained significant after FDR correction and showed moderate effect sizes (d = .46 to .55).

Discussion

It is important that the field of service-learning for college students consider ways of providing effective support to the students in various ways. Effective peer support, for example, could reduce service-learning programs' reliance on faculty, but it has not yet been formally examined. The present study aimed to determine whether peer support provided in the context of a youth mentoring service-learning program moderated outcomes for college student mentors. Our findings suggest that for mentoring programs using college students as mentors, YWLP's combination of one-on-one and group mentoring, yearlong training through an academic course, and weekly peer supervision and support may be a useful model for incorporating peer support. Especially for mentoring programs that serve a diverse population of at-risk youth, these various service-learning elements may provide the structure and support college students need in order to enhance their ethnocultural empathy and aspects of their civic-mindedness as they engage with their mentees.

The finding that peer support did not moderate SDT and ethnocultural empathy outcomes in YWLP women was somewhat surprising. However, the low variance in these variables among YWLP mentors may have contributed to this lack of significance. The fact that only high support YWLP mentors had significantly higher scores than comparison women in ethnocultural empathy and autonomy suggests that peer support may play an important role in the service-learning experience for mentors. Specifically, the YWLP mentors who indicated feeling minimal support from their group had outcomes similar to both comparison groups, while those who

perceived high support had significantly higher outcomes in ethnocultural empathy, attitudinal autonomy, and functional autonomy as compared to college women with alternative community service involvement; these results had moderate effect sizes. These findings are consistent with previous literature on the importance of peer relationships in college (Astin, 1993; Chickering & Reisser, 1993, Friedlander et al., 2007), and extend our understanding of the helpful role that peer support can play within a service-learning context. To strengthen the conclusions that can be drawn regarding the moderating effect of peer support, future studies may examine the same variables using different samples with similar control conditions.

Connecting Findings to Theory

The relationship between peer support and YWLP mentors' ethnocultural empathy may have implications for training college students to be empathic mentors for a diverse population. Mentors who perceived high peer support had greater outcomes in ethnocultural empathy as compared to both groups of non-YWLP college women. This was the only outcome that remained significant for both comparison groups after type I error correction. Challenging experiences, such as mentoring at-risk youth, may push mentors outside of their "emotional comfort zones" (Dahms, 1994, as cited in O'Grady, 2000), creating discord that can result in either growth or discouragement depending on how these situations are handled (Eyler & Giles, 1999). When students feel overwhelmed by such challenges, they are likely to reject learning opportunities and disengage from the service-learning experience (Eyler & Giles, 1999), reducing their potential to grow from the cultural stretching that is necessary. Results from this study suggest that support from their peers may allow students to grow from the experience and approach cultural difference with empathic understanding. This explanation is informed by the literature on the cultural challenges of service-learning and mentoring and the importance of

support in meeting these challenges (Eyler & Giles, 1999; Hughes, Steinhorn, Davis, Beckrest, Boyd, & Cashen, 2012, Kronick & Cunningham, 2013). As important as it is that service-learning experiences provide college students with cultural "stretching" opportunities, a high level of perceived support may also be needed to help them advance their ethnocultural empathy.

The intergroup contact hypothesis may provide a deeper explanation for this finding. Diversity in YWLP exists not only within mentoring pairs, but also among the YWLP mentors who work together in weekly supervision groups. The four conditions that Allport (1954) asserted are necessary for positive ethnic attitudes (i.e., equal group status, common goals, intergroup cooperation, and institutional support) were intentionally present within the peer supervision groups. As mentors received more support from their diverse peers, it may have set the stage for more positive attitudes about peers from different racial, socioeconomic, or social backgrounds. This idea is reflected in a longitudinal study showing that students who had more outgroup friendships during college were more likely to have positive attitudes about other ethnicities at graduation, and they were less anxious about interacting with students from different ethnic backgrounds (Levin, van Laar, & Sidanius, 2003). A qualitative study on YWLP mentors expanded on these findings, indicating that mentors' development of ethnocultural empathy arose from a greater cognitive understanding of their diverse peers as well as their affective connections to each other (Lee, Germain, Lawrence, & Marshall, 2010). Thus, the intergroup contact that mentors had with each other may have promoted greater ethnocultural empathy, which could have positive implications for their mentoring relationships.

SDT was chosen as a framework for assessing service-learning because the tenets of competence, relatedness, and autonomy are central to positive psychosocial well-being (Ryan & Deci, 2000). Competence and autonomy are particularly important aspects of internalized

motivation (Ryan & Deci, 2000), a key precursor to civic mindedness (Bringle et al., 2011). Based on previous research, Ryan and Deci (2000) theorize that autonomy—the volitional aspect of behavior that is integrated with one's sense of self (Deci & Ryan, 2000)—is core to intrinsic motivation and is also associated with an individual's desire for challenge. Given the inherent challenges associated with mentoring, autonomy may be an important aspect of resilience and perseverance for youth mentors. Thus, it was a noteworthy finding that both attitudinal and functional autonomy were higher in YWLP mentors as compared to students involved in other community service, but only when mentors perceived high levels of peer support. This reinforces the argument that peer support may be an important aspect of the service-learning experience that promotes positive outcomes above and beyond the service-learning elements of community service involvement, academic engagement, and reflection, since these elements were present for all YWLP mentors.

Limitations and Future Research

The ability to determine causality from our findings is limited by the cross-sectional research design. Future research should collect data longitudinally to clarify the directionality of peer support and different interpersonal and psychosocial outcomes. The relatively short eight-month time span between pre and post-program surveys may have reduced the likelihood of measurable change. This may at least partially explain the non-significant findings, particularly in competence and relatedness. Further, the quasi-experimental design of this study raises the possibility of self-selection bias. While we controlled for pre-program scores on the outcomes we assessed, students who enrolled in YWLP may have differed from comparison women in ways that were not measured on the survey. Respondents were also nested within mentoring groups, a factor that was beyond the scope of this study but could be examined in future explorations of

peer support and mentor outcomes. Additionally, researchers conducting future studies on the benefits of peer support may consider including additional measures to assess service-learner outcomes; namely, civic mindedness and broader evaluations of competence, relatedness, and autonomy.

While we were able to compare results for YWLP mentors to those from a comparison group, the comparison women with community service involvement did not provide information on the type of community service they performed. Given the centrality of interpersonal relationships in service-learning benefits (Bringle et al., 2011), those with more interpersonally-based service experiences may have had more opportunities for growth compared to those with alternative experiences. Similarly, we did not control for the amount of time per week that comparison women engaged in service activities or perceived support, which could have moderated their outcomes. Additional research can address these limitations by controlling for the number of hours that comparison students spend in community service each week, the degree of support they perceive, and by using a homogeneous comparison group that has members with similar types of service experience.

As with any study focusing on a single program, the generalizability of these results is limited by the unique structure of YWLP, which combines both one-on-one and group mentoring, and is also entirely female. Research on gender differences in volunteerism and service-learning has shown that, as compared to males, females have more positive attitudes about service-learning benefits (Casile, Hoover, & O'Neil, 2011), and they report stronger motivations to volunteer, even when compared to men in helping professions (Fletcher & Major, 2004). Eagly and Crowley's (1986) social role theory posits that males' helping behaviors are more likely to be risky and focused on rescuing or protecting weaker others, whereas females are

expected to care for and nurture others, mainly within the context of close relationships. YWLP's mentoring and training model provides extensive opportunities for mentor-mentee and mentor-mentor connections that may be more meaningful for females than more males. Service-learning programs that are not as interpersonally focused, or those that also include male volunteers, may yield different results.

Overall, our findings regarding the moderating effect of perceived peer support on ethnocultural empathy and autonomy provides a strong foundation for additional research on peer support for service-learners. A subsequent study could further explore the concept of mentor support in order to modify best practices in service-learning and in mentoring. For example, though the mentoring literature emphasizes the importance of mentor support (MENTOR, 2009), empirical research has offered few instruments to assess this construct. The development of such a measure would be valuable for future research on volunteer support. Additionally, the current study indicates that peer support may be useful for mentor benefits, which extends previous research showing that mentoring through service-learning has positive influences on the college student mentors (Banks, 2010). However, more research is needed to determine not only how program factors influence mentor outcomes, but also how service-learning can be optimized as a strategy to increase mentor competence, ultimately translating into mentee benefits.

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Table 1

Percentages of Ethnicity and Year in College by Group

		YWLP Support			Comparison	
	YWLP (n = 227)	Low (n = 54)	Medium (n = 68)	High (n = 68)	No CS (n = 105)	CS (n = 230)
Year in College						
1	4.4	5.6	5.9	2.9	23.8	13.0
2	49.8	50.0	44.1	61.8	21.9	25.7
3	26.9	33.3	23.5	22.1	37.1	42.2
4	13.2	9.4	19.1	10.3	13.3	16.5
Grad	4.8	1.9	7.4	2.9	3.8	2.5
Ethnicity						
Black/African American	19.4	11.1	22.1	17.6	1.0	9.1
Asian/Pacific Islander	6.2	7.4	4.4	7.4	3.8	8.3
Hispanic/Latina	1.8	1.9	1.5	2.9	2.9	2.6
White/Caucasian	42.3	44.4	48.5	38.2	55.2	47.8
Multi-ethnic	6.2	5.6	5.9	8.8	2.9	4.8
Other[a]	3.1	0.0	1.5	5.9	4.8	4.3
No response	21.1	29.6	16.2	19.1	29.5	23.0

[a]Examples of "Other" include Native American and Middle Eastern.

Note. CS = Community Service

Table 2

Mean Outcome Differences Between All YWLP Participants and Each Comparison Group

Outcome	All YWLP vs. No CS		All YWLP vs. CS	
	Wald Z	Cohen's *d*	Wald Z	Cohen's *d*
Scholastic Competence	2.211*	.29	0.840, *n.s.*	-
Social Acceptance	0.115, *n.s.*	-	1.641, *n.s.*	-
Attitudinal Autonomy	0.076, *n.s.*	-	2.250*	.23
Functional Autonomy	0.971, *n.s.*	-	**3.259****	**.33**
Ethnocultural Empathy	1.703†	.25	1.715†	.20

Note. Positive Wald Z values indicate YWLP > Comparison. Bolded indicates still significant after FDR correction.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

Table 3

Mean Outcome Differences Between YWLP Mentors by Support Level and Each Comparison Group

	Levels of YWLP Support vs. No CS					
	Low		Medium		High	
Outcome	Wald Z	Cohen's d	Wald Z	Cohen's d	Wald Z	Cohen's d
Schol. Comp.	.460, *n.s.*	-	2.247*	.39	1.743†	.28
Social Accept.	-.885, *n.s.*	-	.592, *n.s.*	-	.390, *n.s.*	-
Attitudinal Auto.	-1.412, *n.s.*	-	-.531, *n.s.*	-	2.022*	.31
Functional Auto.	-.359, *n.s.*	-	.613, *n.s.*	-	2.109*	.35
Ethno. Emp.	-.485, *n.s.*	-	1.603, *n.s.*	-	**2.627****	**.47**
	Levels of YWLP Support vs. CS					
	Low		Medium		High	
Schol. Comp.	-.657, *n.s.*	-	1.210, *n.s.*	-	.577, *n.s.*	-
Social Accept.	-.043, *n.s.*	-	1.799†	.27	1.523, *n.s.*	-
Attitudinal Auto.	-.195, *n.s.*	-	1.077, *n.s.*	-	**4.258*****	**.52**
Functional Auto.	.834, *n.s.*	-	1.969*	.29	**3.801*****	**.55**
Ethno. Emp.	-1.033, *n.s.*	-	1.562, *n.s.*	-	**2.947****	**.44**

Note. Positive Wald Z values indicate YWLP > Comparison. Bolded indicates still significant after FDR correction. Schol. Comp. = Scholastic Competence; Social Accept. = Social Acceptance; Attitudinal Auto. = Attitudinal Autonomy; Functional Auto. = Functional Autonomy; Ethno. Emp. = Ethnocultural Empathy.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

College Women Mentoring Adolescent Girls: The Relationship Between Mentor Peer Support and Mentee Outcomes

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Marshall, J.H., Lawrence, E.C., Peugh, J. (2013). College Women Mentoring Adolescent Girls: The Relationship Between Mentor Peer Support and Mentee Outcomes. *Mentoring & Tutoring: Partnership in Learning, 21*(4), 444-462. doi: 10.1080/13611267.2013.855860

Abstract

As mentors navigate the challenges of forming relationships with at-risk youth, it is important that they are supported in overcoming relational hurdles and promoting positive mentee outcomes. This study examined the effectiveness of peer support for college women mentors who engaged in one-to-one and group mentoring with at-risk adolescent girls. Using data from 162 mentoring pairs, results suggested that mentor support positively predicted mentees' self-reported improvement after a year of mentoring. An examination of mentees' self-esteem outcomes revealed that mentor peer support was associated with higher outcomes only for those mentees who had higher pre-program scores; for those with below average pre scores, mentor support was associated with lower self-esteem. A similar, though insignificant, trend was found for mentee academic functioning. Taken together, these results indicate that mentor support may serve as an important function beyond ongoing training, though its effectiveness may vary based on mentee characteristics. Implications are discussed.

Keywords: mentoring, adolescents, youth, peer support, college students, self-esteem

Introduction

Mentoring Adolescents

Adolescence has been long understood as a period of substantial biological, social, and behavioral change (Lerner & Steinberg, 2004). Adolescent girls, in particular, experience a heightened risk for decreases in self-esteem and school bonding and associated increases in delinquency, social aggression (Moretti, Catchpole, & Odgers, 2005), and depression (Culbertson, 1997). During this time, adolescents spend increasingly more time with peers and less time with parents and supervising adults (Darling, 2005), creating a need for additional sources of support and guidance during this formative time. Mentoring programs have been answering the call. At an increasing rate over the past few decades (MENTOR, 2006), mentoring programs for youth have been targeting their educational and academic outcomes (DuBois, Portillo, Rhodes, Silverthorn, & Valentine, 2011), mental health issues such as self-esteem and life satisfaction (DuBois, Holloway, Valentine, & Cooper, 2002), and problem behavior including gang membership, fighting (Grossman & Tierney, 1998; Wyman, Cross, Brown, Yu, Tu, & Eberly, 2010), and relational aggression (Faith, Fiala, Cavell, & Hughes, 2011).

However, the findings on mentoring outcomes have been mixed and effect sizes have generally been small (Herrera, Grossman, Kauh, Feldman, McMaken, & Jucovy, 2007; Rhodes & DuBois, 2006). A meta-analysis by DuBois et al. (2002a) showed that mentoring programs varied widely in effectiveness and yielded a small average effect size (Cohen's d = .14). Despite general improvements in mentoring program practices over the past ten years (DuBois et al., 2011), a more recent meta-analysis revealed a similarly low average effect size across programs (Cohen's d = .21) (DuBois et al., 2011). Given the potential that mentors have in providing support for adolescents that reduces their academic, behavioral, and mental health risks, it is

important that programs increase their effectiveness in targeting these areas.

Challenges of Mentoring

One explanation for mentoring programs' inconsistent outcomes and generally low effect sizes is that mentoring—particularly for at-risk youth—is challenging, and not all adults are prepared for the task (Faith et al., 2011; Rhodes & DuBois, 2006). Adolescents that are referred for mentoring often have histories of inconsistent or difficult relationships that may cause them to approach mentoring relationships with caution (Rhodes, 2002). Mentors may perceive this initial hesitance as disinterest or defiance, which can bring about early relationship termination (Rhodes, 2002; Spencer, 2007). When mentees have aggressive or antisocial characteristics, it can be especially difficult for the mentor to form a supportive relationship (Bauldry & Hatmann, 2004).

Adolescent girls, in particular, present unique challenges to forming a meaningful connection with their mentors. Girls who are referred to mentoring programs often have existing relational difficulties such as problems with trust, communication, and intimacy with their mothers (Rhodes, 2002). Rhodes, Lowe, Litchfield, and Walsh-Samp (2008) have also shown that, compared to boys, girls tend to be in longer mentoring relationships than boys and are less satisfied with short-term relationships. Girls are also less likely to list their mentors as the most important person in their lives (DuBois, Neville, Parra, & Pugh-Lilly, 2002).

In addition to the factors that mentees introduce, mentor characteristics and perspectives also play a determining role in the success of a mentoring relationship. A qualitative examination of unsuccessful mentoring relationships identified mentors' unrealistic expectations and deficiencies in relational skills as sources of relationship dissolution (Spencer, 2007). For example, mentors often have romanticized ideas about saving at-risk youth and forming life-long

connections, but this ideal can be quickly deflated when they face the overwhelming realities of vulnerable youth with difficult life circumstances (Spencer, 2007). Mentors who have rigid expectations about their roles and place emphasis on meeting their own needs in the mentoring relationship are often not attuned to their mentees needs and desires (Pryce, 2012). Additionally, mentors may not know how to engage with youth in ways that are developmentally appropriate, and they may struggle to bridge the cultural divides that often exist between themselves and their mentees (Grossman & Rhodes, 2002; Herrera et al., 2007; Spencer, 2007).

These issues may be especially prominent for college student mentors. College students can be an effective and available source of youth mentors (Tierney & Branch, 1992) due to their access to university resources, empathy for young populations (Jekielek, Moore, Hair, & Scarupa, 2002), and motivation to perform community service (Eyler & Giles, 1999). However, college students' unpredictable schedules can jeopardize their ability to make a stable commitment to their mentees (Jekielek et al., 2002), which can hinder the relationship duration and consistency that is critical to effective mentoring (DuBois & Rhodes, 2006; Herrera, Sipe, & McClanahan, 2000). Further, the racial and socioeconomic differences that are common between college student mentors and their youth mentees (Herrera et al., 2007) can result in early relationship termination when these issues are not handled sensitively (Spencer, 2007). Perhaps for these reasons, college student mentors were found to be 46% less likely to have an intact match at the end of a school year compared to other mentors (Grossman, Chan, Schwartz, & Rhodes, 2012).

As adolescent girls' degree of demographic, behavioral, and mental health risks increases, their mentors are likely to experience greater challenge in forming meaningful relationships with them. This may be especially true for college student mentors. Early

relationship termination can actually have a harmful effect on youth (Grossman & Rhodes, 2002), stressing the importance of identifying factors that promote mentor retention and competence. While pre-existing mentor characteristics are certainly important, DuBois, Portillo, Rhodes, Silverthorn, and Valentine (2011) clarified that it is not necessary for mentors to have particular experiences or backgrounds to be effective mentors. Rather, the more pressing matter is whether programs effectively support their mentors to engage with their mentees in ways that promote program objectives (DuBois et al., 2011).

Mentor Support

Researchers have conducted empirical studies on the type and amount of support that is most effective in promoting mentor retention and competence (Herrera, Sipe, & McClanahan, 2000; MENTOR, 2009; Parra, DuBois, Neville, Pugh-Lilly, & Povinelli, 2002; Sipe, 2002). The most prominent forms of support that emerge from the literature are initial or pre-match training, ongoing or post-match training, and supervision or support from staff. While pre-match mentor training has been found to predict relationship duration and strength (Herrera, Sipe, & McClanahan 2000; Parra et al., 2002), post-match training may also be important for positive mentee outcomes (DuBois et al., 2002a) and has been found to supersede the benefits of pre-match training on relationship supportiveness (Herrera, Sipe, & McClanahan, 2000). Therefore, in order to promote positive relationships, pre-match mentor training should be supplemented with ongoing supervision (MENTOR, 2009; Weinberger, 2005).

The literature on mentor supervision and support has been focused mostly on staff, who can provide moral support, positive feedback, and monitoring for mentors (Jucovy, 2001). This ongoing guidance can encourage mentors to continue pursuing their relationships in the face of challenges (Detusch & Spencer, 2009; Jucovy, 2001; Sipe, 2002). However, not all post-match

support is helpful. DuBois and Neville (1997) found that mentor contact with Big Brother Big Sister (BBBS) agency staff was negatively related to relationship closeness and length. The authors conclude that it may not be sufficient for mentors to receive support only when they are experiencing relationship difficulty (DuBois & Neville, 1997). Instead, support is likely to be more useful when it is consistent and preventive rather than just interventive. Further elucidating this point, Pryce and Keller (2012) concluded that it may be important for program staff to regularly communicate with and support their participants in order to promote positive progress in those relationships that are difficult at the outset as well as those that make initial progress but then plateau. Programs may benefit from supplementing staff supervision with other types of frequent, consistent support. Mentoring in various group formats may provide this opportunity.

Mentor peer support. In the literature, group mentoring refers either to one mentor with multiple mentees or to teams of mentors and mentees (Karcher, Kuperminc, Portwood, Sipe, & Taylor, 2006). Studies of group mentoring that have included more than one mentor and between 4 and 20 mentees have shown benefits for mentees including reductions in maladaptive behaviors and a greater sense of group belonging (Utsey, Howard, & Williams, 2003; Lapidus, 2005) as well as positive psychosocial and academic outcomes (Hanlon, Simon, O'Grady, Carswell, & Callaman, 2009; Jent & Niec, 2009). The group context may be especially useful when it includes multiple mentoring adults who can work together (Hirsch, DuBois, & Deutsch, 2006). Peer support for college student mentors that is provided in a group context has been associated with greater psychosocial and ethnocultural empathy outcomes for mentors (Marshall, Peugh, Lawrence, & Williams, 2012). What is not yet known, however, is whether mentor peer support in a group context can help promote the mentee outcomes that programs target.

Given the priority of identifying the programmatic factors that promote positive developmental outcomes for mentored youth and the challenges associated with mentoring adolescent girls that may preclude such outcomes (DuBois et al., 2002b; Rhodes, 2002), the possible effectiveness of mentor peer support should be explored. As such, the present study addresses the following research questions:

1. Is mentor peer support associated with mentee self-reported improvement after a year of mentoring?

2. Is the association between mentor support and mentee self-reported improvement moderated by mentee risk in (a) demographics, (b) behavior problems and/or (c) mental health?

3. Does mentor support moderate the relationship between mentee pre- and post-program levels of (a) academic functioning, (b) behavior problems, and/or (c) mental health?

Method

Participants

This sample included 162 pairs of college women and adolescent girls participating in the Young Women Leaders Program (YWLP), a school-based mentoring program in the southeastern United States that targets at-risk adolescent girls (Lawrence, Levy, Martin, & Strother-Taylor, 2008). YWLP combines one-to-one and group mentoring and provides ongoing training, supervision, and support for the college student metnors. The participants in this study were involved in YWLP during only one of three academic years: 2007-08, 2008-09, or 2009-10.

This study was conducted as part of a larger ongoing evaluation of YWLP. College women interested in volunteering as YWLP mentors completed a written application and an interview with YWLP staff. School personnel from four local middle schools were asked to identify seventh-grade girls who they believed were at risk for social, emotional, and/or academic

problems and would benefit from having a college student mentor. The college women were each paired with an at-risk middle school girl based on self-reported interest compatibility and schedule availability (i.e., mentors' class schedule allowed them to meet on the same day after school for the year). Pairs maintained a mentoring relationship for the academic year.

Mentors committed at least 4 hours per month of one-to-one mentoring and weekly 2-hour group mentoring with six to ten mentor-mentee pairs at the middle school. Undergraduate or graduate student facilitators led the groups through a common curriculum that addressed issues facing adolescent girls such as body image, academics, and relational aggression (Lawrence, Sovik-Johnston, Roberts, & Thorndike, 2009). The theoretical basis for the YWLP curriculum is self-determination theory (SDT), which states that the three basic human needs for personal well-being and self-motivation are to feel competent, related, and autonomous (Ryan & Deci, 2000). The lessons and activities in the curriculum were designed to promote competence, relatedness, and autonomy in the adolescent girls. For example, the "mission" or "leadership secret" of week two is "Appreciating Others," in which adolescent girls focus on honoring important people in their lives. The mission of week eight is "Keeping Our Cool," where girls participate in activities geared toward developing independent thinking during times of stress. Given the common ethnic differences between mentors and their mentees as well as among the mentees, issues related to cultural competence and understanding others from different backgrounds are incorporated in the YWLP curriculum and in mentor training. Mentors and facilitators also met as a group for 1 hour weekly without their mentees for peer supervision, support, and reflection. The YWLP college participants also enroll in a 2-semester course that focuses on theory and research on issues facing adolescent girls, developing cultural competence, and best practices in mentoring.

The college women mentors varied by academic year; 2% were in their first year (n = 4), 52.8% (n = 86) in their second year, 25% (n = 40) in their third, 11% (n = 18) in their fourth, and 2% (n= 3) were in their fifth year. Forty-one percent of the college women identified as Caucasian (n = 65), 18% as African American (n = 29), 4% as Asian American (n = 6), 3% as Latina/Hispanic (n = 5), and 5% (n = 8) as multi-racial or other. Twenty-eight percent of the college women did not report their racial/ethnic background (n = 47).

The seventh grade girls ranged in age from 11 to 14, with a mean age of 12.2. Twenty-four percent of the girls identified as Caucasian (n = 39), 37% as African American (n = 61), 1% as Asian American (n = 2), 12% as Latina/Hispanic (n = 20), and 21% as multi-racial or other (n = 34). Five percent of the girls did not report their racial/ethnic background. Almost two-thirds of the girls qualified for free or reduced price lunch (63%), and almost half lived in single-parent households (44%). In the year prior to joining the program, 23% of the girls reported receiving at least one failing grade, 28% received an in-school suspension, 12% received an out-of-school suspension, and 19% had a physical fight with someone at school.

All college women and a parent or guardian for each middle school girl provided informed consent prior to participation in YWLP research; the middle school girls also assented to participate. The adolescent mentees completed self-report online questionnaires in the fall of each academic year before the program began, and in the spring upon completion of the program. The questionnaires consisted of several separate scales that were administered simultaneously. The fall and spring questionnaires were generally the same in order to obtain pre and post-program measures on several constructs for the girls. However, the spring questionnaire also included a self-reported improvement scale in order to assess the degree to which mentees felt that YWLP supported their positive development in various areas. The mentors also

completed a questionnaire in the spring; the only measure used for this study was the Perceived Peer Support scale in order to assess their perceived sense of peer support during their mentoring experience. Participant pairs were included in the present analyses if both the mentor and mentee completed the surveys.

Mentee Measures

Self-reported improvement. In the spring survey, mentees completed the 14-item Self-Reported Improvement Scale (Lawrence, 2000) to assess their perceived improvement in a variety of psychosocial domains as a result of their involvement in YWLP. All items began with "Being in YWLP has helped me improve how I…." and were rated on a 4-point Likert scale (1 = Not at all, 4 = A lot). Items included "…Make decisions about my behavior in school" and "…Support my friends." The reliability and validity of this scale have not yet been established in previous research. Although there was a theoretical basis for a one-factor structure, we decided to begin to assess the psychometric properties of this scale by conducting an EFA and then a CFA to allow our interpretation of the factor structure to be guided by the data. The EFA/CFA results revealed a clear one-factor structure (RMSEA = .082, CFI = .95, SRMR = .044), with a factor determinacy score of .97, which serves as an indication of the internal consistency (see Muthén & Muthén, 1998-2010, p. 651).

Demographic risk. Mentee demographic risk was measured with three dichotomous questions: whether they qualified for free or reduced price lunch, whether their mothers achieved an education level of high school or less, and whether they lived in single parent homes. These three items were combined into a single continuous demographic risk variable indicating the number of demographic risk factors that were present for each girl.

Academic functioning. Mentee academic functioning was assessed with the 8-item School Self-Esteem subscale from the *Self-Esteem Questionnaire (SEQ)* (DuBois, Felner, Brand, Phillips, & Lease, 1996), three items assessing school bonding (Hawkins, Guo, Battin-Pearson, & Abbott, 2001) and an item with mentees' self-reported current GPA. Items from the School Self-Esteem subscale were rated on a 4-point Likert scale (1 = Strongly disagree, 4 = Strongly agree) and included, "I am as good a student as I would like to be," "I get grades that are good enough for me," and "I am doing as well on school work as I would like." DuBois et al. (1996) found adequate internal consistency for the School Self-Esteem subscale of the SEQ ($\alpha = .88$) as well as adequate test-retest reliability (test-retest *r*s for 5 subtests ranged from .70 to .87). Convergent validity was indicated in the strong correlation between self-report and interview scores ($r = .85$), and discriminant validity was also supported for the 5 subtests (mean $r = .55$). The three items assessing school bonding were "I like school," "I like my teachers," and "I like my class this year," and were also rated on a 4-point Likert scale. Because we were combining items from several scales in order to assess the construct of academic functioning, an EFA and then a CFA were conducted to determine the factor structure of the new construct. An EFA/CFA of the 12 items indicated a unitary factor structure (RMSEA = .054, CFI = .95, SRMR = .061 factor score determinacy = .92).

Problem behavior. Four items were included on both the fall and spring surveys that assessed mentees' self-reported problems behavior at school. The items asked mentees how many times in the preceding school year they (a) got into a physical fight, (b) got a referral at school, (c) received an in-school suspension, and (d) received an out-of-school suspension. Since the psychometric properties of these items have not been addressed in previous research, an EFA

and then CFA were conducted on these items revealed a unitary factor structure (RMSEA = 0, CFI = 1, SRMR = .017, factor score determinacy = .90).

Mental health. Mentees' mental health was assessed using three subscales from the *Self-Esteem Questionnaire (SEQ)* (DuBois et al., 1996): Peer Self-Esteem (8 items), Body Image (4 items), and Global Self-Esteem (8 items), as well as six items for depressive symptomatology that Colarossi and Eccles (2003) adapted from the Symptoms Checklist-Revised (SCL-90-R; Derogatis, 1983). The author of the SCL-90-R found strong internal consistency within the depression subscale (α = .90), with a test-retest reliability of .82. This subscale also had indications of validity in its correlation with the Wiggins (r = .75) and Tyron (r = .68) Depression scores on the MMPI. The internal consistency for the SEQ subscales are as follows: Peer Self-Esteem (α = .85), Body Image (α = .82), and Global Self-esteem (α = .86) (DuBois et al., 1996).

The six depressive symptomatology items began with "During the last month, how often have you felt…." and included, "…Like you don't care anymore?" and "…Hopeless?" Items were rated on a 4-point Likert scale. All *SEQ* items were rated on a 4-point Likert scale and included, "I am as well liked by other kids as I'd like to be," "I like my body just the way it is," and "I am happy with myself as a person," for Peer, Body, and Global Self-Esteem, respectively. Because we incorporated items from different scales in order to measure the construct of mentee mental health, an EFA and then CFA were conducted on the combined 26 items in order to determine the factor structure of this new construct. The results revealed a two-factor structure (RMSEA = .064, CFI = .90, SRMR = .072); the first factor, labeled 'depression', had a factor score determinacy of .94. The second factor, labeled 'self-esteem' had a factor score determinacy of .97. These two factors were treated as separate response variables in all analyses.

Mentor Measure

Perceived peer support. In order to measure the degree to which mentors felt supported by peers within their YWLP mentoring groups, nine items were included on the spring questionnaire that evaluated mentors' perceptions of encouragement and respect from their mentoring group members. Sample items include, "As a member of YWLP, how often did you feel supported by others in YWLP?" and "How often did you think the group seemed really interested in you and the things you were thinking about?" Mentors rated each item on a 5-point Likert scale (1 = Almost Never, 5 = All the Time). Due to the absence of reliability or validity information on this scale, an EFA and then CFA were conducted on these items to determine the factor structure; results confirmed a single factor solution (RMSEA = .028; CFI = .99; SRMR = .028, factor score determinacy = .95).

Data Analysis

Our analyses aimed to address our three main objectives: (a) Is mentor peer support associated with mentee self-reported improvement after a year of mentoring? (b) Is the association between mentor support and mentee self-reported improvement moderated by mentee risk in three domains: demographics, behavior problems, and/or mental health?, and (c) Does mentor support moderate mentee change in (a) academic functioning, (b) behavior problems, and/or (c) mental health after a year of mentoring?

After completing the EFA and CFA procedures outlined in the measure descriptions, we conducted structural equation models using Mplus version 6.12 to address our research questions (contact third author for specific model analysis details). We chose Mplus because it is best equipped to allow us to use latent factor regression models. This procedure allowed us to test relationships among constructs that have had error variance removed prior to estimation. For the first research question, we conducted a structural equation model that regressed self-reported

improvement on mentor support. For the second question, we conducted four separate structural equation models to address each type of risk: demographics, behavioral problems, depression, and self-esteem (since our previous EFA and CFA indicated that mental health consisted of two factors that we labeled depression and self-esteem, these variables were analyzed separately). Each analysis included self-reported improvement as the dependent variable, pre-test risk score as one predictor, and an interaction term of mentor support x pre-test risk score as a second predictor in order to determine the potential moderating influence of mentor support. To control for type I error from multiple comparisons, we completed a false discovery rate correction that included all analyses in the study (Benjamini & Hochberg, 1995).

Addressing our third objective, we conducted a likelihood ratio nested model test to determine if mean differences were present between pre and and post-program scores for each risk domain (i.e., academic functioning, behavior problems, depression, and self-esteem). Next, we conducted an additional four structural equation models that included the post-test score as the dependent variable, the pre-test score as a covariate, and the interaction term of mentor support x pre-test score to determine whether mentor support moderated mentee pre-post change in the areas of interest.

Results

The results of the first model indicated that mentor support positively predicted mentee self-reported improvement (b= .25, Wald Z = 3.48, p = .001, R^2 = .13). Fit indices for this model were as follows: RMSEA = .058, CFI = .911, SRMR = .079. This finding remained significant after correcting for type I error with false discovery rate. Addressing our second research question, we conducted an additional four structural equation models to determine whether

mentor support interacted with pre-program risk scores to predict mentee self-reported improvement. None of these interaction terms were significant (all p's > .05).

Addressing our third objective, the results of our nested model test showed no significant differences between pre- and post-program scores for academic functioning, behavior problems, depression, or self-esteem (p > .05). Subsequent analyses showed that mentor support significantly interacted with self-esteem (b = .278, Wald Z = 2.314, p = .021; R^2 = .18) and exhibited a trend toward significantly interacting with academic functioning (b = .225,Wald Z = 1.921, p = .055; R^2 = .22) at pre-test to positively predict mentees' post-test scores in these respective areas. The results of the false discovery rate analysis indicated that the significant interaction between mentor support and self-esteem remained significant; however, the interaction between mentor support and academic functioning was non-significant. The interaction terms for mentor support x behavior (b = - .209, Wald Z = -.777, p = .437) and mentor support x depression (b = .098, Wald Z = .601, p = .548) were both non-significant.

The significant results were graphed to develop a better understanding of the interaction relationships. The plotted values for "high" and "low" mentee pre-program self-esteem and pre-program academic functioning are 1 standard deviation above and below the mean, respectively. Taken together, the figures indicate that mentor support interacted with mentee characteristics in important ways. Figure 1 shows that, among mentees with above average self-esteem at pre-test, those whose mentors felt a high level of peer support had higher self-esteem at the conclusion of the program compared to those whose mentors experienced less support from their peers. However, this relationship appears to be reversed for mentees with below average self-esteem at pre-test; those whose mentors experienced a high level of peer support actually had lower self-esteem at post-test compared to those whose mentors experienced less peer support. The

interaction relationship between mentor support and academic functioning only approached significance and was non-significant after controlling for type I error in the FDR correction.

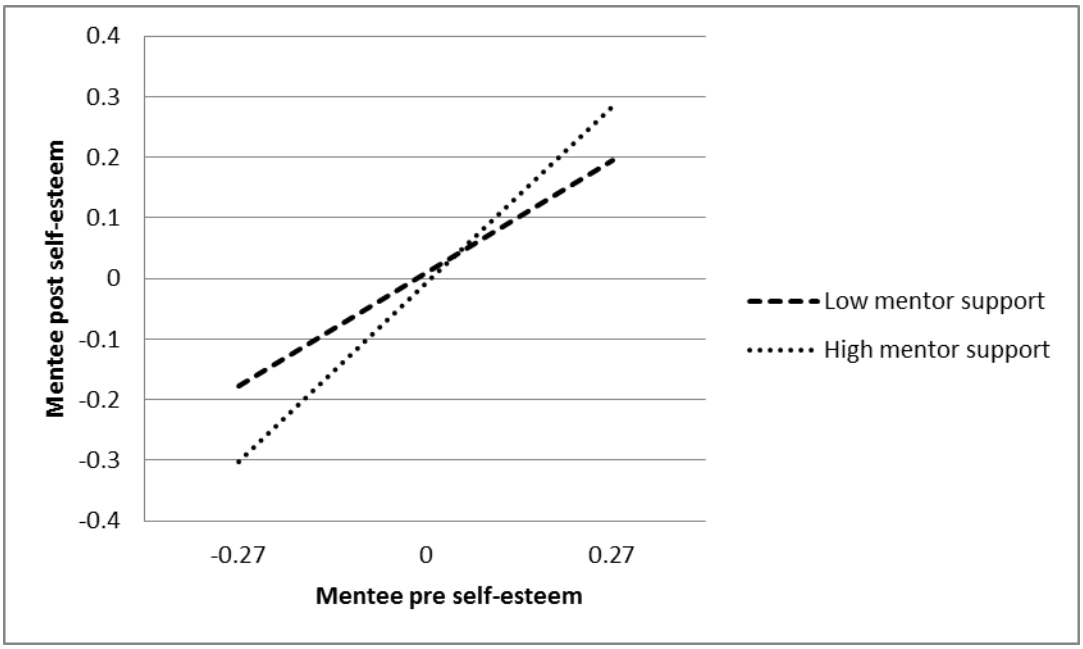

Figure 1. Interaction of mentee pre-program self-esteem x mentor perceived support predicting mentee post-program self-esteem.

Discussion

Research has long touted the importance of mentor training (e.g., MENTOR, 2009; Sipe, 2002). However, our findings suggested that training alone may not be sufficient. Though all YWLP mentors received intensive ongoing training through a year-long academic course, the degree to which mentors felt supported by their peers was positively related to their mentees' self-reported improvement and moderated mentee outcomes in self-esteem. These findings broaden previous research showing that agency support is associated with higher mentor retention and satisfaction (Stukas & Tanti, 2005). Results from the present study indicated that

peers, in particular, may be an effective source of support for mentors, though the effectiveness of peer support may vary based on mentee characteristics.

Our finding that peer support predicted mentee self-reported improvement suggests that, in addition to training, peer support for mentors may be an important piece of the complex mentoring puzzle. In order for mentors to achieve the close emotional bond that is crucial for positive mentee outcomes (Herrera, Sipe, & McClanahan, 2000; Parra et al., 2002), mentors must set developmentally appropriate expectations and they must strike a balance between challenging their mentees and also providing appropriate support (Deutsch & Spencer, 2009). Balancing these skills can be difficult for high-achieving mentors such as college students, who may be more effective when they feel more confident (Parra et al., 2002). Peer support may increase mentors' confidence in their abilities to set limits in their relationships while also taking the risks that are associated with intimacy and closeness.

Peer support also may be especially important for college students who are engaged in community service. Mentoring at-risk youth may force college students out of their "emotional comfort zones" (Dahms, 1994, as cited in O'Grady, 2000, p. 15), particularly when their mentees' socioeconomic and ethnic backgrounds are different from their own (Eyler & Giles, 1999). When their experience of challenge is not balanced by support, college students are likely to reject the learning opportunities that service could have provided (Eyler & Giles, 1999), potentially resulting in ineffectual mentoring relationships. Researchers have been optimistic about the usefulness of peer support for college students in general (Astin, 1993; Astin, Vogelgesang, Ikeda, & Yee, 2000) and those engaged in service-learning, in particular (Eyler & Giles, 1999; Marshall et al., 2012). The current findings augment this literature by suggesting

that consistent, accessible support provided by peers may not only be instrumental for mentor benefits, but also for the well-being of their mentees who have certain characteristics.

Given our finding that mentor peer support was associated with mentee self-reported improvement, it is important to continue examining whether there are particular mentee characteristics that would require additional support from their mentors. The results from this study begin to shed light on this issue by suggesting that mentee risk matters, but in specific ways. We were surprised to find that the relationship between mentor support and mentee self-reported improvement remained true regardless of the mentee's initial demographic, behavioral, or mental health risk. One possibility for this finding is that we did not examine the aspects of mentee risk that would most influence the mentoring relationship (e.g., attachment history), while another possible explanation is that support allows college student mentors to manage mentee challenges more effectively. Given that the risk factors we measured have been shown to hinder positive relationship development (DuBois, Parra, and Pugh-Lilly, 2002; Rhodes, 2002; Spencer, 2007), the latter explanation is more likely. This further emphasizes the potential usefulness of peer support in helping college students to face the challenges that are associated with at-risk youth and to promote mentees' sense of self-improvement as a result of mentoring.

On the other hand, for outcomes such as self-esteem and possibly academic functioning, risk seems to play a different role. Like many other studies on the effects of mentoring, we did not find that mentees made overall significant change in academic functioning, behavior, self-esteem, or depression after an academic year of mentoring. However, mentor support moderated mentee outcomes in self-esteem—and approached significance for moderating academic outcomes—differently depending on initial mentee characteristics in these areas. Mentors' perceived support may have a positive impact on mentees who have higher self-esteem at the

outset. For mentees with low self-esteem, the combination of mentor training and high perceived support may not be sufficient, and the mentors may have required additional skills that their peer group did not provide. Reinforcing this possibility, Jucovy (2001) points out that peer support groups may reinforce unproductive strategies for mentors who are managing difficult relationships.

Alternatively, mentors who feel supported by their peers may form friendships with them at the exclusion of their mentees, which is likely to have a more negative effect on adolescent girls with low self-esteem. Along the same lines, mentor peer support may be a proxy for group cohesion, which has the potential to keep mentees engaged in the group even in the absence of a satisfying one-to-one relationship (Deutsch, Wiggins, Henneberger, & Lawrence, in press); however, for girls with low self-esteem and associated weaknesses in social skills, they may be unable to engage in these proactive group processes. Yet another possibility is that the girls with low self-esteem would have dropped out of the program without the mentoring group as a source of connectedness and support. Without a comparison group, it is difficult to determine whether mentor perceived support had a negative effect on girls' self-esteem, or if it actually helped to keep those with low self-esteem involved in the program and to attenuate more negative effects. A more concrete measure of mentor support and future studies that include comparison groups could help to disentangle these possibilities.

The finding that mentor support did not significantly moderate mentees' behavioral outcomes warrants additional explanation. One possibility for this null finding is the heterogeneity of the problem behavior measure. That is, the behaviors that may lead to suspension or referrals—such as talking in class or truancy—may not place as much strain on the mentoring relationship as social issues such as fighting or relational aggression. Another possible

explanation is that the relatively short time-frame in which the study occurred (i.e., nine months from pre to post-test) may not be sufficient time for measurable behavioral change (Tolan, Henry, Schoeny, & Bass, 2008).

However, the fact that mentor support predicted mentee self-reported improvement may be important to consider in light of this issue. The Self-Reported Improvement measure assessed mentees' perceptions of how YWLP helped improve their interactions with others, decision-making processes, and plans for the future. These factors are key aspects of executive functioning, a complex system of cognitive processes that develops most dramatically during adolescence and early adulthood (Keating, 2004), and is associated with reductions in risky behavior (Steinberg, 2008). Our findings suggests that, when mentors are supported, they may be better able to help their mentees make critical shifts in their thinking that may influence their behavior down the line. This is consistent with Rhodes' (2002) mentoring model, which concludes that mentors can help their mentees make advancements in cognitive development by initiating conversation that promotes critical thinking. An alternative explanation is that the positive relationship between mentor peer support and mentee self-reported improvement reflects shared positive feelings about the program in general. That is, if the mentor feels supported and is satisfied with the program experience, the mentee may mirror this satisfaction and report more positive changes from the program, even in the absence of measureable change.

Limitations and Implications

This study has several limitations. First, the mentoring literature is lacking a comprehensive, validated measure of mentors' perceived peer support. The measure we used has not been assessed for validity, and thus it may be measuring a construct that is peripherally related to peer support, such as group cohesion. This makes it difficult to form interpretations

about the specific mechanisms and mentor characteristics that promote positive mentee change. Future research should be aimed toward developing and validating a measure that assesses mentors' perceived support. Previous history on reliability and validity was also not available for the mentees' self-reported improvement scale or the problem behavior scale.

Additionally, due to inconsistencies in school reporting, all mentee outcomes were based on self-report measures rather than school records; the former are inherently biased. While we were interested in mentees' perspectives on their growth after a year of mentoring, supplementing these results with objective measures of their functioning would have strengthened our conclusions. Further, the format of the mentoring program creates a model where mentoring pairs are nested within groups, which in turn are nested within a larger training program. This nested model limits our ability to distinguish between the various levels of influence on mentee outcomes. Thus, it is likely that our results represent a combination of the effects that one-to-one mentors and mentoring groups have on mentee functioning. An associated limitation is the unique structure of YWLP, which includes an academic course for the mentors, mentor peer supervision and support, and a combination of one-to-one and group mentoring with all female participants limits the generalizability of these findings to other types of mentoring programs.

Further, although we have contributed to the existing literature by combining cross-sectional analyses with pre-post comparisons and an examination of moderating effects, we cannot make causal conclusions regarding the relationship between mentor peer support and mentee outcomes since these data were collected simultaneously. Another limitation is the absence of a comparison group, which limits our ability to interpret the findings regarding the relationship between mentor perceived support and mentee outcomes. For example, it would

have been useful to compare girls with low self-esteem who did and did not receive mentoring. Perhaps not having a mentor at all would have led to a further decrease in self-esteem. These issues raise questions that could be explored with future research.

Subsequent studies may supplement our findings and address these limitations by conducting a more in-depth exploration of the different types of peer support that mentors provide and the differential contributions that mentoring groups and individual mentors have on mentee development. Along the same lines, an enhanced understanding of mentor support mechanisms would provide a useful foundation for understanding not only whether mentor support matters, but also *how* it may translate into positive outcomes for mentees. Research efforts should be directed toward creating a validated measure of mentor support to better assess this construct and its outcomes. Finally, our finding on the interaction between mentor support and self-esteem suggests that mentors of girls with low self-esteem may require specific training to be effective, a need that may be masked when mentors feel supported by their peers. Additional research should continue exploring the factors that are most helpful when mentoring girls with this and other types of mental health risk.

Taken together, our results indicate that peer support and agency-directed training may be most effective when they are provided in combination and can supplement each other. This may be especially true when mentees begin the program with relatively higher levels of self-esteem. Other mentoring programs may consider borrowing from YWLP's format, which supplements one-to-one with group mentoring and additional opportunities for mentors to interact with and support each other. This format may also reduce the demand on agency staff, who would no longer be the sole providers of all training, support, and supervision. During a time when cost-effectiveness in training and dosage of mentoring implementation is a high priority (Rhodes &

DuBois, 2004; Yates, 2005), it is important that mentoring program personnel consider the ways in which they can most effectively promote mentor effectiveness. However, the effectiveness of peer support may vary depending on mentee characteristics, and thus it is important to develop an enhanced understanding of support mechanisms and how they interact with mentee risk before more rigorous conclusions about the effectiveness of peer support can be drawn.

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Mentors' Perceived Program Support Scale: Development and Initial Validation

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Abstract

Mentoring can have powerful benefits for youth, but it is a challenging responsibility for mentors and has pivotal implications for mentees. The literature emphasizes training and support as being essential for effective mentoring (DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000; Sipe, 2002), but empirical research has not yet provided a psychometrically sound measure to assess this construct. The present study focuses on the development and initial evaluation of the Mentors' Perceived Program Support Scale (MPPSS), an 11-item inventory that addresses four areas of support: emotional, informational, tangible assistance, and appraisal. The MPPSS was administered to 664 mentors from 19 formal mentoring programs. Data analysis included a factor analysis, item response theory (IRT) analysis, and a matrix of bivariate correlations to assess convergent and discriminant validity. Reliability and validity estimates of the MPPS indicated that the MPPSS may have several advantages over the MCQ's Programmatic Support subscale, one of the few available measures of mentor support. Implications for the use and further evaluation of the MPPSS are discussed.

Keywords: mentoring, mentor support, measure development, assessment

Mentoring as an Intervention

National interest in mentoring programs has skyrocketed over the last few decades, with three million youth currently involved in formal mentoring relationships (MENTOR, 2006). Encouraging research findings show that mentoring is associated with positive outcomes for youth. For example, mentoring has been found to promote positive academic, emotional, and social outcomes and can decrease problem behaviors such as alcohol use and physical aggression (DuBois, Holloway, Valentine & Cooper, 2002; Zimmerman, Bingenheimer, & Behrendt, 2005).

There is general agreement that a close, trusting relationship is the linchpin of mentoring effectiveness (Herrera, Sipe, & McClanahan, 2000; Rhodes, 2002). However, mentoring programs have had varied success in promoting such relationships (Rhodes & DuBois, 2006). Two meta-analyses conducted almost 10 years apart both revealed that, on average, mentoring programs are still only achieving modest effect sizes (Cohen's d = .21) (DuBois, Holloway et al. 2002; DuBois et al., 2011). These findings show that transformative mentoring relationships are neither certain nor easily attained.

Challenges of Mentoring

Forming a relationship with an at-risk youth is inherently challenging. Youth with histories of inconsistent or disappointing relationships may approach mentoring relationships cautiously, and mentors may perceive this hesitance as disinterest or defiance (Rhodes, 2002). Additionally, it can be difficult for mentors to sensitively manage the issues that arise from the racial and socioeconomic differences that commonly exist between themselves and their mentees (Herrera, Grossman, Kauh, Feldman, McMaken, & Jucovy, 2007; Spencer, 2007). Mentors often have romanticized ideas about saving at-risk youth, but they can be quickly disappointed when they face the harsh realities of vulnerable youth with difficult life circumstances (Rogers &

Taylor, 1997; Spencer, 2007). In order to lay the foundation for an effective relationship, it is important for mentors to be a consistent and reliable presence for the mentee, to interact with the mentee in a developmentally appropriate manner and to display empathy, caring, and respect (Rhodes, 2002; Sipe, 1999; Spencer, 2007). This balance requires interpersonal skills that mentors may not possess at the outset, which could lead to relationship failure (Spencer, 2007). Due to the detrimental effects that early relationship disruption can have on youth (Grossman & Rhodes, 2002), it is important that mentoring programs make mentor retention and competence a high priority.

Mentor Support

Researchers have focused on isolating the specific program features that promote effective, enduring relationships. Across studies, mentor training and support consistently emerge as two of these key features (DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000; Kupersmidt & Rhodes, 2014; Sipe, 2002). The literature has specified the amount of contact that staff should have with mentees (MENTOR, 2009a), but the terms "training," "supervision," and "support" are often used interchangeably and are not clearly defined. Similarly, though there is a general understanding that mentor support likely includes a combination of emotional support, problem solving, goal monitoring, and training (Deutsch & Spencer, 2009, MENTOR, 2009b; Sipe, 1999), this is often not explicitly stated.

Illustrating this point, DuBois and Neville (1997) produced counter-intuitive findings showing that mentor contact with Big Brothers Big Sisters staff was negatively associated with relationship closeness and length. The authors conclude that mentors may only have contacted staff when their relationships were struggling (DuBois & Neville, 1997), though this was not yet evidenced. A more recent finding showed that mentors' perception of support from their mentor

peers may actually have negative effects for mentees who begin the program with low self-esteem (Marshall, Lawrence, & Peugh, 2013). Taken together, these results may indicate that mentor support is not always effective, but it may also indicate that findings on the effectiveness of mentor support depends on the way in which it is measured. Before research on "best practices" in mentor support can be conducted—and the mentors who are in need of greater assistance can be targeted—a psychometrically sound measure of mentor support is needed.

Assessing Mentor Support

Studies assessing the relationship between mentor training and support and program outcomes typically assess training and support based on quantity (e.g., DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000). However, Cohen and Wills (1985) argue that perceived, rather than received, support is more strongly associated with stress-buffering effects, and thus the quality of mentor support may be a more useful gauge. The few measures in the literature that do assess mentors' perceived support are notably brief and have not been rigorously evaluated for evidence of reliability or validity. Karcher (2004) developed a four-item staff support measure to evaluate the outcomes of a particular program, though it has not yet been published and empirical evidence of reliability and validity are non-existent. Similarly, the Match Characteristics Questionnaire (MCQ), version 2.2, a comprehensive measure assessing relationship quality, includes four items that evaluate programmatic support ($\alpha = .79$) (Harris & Nakkula, 2008), though no evidence of validity has been published for this subscale. Thus, neither of these measures has undergone sufficient evaluation to ensure that they are psychometrically sound instruments for assessing mentors' perceived support. Further, both measures contain only 4 items and may be missing important aspects (i.e., construct underrepresentation) of the support that programs offer their mentors.

A review of the literature on social support, mentoring, and clinical supervision provides a helpful conceptualization of the types of support that may be important for mentors. Although these three areas are functionally different, at their core is a common element of helpful assistance provided with a purpose. Interestingly, the types of support that have been identified in each of these areas of the literature are strikingly similar. For example, Barrera (1986) identified emotional, instrumental, informational, companionate, and esteem support as key aspects of social support. These align with the categories of support and assistance that are discussed in the supervision literature (Milne & Westerman, 2001; Winstanley & White, 2003) as well as with the support processes that mentors use in effective mentoring (Barrera & Bonds, 2005; DuBois et al., 2011). What can be inferred from this consistency is that, across settings, what are deemed to be important aspects of support may take a similar form.

Taken together, the four main categories of support that emerge from the literature are (a) emotional, (b) informational, (c) tangible assistance, and (d) appraisal. The first category, emotional support, refers to a variety of behaviors that promote a sense of trust and rapport such as empathic listening and showing concern, understanding, and caring (Lawrence et al., 2007; Milne & Westerman, 2001; Rhodes, 2002). Informational support refers to directive guidance, advice giving, information provision, or instruction that is intended to increase knowledge or skill (Barrera & Ainlay, 1983; Falender & Shafranske, 2004, Rhodes, 2002). Tangible assistance is distinguished from informational support in that it refers to concrete, active help that is provided through investing labor, time, monetary resources, or material aid (Barrera & Ainlay, 1983). Finally, appraisal includes processes such as feedback and reassurance that promote self-evaluation, reflection, and reinforcement (Barrera & Ainlay, 1983; Winstanley & White, 2003).

Literature on youth mentoring indicates how mentors, in particular, may need to be supported in order to be effective in their relationships (MENTOR, 2009a). Perhaps not surprisingly, these recommendations map onto the same four categories outlined in the literature on social support. Recommendations for program practices specify that mentors should be trained in topics that include youth development and cultural issues (i.e., informational support), and programs should assist the mentor in evaluating their goals (i.e., appraisal support) and setting realistic expectations (MENTOR, 2009a). Programs should also host group activities for mentors and mentees (i.e., tangible assistance) (MENTOR, 2009a). Staff should be available to mentors throughout the course of mentoring and provide help to solve problems when they are struggling (i.e., emotional support) (Weinberger, 2005), and they should pay particular attention to multicultural issues, providing instruction that promotes a greater understanding of issues related to difference and diversity (MENTOR, 2009b; Spencer, 2006). Thus, a measure that assesses mentors' perceived support should address these recommendations.

Present Study

Research efforts have identified the amount and frequency of mentor support that is most useful as well as its associated outcomes. However, the only available tools in the literature for assessing support for mentors are very brief and lack published psychometric evidence for their use. The goal of the current study was to develop a psychometrically appropriate measure for assessing mentors' perceived program support. Taken together, the literatures on mentoring, social support, and clinical supervision have identified four supportive functions that are consistent across settings and are likely to be relevant for mentors: emotional, informational, tangible assistance, and appraisal support. By addressing these functions of support and by taking into consideration the issues that are specifically relevant to mentoring, the development

of the Mentors' Perceived Program Support Scale (MPPSS) aims to fulfill the need for a measure that assesses mentor support comprehensively and has empirical evidence to supports its use.

To reach these goals, a two-part study was conducted to first create the MPPSS scale and then to evaluate its psychometric properties. Part one, inventory development, began with the formation of an item pool that was modeled after an existing measure of social support, the Support Appraisal for Work Stressors (SAWS; Lawrence, Gardner, & Callan, 2007). The SAWS was developed to evaluate the buffering effect of social support on workplace stressors and addresses the same four categories of support that are likely to be applicable to mentors. The SAWS items were revised and modified in order to better fit the mentoring context. Next, a Q-sort task was administered to determine the degree to which the items were an appropriate fit for the constructs for which they were intended.

The initial evaluation stage of this study was guided by widely-cited works in scale development and validity testing. Cronbach and Meehl (1955) assert that correlation matrices and factor analysis are effective methods for beginning to establish construct evidence. Additionally, item response theory (IRT) analysis is an effective way to develop an in-depth understanding of a measure's internal structure (De Ayala, 2009; Clark & Watson, 1995). Thus, part two of the study consisted of three main components to assess the psychometric properties of the MPPSS: (a) an assessment of the factor structure, (b) IRT analysis to evaluate and refine the MPPSS at the item-level, and (c) an evaluation of the convergent and discriminant evidence of the MPPSS. Regarding the latter, the relationship between mentors' perceived support and relationship success in previous research (DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000; Sipe, 2002), a measure assessing relationship quality should correlate positively with a measure of mentor support. Conversely, though the mentoring literature shows that mentors vary

in age (MENTOR, 2006), there are no indications that support may be more or less important based on this factor (MENTOR, 2009a; 2009b) and thus scores on a measure of mentor support should be minimally related to age. An additional aim of the initial scale evaluation stage was to compare the psychometric qualities of the finalized MPPSS to those of the MCQ's Programmatic Support subscale.

Method

Scale Development

The initial development of the Mentors' Perceived Program Support Scale (MPPSS) was guided by a review of the literature on mentor training and support functions in various contexts. First, SAWS items were refined to better address issues that are pertinent to youth mentors. Additional item modifications and additions were made based on reviews from peer supervisors of college student youth mentors (n = 21) and mentoring program directors and researchers (n = 8). These changes resulted in a 28-item scale.

To assess the substantive validity of the MPPSS, a sorting task was conducted in the manner recommended by Anderson and Gerbing (1991). Seventeen participants from two mentoring programs at a university in the southeastern United States completed a Q-sort of the initial 28-item MPPSS. All participants had at least 1 year of prior experience as youth mentors and, at the time of the study, they were serving as peer supervisors of college students who mentored youth. Supervisors were provided with a list of the 28 proposed items in random order and definitions of the four theorized categories of supportive functions (i.e., emotional, informational, tangible assistance, and appraisal). They were asked to match each of the items with its appropriate category.

A substantive-validity coefficient was then calculated for each item to assess the degree to which the item was deemed to be a fit for its hypothesized construct (Anderson & Gerbing, 1991). This coefficient was calculated by subtracting the highest number of times the item was assigned to a category other than the intended category from the number of participants assigning an item to its hypothesized category. This value was divided by the total number of respondents to produce a value between -1.0 and 1.0, with larger values indicating greater validity. Items with values less than or equal to 0.5 were considered a poor fit (Anderson & Gerbing, 1991).

Scale Evaluation

To evaluate its psychometric properties, the MPPSS was administered as part of an online survey to a heterogeneous group of mentors from formal youth mentoring programs in the United States. The survey also included several demographic items as well as other measures to be used in subsequent analyses. This second stage of this study addressed four main aims: (a) to determine the factor structure of the MPPSS, (b) to assess the psychometric properties of the MPPSS at the item-level and to refine the scale accordingly, (c) to evaluate the convergent and discriminant evidence of the MPPSS, and (d) to compare the psychometric properties of the MPPSS to the MCQ's Programmatic Support subscale.

Participants. The MPPSS was administered to 664 mentors from 19 formal mentoring programs in 7 states. The average mentor response rate from participating programs was 25% and ranged from 5% to 76% for each program. This was calculated based on an estimate of the total number of matches in each program. Twenty-five percent of the mentors were male (*n* = 166) and 75% were female (*n* = 496). The majority of the mentors identified as White or Caucasian (74%; n = 489), 13% (*n* = 86) identified themselves as Black or African American, 5% (*n* = 31) as Asian or Asian American, 4% (*n* = 25) as mixed ethnicity, 1.8% (*n* = 12) as

Hispanic or Latino, and 0.5% (*n* = 3) as American Indian or Native American. Mentors ranged in age from 18 to 79 (*M* = 36, *SD* = 16.5). All mentors were matched with youth between ages 5 and 18. The length of the mentoring relationships varied; 27% (*n* = 179) were in matches for less than 6 months, 22% (*n* = 147) were in matches for 6 months to 11 months, 12% (*n* = 81) were in matches for 1 year, 14% (*n* = 27) for 2 years, and 22% (*n* = 149) for 3 or more years. The mentoring programs represented were in predominantly rural or suburban regions. See Appendix A for additional program characteristics.

Procedure. To recruit mentor participants, directors from various formal mentoring programs were informed of the study through local connections or state mentoring partnerships. Directors were informed that, if at least 20 mentors responded (to ensure confidentiality), the researchers would provide aggregate data from their mentors. Only programs with mentors aged 18 or older that served youth between ages 5 and 18 were included in the study. Program directors that agreed to have their mentors participate in the study then contacted their mentors via emails or newsletters with an invitation to complete the online questionnaire and with a link to the survey. Mentors provided informed consent on the first page of the survey prior to completion. Incentives for participation were awarded via random draw.

Measures.

Mentor Perceived Program Support Scale (MPSSS). The final scale addressed each of the four hypothesized categories of mentor support functions: emotional, informational, tangible assistance, and appraisal. Before completing items in the scale, mentors were first asked to identify relevant sources of support in their respective programs: "program staff support," "fellow mentor/peer supervisor support," "resource support (e.g., written materials, online training or resources)," and "other (please specify)." Then, they responded to 22 items each rated

on a 4-point Likert-type scale ranging from 1 (*Not at all*) to 4 (*Very much*). A copy of the scale is included in Appendix B.

Mentor and match characteristics. Mentors provided demographic information that included their age and ethnicity. They also reported on match characteristics such as their mentees' ages and the length of the mentoring relationship.

Relationship quality. Mentoring relationship quality was assessed with the Strength of Relationship scale from the mentors' perspective (*MSoR*; Schwartz, Rhodes, Wills, & Wu, 2013). The scale included items such as "I feel close to my Little" and "I am enjoying the experience of being a Big," which were rated on a 5-point Likert-type scale ranging from "1 (*Strongly disagree*) to 5 (*Strongly agree*). For the MSOR scale, the words "Little" and "Big" were changed to "mentee" and "mentor," respectively, to be more general and widely applicable. The MSoR was found to be positively and significantly related to mentoring relationship length and with mentee report of relationship quality (r = .20 at 3 months and r = .23 at 12 months; Schwartz et al.).

Schwartz et al. (2013) found that the MSoR scale consisted of 2 factors. For the current study, a confirmatory factor analysis was performed to ensure that the 2-factor structure was maintained on the current sample. Results, however, indicated a poor fit for the 2-factor solution (RMSEA = .095, CFI = .832, SRMR = .066).As a result, an additional factor analysis was conducted and showed that the four items comprising the second factor were all negatively worded, which did not justify a two-factor structure. Thus, these four items were removed from the measure for subsequent analyses and this reduced version of the MSoR was treated as a unidimensional construct (α = .83).

Programmatic support. To compare the results of the MPPSS with an existing measure of mentors' perceptions of program support, the *Programmatic Support* subscale (α = .79) from the *Match Characteristics Questionnaire*, v2.2 was also included (Harris & Nakkula, 2008). The subscale consisted of 4 items that were each rated on a 6-point Likert-type scale from 1 (*Never*) to 6 (*Always*). These items were, "The program that made my match has provided training that helps me be a better mentor," "I get regular guidance/supervision from staff at the program that made my match," and "The support I get from the mentoring program makes me a better mentor," and "The mentoring program provides special activities or events that I can go to with my mentee." A CFA was conducted on this subscale to ensure that unidimensionality was maintained with the current sample (RMSEA = .037, CFI = .998, SRMR = .016, factor score determinacy = .96). Internal consistency was also calculated (α = .82).

Data Analyses.

Factor analysis. First, an EFA on the MPPSS were conducted in *Mplus* version 6.12 (Muthén & Muthén, 1998-2010) to examine its underlying factor structure. By default, MPlus provides a Geomin rotated solution, which allows factors to be correlated. The decision regarding the number of factors to retain was based on an examination of the eigenvalues (i.e., scree plot), model fit indices, theory, and interpretability of the factor structure.

Item Response Theory. Second, an item response theory (IRT) analysis of the MPPSS was conducted in IRTPRO version 2.1 (Cai, du Toit, & Thissen, 2011) to provide more detailed information about the psychometric properties of the scale, each item on the scale, and to reduce the total number of items based on these properties. IRT is a modern measurement approach that provides indicators of the relationship between item responses and the latent trait of interest (i.e., perceived program support) and the likelihood of a participant choosing a certain response option

based on that participant's level of perceived program support (Clark & Watson, 1995; Edelen & Reeve, 2007; Toland, 2014). These properties are assessed with the slope (*a*) and threshold (*b*) parameters, respectively. Due to the ordered categorical response format (i.e., Likert-type scale) of the MPPSS items, Samejima's (1969) graded response (GR) model was used for the analyses.

In addition to the assumption of unidimensionality being tested for the IRT analyses, two additional assumptions were tested. The first assumption, local independence, specifies that there should be no residual correlations among items after the latent factor is removed (Edelen & Reeve, 2007). This was assessed by examining the local dependence (LD) statistics provided in the IRTPRO output for the specified model. The second assumption, model-data fit, implies that the observed data should be equal to what the IRT model predicts (De Ayala, 2009; Toland, 2014). This was assessed with Orlando and Thissen's (2000, 2003) S-χ^2 item-fit statistic, which assesses the degree of similarity between model-predicted and observed response frequencies. This statistic was evaluated at the 1% significance level; any statistically significant values were indications that the model was a poor fit for those items.

In addition to LD and model-fit statistics, each item was assessed by examining the option response functions (ORF), which graphically represents the slope and threshold parameters for each Likert-scale option on each item. Additionally, the item information function (IIF) for each item indicated how much information each item is contributing to the total scale and at what levels of the latent trait (θ). Combining the IIFs for each item on the scale provided a total information function (TIF), which graphically indicated how much information the scale provides at different levels of the latent construct (Toland, 2014). Based on the LD, model-data fit, ORF, and IIF results, several items were eliminated from the total MPPSS inventory. Decisions about item elimination were made by balancing consideration of the statistical results,

the influence that the item elimination had on the TIF, and the comprehensiveness of the resulting inventory. An IRT analysis was also conducted on the MCQ's Programmatic Support subscale to examine the psychometric properties of the items on this subscale, as well as to compare its TIF to that of the MPPSS.

Convergent and discriminant evidence. Finally, a matrix of bivariate correlations was constructed to determine the degree to which the MPPSS correlated with other constructs that are theorized to be related (Programmatic Support, Strength of Relationship) and less related (mentor age) to mentors' perceived program support. Because it was possible that factors such as age could be positively or negatively related to other factors, two-tailed tests were performed. All correlations were tested at the 5% significance level. Rather than using raw or mean scores, IRT scores were generated using the expected a-posteriori (EAP) estimator. The IRT scores handle item-level missing data by providing a latent score for any individual that responded to at least 1 item on the scale being assessed. Ranges of missing data for each scale were as follows: MPPSS = 7.1 - 9.5%; MCQ = 10.1 – 10.5%; MSoR = 10.1 – 10.5%. Those that did not respond to any items on the MPPSS were not included in these analyses (7%; n = 47). IRT scores were generated for the MPPSS, the MCQ'S Programmatic Support subscale, and the MSoR in the correlation matrix.

Results

Inventory Development and Q-sort

The results of the Q-sort indicated that six items had substantive validity coefficients below .50. These items, which represented each of the four hypothesized categories of support, were deleted. The resulting scale had 22 items that were deemed to appropriately cover the

breadth of support that programs provide for mentors, and thus was administered to mentors for further assessment and validation.

Factor Analysis

To examine the factor structure of the 22-item MPPSS, an EFA was first conducted. Forty-seven of the total 664 participants did not respond to any of the items on the MPPSS, and thus the EFA included the remaining 617 mentors. An examination of the scree plot suggested the extraction of one factor, which was confirmed in the large ratio of the first to second Eigenvalues (Eigenvalue 1 = 9.71, Eigenvalue 2 = 2.78). Additionally, an exploration of this second factor indicated that it was likely an artifact of negatively worded items and thus limited the interpretability of the 2-factor solution. Therefore, the MPPSS was treated as a unidimensional construct and all items were explored in more depth in the IRT analysis to modify the inventory based on item properties.

Item Response Theory

First, the unidimensionality assumption was confirmed in the previous factor analysis, which indicated a 1-factor solution for the MMPSS. Second, more than 43 item pairs had an LD statistic above |10|, which were considered violations of the local independence assumption. High levels of local dependence were concentrated among the items that had comprised the second factor in the EFA (i.e., items 5, 15, 17, and 19) but were determined to be insufficient as a second factor. Third, the S-χ^2 item-fit statistics indicated that seven items had significant values ($p < .05$) and thus did not meet the assumption of appropriate model-data fit. Given the assumption violations of the 22-item scale, we then examined the slopes, threshold parameters, ORFs, and IIFs of each item to determine which could be eliminated.

Slopes typically range from .5 to 3.0 (De Ayala, 2009; Toland, 2014). The same four items that had the highest local dependence (5, 15, 17, and 19) also had slopes below .05. Further, the IIFs indicated that these items, as well as item 7, provided very little information across levels of the latent construct. As a result, items 5, 7, 15, 17, and 19 were deleted and IRT calibrations on the 18-item MPPSS were conducted a second time. In the second calibration, there were four clear violations of the local independence assumption: items 3 and 4, 8 and 9, 14 and 13, and 22 and 18 all had LD statistics > 10. The decision to remove one item from each of these four pairs was based on the slopes and thresholds and on the item content; in the case of nearly equivalent slopes and thresholds, the item that was judged to contribute the most unique content= to the scale was included and the other was discarded in order to optimize the information captured while reducing redundancy. As a result, items 3, 8, 13, and 18 were discarded and IRT calibrations were conducted a third time.

[Insert Table 1]

This iterative process continued until items 12 and 21 were also deleted based on similar procedures described above and particularly their IIFs, which indicated that they provided very little information. Thus, the MPPSS was ultimately reduced to 11 items. Table 1 shows the IRT calibrations for the final MPPSS. Despite the 1-factor structure of the MPPSS, at least 1 item from each of the four hypothesized categories of support were maintained in the scale in order to maintain a maximum content coverage, as described in Edelen and Reeve (2007).

To address our goal of comparing the MPPSS to the Programmatic Support subscale of the MCQ, an IRT GR model analysis was also completed on the MCQ (see Table 1). Figure 1, which shows the TIF of both the Programmatic Support subscale and the MPPSS, indicates that both the MPPSS and the Programmatic Support subscale provide the highest level of information

on the lower end of the latent continuum of perceived support ($-2.5 < \theta < .05$). For the range of ($-2.5 < \theta < .05$), both the MPPSS and the MCQ have a marginal reliability of .932 (reliability = 1-1/information) (Reeve & Fayers, as cited in Toland, 2014). However, the marginal reliability of—or amount of information provided by—the MPPSS is more consistent within this range as compared to the Programmatic Support subscale, which is more erratic. See Figure 1.

[Insert Figure 1]

Convergent and Discriminant Evidence

The correlation matrix depicted in Table 2 shows that the MPPSS was positively correlated with the measures with which it was expected to correlate in this direction (MCQ and MSoR) and there was a lack of a statistically significant linear correlation with mentor age. On the other hand, the MCQ was not significantly correlated with MSoR and it did positively correlate with mentor age.

[Insert Table 2]

Discussion

Though the literature on mentoring best practices has evolved over time, one factor that has been consistently emphasized is the importance of mentor support. However, mentoring research has lagged in producing instruments to assess program support for mentors; those that do exist are brief and have limited histories of psychometric data. To address this gap, the goals of this study were to develop the Mentors' Perceived Program Support Scale (MPPSS); to begin to assess its reliability and validity; and to compare its psychometric properties to those from an existing measure, the MCQ's Programmatic Support subscale (Harris & Nakkula, 2008). The results indicate that the 11-item MPPSS has compelling indications of reliability and validity and may have several advantages over the MCQ's programmatic support subscale.

The content evidence of validity for the MPPSS was maximized by professional consultation, broad literature review, and focus groups during the inventory development stage. Across contexts, the literature on functional support yields four common sub-categories: emotional, informational, tangible assistance, and appraisal. After substantive validity coefficients were calculated and six items deleted, the four categories of support were still equally represented. Thus, the EFA and CFA results were surprising, as they indicated that the MPPSS consisted of a single construct rather than the anticipated four. It could be that, for mentors, support in one dimension may be experienced equally as support in another. For mentoring program directors, however, who have to make important resource decisions, it may be useful to be able to distinguish between the various dimensions in which their mentors do and do not perceive support.

The reliability of the MPPSS was found to be 93% at the lower end of the latent perceived support construct, indicating that the MPPSS can be most effective in accurately identifying the level of support experienced by mentors who generally feel less supported in their programs. More specifically, mentors who respond "very much" to MPPSS items may actually be anywhere from average to two standard deviations above average in perceived support. Mentors who choose any of the three lower options (i.e., "mostly," "a little," "not at all,") are likely to perceive a below average level of support and their actual degree of support can be more accurately determined based on their response patterns. Programs that use the MPPSS should take this into consideration when interpreting the results; the MPPSS can be used as a tool for identifying mentors who are feeling unsupported and may benefit from targeted outreach. We also compared these results to the programmatic support subscale of the MCQ. Though the MCQ also had an average reliability of 93% over the same lower end of the latent continuum, this

value varied quite substantially as can be seen in Figure 1. This indicates that MCQ is less precise than the MPPSS over the same range of the latent continuum, and thus responses are less meaningful.

The convergent and discriminant evidence of the MPPSS were also assessed with a correlation matrix. That the MPPSS was not significantly correlated with age is an indication of its discriminant evidence. Also as hypothesized, the MPPSS was positively correlated with the programmatic support subscale of the MCQ as well as with the MSoR, which assessed relationship quality from the mentors' perspective. This is consistent with previous research showing a connection between mentor support and positive mentoring relationships (DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000), thus strengthening the convergent evidence of the MPPSS.

The correlation matrix results for the MCQ were essentially the opposite of those from the MPPSS. The MCQ did correlate with mentor age and it was not significantly correlated with the MSoR. Given that the MPPSS and the MCQ are theoretically measuring the same construct, it was surprising that they did not exhibit the same correlational properties. These results weaken the convergent and discriminant evidence of the MCQ's programmatic support subscale. Taken together with the reliability analysis, these findings support the conclusion that the MPPSS is a more reliable and valid instrument than the MCQ in assessing mentors' perceptions of program support. A deeper exploration of the content of each scale sheds light on some possible reasons for this discrepancy.

Although we found a single factor structure for the MPPSS as noted above, it may be helpful for programs using the MPPSS to identify varying areas in which mentors may need support. Thus, we included at least one item from each of the four initially hypothesized

categories of support in the final 11-item scale in order to optimize its comprehensiveness. However, the informational sub-category was the most strongly represented with five items since they proved to be most closely related to the latent construct. A possible interpretation is that the degree of support that mentors feel from their programs is most strongly related to the information or skills training that they receive. Nonetheless, while three of the four MCQ items address information provision or training, the finding that the MPPSS had stronger reliability and validity indices indicates that items tapping into emotional and appraisal support may provide additional value. Applying this to practice, though training and informational types of support may be particularly important for mentors, they may not fully capture the spectrum of effective support that mentors need. Future applied research should continue to explore this possibility, as it could have important implications for mentoring programs' resource management.

Limitations and conclusions

There were several limitations to this study. First, the majority of the mentoring programs in our sample were from rural or suburban areas, and thus urban programs were underrepresented. Second, the average mentor response rate from participating programs was 25% (range: 5% to 76%). Though it is likely that not all mentors received the emails or newsletters from their program directors informing them of the study, the average response rate was quite low. Thus, selection bias such that more satisfied mentors were more likely to complete the survey cannot be ruled out. Relatedly, as we only included mentors in current matches, volunteers who had previously dropped out of their respective programs—and may have experienced lower levels of perceived support—were not included in our sample. Therefore, the response patterns that we interpreted may be somewhat skewed. Though we made an effort to gather data from a heterogeneous group of mentors, future studies could extend our

findings by re-administering the survey to a sample that matches the national population of youth mentors more closely. Additionally, administering the finalized 11-item MPPSS to an independent sample will be an important next step in assessing the strength of the validity of the instrument. Future research on the MPPSS should also examine whether additional items can be added to strengthen the reliability of the middle and upper level of the continuum.

Despite these limitations, the results of this study provide meaningful evidence that the MPPSS could be a reliable and valid tool for assessing mentors' perception of program support. The mentoring field hypothesizes that program support impacts mentoring outcomes (DuBois et al., 2002; Herrera, Sipe, & McClanahan, 2000; Sipe, 2002) but without a psychometrically sound measure of support this may be more speculation than fact. The MPPSS may prove to be this measure given its several important advantages over the MCQ's Programmatic Support subscale, one of the very few instruments of its kind in the literature. However, as Cronbach and Meehl (1955) state in their landmark article, construct evidence is established through the development of a "nomological network" that integrates theory and multifaceted observation. A single study is insufficient in proving that an instrument "has construct evidence," and thus a goal of future research would be to continue evaluating the MPPSS in relation to other observable constructs in order to better understand what exactly it measures and how it can be used most effectively. The results of this study would provide a strong foundation for such subsequent exploration.

Appendix A

Mentoring Program Characteristics

Program	# Matches	School or community-based	One-to-one or group mentoring	Pre-match training	Post-match training	Post-match support
A	180	Community	One-to-one	2 hours	None	Informal
B	80	Community	Both	2 hours	None	1x/semester
C	65	Community	One-to-one	2-3 hours	None	None
D	300	School	One-to-one	2 hours	None	Informal
E	60	Community	One-to-one	1.5 hours	Optional	Monthly
F	108	Community	One-to-one	4 hours	None	Monthly
G	25	Community	One-to-one	2 hours	Optional	Biweekly
H	400	School	Both	3 hours	None	Informal
I	260	Community	One-to-one	2 hours	Yearly	2x/year
J	650	School	One-to-one	3 hours	1x required, then optional	Informal
K	250	Community	Both	None	None	Informal
L	52	School	Group	3 hours	Optional	Weekly debriefs
M	300	Both	One-to-one	1 hour	None	Monthly
N	602	Community	One-to-one	2 hours	Optional	Informal
O	600	Both	One-to-one	2 hours	Optional	Monthly
P	68	Both	Both	3 hours	Optional	Monthly
Q	104	School	One-to-one	12 hours	None	2x/year check-ins and mentor groups
R	80	School	Both	2.5 hours	Yearly	Monthly
S	75	School	Both	5 hours	Weekly	Weekly mentor discussion groups.

Note. Unless specified, post-match support refers to check-ins from staff. Informal post-match support refers to staff being available on an as-needed basis without a scheduled time.

Appendix B

Mentors' Perceived Program Support Scale (MPPSS)

Mentoring programs vary in the sources of support they offer their mentors. Which of the following are available from your program?

- ☐ Program staff support
- ☐ Fellow mentors/peer supervisor support
- ☐ Resource support (e.g., written materials, online training)
- ☐ Other support (please indicate the source)_____

Thinking about the sources you just chose, Does your program…
(1 = Not at all, 2 = A little, 3 = Mostly, 4 = Very much)
**Indicates final 11 items

1. Understand the situations you face with your mentee?**
2. Teach you how to handle difficult situations that arise in mentoring?**
3. Loan you something to use with your mentee (e.g., game, art supplies, book)?
4. Physically go with you during a challenging mentoring situation (e.g., at mentee's school/home)?**
5. Not appreciate your efforts to resolve difficult situations with your mentee?
6. Provide information to help you think about your mentoring relationship differently?**
7. Not invest time in helping you resolve issues with your mentee?
8. Listen to you when you need to talk?
9. Help you feel better when you experience difficulty with your mentee?**
10. Suggest activities to do with your mentee?**
11. Notice when you are working hard at being a good mentor?**
12. Provide aid (e.g., transportation, concert tickets) so you can fulfill a mentoring responsibility (e.g., one-on-one time, talking to teacher/family)?
13. Show genuine concern if you are struggling?
14. Help you evaluate your feelings and attitudes about your mentee?**
15. Give you unhelpful advice?
16. Teach you skills that you can use in mentoring?**
17. Provide reimbursement or monetary compensation?
18. Help you reflect on your relationship with your mentee?
19. Respond to you in a way that makes you feel worse?
20. Teach you strategies for appreciating issues related to diversity or difference in your relationship?**
21. Organize events for mentoring pairs?
22. Provide opportunities to reflect on your mentoring experience?**

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Table 1

Graded Response (GR) Model Item Parameter Estimates, Standard Error Estimates, and Item-Fit Statistics for 11-item MPPSS and the MCQ's Programmatic Support Subscale

Item	*a* (s.e.)	b_1 (s.e)	b2 (s.e.)	b3 (s.e.)	S-χ^2	*p*
MPPSS						
1	2.05 (0.18)	-3.25 (0.28)	-2.04 (0.14)	-0.34 (0.06)	51.51	0.125
2	2.34 (0.18)	-2.44 (0.16)	-1.13 (0.08)	0.18 (0.06)	50.18	0.311
4	1.03 (0.1)	-0.47 (0.1)	0.46 (0.1)	1.48 (0.16)	85.47	0.007
6	2.42 (0.18)	-1.87 (0.11)	-0.78 (0.07)	0.4 (0.06)	61.26	0.132
9	2.79 (0.22)	-2.4 (0.15)	-1.28 (0.08)	-0.12 (0.06)	57.2	0.030
10	1.95 (0.17)	-3.12 (0.26)	-1.72 (0.12)	-0.52 (0.07)	57.13	0.073
11	1.9 (0.15)	-2.2 (0.15)	-1.13 (0.09)	0.1 (0.07)	61.07	0.331
14	2.81 (0.21)	-1.82 (0.11)	-0.9 (0.07)	0.15 (0.06)	35.33	0.791
16	2.93 (0.23)	-2.19 (0.13)	-0.92 (0.07)	0.15 (0.06)	46.31	0.228
20	2.72 (0.2)	-1.54 (0.09)	-0.5 (0.06)	0.57 (0.07)	47.54	0.411
22	2.1 (0.15)	-1.73 (0.11)	-0.57(0.07)	0.54 (0.07)	73.41	0.041
MCQ						
1	3.04 (0.23)	-2.29 (0.15)	-1.85 (0.12)	-1.31 (0.09)	42.5	0.150
2	3.92 (0.33)	-2.25 (0.14)	-1.63 (0.1)	-0.96 (0.08)	50.97	0.018
3	6.21 (1.02)	-2.48 (0.18)	-1.73 (0.11)	-1.09 (0.08)	41.71	0.035
4	0.93 (0.1)	-4.39 (0.49)	-3.37 (0.35)	-2.18 (0.23)	102.64	0.000

Note. *a* = item slope parameter; *b* = item threshold parameter; S-χ^2= item-fit statistic; *p* = p value associated with item-fit statistic.

Table 2

Pearson Correlations Among Mentor Report Measures and Demographic Characteristics

	MPPSS	MCQ	MSoR	Mentor Age
MPPSS				
MCQ	.13*			
MSoR	.27**	.07		
Mentor Age	.07	.13**	.20**	

Note. MPPSS = Mentors' Perceived Program Support Scale; MCQ = Match Characteristics Questionnaire Programmatic Support susbcale; MSoR = Strength of Relationship scale from the mentors' perspective. Values for the MPPSS scale, MCQ, and MSoR were IRT scores calculated in IRTPRO version 2.1 using the EAP estimator.
*$p < .05$. **$p < .01$.

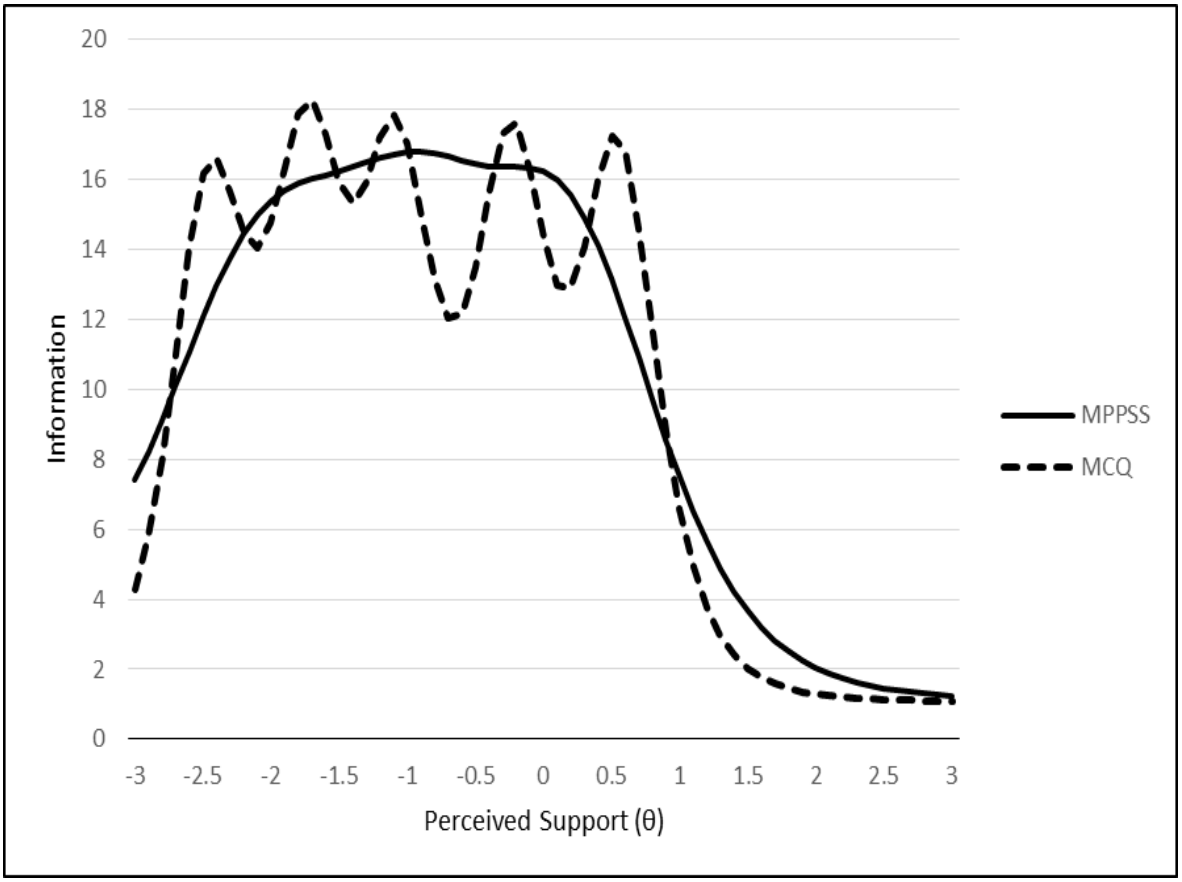

Figure 1. Total information functions for the 11-item MPPSS and the MCQ's Programmatic Support subscale. The horizontal axis represents the latent variable, mentors' perceived support. The vertical axis represents the amount of information, or precision, provided by each scale at a given latent score. More information produces a more reliable score (reliability = 1 – 1/information).