Peer Study Groups as Catalyst for Vocational Exploration

By David R. Arendale and Amanda R. Hane

*ABSTRACT: **Postsecondary peer assisted learning programs often cite improving academic achievement for students. This qualitative study investigated the potential effect of serving as student facilitators of a peer study group on their future vocation. This was a replication of previous studies of personal and professional outcomes for study group facilitators. Findings of this study suggest the facilitator experience strongly influenced facilitators' interest in careers, especially related to the teaching profession. This study explores why these programs generate these outcomes through linking leading theories to the research outcomes. Peer study group programs present a cocurricular experience that could be more powerful if it was intentional for professional development outcomes of the student facilitators and participants. With the highly competitive job market for today's college graduates, institutions must use every opportunity to increase job readiness skills of its graduates.***

Equipping students with skills and experiences needed for entry into the world-of-work can occur…before they depart college.

Developing college students holistically and increasing their career-preparedness has become more important in recent years. This priority is a shared responsibility of both academic and student affairs professionals (Corrigan, 2012; Keeling, 2004). Equipping students with skills and experiences needed for entry into the world-of-work can occur through a variety of experiences for students before they depart college. This research study focused on an academic peer study group program to help the student group facilitators build essential commitments, experiences, and skills needed for their future career. Future employers require both hard and soft skills for successful workers (Heckman & Kautz, 2012; Mitchel, Skinner, & White, 2010).

The University of Minnesota (UMN) is a public research-intensive institution with 50,000 students enrolled in undergraduate, graduate, and professional school degrees. Even with a highly selective admissions process, UMN leaders have been concerned with unacceptable dropout rates. During Fall 2006, the Peer Assisted Learning (PAL) program began at UMN as part of a comprehensive approach to improve graduation rates and student persistence in academically-rigorous programs. PAL targets historically difficult math and science courses for first- and second-year students with high rates of final course grades of D, F, or withdrawal (Arendale, 2014b). These rigorous courses are gatekeepers before students enter highly competitive academic programs in science, technology, engineering, and mathematics (STEM).

PAL incorporated design elements of Supplemental Instruction (SI; Arendale, 1994), Peer-led Team Learning (PLTL; Tien, Roth, & Kampmeier, 2002), and Emerging Scholars Program (ESP; Treisman, 1986). Students in the targeted classes were required to participate in weekly study review sessions, and their attendance was reported to the target course professors and the campus PAL administrator to track their compliance. An upper-division undergraduate student was employed by the campus learning center to lead these sessions.

These students were competitively selected based on academic competency, previous success in the targeted course, and interpersonal communication skills. Twenty percent were enrolled in an education major or planned to do so. The position attracted their attention due to the salary and belief it would serve as an early teaching experience. The College of Education and Human Development at UMN is a first-year student admitting college with transfers accepted during later years. Most of the remaining 80% of PAL facilitators planned to complete doctoral degrees in UMN graduate or professional schools. This was a common aspiration among many newly admitted students. They were interested in the PAL job because it supported an introductory course in their subject major, provided a salary, and included job experience that they believed would be helpful for admission to graduate or professional school. A few mentioned law, medicine, and other health-science professional degrees as academic interests. For these students, several believed the PAL job experience would be viewed favorably when committees evaluated admission applications due to demonstration of communication and small group skills. Students planning to attend graduate school thought the

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PAL experience would provide training to serve as a graduate teaching assistant (GTA). Serving as a GTA was often required to obtain doctoral degree financial aid. However, these students did not anticipate a future teaching occupation upon graduation. Teaching as a GTA was a short-term, part-time job during graduate school.

To clarify the student leader's role during PAL sessions, their title was *facilitator* since leadership for the review session was transferred to the study group participants over the academic term. Another reason for using the facilitator title was their intentional use of varied collaborative learning activities during PAL sessions.

A facilitator underwent extensive training before and during the academic term. A 2-day workshop occurred before the academic term in which they received instruction on PAL session procedures, participated in mock PAL sessions assuming roles of facilitators and students, and worked in small groups to plan PAL sessions and reflect about choices made. During fall term, they were required to enroll in a one-credit course (PsTL 3050) taught by a UMN faculty member who codeveloped the campus PAL program and worked with the PAL program administrator. Students engaged in guided discussions of educational theory articles applicable to the PAL program, employed group problem solving regarding participant behaviors during PAL sessions, and reflected on their growth as a result of PAL. As part of the course requirements, they maintained a weekly journal of their experiences and observations of behaviors as well as overall perceptions of attitudes of participants in their study groups. Facilitators were requested to note changes in their students and themselves over the academic term and record examples in weekly journal entries. Twice each academic term they observed the PAL sessions of another facilitator, and then the two of them debriefed the facilitator's decisions and reactions by the participants. They had numerous opportunities for informal conversation with one another regarding what they were experiencing and learning from their PAL experience. A professional UMN staff member served as an administrator for the PAL program, conducted periodic training sessions for the student staff throughout the academic term, periodically observed PAL sessions, coached and mentored the PAL student leaders, and performed program evaluation each term.

In addition to review of course content, the PAL facilitator modeled two types of learning strategies: cognitive and metacognitive. Cognitive strategies included lecture note taking, effective reading, visual organizers, and exam preparation. Due to requirements of the math and science courses, extensive time was spent with problem-solving strategies and use of preplanned worksheets with different types of problem sets for students to complete individually and collaboratively during PAL sessions with assistance of the PAL facilitator. Metacognitive strategies included identifying error patterns in exams, selecting appropriate cognitive strategies based on the learning task, and self-testing for comprehension. Students applied these skills to the course material during the study sessions so they became a natural part of their academic repertoire when dealing with this and future courses. Several studies validated the efficacy of the PAL program for increasing academic success for students (Cheng & Walters, 2009; Ediger, 2007; Lilly & Goergen, 2011). Studies by Arendale and Hane examined PAL facilitator development with academic skills (2015a), leadership (2015b), and professional identity (2015c).

This research study investigated the potential contribution of the PAL experience to development of the facilitator's career commitment, interests, and job skills such as public speaking, leading small and large groups, and multicultural competence.

Was it possible to be intentional about development of career interests and job skills for a PAL facilitator?

Similar job skills were sometimes described as soft skills (Heckman & Kautz, 2012; Mitchel, Skinner, & White, 2010). If these developments occured as a result of the PAL experience, could the process for change be identified? If the process for change was understood, was it possible to be intentional about development of career interests and job skills for a PAL facilitator? This article represents a contribution to this ongoing investigation of career outcomes identified by other researchers.

Review of the Professional Literature

The most common topics examined in postsecondary peer cooperative learning groups research studies were academic achievement and graduation rates of the participants (Arendale, 2014a). In this section, we explored research studies correlating influence of peer study groups with promoting interest or confirming decisions to pursue future vocations among PAL facilitators. We also examined theories to help understand the choices people make regarding their future occupation and mechanisms to develop self-efficacy influencing their choices. We concluded with a review of teacher education preparation.

Previous Research on Postsecondary Peer Cooperative Study Groups

In an annotated bibliography, Arendale (2014a) has reviewed six well-known postsecondary peer cooperative learning programs in the U.S. and in other countries: Accelerated Learning Groups (ALG), Emerging Scholars Program (ESP), Peer-led Team Learning (PLTL), Structured Learning Assistance (SLA), Supplemental Instruction (SI), and Video-based Supplemental Instruction (VSI). The majority of studies in this database focus on academic achievement and persistence towards graduation for the participating students in these study groups. Of the 1,100+ entries in the bibliography, nearly 150 identified outcomes for the study group leaders with personal and professional development. Some of the research questions from those studies were sources for survey questions in this study.

Forty-one studies included outcomes pertaining to vocational interest or choices by the peer study group leaders (Arendale, 2014c). SI was most often cited as having an influence on study group facilitators regarding future careers (32 studies) and nine additional studies indicated similar findings with PLTL. These studies are geographically located around the globe: United States (22), United Kingdom (8), Australia (7), South Africa (3), and Sweden (1).

The vocational outcomes from the studies are in two categories: general vocational and teaching-related. General vocational outcomes include: increased marketability to potential employers (11 studies), additional interaction and mentoring with professors that could influence future vocations (9 studies), career preparation (4 studies), and considering additional future occupations (3 studies). Teaching related influences were observed in approximately half of the 41 studies. These include: development of teaching skills for immediate or future use (11 studies), increased interest in a teaching career (11 studies), and acquiring training in teaching for students who had already decided upon a teaching career (8 studies).

The earliest study in this collection was also the most definitive for students confirming previous commitment to a future teacher career (Maloney, 1992). The researcher examined SI facilitators who were also secondary school education majors. Maloney compared the experience of these students after their SI facilitator experience with a separate group not involved in SI but who served as a classroom teacher aide. The SI facilitators demonstrated higher competency than their counterparts in the following areas: lesson preparation, classroom management, and instructional skills. The researcher concluded that serving as an SI facilitator could satisfy as an alternative field experience for the teacher candidates. Lipsky and

Kapadia (2013) noted that SI facilitators considering a career in teaching solidified their decision and others shifted their focus to consider a career as a teacher. Narode (2001) identified the important role of serving as a PLTL workshop facilitator in promoting the decision to become a teacher in the field of science, technology, engineering, and mathematics. Based on research with SI facilitators at the University of Glamorgan, students sometimes pursued leading these groups because they perceived it as a way to enhance their job resume and improve marketability with prospective school employers (Saunders & Gibbon, 1998).

Self-Efficacy Theory

Bandura (1994, 1995) has defined self-efficacy as a person's belief in their own ability to be successful in specific situations. If a person believes he or she possesses high self-efficacy with a task, personal life-goal formation is influenced and could lead to selecting a future career consistent with a person's belief. Whereas self-efficacy is about a person's belief in themselves to be successful, "outcome expectations" pertain to whether the person expects to be successful in achieving the desired goals. Learning experiences and increased self-efficacy can also affect students' outcome expectations. Bandura identified four sources of input that help form a person's belief in their self-efficacy: (a) personal appraisal of competence and mastery of a skill; (b) comparison, after watching a peer perform a similar task, with the individual's performance of the same task; (c) verbal appraisal from others (either peers or those in authority); and (d) assessment of emotional and physical state when completing a task. Positive appraisals, comparisons, and emotional states enhance perception of higher self-efficacy whereas negative ones diminish it. Bandura's framework is a foundation for most vocation theories.

Vocational Interest and Choice Theory

Understanding choices made by people regarding future occupations is an area of intense investigation and a variety of theories have been developed to explain career choice behaviors. A classic theorist is Donald Super. Super's self-concept theory (Super, 1953) stated career development is a process of evolving and implementing self-concept. Career choice and self-concept are intertwined with one another. Career development follows a series of stages: *growth, exploration, establishment, maintenance, and disengagement/decline*. The *exploration* stage occurred during mid-teens through early 20s. Individuals begin to crystalize future occupations based on their belief in their self-concept of who they are. The person sees himself or herself in a future occupation during this stage. If the person has a successful experience related to their potential career at this time, it solidifies their self-concept regarding what will be their life-long vocation. Super's theory built a foundation for later vocational theories.

Lent, Brown, and Hackett (1994) codeveloped social cognitive career theory (SCCT). The theory applied Bandura's research on self-efficacy (1994, 1995) to career decisions. According to the SCCT, early learning experiences can influence individual's sense of self-efficacy and outcome expectations of how they will perform at various tasks. When individuals have high self-efficacy to do a task and believe they will be successful at it, they are more likely to develop interests and goals in that area. That, in turn, can lead to actions related to vocational choice. These then lead a person to select a career in which the person believes they will be successful and congruent with their larger life goals. As we analyzed the data related to vocational interest development by the PAL facilitators, we selected the SCCT to guide interpretation since it was the most relevant.

"Outcome expectations" pertain to whether the person expects to be successful in achieving the desired goals.

Teacher Education Programs

The Council for the Accreditation of Education Preparation (CAEP) within the National Council for the Accreditation of Teacher Education (NCATE, www.ncate.org) developed a conceptual framework for evaluating programs' compliance with six standards. Three are relevant to this review of teacher candidates: (a) demonstrate content competency, pedagogical skills, and professional demeanor to help all students; (b) demonstrate through intensive field experiences and clinical practice they have professional attitudes and skills to be effective with students; and (c) demonstrate effectiveness working with diverse students (NCATE, 2008). Early field experiences have included tutoring. Ross and Raines (1980) reported outcomes for undergraduate teacher candidates after a sustained tutoring experience: confirmed decision to become a teacher, increased confidence working with students, increased preparation to teach through acquired methods, and increased insight into how students learn. Through a meta-analysis of 92 studies, the Education Commission of the States identified effective teacher preparation practices (2003). Effective field experiences required teacher candidates to receive prior pedagogical training, content competency, and strong supervision by a well-trained supervisor. A final issue with teacher preparation was standards for admission into the preservice programs themselves. Casey and Childs (2007) examined standards for these programs from colleges across North America. A trend toward more rigorous review of the candidates expected them to have field experiences in teaching before admission into the programs and letters of reference by supervisors of those experiences. This provided a more comprehensive review of applicants in addition to standardized test scores, essays, and an interview.

Method

Sample

Participants in this study were Peer Assisted Learning (PAL) facilitators. These undergraduate college students were from a variety of academic majors. Forty-three student facilitators were enrolled in the PAL facilitator professional development course, 23 females and 20 males. The academic profile of these PAL facilitators included an overall grade point average above 3.5 on a 4.0 scale. The students were sophomores or higher in their undergraduate studies. The students were enrolled in academic units throughout the University curriculum. Data was collected from all 43.

Data Collection

PAL facilitators enrolled in this class during their first semester of service in the program. At the end of the PAL facilitator professional development course (PsTL 3050), during fall academic term, online surveys were administered to the students by the course instructor and one of the researchers for this study in December. The questions were selected on the basis of previous data collection efforts with other peer assistance learning programs and a review of the professional literature regarding personal and professional development by participants and study group leaders (Arendale, 2014a).

Students were told that the course instructor would not know which responses were attached to which facilitator, and would only be able to tell whether or not the facilitator had completed the survey. To earn a passing grade in the course, survey submission was required. The surveys consisted of 10 open-ended and 2 forced-choice items asking them to reflect upon their experience as a PAL facilitator, the possible impact that they had on their students, and the impact of the program on the facilitators' own development. Three of the survey items were selected to be analyzed for this research study because they collected responses related to vocational interest. They included:

> describe and give examples of ways you grew in your knowledge and mastery of the academic content material...how has the experience of serving as a PAL facilitator had an impact on you? and ...has the experience

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influenced your career choice or academic major?

The other survey questions were used for different research studies on other topics related to PAL. The survey of 12 questions took 30 to 45 minutes to complete.

The faculty member serving as coresearcher for this study used his personal observation of the PAL facilitators during the PSTL 3050 course he taught and weekly private reflections required of the enrolled facilitators as references to triangulate consistency with the survey results analyzed in this study. He found that statements related to vocational interest were consistent among all three of these data sources. Due to the sheer volume of available information, the faculty member made the decision to only focus on the extensive survey data for this research study.

Data Analysis

This study employed a mixture of deductive and inductive analyses. It was deductive in that it was a replication of previous studies that investigated vocational interest development of study group leaders. One of our three survey questions prompted respondents to describe potential vocational interest: "has the experience influenced your career choice or academic major?" On the other hand, our study was inductive since it identified responses in two other generic survey questions—"describe and give examples of ways you grew in your knowledge and mastery of the academic content material" and "how has the experience of serving as a PAL facilitator had an impact on you?"—that emerged into the theme of vocational interest. Our study was also inductive in that identification of the choice and commitment level towards specific vocations emerged from the data analysis of the three survey questions.

Responses to the three open-ended survey items were analyzed using a steps outlined by Boyatzis (1998) for inductive data analysis. The authors approached the research analysis and interpretation as equals and negotiated differences to each other's mutual professional satisfaction. The total time spent on data analysis was approximately one month.

In the first step, all responses were collected under each question. In the second step, we independently identified themes across responses. We came together to discuss the themes and collaborate to reconcile any differences. A preliminary list of codes were developed. Codes were based on themes that emerged from the data, but were also informed by the survey items since one of the three questions was a specific prompt about potential vocational influence while the other two questions were open ended. In the fourth step, we each independently applied the codes to the data, and then met to discuss their appraisals. We continued this process of double coding until we met 80% or higher level of agreement to establish reliability (Boyatzis, 1998). After the collaborative process was completed, several initial minor themes were discarded due to having an insufficient number of facilitators associated with them. A final version of the major themes was established and final data analysis occurred.

Results

Of the 43 facilitators, 42 expressed that the PAL program contributed to development of their general vocational skills such as interpersonal communication, leadership, small-group communication, conflict resolution, public speaking, and others. Although facilitators were enrolled in a variety of academic majors, teaching was the only one to be identified by a significant number. Twenty percent entered the PAL program with a teaching interest, but it varied from well-defined career goals in education to interest in the vocation and skills required. By the end of the first semester in their facilitator job, an additional 20% had a desire to become a full-time teacher with another 5% interested in pursuing teaching as a vocation later in life. The remaining facilitators were focused on pursuing graduate or professional school and had not identified specific future occupations except for a few in law or medicine.

The PAL facilitator position specifically… allowed career exploration and practice with a teaching career.

Four themes emerged from our analysis of the three survey questions. First, the PAL experience helped to confirm the prior decision of facilitators who were already committed to a future teaching career. Second, for other facilitators, their experience generated new interest in a teaching career. Still others became interested in a teaching vocation later in life or to incorporate it into a job they were currently pursuing. Finally, among other facilitators the PAL experience served as a mechanism to generate initial interest in teaching.

Confirm Interest in Teaching

Twenty percent of the participants indicated their participation in the PAL program confirmed their aspirations to teach full-time. Several respondents describe how the PAL program allowed them to "try out" teaching before committing to it as a career.

> Being a PAL facilitator has reconfirmed my desire to be a teacher. Since I was very young, I always pictured myself being a teacher, but I wanted to make sure I explored my options to find a career that makes me happy every day. Although it was a lot of work to prepare activities for PAL sessions, I actually enjoyed the tasks, from making worksheets to thinking of artistic projects, to creating graphic organizers... I am extremely happy that I was selected as a PAL facilitator.

This facilitator described how the learning experience of being a PAL facilitator allowed him or her to try out the role of teacher and noted that higher self-efficacy resulted from tackling the challenges associated with the role effectively.

Another participant described seeking out the PAL facilitator position specifically because it allowed career exploration and practice with a teaching career. Part of the vocation confirmation was the facilitator's enjoyment of the experience and positive interaction with the students.

> My experience as a PAL facilitator re-established that I want to be a teacher. I took this job to have experience leading a classroom to decide whether or not I really wanted to teach. I had such a fun time, and a positive experience with my students that it has convinced me and encouraged me to continue in the school of education. It was a great experience to learn about how to instruct, manage a classroom, and encourage students... I saw students do better on tests and quizzes by doing practice problems. Being a PAL facilitator has directed my future towards education, gave me some practice in that role, and allowed me to experience firsthand the different ways to help someone learn.

As part of this exploration, these students compared their facilitator experience to their previous expectations about what teaching could entail. Sometimes the PAL experience resulted in new dimensions of a teaching career such as having an enjoyable time and developing helpful relationships with the students.

> My experience as serving as a PAL facilitator has only multiplied my exciting [sic] for becoming a teacher in my future...Honestly, it didn't even feel as if I was some authoritarian teacher figure, but rather just someone in the class, sharing my thoughts and offering suggestions on how to do math problems. It was FUN! If teaching is like any of this, I will be excited. Heh, of course we have stuff like grading and all the other not so jolly parts but the main idea, educating while at the same

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> time forming relationships with students, is better than I imagined.

This facilitator's response highlighted the role of learning experiences and outcome expectations in shaping career goals. The facilitator had outcome expectations for what teaching might be like, and the learning experience challenged some of these expectations for the better, contributing to perceptions of higher self-efficacy and positive outcome expectations for teaching. For other facilitators, the PAL program confirmed preexisting career goals related to education and helped refine those goals. Several facilitators noted that the program had helped clarify the academic level at which they would like to teach going forward.

> Personally, it has reaffirmed my career path. Prior to serving as a PAL Facilitator, I was debating on whether I want to teach high school math or college math. With this experience, I have decided that I want to teach college math as there is less attitude and students (who come to class) actually WANT to learn.

This facilitator's direct experience working with college students helped clarify his or her interest in working at this level in the future.

Generate New Interest in Teaching

Twenty percent of the facilitators indicated the PAL facilitator role generated new interest in teaching full-time or significantly incorporating teaching into their future occupation. Several students expressed a new desire to teach at the college or university level in their chosen academic content area.

> This PAL experience has gotten me thinking about going further into grad-school and PhD program in my course matter. I've never once considered teaching an option, but after this semester it is certainly something I could imagine myself doing.

Although the PAL experience did not sway the facilitator from his or her current field of study, he or she now envisions incorporating teaching as a career in the future. Enacting the role of facilitator allows this student to see him- or herself as a teacher in the future. Similarly, another facilitator states:

> Finally, I have not changed my academic major and it still is not related to teaching. However, I think that I would be interested in eventually working at a big University like Minnesota and teaching in my area of expertise while still having the opportunity to do research. I think that I could help a lot of students with material and teach them, and this experience as a PAL facilitator has made me sure that I would be capable of doing that.

This facilitator's comment highlighted a possible mechanism by which the PAL program elicited new interest in teaching for some students. He or she expressed a perception of higher self-efficacy for teaching and new interest based on positive outcomes of helping students learn.

Create Interest in a Teaching Vocation Later or Incorporate Into a Job

Ten percent of students expressed desire to pursue teaching later in life after their first career concluded. For example, one facilitator described plans to take up teaching as a "second career" after a career in law.

> I think PAL has changed me in one way and kept me consistent in another. First, the change; I know that I now am considering going into some sort of teaching later in life after I am done being an attorney, perhaps teaching the law somewhere. I had always thought about maybe teaching, or maybe TA-ing if I went the grad school route instead of Law School, but after this semester, I know I am meant to do something like this.

A positive experience helping students, particularly academically at-risk students . . . reinforced the facilitators' outcome expectations.

Although this facilitator was not ready to give up plans to be an attorney, he or she perceived teaching as a calling later in life. Another student described teaching as an alternative career to medicine. "Being a facilitator definitely opened up the possibility of going into teaching as a profession as a second choice to my current Medical [sic] school track." For this facilitator, the PAL program opened his or her horizons to additional career options.

Finally, several students described a desire to incorporate teaching into their future professional lives. One facilitator stated, "While I don't think that I will be changing my major to teaching any time soon I am seriously considering the idea of TA-ing or teaching courses sometime in the future in Grad [sic] school and onward." This facilitator expressed a desire to continue working in roles that allowed interaction and instruction with undergraduate students.

Mechanism for Generating Interest in Teaching

A fourth theme emerged from the data analysis, however it was weaker than the previous three themes since it was supported by approximately 5% of the students. As noted previously, several PAL facilitators hinted at the mechanisms by which they developed an emerging interest in teaching. For example, the facilitator planning a career as an attorney described reasons for his or her new interest in teaching:

> I see a response out of the students I help, and I am sure they can see a response out of me. I enjoy knowing that I am potentially changing, helping, and shaping someone's life into something better. Especially, since I was working with the Access To Success students [conditionally admitted at-risk students required to participate in PAL and similar programs], who I am sure have been told that they "can't" their whole life, or at least since they decided to come to the University. I had several students write me comments, both at the midterm checkup and the end of the year survey, that they thought I should be a teacher, or that I really helped them, or that I was better and more helpful than the TA or professor. To hear those things scares me a little, but also makes me proud of what I had done.

This facilitator had a positive experience helping students, particularly academically at-risk students, which reinforced the facilitators' outcome expectations about teaching in the future. The facilitator's sense of higher self-efficacy, confidence in teaching abilities, and positive emotional state were results of feedback from the students. These factors contributed to the facilitator's interest in teaching.

Another facilitator associated his or her new interest in teaching with feelings of higher self-efficacy from having a thorough grasp of the subject matter.

> PAL has opened my eyes to the idea of teaching sometime in the future. I very much enjoy being in front of the class and sharing knowledge and ideas. I liked the feeling of having to learn not just to get an A on a test but rather so I could explain the information and help others understand it. I enjoyed pushing myself to know more and understand better so that I could really help the students in my PAL session.

Regardless of the source of these feelings of higher self-efficacy (i.e. successful experiences with teaching, relationships with or feedback from students,

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or grasp of the subject matter), they reinforced facilitators' interest in teaching as a profession, especially when the facilitator had not previously considered it.

Discussion

Although we knew other studies of study group leaders reported vocational interests and skills were acquired as result of their experience, we were surprised at the strong themes related to teaching that emerged from our research. Only 20% of the UMN facilitators were interested at differing levels with teaching careers before they began work in PAL. Most of the remaining 80% were committed to pursuing an academic content major in graduate school without a specific job focus. For them, PAL provided a valuable experience to enhance their application—reviewed by the admission committee—and gain skills for a GTA position required for financial aid.

By the end of the first academic term in PAL, the percent of facilitators with differing levels of commitment to teaching had more than doubled. The 20% initially planning a career in teaching confirmed their decision. The PAL program helped confirm their career goals by allowing them to "try out" teaching. For some of this group, PAL helped refine their career goals and pinpoint the subject matter, age of students, or professional level at which they wanted to work. An additional 30% of the facilitators demonstrate new interest in teaching by the end of the term. Those interests ranged from changing to an education major or incorporating teaching into their professions through part-time instruction at the college or university level to integrating teaching into their jobs in less formal ways or pursuing teaching as a second career after their first profession concludes.

The mechanisms by which the PAL program experience influences vocational development are informed by reviewing several theories. Bandura's (1994, 1995) model on self-efficacy helps explain the influence of PAL on affirming initial commitment for some and new found interest in teaching for others as a vocation. The facilitators experience the same four sources of input identified by Bandura as influencing high self-efficacy in completing a task: (a) personal reflection about their role through weekly attendance in the facilitator course and weekly journal entries, (b) observation of other facilitators-in-action and comparing their performance with them, (c) verbal appraisal from fellow facilitators and the PAL administrator who had directly observed their sessions with students, and (d) reflecting about how they felt during and after PAL sessions and their growing confidence as the academic term progressed. Bandura found high self-efficacy led to "outcome expectations" for future success with the task. Based on their success in the role as facilitator, it was not surprising that the students with initial commitment to teaching felt confirmed with their choice. Most other students had not identified a specific vocation upon graduation. Their success and sense of high self-efficacy in a "teacher-like" role influenced them to consider a teaching vocation.

The facilitators experience the same four sources of input identified by Bandura as influencing high self-efficacy.

Bandura's theory was foundational for the SCCT vocational theory developed by Lent, Brown, and Hackett (1994). According to them, students bring their personal inputs, including predispositions, and background contextual affordances. PAL facilitators' preexistent interest in teaching may fall under this category, as might personality dispositions, gender roles, race/ethnicity, and societal factors that might influence an individual toward the profession. Learning experiences are a key component of the SCCT theory. The PAL program provides students an experience of facilitating learning sessions with students, allowing them to learn the skills needed to manage a classroom, work with students of diverse backgrounds, teach curriculum material, make curriculum plans, and build relationships with students.

According to the SCCT theory, these learning experiences can lead to greater self-efficacy in the given domain, and, indeed, many of the students expressed higher self-efficacy related to leading a learning session. This sense of higher self-efficacy seemed to be related to feelings of accomplishment in successfully facilitating sessions and mastering the subject matter and the emotional rewards in connecting with students' positive feedback.

Based on our data analysis, we created the career development model (CDM) to help explain behavior by the PAL facilitators (see Figure 1). It is based on synthesis of the input-environment-outcomes

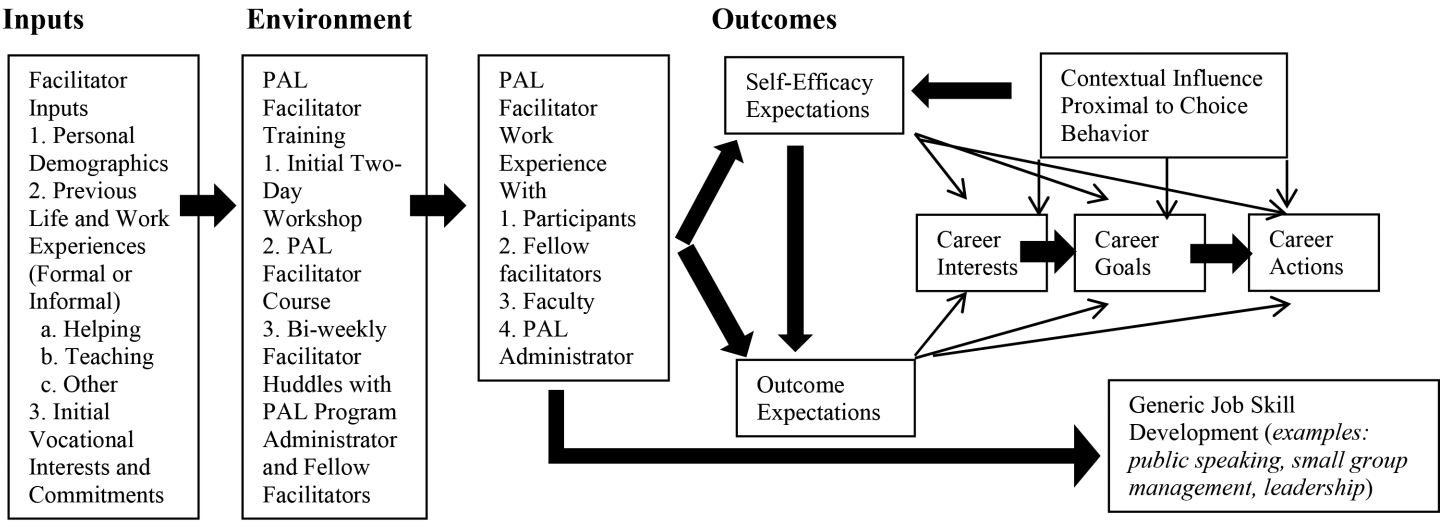

Figure 1. **The career development model for student study group facilitators helps to make sense of their experience with developing career interests, confirming prior vocational choices, and gaining work experience for the future occupation. The model is based on the input-environment-outcomes model by Alexander Astin (1993) and the socio-cognitive career theory by Lent, Brown, and Hackett (1994).**

model by Astin (1993) and the socio-cognitive career theory by Lent, Brown, and Hackett (1994).

Beginning at the left side of our CDM model, PAL facilitators bring three important influences: (a) their unique personal demographics (e.g., gender, ethnicity, culture, socioeconomic status, etc.), (b) previous formal or informal life and work experiences (e.g., a helping role, teaching others, or other experiences), and (c) initial vocational interests and commitments to future careers. Since most PAL facilitators were undergraduates, it was not unusual for them to be in flux with career decisions and mostly focused on their academic major.

The next stage of the CDM was the experiences as a PAL facilitator. The CDM identifies outcomes as a result of their PAL facilitator experiences. One outcome is the development of generic job skills such as public speaking, small group management, leadership, and others. The CDM model predicts higher levels of self-efficacy and outcome expectations about teaching as a result of their PAL experience. Some facilitators expressed initial anxiety about managing a classroom of peers, suggesting their initial outcome expectations may have been low. However, these facilitators also describe being pleasantly surprised with performing as well as they did, reinforced by direct or indirect feedback they received from students in their study group sessions and occasional observations by the PAL program administrator and fellow PAL facilitators. This experience may have then led some facilitators to revise their outcome expectations about their abilities to lead a group of students in a formal setting. Serving as a facilitator led some facilitators to re-envision what the experience of teaching actually involved. In both of these respects, facilitators compared their experiences with PAL to their previous expectations coming into the program.

Consistent with previously described vocational theories, facilitators feel an influence regarding their future career choice as a result of experiencing higher self-efficacy and experience positive outcome expectations due to their role in the PAL program. The SCCT identifies three stages based on a person's perception of self-efficacy and outcome expectations: career interests, career goals, and career actions. Data analysis in this study found 20% of facilitators became interested in a teaching career as a result of their experience. Other facilitators took the next step to establish a career goal to enter the teaching profession later in life. Approximately 20% of PAL facilitators were in the third category by taking the action to enroll in an education program upon entry to UMN or planned to transfer from their academic subject area to an education major.

Ultimately, enacting the role of facilitator in the PAL program allows students to try on and envision themselves in the role of "teacher," which is a powerful experience in career exploration, whether the student continues on that path or not. A wide variety of other high demand job skills are acquired as a consequence of their work experience that can be used in their future vocational life.

Limitations

This qualitative research study has several limitations. The study focused on PAL facilitator perceptions of the PAL job experience for themselves. It is possible that they misinterpreted the PAL experience. The responses by PAL facilitators were subject to perceptual recall, which reflected their interpretations, judgments, and potential bias. By its nature, this research is subject to the limitations of self-reported data of the survey. We did not conduct additional follow-up interviews or record PAL sessions for further analysis. Second, the majority of the college courses served by the PAL program were in the area of science and mathematics. A wider range of academic subjects could have fostered different results. Third, all PAL facilitators were undergraduates as were the participants and the selected courses for PAL at the lower division of the undergraduate curriculum. A different experience could result with graduate students as the PAL facilitators or if the classes served by PAL were at the upper division undergraduates or graduate level.

Building these cross-campus partner relationships could... enhance PAL program political support.

Implications for Practice and Future Research

The results from this study confirm previous research (Arendale, 2014c) pertaining to the influence of peer study programs with career development of PAL student group facilitators. The UMN PAL program could expand beyond a focus of higher academic achievement by the study group participants and be more intentional about professional development of the facilitators which includes career exploration. During the academic term, a short activity during a facilitator team meeting could prompt them to discuss as a group, then write as an individual, a paragraph about the job skills they developed as result of their PAL experience. Although some facilitators clearly understand the job skills they develop, others do not. When discussions occur on this topic among the UMN facilitators, they often identify skills such as small group management, conflict resolution, curriculum development, leadership development, public speaking, and others. This assignment could also be added to one of their weekly journal entries if those are part of the campus study group program or as part of an end-of-term survey. This could be valuable information when they update a resume, prepare a cover letter for a job application, and describe the PAL facilitator experience during a job interviews. This same information could be used by study group program administrators when invited to write support letters for their facilitators when they apply for jobs or graduate school admission. As noted by Casey and Childs (2007), many teacher education programs demand field experiences by applicants and supportive letters by former supervisors of those experiences before acceptance into education programs. This is a trend for graduate programs of other disciplines as well.

Highlighting career development potential and acquisition of generic high demand work skills might attract more facilitator applicants and referrals from faculty including those from teacher education programs since it demonstrates the multifaceted potential of the facilitator experience. Three of the six NCATE teacher preparation standards are partially addressed within a peer study group program. One of the six, field experiences, was highlighted by Ross and Raines (1980) as a benefit of serving in a tutoring role to prepare future teachers. The meta-analysis by the Education Commission of the States (2003) has emphasized that field experiences are most effective with extensive pedagogical training and direct supervision of the teacher candidate. It is a reminder of the need for extensive training of study group leaders preceding and during the academic term and the importance of direct observation of study group sessions by fellow facilitators and program administrators to provide affirming and constructive feedback.

Conducting surveys, focus groups, and interviews with facilitators regarding their career development along with other personal and job skill development outcomes could become a regular part of the evaluation by the campus unit that hosts the peer study group program. Demonstrating the peer study group program is a cocurricular experience for academic, career readiness, and job skill development of participants and facilitators is a powerful outcome to share with students, staff, faculty, and administrators. Faculty and staff from campus teacher preparation, counseling, and leadership development programs could lend their expertise to the facilitator training program. Building these cross-campus partner relationships could increase professional development of the facilitators, augment partners to refer facilitator candidates, and enhance PAL program political support. With tight financial budgets facing most academic support programs, evidence of achieving

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these types of outcomes could be an inducement for stable and even enhanced funding.

Thus far, development with career readiness and vocational interest exploration has been an informal and unplanned outcome for PAL study group facilitators. A study could be conducted in which career readiness was included as part of the training program for the facilitators and the resulting outcomes were measured. Understanding why facilitators thought they were more marketable for potential employers would be useful. A pre- and postsurvey could be completed by the facilitators regarding their vocational interests and commitment levels along with their rating of generic job skills such as small group management, leadership, and others. Creating such baseline data could help with change analysis. Formative data such as weekly reflective journal entries could be compared with summative data through surveys and individual interviews.

A longitudinal study could follow former PAL facilitators who complete a teaching certificate and enter the teaching occupation to study the residual influence of the PAL experience with experiences in student teaching and later as a full-time teacher. Finally, the study conducted by Maloney (1992) could be replicated to compare outcomes from serving as a facilitator with teacher education candidates during the classroom observation activity that occurs early in their program.

Conclusion

Peer assisted learning programs generate more outcomes than increasing academic achievement for participants. Studies, including this one, document impact with personal growth, vocational interest exploration, and job skill development for facilitators. This study explores why these programs generate these outcomes by linking leading theories to the research outcomes. Peer learning programs present an untapped cocurricular experience that could be more powerful if it was intentional rather than serendipitous with professional development outcomes. The peer learning program occupies the intersection between student academic assistance and teacher candidate preparation. The program can serve a valuable role as a learning experience before traditional student teaching as well as generator of greater student interest in pursuing a teaching career. With the highly competitive job market for today's graduates, institutions must use every opportunity to increase job readiness skills of its graduates.

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