

# Implementation Manual

# Making the Connection



**What is Making the Connection?**

**How is Making the Connection Implemented?**

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## Table of Contents

<b>Introduction</b>	<b>4</b>
<b>Section 1: What is Making the Connection?</b>	<b>6</b>
Theoretical Underpinnings	6
Description of the Intervention	8
Logic Model	11
<b>Section 2: How is Making the Connection Implemented?</b>	<b>14</b>
Small Group and Individual Mentoring	14
Role of the Mentor	16
Mentor Job Description	18
Participants	20
Measuring Effects	21
Conclusion	21
<b>References</b>	<b>22</b>
<b>Appendices</b>	
A. MtC Self-Monitoring Sheet	25
B. Sample Modules	27
C. Self-Regulated Learning Strategies	46

## Introduction

In 2009, the Institute on Community Integration (ICI) in collaboration with the Department of Educational Psychology at the University of Minnesota received funding from the Institute of Education Sciences (IES) under Goal Two to determine the feasibility of adapting Check & Connect (C&C), a secondary dropout prevention and intervention model, for use in postsecondary education settings with students ages 18-30. The purpose of the project was to take what had been learned over the past 18 years from research on C&C concerning student persistence, engagement, and successful school completion, and to adapt this knowledge for postsecondary settings. The adaptation process focused on academic engagement, social integration, and goal commitment—three key components documented by both research on C&C and research on postsecondary education as influencing successful school completion.

C&C was developed at ICI by a partnership of researchers, practitioners, parents, and students beginning in 1990 and has since undergone several trials to validate its effects on improving school completion rates (Christenson, Sinclair, Thurlow, & Evelo, 1999; Sinclair, Christenson, Evelo, & Hurley, 1998; Sinclair, Christenson, & Thurlow, 2005). In September 2006, C&C met the evidence standards of IES and was included in the What Works Clearinghouse (WWC, 2006) as an evidence-based intervention (see WWC for more information on previous C&C studies: <http://ies.ed.gov/ncee/wwc/reports/topic.aspx?tid=06>). The effectiveness of C&C at the secondary level has been established, but C&C had not been used at the postsecondary level. The Minneapolis Community and Technical College (MCTC), Minneapolis, Minnesota and Jefferson Community and Technical College (JCTC), Louisville, Kentucky are the authentic settings in which the postsecondary intervention was developed.

This Goal Two project was based on the premise that educational outcomes for students in community and technical colleges could be improved through the development of specific structured intervention strategies to increase student persistence, engagement, and retention (Bailey, Alfonso, Scott, & Leinbach, 2004). The student population of many community and technical colleges includes students at risk of non-completion, but research has identified alterable behaviors and conditions (e.g., factors within the community college as well as within the power of educators and students to change) that can be positively influenced by intervention strategies (Hollenbeck & Kimmel, 2002; Hudson, 2006).

Students who attend community and technical colleges face a number of unique challenges, including previous negative educational experiences, lack of preparation for postsecondary education, higher incidences of poverty, and greater family responsibilities (American Youth Policy Forum [AYPF], 2007; Naretto, 1995). Given these complex issues, the development of a structured approach to support student engagement and retention was critically important to pursue.

We developed our intervention by building on the foundation of research and practice on the C&C intervention at the secondary level. The C&C intervention for secondary education has two main components: “Check” and “Connect.” The “Check” component utilizes monitors/coaches/mentors to continually assess student engagement through close monitoring of student performance data and progress indicators (e.g., attendance, grades). The “Connect”

component involves program staff intervening in a timely fashion based on individual student academic performance information obtained from monitoring/systematic checking, in partnership with school personnel, family members, and community service providers. Of necessity, given the context of the community college, these components could not be exactly duplicated; however the final model drew on the assumptions and theories that informed C&C. Below is the *Making the Connection* (MtC) model that resulted from our Goal 2 development work:

1. A small group of community college students who want/need extra support.
2. A mentor/small group leader who keeps the focus on achieving the students' academic and career goals. The mentor both facilitates the group and is available for individual mentoring. The mentor provides *active* support.
3. Systematic self-monitoring by students with feedback from the small group and mentor.
4. Intentional, timely, personalized "interventions" designed to help students stay on goal.

# 1. What is Making the Connection?

## Theoretical Underpinnings

Four theories informed our development of Making the Connection (MtC): adult learning, self-determination, social cognitive career theory, and validation theory.

**Adult Learning Theory.** Four principles that characterize adult learners informed the model (Knowles, 1973; Speck, 1996): 1) Adult learners want control over what is learned; they resist information that is forced on them and decontextualized learning tasks; 2) They learn best when new information is tied to or builds upon their life experiences; 3) They are typically ready to learn; and 4) They usually have a specific goal and are internally motivated by it. Although these principles portray a motivated, ready-to-engage student, adult learners may also have had negative past learning experiences, may need time to adjust to new learning conditions (e.g., technology), and learn best in nonthreatening environments. Adult learners view learning as a social process (Zmeyov, 1998), and small-group activities support moving adult learners beyond understanding to application, analysis, synthesis, and evaluation. Because adult learning is ego-involved, peer support helps reduce the fear of judgment.

**Self-Determination Theory.** Self-determination theory is a theory of human motivation concerned with our innate tendency to behave in effective ways and the conditions that either foster or hinder that tendency (Deci & Ryan, 1985). Ryan and Deci (2000) identify three psychological needs “that appear to be essential for facilitating optimal functioning of the natural propensities for growth and integration, as well as for constructive social development and personal well-being” (p. 68): autonomy, relatedness or belongingness, and competence. Autonomy, or authorship of one’s behavior, is connected to students’ choices of what they value most in their educational objectives. A sense of belonging tends to develop when an individual finds a support network, which is particularly important in fostering engagement in early campus experiences. Competence develops as students explore and master their environments.

Schuetz (2008) tested self-determination theory as a conceptual model for community college student engagement. Over 1,000 students were surveyed as part of the Community College Survey of Student Engagement. Results showed that if the community college is able to support students’ experiences of autonomy, relatedness, and competence, engagement will occur. Although the data demonstrates that relatedness contributes less to engagement than competence or autonomy, it is likely to be important for keeping students on campus long enough to develop competence and autonomy. Results indicate that students’ engagement in community college can be fostered by interventions that promote their sense of belonging, competence, and autonomy.

In a separate study attempting to determine what students identify as the factors that helped them to be successful in community college, the Student Intention Survey was administered to 915 community college students (Polinsky, 2002). Of those who said they

achieved their goals, 94.7% noted self-determination and motivation as the most essential to their success—another indication that interventions aimed at fostering students’ autonomy, relatedness, and competence may be effective in helping students persist in community college.

**Social Cognitive Career Theory.** Bandura’s (1986) Social Cognitive Theory argues that humans are proactive beings whose functioning is the product of a triadic reciprocity between personal attributes, environmental influences, and behavior. Drawing on this conception of a triadic reciprocity, Social Cognitive Career Theory (SCCT), developed by Lent, Brown, and Hackett (1994), suggests that reciprocal interactions between person, context, and behavior impact career development. SCCT focuses on “the processes through which a) academic and career interests develop; b) interests, in concert with other variables, promote career-relevant choices; and c) people attain varying levels of performance and persistence in their educational and career pursuits” (Lent & Brown, 1996). SCCT explains that through self-efficacy beliefs (beliefs about one’s ability to perform), outcome expectations (beliefs about the consequences of actions), personal goals (determination to engage in a particular activity or to produce a particular outcome), and contextual supports and barriers (supports and barriers that accompany goal pursuit), people are able to regulate their own career behavior (see Figure 1 below) (Lent, 2007). Research has begun to establish the fit of the SCCT framework to student persistence in four-year colleges. Results of a path-analytic test suggest that SCCT does an adequate to excellent job of modeling academic performance and persistence (Brown et al., 2008).

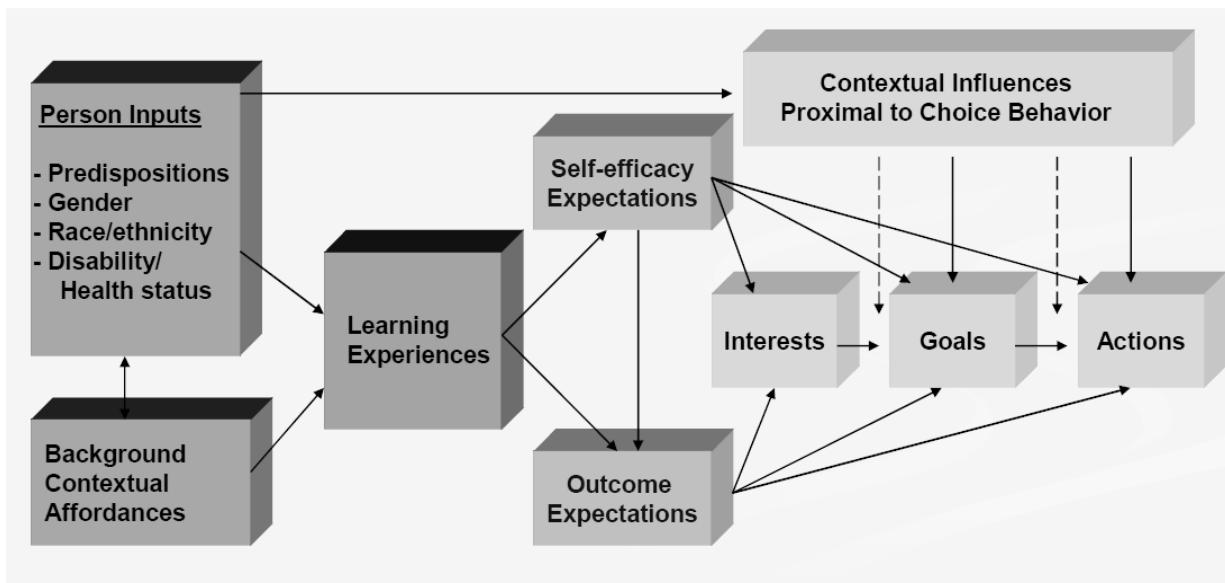


Figure 1. SCCT’s complete interest and choice model with person and contextual factors (Lent, 2007).

Recognizing that personal attributes and behaviors are within-person, while environment influence, supports, and barriers are contextual, Lent et al. (1994) divided SCCT into two levels of analysis: cognitive-person variables (self-efficacy, outcome expectations, personal goals) that impact individuals’ agency in their career development, and contextual variables (features of the environment, learning experience) that influence career development interests and behaviors. Although breaking down the influences into two levels serves analytic purposes, it cannot be forgotten that these influences interact, so the division into two levels is only superficial.

In regard to cognitive-person variables, research has repeatedly demonstrated the relationship between self-efficacy and individuals' academic achievement and persistence toward meeting their career goals, although research has failed to examine the direct link between community college persistence and self-efficacy. From a study conducted with college undergraduate students, Brown et al. (2008) found that self-efficacy beliefs are substantially related to academic goals, suggesting that students may benefit from interventions based on building self-efficacy beliefs. Kahn & Nauta (2001) propose that once at-risk students are identified, interventions should be implemented targeting their academic performance, performance goals, and outcome expectations in order to increase their likelihood of persisting.

Lent (2007) offers six intervention targets derived from SCCT that were considered in designing MtC: 1) expanding vocational interests, especially in high aptitude areas; 2) clarifying career goals; 3) strengthening self-efficacy beliefs; 4) instilling realistic outcome expectations; 5) managing environmental barriers; and 6) building environmental support systems.

**Validation Theory.** Rendón's (1994; 2002) theory of validation asserts that both involvement and validation are prerequisites to student development, but defines involvement differently than classic theories of college student persistence. These theories maintain that "Students learn by becoming involved" in the college environment, both inside and outside of the classroom (Astin, 1985, p. 133), defining involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" via activities such as studying, spending time on campus, participating in student organizations, and interacting with faculty and other students (p. 134). Rendón notes that non-traditional college students are much less likely than traditional college students to become involved in the campus environment for many reasons, such as other life involvements (work, family, etc.), negative personal history with educational institutions, and unfamiliarity with the college environment. "Involvement in college is not easy for non-traditional students," she writes. "Validation may be the missing link to involvement, and may be a prerequisite for involvement to occur" (Rendón, 1994, p. 37).

Validation refers to "an enabling, confirming and supportive process *initiated by in- and out-of-class agents* that foster[s] academic and interpersonal development" (Rendón, 1994, p. 44, emphasis added). Note that, unlike most other theories of student persistence, the practice of validation relies on the actions of institutional or external agents instead of within-person agents. These promote involvement through two types of validation: 1) academic validation, in which agents help students build trust and confidence in their ability to learn and succeed as a college student; and 2) interpersonal validation, in which agents foster students' personal and social development (Rendón, 2002). In developing MtC, we believed that participating in a small group of one's peers would promote validation for participating in postsecondary education.

## **Description of the Intervention**

Making the Connection has four components (see Figure 2). Each component has both theoretical and empirical support and is supported by findings from our last semester of implementation. Components and rationale are described below.



<b>Making the Connection (MtC) Model Components</b>
1. Small-group and individual mentoring.
2. A mentor/small group leader who keeps the focus on achieving the students' academic career goals (via setting goals on the monitoring form and use of modules on goal-setting). The mentor both facilitates the group and is available for individual mentoring. The mentor provides <i>active</i> support.
3. Systematic self-monitoring by students with feedback from the small group and mentor.
4. Intentional, timely, personalized “interventions” designed to help students stay on goal.

Figure 2. Making the Connection (MtC) Model Components

**Component #1. A small group of community college students who want/need extra support.** Models that seek to explain student attrition support the need for interventions that address developing a social network or experiencing social integration at college. Although studies show that persistence and retention are more problematic at two-year institutions, these dominant explanatory models have drawn primarily from research conducted with traditional four-year college students and institutions. The most widely recognized and tested model of student attrition is Tinto’s Student Integration Model (1975), which argues that student persistence is related to the degree of integration into the academic and social life of the college. Other studies support the construct of integration as predictive of student attrition (e.g., Pascarella & Chapman, 1983; Terenzini, Lorang, & Pascarella, 1981).

In 1980, drawing from the literature on organizational turnover, Bean proposed his Student Attrition Model, which maintains that beliefs formed through institutional experiences (e.g., quality of coursework), friends, and other factors (including non-institutional ones) develop attitudes that influence students’ intentions to either remain in school or to leave school. Additionally, Braxton and McClendon noted that there are two “empirically reliable sources of influence on college student departure: social integration and subsequent institutional commitment” (2001, p. 57). Unfortunately, researchers (e.g., Bean and Metzner, 1985; Pascarella & Terenzini, 2005; Tinto, 1993) have noted that non-traditional students do not have the same opportunities to become socially integrated into the institution. Indeed, these students often have “external communities” that work against integration into college communities (e.g., work and family), and these external communities may not be supportive of college goals (Karp, 2011).

Other theories also call for interventions that promote a sense of belonging, including validation theory (Rendón, 1994), self-determination theory, and adult learning theory. Finally,

Karp (2011) identifies *creating social relationships* as one of four non-academic supports that help students develop belongingness and provide access to information and resources. As noted earlier in this manual, adult learning theory also supports the use of the small group (Zmeyov, 1998).

**Component #2. A mentor/small group leader who keeps the focus on achieving the student’s academic and career goals. The mentor facilitates both the group and is available for individual mentoring. The mentor provides active support.** Adult learning theory (Knowles, 1973; Speck, 1996) suggests that, for adults, transfer of learning is not automatic and must be facilitated. Mentors can provide that facilitation through the teaching and modeling of cognitive problem solving (a key element of C&C) (D’Zurilla & Goldfried, 1971). Within the small group, in accordance with social cognitive career theory (Lent, 2007), mentors model and facilitate students’ expansion of vocational interests, clarification of career goals, strengthening of self-efficacy beliefs, development of realistic outcome expectations, management of environmental barriers, and building of environmental support systems. Such mentoring draws on the theoretical foundations of coaching. A coach/mentor, who functions as a trusted role model, advisor, friend, or guide, helps individuals learn rather than *teaching* them (Stober & Grant, 2006). As such, he/she “is someone trained and devoted to guiding others into increased competence, commitment, and confidence” (Hudson, 1999, p. 6; cited in Stober & Grant, 2006, p. 3).

In MtC, mentors take a personal interest in the student, offering guidance and support, providing answers about community college issues. Mentors demonstrate understanding and are welcoming and professional. They encourage students and see them holistically (not just academically). MtC mentors are proactive in seeking out students (unlike a counselor who waits for a student to seek help). If a student misses the small group meeting, the mentor makes contact with the student to find out the reason and to problem solve, if needed. The mentor lets the student know that she is available to discuss issues. In MtC, the coaching/accountability approach is preferred for working with adult students and to teach and model problem solving and goal setting.

**Component #3. Systematic monitoring by the student with feedback from the small group and mentor.** Adults need to receive feedback on how they are doing and the results of their efforts. They want to originate their own learning and resist learning activities that threaten their competence. Self-regulated learning theory supports the need for monitoring and feedback. To become a self-regulated learner, students must become aware of their own behavior, motivation, and cognition. This can be achieved by students setting goals for their learning and monitoring their progress toward achieving those goals, reflecting on what supported their success and what stood in the way. The four phases of self-regulated learning are: 1) forethought, planning, and activation; 2) monitoring; 3) control; and 4) reaction and reflection (Pintrich, 2004).

In C&C, the monitoring is done by the mentor and is gradually turned over to the student; however, in MtC adult students self-monitor. As Zimmerman and Paulson describe: “students can assess their progress and make necessary changes to ensure goal attainment. Self-monitoring can serve as a tool for self-improvement by enabling students to direct their attention, to set and

adjust their goals, and to guide their course of learning more effectively” (1995, p. 4). By self-monitoring, students *develop college know-how* (Karp, 2011), which the coaching approach also supports. In MtC, students should monitor themselves on a weekly basis, setting short-term goals and reflecting on their attainment or non-attainment. Such systematic monitoring strengthens and routinizes self-monitoring practices (see Appendix A).

**Component #4. *Intentional and timely, individualized “interventions” designed to help the student stay on goal.*** The foundational practice of C&C and MtC is responding quickly to possible problems that lead to disengagement with school and learning. As such, the mentor role in both C&C and MtC is proactive—the mentor does not wait for students to ask for help. Existing student advising and counseling practices in community and four-year college settings require that students seek help. But non-traditional, first-generation students often do not have role models for how to navigate the college environment (Cox, 2009; Levin, 2007); thus they are not comfortable going to professors and other college staff for help.

Validation theory supports the need for proactive support from the mentor (Rendón, 2004). Validation refers to “an enabling, confirming and supportive process *initiated by in- and out-of class agents* that foster[s] academic and interpersonal development” (Rendón, 1994, p. 44, emphasis added). Note that, unlike most other theories of student persistence, the practice of validation relies on the actions of institutional or external agents instead of within-person agents.

The mentor is a support person on campus, a direct contact. They provide help with academic planning, financial aid, career planning, registration, and overcoming personal obstacles, almost anything that can derail academic goals. They work directly with the student at the first sign of disengagement, using cognitive problem solving with the student to develop and test solutions.

## Logic Model

Figure 3 is the logic model for MtC. Fidelity to the model is described in four elements: Structural, Educative, Delivery, and Student Engagement (see Figure 4, Fidelity of Implementation Model). Implementation with fidelity of MtC for the Structural element involves a small group led by a mentor who also is available for individual mentoring. Supporting the mentoring components are four Educative elements that should be present: mentoring guidelines, the development of psychosocial skills, academic behavioral skills, and problem solving. The Delivery element involves facilitating engagement with others, facilitating engagement with content, and facilitating role development as a community college student. Finally, Student Engagement involves both engaging with others and engaging as a community college student. The fidelity of implementation matrix describes these elements in detail.

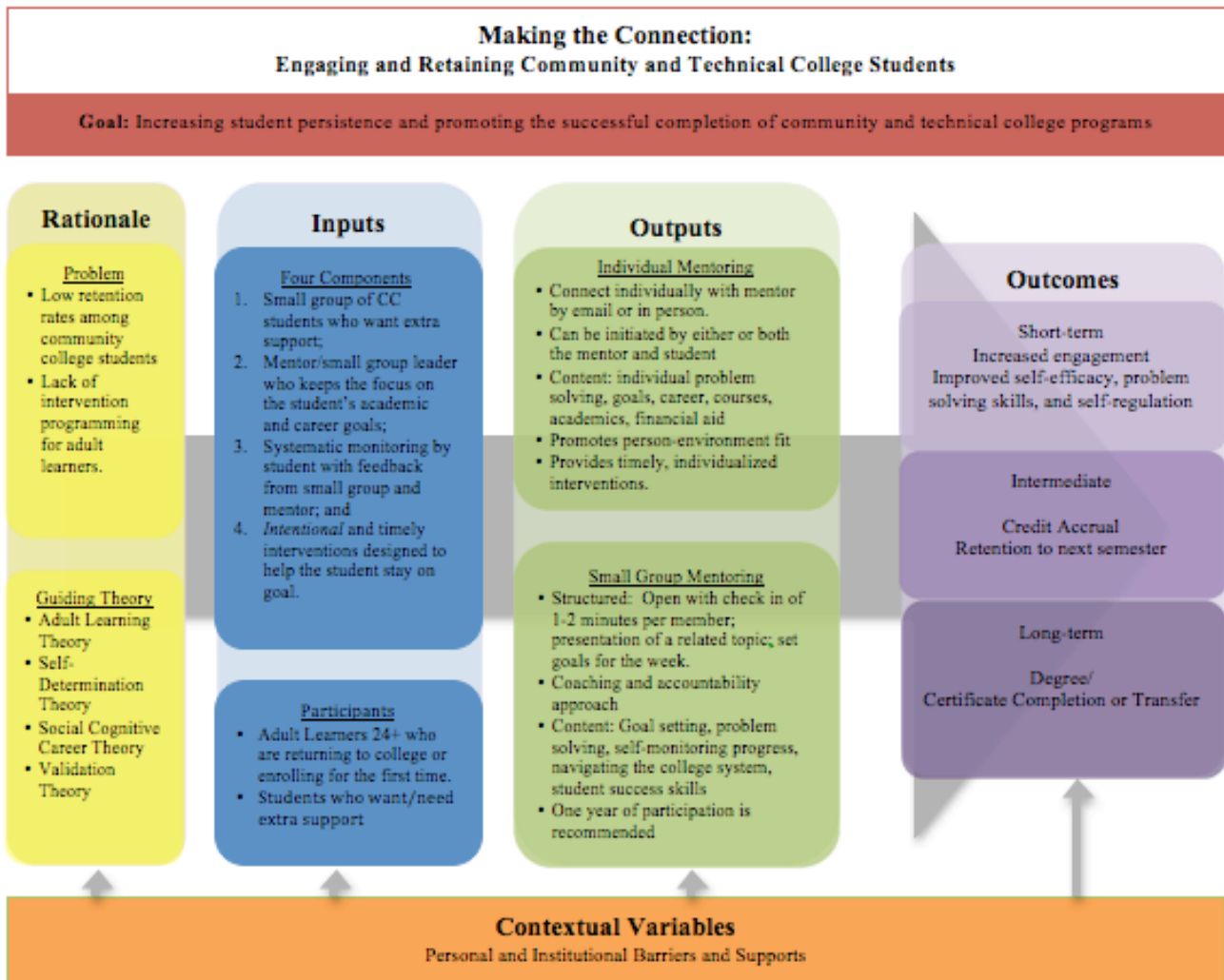


Figure 3. Logic Model for Making the Connection

<b>Structural</b>	<b>Educative</b>	<b>Delivery</b>	<b>Student Engagement</b>
<p><i>Time</i> 45-90 minutes</p> <p><i>Order</i></p> <ol style="list-style-type: none"> <li>1. Small group begins with 60 second recap of the week, with the focus on academics</li> <li>2. Follow-up on commitments made the past meeting</li> <li>3. Discussion of topic, either introduction of new topic or continuation</li> <li>4. Guided practice on related tasks in class</li> <li>5. Assignment or commitment to carry out over the next week</li> </ol> <p><i>Individualized Mentoring</i></p> <ol style="list-style-type: none"> <li>1. On as-needed basis</li> <li>2. Meet outside of group with mentor one-on-one</li> </ol>	<ol style="list-style-type: none"> <li>1. Mentoring guidelines</li> <li>2. Psychosocial skills</li> <li>3. Academic behavioral skills</li> <li>4. Problem solving</li> </ol>	<p><i>Facilitating student engagement with others</i></p> <ol style="list-style-type: none"> <li>1. Mentor facilitation of group work</li> <li>2. Mentor facilitation of student discussion</li> </ol> <p><i>Facilitating student engagement with content</i></p> <ol style="list-style-type: none"> <li>3. Mentor facilitation of students in goal setting</li> <li>4. Mentor facilitation of students in problem solving</li> <li>5. Mentor facilitation of students in time management</li> </ol> <p><i>Facilitating role development as community college student</i></p> <ol style="list-style-type: none"> <li>6. Mentor facilitation of student autonomy</li> <li>7. Mentor facilitation of student self-regulation</li> <li>8. Mentor facilitation of learning mindset</li> </ol>	<p><i>Students engage with others</i></p> <ol style="list-style-type: none"> <li>1. Students contribute to small group work</li> <li>2. Students engage in discussion</li> </ol> <p><i>Students engage as community college students</i></p> <ol style="list-style-type: none"> <li>3. Students develop role as learners (e.g., carry and use a planner, plan time for study, prepare assignments and for tests)</li> <li>4. Students demonstrate autonomy</li> <li>5. Students use goal planning</li> <li>6. Students use problem solving approach</li> <li>7. Students understand and apply mindset</li> </ol>

Figure 4. Making the Connection Model: Fidelity of Implementation (Century, Rudnick, & Freeman, 2010)

## 2. How is Making the Connection Implemented?

### Small Group and Individual Mentoring

The MtC intervention is implemented with a small group of 8-15 interested community college students who meet weekly with their mentor for 60-90 minutes. Size of the groups depends on how many students a college enrolls in the intervention. We recommend starting with a larger group to account for likely attrition. The time allotted to group meetings may vary based on how and when the small group is implemented. If the group follows a college success class, for example, the meeting time might be shorter, but if the group is outside of a class, the meeting time could conform to the class schedules at the community college. Research findings from the development project noted that both students and mentors thought that 1.25 hours was ideal. The extra fifteen minutes allowed for housekeeping tasks and commuting students who might have problems with parking. See Figure 5 for the Small Group Implementation Fidelity Matrix.

Early in the year, as students and the mentor get to know each other, the mentor and individual students set goals. The following questions can be used to guide this process:

- Where are you right now?
- Where do you want to go?
- What is it going to mean to you/your family when you get there?
- The mentor is working for them.

Two expectations support this process. First, is awareness that mentors give their time—quid pro quo—the student is expected to put in time, too. Second, the mentor might push students—students respond because they know the mentor cares and is helping the student to succeed.

Sessions follow a coaching approach, which is proactive and utilizes feedback and accountability for achieving short-term goals, while keeping in mind the longer term goals. Sessions begin with five minutes of personal sharing—how are you doing? Students socialize and get settled. The mentor goes around the group and asks each student to share how the week has gone in 60 seconds. This should be done quickly, so that one student does not dominate. It is intended to be a checking-in process. Following that, the group reviews individual progress on goals. The following are some questions the mentor might ask:

- Tell me what you accomplished this week
- What got in the way?
- How are you going to make sure you do it this week?
- When? Please email me when you take care of it (the mentor sends an email to remind the mentee, too).

After reviewing progress on goals, the mentor leads the group in a skill building activity (15-20 minutes) related to problem solving, goal setting, self-regulation (e.g., self-monitoring, self-reflection, time management), and self-advocacy. Critical elements include providing an advance organizer, presenting the content, offering time for guided practice during small group time, and making recommendations for further practice and application outside of the small

group. Sometimes this group activity focuses on navigating college by learning about topics such as careers, course planning, and financial aid requirements. The session ends with setting a weekly task or goal. The following statements can be used to guide this process:

- What are your top priorities for the week?
- What steps can you take to move you toward your top priority?
- Please write down some actions you will take.
- We want to hear about this next week.

The mentor provides accurate information based on experience with students, literature, and college resources. The focus is on behavior and cognitive problem solving is used whenever possible. Follow-up is always included so that students get timely feedback. The pitfall of this small group process, as noted on the Fidelity of Implementation matrix, is too great an emphasis on process. Mentors also need to avoid too much direct talk, instead using the problem solving process and input from group members as a way to collectively resolve issues.

Within the small group, the mentor keeps the focus on academics by creating a caring and supportive environment. Skills for personal problem solving are modeled by the mentor and reinforced within the small group.

Figure 5. Small Group Implementation Fidelity Matrix

		Concepts	Practice	Absent — Present
Content 1. Problem-solving 2. Time management 3. Growth mindset 4. Goal-setting 5. Self-management	Critical Elements	1. Advance organizer	• Accurate information based on literature	-   -   -   -
		2. Presentation of concept	• Discussion of interconnectedness of behaviors and attitudes. Focus on behavior	-   -   -   -
		3. Guided practice during group time		
		4. Further practice outside of class/small group		
	5. Setting a weekly task/goal/expectation	• Using problem-solving approach whenever possible	-   -   -   -	
			• Follow-up	-   -   -   -
	Undesired Elements	Overemphasis on process	• Focus of group is process, <i>not content</i>	-   -   -   -
Role of the Mentor/Coach	Critical Elements	1. Enhance opportunities for success in schoolwork	• Strength-based orientation	-   -   -   -
		2. Create caring and supportive environment	• Consistency of message	-   -   -   -
		3. Keep the focus on academics	• Cheerleading, coaching, encouraging	-   -   -   -
		4. Build skills for personal problem-solving	• Reflecting, reframing, problem-solving	-   -   -   -
			• Modeling problem-solving	-   -   -   -
		Undesired Elements	1. Act as therapist/counselor	• Gives advice rather than modeling problem-solving
		2. Interrupts	• “Talks at” rather than listening	-   -   -   -

		Concepts	Practice	Absent — Present	
Elements of Small Group	Critical Elements	• Check-in	• Mentor has students report on progress since last session	-   -   -   -	
		• Follow-up from last week	• Reports on engagement with module tasks	-   -   -   -	
		• Introduce new topic or continue from previous week	• Each member has a chance to respond	-   -   -   -	
		• Participation	• Students commit to module-related task(s)	-   -   -   -	
	Undesired Elements	• Assignment			
		• Too much direct talk			-   -   -   -
		• Low expectations			-   -   -   -
Time Allocation	Critical Elements	• No follow-up		-   -   -   -	
		• 45-75 minutes in duration		-   -   -   -	
		• No more than 15 minutes spent on check-in		-   -   -   -	
	Undesired Elements	• 20-30 minutes spent on discussion topic		-   -   -   -	
		• Too much time spent on check-in and personal issues		-   -   -   -	
		• Mentor monopolizes time		-   -   -   -	

## Role of the Mentor

Because of the high stakes involved, studying the conditions that contribute to postsecondary success and persistence has been a focus of educational and psychological research for the last three decades, with dominant models drawn from research at four-year institutions (e.g., Tinto, 1975; Bean & Metzner, 1985). Such models place the onus for persistence on the individual student, and indeed, popular interventions such as developmental education and college success courses target student characteristics. Of late, more attention is being paid to how institutions need to change to improve persistence. Scott-Clayton (2011) argues that tightly structured academic programs that limit deviation from the pathway to completion and limit bureaucratic obstacles help community college students succeed. Another approach, the Equity Scorecard (Harris, Bensimon, & Bishop, 2010), “is designed to shift practitioners’ attention away from what is wrong with students to what they, and their own institutions or departments, might be doing wrong or might be failing to do at all” (p. 280). Rendón’s theory of validation (1994; 2002) and Cox’s research on the obstacles that institutional culture creates for non-traditional students (2009) also describe how institutional practices influence persistence and retention.

The dichotomy of the two approaches to retention—i.e., change the person; change the environment—is described by the notion of person/environment fit. C&C, the model on which MtC is based, seeks to improve the person-environment fit. MtC bridges the opposing positions of the student as responsible for persisting and the institution as needing to create conditions that



promote retention. In relationship with the student, the MtC mentor comes to know the preconceptions and circumstances that the student brings to the environment. He/she builds skills for “fitting” into the environment from the strengths and challenges of the student, while developing ways for the student to be successful in that environment through the teaching of cognitive problem solving. At the same time, as a participant and representative in and from the institutional environment, the mentor constantly works to refocus that environment to meet the needs of the student.

MtC mentors support students in handling the academic and personal issues that threaten their academic success. The small group structure provides social integration and the building of social networks to draw on outside the mentoring relationship. The mentor models, validates that the student belongs in college and can succeed, and exerts pressure to be accountable for reaching goals. MtC mentors formalize and provide structure to the delivery of nonacademic supports (Karp, 2011).

***Proactive or Passive Mentoring?*** Colleges have traditionally expected students to seek their own help in terms of counseling, advising, and academic supports. Such an approach is passive—it does not reach out to students; rather, it demands that they seek their own help. Students who have risk factors (e.g., first generation status, underprepared academically, ethnic and racial minority status, low socioeconomic status) are less likely to know how and where to ask for help (Cox, 2009; Rendón, 2002). In MtC, mentoring is a coaching approach that is proactive.

The C&C model on which MtC is based has nearly 20 years of empirical support for the power of mentoring (Anderson, Christenson, Sinclair, & Lehr, 2004; Kaibel, Sinclair, & VandenBerk, 2008; Lehr, Sinclair, & Christenson, 2004; Sinclair, Christenson, Evelo, & Hurley, 1998; Sinclair, Christenson, & Thurlow, 2005; Sinclair & Kaibel, 2002). The *Connect* in the C&C intervention refers both to connecting with a mentor *and* being connected to evidence-based interventions. MtC uses this approach, in line with evidence-based coaching recommendations: mentors make intelligent use of best current evidence integrated with their own expertise to provide coaching to participants (Hudson, 1999).

***Mentoring Content.*** Social cognitive career theory (SCCT; Lent, 2007) informs mentoring for MtC, with mentors fostering psychosocial skills and dispositions in addition to providing career guidance. Specifically, SCCT calls for modeling and facilitating students’ expansion of vocational interests, clarification of career goals, strengthening of self-efficacy beliefs, development of realistic outcome expectations, management of environmental barriers, and building of environmental support systems. At all times mentors model and teach a five step cognitive problem solving process:

1. Stop. Think about the problem.
2. What are some choices?
3. Choose one.
4. Do it.
5. How did it work? (August, Anderson, & Bloomquist, 1992)

During the session mentors draw from individual concerns and may also use lessons developed

specifically for the intervention. Appendix B has examples of a goal setting, time management, problem solving, growth mindset, and discovering your dreams modules. Appendix C provides strategies for self-regulation.

***The Coordinator.*** In K-12 C&C, particularly at the secondary level, sites often have a coordinator who oversees the implementation. At the community college level a MtC coordinator would do the following:

- Establish the process for determining which students will be offered the opportunity to participate;
- Serve as a liaison between community college administration and the Making the Connection program;
- Hire and train MtC mentors;
- Hold regular check-ins and meetings with mentors;
- Provide technical assistance for specific cases;
- Assure fidelity of implementation;
- Provide ongoing staff development; and
- Lend legitimacy to the program among administration, faculty, and students.

In our pilot projects, the coordinator was an administrator with experience and oversight capacity. At both sites the coordinators were vice-presidents in student affairs.

## **Mentor Job Description**

Mentoring is essential for students at risk of leaving community college before completing a program or degree or transferring to a four-year institution for at least two reasons:

- It provides a systematic and efficient way to connect students with immediate supports for personal success.
- It provides an essential link to students' educational progress and personal education goals.

The MtC mentor provides:

- Persistence: There is someone who is not going to give up on the student or allow the student to be distracted from the importance of school and his/her learning/career goals.
- Continuity: There is someone who knows the student's strengths and challenges and is available across semesters and academic years.
- Consistency: The mentor reiterates the message that "education is important for your future."

## MtC Mentor Characteristics

Desirable characteristics for MtC mentors include –

- Willingness to persist with students, despite setbacks and poor decision-making
- A personal belief that all students, particularly those living in challenging circumstances, have abilities and strengths;
- A willingness to cooperate and collaborate with other college staff and community resource contacts;
- Advocacy skills, including the ability to negotiate, compromise, and confront conflict;
- Organizational and case management/documentation skills; and
- A willingness to be a mentor (i.e., “wanting to rather than being obligated to”).

## MtC Mentor Duties

Mentors...

- Work directly and collaboratively with a caseload of individual students and their instructors/professors, administrators, other college staff, and community service providers to implement comprehensive and inclusive strategies that address the college success and completion of academic or career goals for students at-risk for early leaving.
- Support students in tracking their levels of engagement at appropriate intervals. This may include documenting course progress, course completion, selection of and progress to a goal, and grades and credits earned.
- Work as a liaison to facilitate communication and promote problem solving both at the individual student level and with supportive people in the student’s life.
- May refer students to appropriate community services, provide students and supportive others with information, and develop community agency linkages.
- Work collaboratively with the college and its programs to define and outline the role of college staff in improving student participation, performance, and success for individual students at high risk of dropping out.
- Attend bi-weekly staff meetings and staff development activities.
- Participate in evaluation activities as needed.
- Are available to the student at both on and off hours via a variety of communication modes (e.g., email, telephone, etc.)
- Help students prepare for everyday demands by:
  - facilitating opportunities for success in coursework
  - communicating the relevance of education to future endeavors
  - creating a caring and supportive niche in the college environment
  - helping students with personal problems, if only to lend an empathetic ear
- Teach the behavior that is expected
  - set clear goals and identify ways to succeed
  - use role playing, tutoring
  - model positive skills
  - identify ways to connect the student to the life of the college

- With the student, identify the demands of the college environment and the expectations for students' success in each course
- Request instructor input: What does the student have to do to be successful in this course? Consider task completion, quality of work, and participatory behaviors.
- Use instructor input to discuss options and supports for students relevant for problem solving.
- Meet with the student to set personal goals for the class where enhanced academic improvement is desired.
- Provide ongoing monitoring and teach self-monitoring.
- Fuel students' motivation to learn via discussion and dialogue about:
  - persisting and challenging one's self—willingness to put forth sustained effort
  - planning, monitoring, and self-managing—toward college success and a future career goal

## **MtC Mentor Qualifications**

The development projects for MtC used existing staff at the two community colleges. These included faculty, dean of students, student services personnel, adjunct instructors, academic advisors, and counselors. Accordingly, all had at least a master's degree. The use of existing staff means that the mentors had good knowledge of college policies and practices.

## **Participants**

Students who participated in the original development of MtC at one site were enrolled in a college success course because they needed to take a development course. At the other site, any student was eligible to participate. Sites need to decide on the criteria they will use to determine eligibility for the intervention. Possible criteria could be enrollment in a developmental course or self-identification as needing the support of a peer group and mentor. Other groups might include returning veterans, students who've been out of school for a period of time, students with multiple course failures at risk of non-completion, and students with other risk factors such as first-generation college student status.

Making the Connection is subject to the same attrition that other community college programs experience. We recommend building the holding power of the intervention by having a retreat that allows the group members and mentor to get to know each other quickly. Community colleges could also experiment with reward structures; however, our interview data revealed that students did not participate for the gift certificate that was offered in the development phase, but rather because they wanted and valued extra support. We recommend that students have one year of support in the model.

## Measuring Effects

Data from the development project for MtC support the potential of the model for improving outcomes for at-risk community college students. Table 1 provides the institutional data that supports the intervention.

Table 1  
*Institutional Data*

	JCTC Participants ( <i>n</i> =17)	JCTC Comparison Group ( <i>n</i> =1109)	MCTC Participants ( <i>n</i> =42)	MCTC Comparison Group ( <i>n</i> =790)
Term GPA, C or Better	82%	64%	64%	59%
Cumulative GPA, C or better	88%	64%	58%	55%
Course Pass Rate	67%	63%	71%	58%
Average Term-to-Term Retention	100%	76%	79%	70%

In the absence of evaluation requirements from an external funder or other source, we recommend formative evaluation at the end of the first semester and summative at the end of the second semester of participation or whenever a cohort of students completes the program. Evaluation should include measures of fidelity of implementation, perceptions of students and mentors about both the small group and individual mentoring and the small group content, and institutional data about student progress.

## Conclusion

Non-academic supports (Karp, 2011) are increasingly seen as a way to improve the retention and completion of community college students. Making the Connection is a model that delivers both peer support and mentoring to students at risk of non-completion. It was developed through an iterative process with data and feedback informing every step and the final model. It is our fervent hope that community colleges will add to the preliminary findings for the model and improve the retention of their students.

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## Appendix A

### Making the Connection Self-Monitoring Sheet

Student \_\_\_\_\_ College \_\_\_\_\_ ID \_\_\_\_\_

Semester \_\_\_\_\_ Dates \_\_\_\_\_ - \_\_\_\_\_ Mentor/Advisor \_\_\_\_\_

A. What are your short-term goals for this semester?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

B. In the boxes below, for each week mark how you think you did in this area: + = Excellent, √ = Fair/OK, — = Poor

	Week of the Semester															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Attendance</b>																
<b>Assignment Completion</b>																
<b>Time and effort put into schoolwork</b>																
<b>Preparation for Class</b>																
<b>Participation in Class</b>																
<b>Communicated with mentor (date when occurred)</b>																

C. Skills/Areas that I am doing well (add to this list throughout the semester): \_\_\_\_\_

\_\_\_\_\_

## Completing the Self-Monitoring Sheet

Directions: *Complete Part A immediately upon receiving the self-monitoring sheet. Complete Parts B, C, and D at least once every two weeks and consider your performance in those two weeks. Be prepared to discuss the self-monitoring sheet with your mentor.*

Part A examples: What are your academic goals for this semester?

- To pass my developmental math course and be ready to register next semester for the required math course for my certificate program.
- To earn credits in every course I am taking.
- To complete all assignments on time and to the best of my ability.
- To decide on a degree or certificate program.

Part B examples:

### Attendance:

- + = attended every class/ perfect attendance
- √ = missed a class and obtained notes or assignments from the instructor or a classmate
- — = missed more than 1 class, did not attempt to find out what I missed, and/or did not notify or discuss my absence with the instructor

### Assignment Completion

- + = completed all assignments on time.
- √ = completed most assignments on time.
- — = did not complete any assignments on time and/or did not complete some assignments at all.

### Time and effort

- + = spent enough time to understand my work and complete it with accuracy
- √ = spent enough time to complete my work, but didn't worry a lot about understanding or accuracy
- — = spent little to no time or effort on my schoolwork.

### Preparation for class

- + = did all of the work required to be prepared for class and came ready to participate
- √ = did most of the work required to be prepared for class and was somewhat ready to participate
- — = did not do much or any of the required work and was not ready to participate in class.

### Participation in class

- + = listened attentively, actively participated in discussion, and asked questions
- √ = mostly listened and sometimes participated in discussion
- — = did not participate in class

Communicated with mentor: Put the date when you communicated with the mentor in the correct box.

Parts C + D: Add to each of these throughout the semester.

- Examples: specific subject area, homework completion, study time, GPA, attendance, etc.

## **Appendix B**

### **Sample Modules**

#### **Making the Connection Module 2**

##### Setting Goals to Reach Your Dreams

**Length of time:** 1 session

**Objectives:**

- Students will review their dreams and write a long-term goal for a desired future event.
- Students will brainstorm what it will take to achieve the long-term goal.
- Students will set short-term goals for meeting the long-term goal.

**Strategies:**

- Discussion
- Brainstorming
- Reflection
- Goal setting

**Materials:**

- Writing utensils
- Goal Setting Handout
- Whiteboard, chalkboard, or overhead on which you can model SMART goals

**Procedures**

**Check-in:**

- Each student has 60 seconds to share something they did during the week to help move themselves closer to achieving their dreams/ideal future.
- Students can volunteer to share something that hindered their progress toward their dreams and how they were able to overcome the hindrance (if they were).
  - If hindrances are raised that were not overcome, the mentor can offer to have an individual meeting to discuss the challenge, or time at the end of the session may be used to problem-solve the challenge with the group.

**New Content:**

1. Instruct students to review their dreams/ideal future.
  - a. Remind students that they were to have circled the most important future event on their lifeline.
  - b. Request volunteers to share their most important dreams with the group.
2. Handout the goal setting sheet.
  - a. Have students record their desired future event on the sheet.
3. Direct students to write a long-term goal for that important future event.

- a. Share the **SMART goals format**
  - i. **S – Specific**
  - ii. **M – Measureable**
  - iii. **A – Attainable**
  - iv. **R – Results-oriented**
  - v. **T – Time-bound**
- o Provide an example:
  - By July of 2013, I will own my own home in Minneapolis
4. Have students brainstorm the actions and behaviors that will be necessary to achieve their goal.
5. Instruct students to star 3 actions/behaviors they can accomplish during the coming semester.
6. Direct students to write short-term goal statements for those 3 actions or behaviors using the SMART goals format.
7. Students can share with a peer near them.

**Student Commitment for Next Meeting:**

- Inform students of their assignment:
  - o Brainstorm the supports they will need or can count on to help them achieve their goals.
  - o Share their dream and goals with at least one support person.
  - o Reflect on the conversation with that support person.

## Making the Connection Goal Setting

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Dream: \_\_\_\_\_

---

SMART goals

S – Specific

M – Measureable

A – Attainable

R – Results-oriented

T – Time-bound

**Long-term goal statement for your dream (written as a SMART goal):**

**Brainstorm: What actions and behaviors will it take to achieve your goal?**

**Star 3 actions/behaviors you believe you can accomplish or need to accomplish this semester in order to meet your long-term goal.**

**Short-term Goals:** Record three short-term goals that you will achieve this semester to move you closer to achieving your long-term goal (use the SMART goal format).

**Brainstorm:** What supports (people) do you have in place that can help you meet your goals?

Assignment: Share your desired future event, long-term goal, and short-term goals with someone who can help support you as you strive to meet the goals. Then, reflect on how the conversation went here:

## **Making the Connection Module 3**

### **Managing Your Time**

**Length of time:** 1 session

**Objectives:**

- Students will reflect on how they regularly spend their time.
- Students will discuss balancing school, work, and family.
- Students will find times in their regular week to study and attend classes.
- Students will learn to effectively manage their time.

**Strategies:**

- Time chart
- Discussion
- Reflection

**Materials**

- 2 Weekly Planner handouts per student
- Weekly Planner Reflection handout
- Computers (optional)

**Procedures**

**Check-in:**

- Each student has 60 seconds to share who they chose as their support person with whom to share their dreams and goals and how the conversation went. (Sharing about commitment made last meeting)

**New Content:**

1. Share the following with students: Students reported last semester that one of their biggest concerns was managing their time. Trying to find balance between school, work, family, friends, and fun can be challenging as a college student. This session is meant to help you consider how you spend your time each week, what your priorities are for your time, and how to more effectively use your time to help you meet your goals.
2. Inform students that they'll begin by evaluating how they currently spend their time.
  - a. Instruct students to complete the weekly planner online at <http://www.studygs.net/schedule/Weekly.html> or on the handout provided.
  - b. In each box, they should but the amount of time they spend per day on that activity (ex. 30 minutes, 1 hour, etc.)
3. Discuss with the small group or with a peer – “Where does your time go? What are the things you spend the most time on? How much time is actually spent studying?”
4. Hand out the reflection sheet and instruct students to complete the sheet on their own.
5. Discuss: How has this activity made you think differently about your use of time? Will it change your behaviors? How?

**Student Commitment for Next Meeting:**

- Discuss: What is one thing you will devote more time to in order to help meet your goals for the semester?
- Give students a blank weekly planner.
  - Instruct students to place a star next to those activities that are their priority for the week – those activities they need to devote the most time to.
  - Ask students to complete the appropriate column at the end of each corresponding day for the coming week, filling in the actual amount of time spent on each activity per day.
  - Students should bring both weekly planners to the following class.



## Weekly Planning Guide

NAME:

Daily Activities	Mon	Tues	Wed	Thu	Fri	Sat	Sun
Classes							
Studying							
Sleeping							
Exercise/sports							
Work/internship							
Family commitments							
Personal care/grooming							
Meal preparation/eating/clean-up							
Transportation (school, work, etc.)							
Relaxation: TV, reading, internet, etc.							
Errands (grocery shopping, appointments, etc.)							
Socializing & friends							
Other:							
<b>Total Hours</b>							
<b>Hours left in each day</b>							

## Weekly Planner Reflection

NAME:

1. Consider your goals for this semester. Which of the activities from the “Daily Activities” column on the weekly planner move you toward meeting your goals?
  
2. How much time do you spend on these activities?
  - a. How much of your time weekly is spent on meeting your goals?
  
3. Does your time allocation reflect the priority of your goals?
  - a. If yes, how can you ensure that you maintain that time allocation?
  
  - b. If no, how can you change your weekly time commitments to help you better meet goals?
  
4. How much time do you have left each day, according to the weekly planner?
  - a. How is this time typically spent?
  
  - b. How could this time be used differently?
  
5. A rule of thumb for studying for college courses is about 2-3 hours outside of class for every hour you are in class.
  - a. With this rule of thumb in mind, how many hours should you be studying each day?
  - b. How many hours do you actually study each day? \_\_\_\_\_
  - c. How can you adjust your schedule to ensure you are putting in enough study time?
  
  - d. Is there a certain time of each day you can set aside/reserve for studying?
  
6. How can others support you in managing your time?
  
7. How has this activity made you think differently about your use of time? Will it change your behaviors? How?

# Making the Connection Module

## Problem Solving

**Length of time:** 1 session

**Objectives:**

- Students will review their goals and dreams.
- Students will learn a method for problem solving.
- Students will discuss a barrier to achieving their goal and problem solve on their own or with the group.

**Strategies:**

- Discussion
- Small-group problem solving
- Reflection

**Materials:**

- Problem solving handout

**Lesson Procedures:**

**Opening:**

- Each student has 60 seconds to share: What is the positive statement or affirmation you came up with for yourself (if you're willing to share)? Did you use the affirmation? How did you feel it worked?
- If you didn't use an affirmation, did you try to manage your attitude or mindset in some other way before studying?

**Lesson:**

1. Explain: Despite having a positive attitude and a growth mindset, you are likely to encounter obstacles or barriers that stand in the way of accomplishing your goals. Persisting and overcoming those obstacles requires problem solving.
2. Distribute the problem-solving handout.
3. Talk through the Problem Solving Process:
  - Step 1: Stop! Think about the problem.
    - Clarify the problem/obstacle/barrier
    - Try to define the problem in terms of something changeable
  - Step 2: What are some choices?
    - Consider possible solutions to the problem.
    - What would you advise someone else to do in your situation?
    - What might you be willing to try?
  - Step 3: Choose one.
    - Choose one possible solution that you are willing to try.
  - Step 4: Do it.
    - Implement the solution.
  - Step 5: How did it work?
    - Evaluate the solution: did it work?
    - Was your solution effective?
      - If not, why not?
    - What else can you try?

- Return to step 2 and repeat the process
- 4. Instruct students to choose a problem/obstacle/barrier that currently stands in their way of achieving their goals or is likely to come up and work their way through steps 1-4 on their own.
- 5. Small-group problem solving:
  - Ask for a student to volunteer to share their problem aloud with the group.
  - Go through the problem solving process as a small group in order to try to help the student work through their problem.
  - Repeat this process for as many students as time allows.

**Closing:**

- Remind students that they should be implementing their chosen solution to their problem during the course of the coming week and should be prepared to share how it went in the next session.

# Problem Solving

## Problem Solving Process:

- Step 1: Stop! Think about the problem.
- Step 2: What are some choices?
- Step 3: Choose one.
- Step 4: Do it.
- Step 5: How did it work?

**Directions:** Consider an obstacle or challenge you are currently facing and complete the problem solving process guide below.

**Step 1: Stop! Think about the problem.** What is the problem?

**Step 2: What are some choices?** What are some possible solutions?

**Step 3: Choose one.** Which solution will you try?

**Step 4: Do it.** How will you put it in action?

**Step 5: How did it work?** Evaluate how the solution worked and whether or not your problem was resolved.

\*If the solution didn't work, return to step 2 and try another option.

# Making the Connection Module

## Developing a Growth Mindset

**Length of time:** 1 session

**Objectives:**

- Students will learn to manage their mindset and persist in the face of challenges and failures.
- Students will be able to differentiate between a growth mindset and a fixed mindset.
- Students will determine their own mindset.

**Strategies:**

- Discussion
- Reflection
- Video
- Self-report quiz

**Materials and Resources (includes technology, web links):**

- Computer and projector
- Youtube videos or quote
  - <http://www.youtube.com/watch?v=dT4Fu-XDygw>
  - <http://www.youtube.com/watch?v=45mMioJ5szc>
- Mindset Quiz
- Mindset Self-Reflection

**Lesson Procedures**

**Opening:**

- Each student has 60 seconds to discuss: Which self-management tool did you try and how did it go? Will you continue to use that strategy or try another?

**Lesson:**

1. Explain to students that self-management is not only about managing your time, but also about managing your attitude. Adopting a positive, growth mindset improves your chance at success. When things don't go your way (and they're not likely to all of the time in college), it's important to manage your attitude, practice self-discipline, and persist despite obstacles and even failures.
2. Play one of the following videos (or a combination):
  - a. <http://www.youtube.com/watch?v=dT4Fu-XDygw>
  - b. <http://www.youtube.com/watch?v=45mMioJ5szc>
  - c. If you can't share one of the videos, share the following quote: Michael Jordan had this to say in an ad for Nike, "I've missed more than nine thousand shots. I've lost almost three hundred games. Twenty-six times, I've been trusted to take the game-winning shot, and missed. I've failed over and over and over again in my life, and that is why I succeed." – Michael Jordan

3. Discussion:
  - a. What does Michael Jordan mean when he says, “*I’ve failed over and over and over again in my life, and that is why I succeed*”?
    - i. Why is it that Jordan succeeded despite failure?
    - ii. Does failure ensure success?
    - iii. How can failure lead to success?
    - iv. How might this relate to your experience as a college student?
4. Explain: It may not feel like it, but every failure brings an opportunity for growth and sets you up for future success in a new effort. For example, failing at one job may bring you the opportunity to enjoy great success in another. Learning from failure and acting on what you learned can lead you to greater achievement.
5. Explain: Persisting requires that you manage your attitude and mindset.
  - a. There are two kinds of mindsets: a fixed mindset and a growth mindset. We’ll discuss what each means shortly.
6. Hand out the Mindset Quiz.
  - a. Students take Quiz.
    - i. Remind them to be honest with themselves. There are no right or wrong answers.
  - b. Go over scoring rules with the students and have them score their own quiz.
    - i. Student should count the number of “true” responses given for odd-numbered statements and record that number.
    - ii. Students should do the same for “true” responses on even-numbered statements.
    - iii. Explain that the odd-numbered statements represent a fixed mindset while even-numbered statements represent a growth mindset.
      1. More “true” responses on even-numbered items demonstrate a growth mindset.
      2. More “true” responses on odd-numbered items demonstrate a fixed mindset.
      3. If the results are close, it’s likely that the mindset is closer to a fixed mindset.
7. Give definitions of fixed and growth mindset (can be written on board)
  - a. Fixed mindset:
    - i. Belief that your intelligence and abilities cannot be changed.
    - ii. Fear making mistakes.
    - iii. Always trying to prove yourself.
  - b. Growth mindset:
    - i. Belief that your abilities and intelligence can change through effort and learning.
    - ii. View mistakes as learning opportunities.
    - iii. Learning for yourself, not for anyone else.
8. Discuss results of the survey.
  - a. What kind of mindset do you think Michael Jordan has when he approaches a game? How do you know based on what he said?
    - i. What kind of mindset do Thomas Edison and Albert Einstein have? How do you know?

- b. What kind of mindset do you have?
  - c. Was anyone surprised by his/her results?
  - d. What do the results mean?
  - e. What can you do about what you learned?
9. Research shows that intelligence is not fixed but can be changed.
- a. Discussion: So how can we change our intelligence?
    - i. How did Michael Jordan develop his talent?
      - 1. Effort! He is constantly putting forth effort to improve his abilities.
      - 2. Learning from mistakes – he makes mistakes or fails and learns from those mistakes and failures.
      - 3. Persistence – he doesn't give up!
    - ii. We can do the same thing through education.
      - 1. We can push ourselves to learn new things.
      - 2. We can keep putting forth our full effort, knowing that we'll experience more success if we do.
      - 3. We cannot be afraid of making mistakes, but instead, make them and learn from them.
  - b. How should we approach assignments or course work if we are trying to develop our intelligence?
    - i. Possible responses:
      - 1. See them as learning opportunities.
      - 2. Realize that even if it's hard, if we put forth enough effort, we can finish the task and learn from it.
      - 3. Not be afraid of making mistakes.

**Closing:**

- Instruct students to reflect on what was discussed in the lesson by completing the self-reflection sheet at home.
- Direct students to pay particular attention to question 8: What is a positive statement or affirmation you can repeat to yourself when you begin studying or prepare to take a test that will help put you in the right mindset for success?
  - Students should come up with an affirmation, use it during the course of the week and be prepared to share their affirmation next session as well as how it worked to use it before studying.
  - Students write the affirmation 3 times. One time they use “I”, one time they use “you” and one time they use their name. E.g., I can finish all my homework each week. You, Karen, can finish all your homework each week. Karen can finish all her homework each week.



## What Mindset do you have?

Directions: For each item below, decide whether the item is true for you or false and write your answer on the line. Answer each item honestly. There are no right or wrong answers.

1. \_\_\_\_\_ I want to do better than other students in my class.
2. \_\_\_\_\_ An important reason why I do my class work is because I like to learn new things.
3. \_\_\_\_\_ I'd like to show my professor that I'm smarter than the other students in my class.
4. \_\_\_\_\_ I like coursework that I'll learn from even if I make a lot of mistakes.
5. \_\_\_\_\_ It's very important to me that I don't look stupid in my class.
6. \_\_\_\_\_ If I do poorly on an assignment or a test, it's because I didn't study or try hard enough.
7. \_\_\_\_\_ Natural ability is more important than effort for doing well in school.
8. \_\_\_\_\_ I can do well on any assignment if I try hard enough.
9. \_\_\_\_\_ If I do well on an assignment or a test, I think it's because of good luck.
10. \_\_\_\_\_ An important reason why I do my work in class is because I want to get better at it.
11. \_\_\_\_\_ If I do poorly on an assignment or a test, it's usually the teacher's fault.
12. \_\_\_\_\_ Effort is more important than natural ability for doing well in school.
13. \_\_\_\_\_ Your intelligence is something very basic about you that can't change very much.
14. \_\_\_\_\_ No matter how much intelligence you have, you can always change it quite a bit.
15. \_\_\_\_\_ You can learn new things, but you can't really change how intelligent you are.

Count the number of "Trues" you have on even-numbered items: \_\_\_\_\_ / 7

Count the number of "Trues" you have on odd-numbered items: \_\_\_\_\_ / 8

## Mindset Self-Reflection

NAME: \_\_\_\_\_ Date: \_\_\_\_\_

1. What is your mindset based on the quiz results?
2. What does it mean to have that mindset?
3. How do you think that mindset affects how you do in college?
4. Did you have any “true” responses on odd-numbered quiz items? These represent a fixed mindset.
5. What can you do to change your mindset to a completely growth mindset or to maintain a growth mindset?
6. How do you think having a growth mindset can impact your learning?
7. How could your professors, mentor, friends, significant other, or family help you have a growth mindset?
8. What is a positive statement or affirmation you can repeat to yourself when you begin studying or prepare to take a test that will help put you in the right mindset for success?

# Making the Connection Module

## Discovering your Dreams

**Length of time:** 1 session

**Objectives:**

- Students will plot a timeline of their past, present, and future.
- Students will define their dreams.

**Strategies:**

- Completion of a lifeline
- Discussion
- Reflection

**Materials:**

- Writing utensils
- Lifeline Handout
- Whiteboard, chalkboard, or overhead on which you can model completing the lifeline.

**Lesson Procedures**

**Opening:**

- Each student has 30 seconds to briefly share one positive experience related to college from the week.
- Each student then has about 30 seconds to share one challenge from the week and how they were able to overcome the challenge (if they were).
  - If challenges are raised that were not overcome, the mentor can offer to set up an individual meeting to discuss the challenge or time at the end of the session may be used to problem-solve the challenge with the group.

**Lesson:**

1. Hand out the timeline worksheet and inform students that they will complete a timeline of their past, present, and future life events.
2. Instruct students to begin with the past events and fill in important events or events that they think impacted their lives somehow next to the corresponding age on the left of the timeline.
  - a. Model your directions:
    - i. Ex. I would write “Sister born” beside 6, “Grandma died” beside 8, “Began middle school” beside 12, etc.
3. Direct students to move on to current events in their lives such as attending community college, etc.
  - a. Again, model your directions
4. Ask for volunteers to share their most valued/important past and present events.
5. After completing the “Past and Present Events,” direct students to move to the right side of the line and perform the same activities with their “Future Events.”
  - a. Again, model.

- i. Ex. I would record events such as retirement, building a new home, traveling to Europe, etc. at the ages I hope these things occur.
- b. Students may get stuck on the future events.
  - i. Inform students that dreams are often big and fueled by emotions and that many people don't have a big dream for their life, so they're not alone if they're in this situation.
  - ii. If they're searching, they can consider the following:
    1. *What do you enjoy doing?*
    2. *What don't you enjoy doing?*
    3. *What do you like to read about?*
    4. *What gives your life meaning and purpose?*
    5. *What are your talents and skills?*
    6. *What do you daydream about most often?*
    7. *Describe three people you admire. What do they do that you think is great? What makes them special?*
    8. *What matters to you more than anything else?*
    9. *Which of your dreams gets you really inspired?*
    10. *If you could be anything, what would it be? Why?*
- c. After the "Future Events" are completed, instruct students to circle the one future event that is most important to them now.

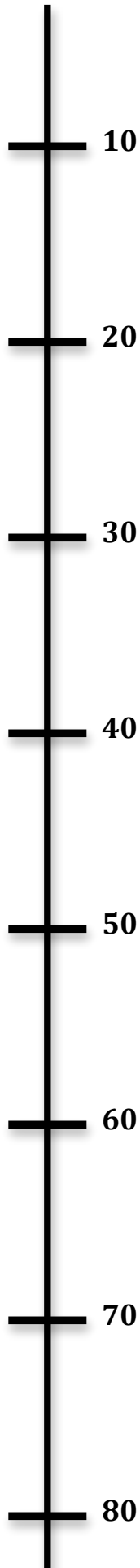
**Closing:**

- Ask for volunteers to share their most valued/important future events.
- Inform students that they should complete their timelines at home and bring them to the next session.
- Inform students that you will work on goal setting during the next session to help students achieve their dreams.

\_\_\_\_\_ 's *Lifeline*

**Past and Present Events**

**Future Events**



## Appendix C

### Self-Regulated Learning Strategies

#### 1. Self evaluation

The student checks any work done to ascertain its correctness to the greatest extent possible.

#### 2. Organizing and transforming

The student plans the work before starting. Transforming, especially in the context of essay-type assignments and reports, may include copying, then paraphrasing course material or material gleaned from other sources.

#### 3. Goal-setting and planning

Goals are generally short term, mostly fitting within with time frames from a minimum of few days to a maximum of two semesters. Plans may be established for carrying out an assignment, preparing for a test or exam, or for an approach to an entire module.

#### 4. Seeking information

Familiarity with information retrieval from library and or internet is vital.

#### 5. Self-monitoring

The student should observe feelings about self-efficacy, comprehension, motivation and procrastination.

#### 6. Environmental structuring

The study environment should be conducive to preferred learning circumstances. Distractions such as television, computer games and telephones should be eliminated. Cell should be phones turned off and left in another room. Lighting should be arranged so the work is well illuminated, without shadow, and bright lights are not directly visible. A good supply of fresh air should be maintained.

#### 7. Self-consequences

Reward for good performance. When a major assessment is handed in on time, and or when a target mark is achieved. The target does not have to be 100%, a mere pass will suffice for a new student or one who has been failing. The target may be set a little higher as the course of study progresses. Striving for continuous improvement (even in small increments) will eventually build self-efficacy.

#### 8. Rehearsing and memorizing

May include recording and replaying lectures, reading aloud, and practicing computations. Procedures for solving mathematics-intensive problems may be learned by repetition.

#### 9. Seeking social assistance

Appropriate sources of help within the faculty or university should be identified. Help from friends, peers, and should be sought as appropriate. Participation in study groups is beneficial.

#### 10. Reviewing records

Students should regularly review marks obtained for assignments. Persistent low marks in a module should indicate that additional effort is required in that module.

Reference: Jowitt, W. A. (2008). Promoting and Monitoring Self-regulated Learning Techniques in Engineering Schools. Presented at Australian Association for Engineering Education Conference. Retrieved from [http://aaee.com.au/conferences/papers/2008/aaee08\\_submission\\_W1C2.pdf](http://aaee.com.au/conferences/papers/2008/aaee08_submission_W1C2.pdf)