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Promoting college and career readiness among underserved adolescents: A mixed methods pilot study

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ABSTRACT

Introduction: Many underserved adolescents, defined as those with inequitable access to educational resources, face limited access to interventions that develop their college and career know-how. In our study, we implemented and evaluated a pilot college and career readiness curriculum intervention called Paths to the Future for All (P2F4A). P2F4A takes a developmental approach to college and career development, weaving together the procedural know-how of college and career planning with a broader focus on building social-emotional skills that support positive trajectories towards the future. We evaluated pre-post changes in adolescents' career-related and social-emotional outcomes alongside views of their personal growth.

Methods: We used a purposeful sample of five schools in the Western region of the United States and recruited a sample of adolescents ($N = 61$; $M_{age} = 16.3$ years; 57.4% female) who experienced challenging academic and life circumstances to participate in P2F4A. We conducted pre-post surveys as well as focus groups and interviews with adolescents.

Results: We detected significant ($p < .05$) pre-post gains in adolescents' knowledge of P2F4A curricular content and selected coping skills, such as relaxing and solving family problems. Our focus groups and interviews revealed that P2F4A helped adolescents build stronger interpersonal relationships with peers and the content was directly applicable to real life.

Conclusion: Our new findings suggest that college and career readiness curriculum interventions—if appropriately developed for and targeted to underserved adolescents—have strong potential to build underserved adolescents' foundational skills that they can apply towards realizing their future college and career aspirations.

During the transition to young adulthood, adolescents more deeply wrestle with choices about their educational and professional futures. Many underserved adolescents, defined as those with inequitable access to educational resources (Deil-Amen & DeLuca, 2010), face limited choices about their educational and professional futures due to their lack of access to interventions and supports that develop their college and career know-how (Gee et al., 2020). Interventions like college and career readiness (CCR) curricular programs can help youth build positive attitudes, behaviors, and skills as well as explore their emergent college and career aspirations (Bates, Anderson-Butcher, Niewoehner-Green, & Provenzano, 2019; Oyserman, Terry, & Bybee, 2002). Although several CCR curricular programs have been developed and implemented for youth more broadly (e.g., Perry, Wallace, & McCormick, 2018), we

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know less about how these programs can be tailored to and benefit underserved adolescents, many who may need supports beyond academic skill building in areas not always emphasized in mainstream CCR curricular programs such as social-emotional and life skill development.

The purpose of our study is to evaluate a pilot intervention of a semester-length CCR curriculum targeting underserved adolescents in 9th to 12th grades called Paths to the Future for All (P2F4A). P2F4A takes a developmental approach to college and career readiness. The curriculum provides adolescents with the procedural know-how of college and career planning, such as obtaining information on college and career pathways, woven together with lessons that build social-emotional behaviors and dispositions to support youths' positive trajectories towards their futures.

Two central research questions guide our pilot study:

1. To what extent do adolescents' content knowledge of college and career readiness, vocational aspirations and social-emotional outcomes (e.g., coping) change prior to and after their exposure to P2F4A?
2. Based on their own personal perspectives, how does adolescents' experience of P2F4A influence their personal growth?

1. Background and context

1.1. Who are underserved adolescents?

Deil-Amen and DeLuca (2010) refer to underserved adolescents as the "educational underclass" (p. 27)—students who lack exposure to either solid academic preparation for college or rigorous career training and guidance. The "educational underclass" is a large group, estimated to be 40% of high-school students across the US (Deil-Amen & DeLuca, 2010). Their demographic profile includes those marginalized from the education system who face a cumulative risk of dropping out and often, they face limited socio-economic opportunities for upward mobility, are learning English as a second language or come from minoritized backgrounds (Deil-Amen & DeLuca, 2010).

1.2. The CCR needs of underserved adolescents: educational debt and a developmentally informed systems change approach

Conceptually, the limited availability of CCR programs targeted to students who fall into the disadvantaged underclass (Deil-Amen & DeLuca, 2010) can be understood within the framework of *educational debt* (Ladson-Billings, 2006). Educational debt refers to the "the foregone schooling resources that we could have (should have) been investing in (primarily) low-income kids, which leads to a variety of social problems" (Haveman, 2006; as cited by Ladson-Billings, 2006, p. 5). Thus, based on this notion of debt, investments in CCR should be occurring, but are not. More troubling, though, is that the underlying source of the debt is structural, grounded in historical, socio-political and moral (Ladson-Billings, 2006) shortcomings of the very systems that are set up to promote the wellbeing and development of all students. The resulting inequalities that arise from this debt and its consequences for adolescent development are clear (National Academies of Sciences, 2019). Adolescents who face limited access to supports—both related to CCR and the educational system alongside the health, child welfare and justice systems—can face a host of negative outcomes across of range of social domains (National Academies of Sciences, 2019). In particular, the structural disadvantages of limited supports for CCR in high school can constrain later educational and labor market opportunities (Conley, 2008) leading not just to lower socio-economic wellbeing of one generation, but potentially spilling over into subsequent generations as well, perpetuating a cycle of disadvantage.

Dismantling structural equities borne out of the educational debt requires shifts in the very institutions responsible for generating inequalities in the first place. From a developmental standpoint, this involves restructuring systems so that they can facilitate the wellbeing and positive development of adolescents. Theoretically, based on Bronfenbrenner's ecological model of development (Bronfenbrenner & Morris, 2006), institutions directly involving the child, known as their *microsystems*, such as their schooling environments, can be highly influential drivers of development. Altering adolescents' schooling microsystems and promoting positive interactions therein—the core drivers of development—have strong potential in placing adolescents on positive developmental pathways. This can be accomplished via a *developmentally informed systems change* approach (National Academies of Sciences, 2019), a blueprint for how institutions like schools can generate developmentally appropriate conditions and experiences for adolescents that center on key themes, including: building "cognitive, social and emotional skills necessary for productive contributions in adulthood"; making "decisions and to take responsibility for shaping one's own life"; and engaging in "forming personal identity" (National Academies of Sciences, 2019, p. 157).

While educational debt persists, schools have made significant strides in promoting students' readiness for college and career through a broad array of CCR strategies. Examples of programs that have been shown to boost readiness include the federally sponsored Gaining Early Awareness and Readiness for Undergraduate Program (GEAR UP), long term mentoring initiatives (Radcliffe & Bos, 2011), work based learning programs (Gemici & Rojewski, 2010), and school-based CCR curricula, like the P2F4A program. Schools have also increasingly recognized that readiness also requires building students' cognitive strategies (e.g., problem solving) alongside contextual awareness (e.g., navigating college and work environments) (Conley, 2007) which is consistent with the developmental informed systems change approach. Further, some programs have made intentional efforts and investments in moving beyond academic skill-based initiatives to promote college and career readiness, interweaving social-emotional content into CCR programming (Dymnicki, Sambolt, & Kidron, 2013).

Among the range of CCR interventions, an emergent body of evidence shows that CCR curricula in particular can positively

influence students' outcomes. These kinds of programs emphasize the building of behaviors that align with a developmental systems change approach by incorporating lessons and activities aimed at promoting adolescents' social-emotional behavioral development, decision making and identity development. Here, we review recent evidence of three CCR curriculum interventions that have features in common with the P2F4A program particularly as they relate to enhancing adolescents' social-emotional skills: (a) Making My Future Work, (b) Youth Leadership Academy, and (c) School to Jobs.

Making My Future Work (MMFW; Perry et al., 2018), helps youth from low-income urban settings build their self-awareness and behavioral skills as they relate to college and careers thereby promoting their school engagement and persistence. The MMFW curriculum, comprising of four modules and 80 lessons, offers instructors with flexibility in implementing selected modules and lessons in order to more effectively meet the unique needs of their students (Perry et al., 2014). Researchers evaluated MMFW across four schools in an urban city in the Midwest using a convenience sample of 213 youth who were exposed to the curriculum and 216 in a comparison group. Both groups were taught by the same teacher who used the MMFW curriculum with one class while implementing a "business as usual" curriculum with another class. A sample of 9th and 11th graders who participated in MMFW, relative to their comparison group counterparts, had a higher internal career locus of control and stronger career planning abilities (9th graders only). Participants also more strongly identified with a career.

Youth Leadership Academy (YLA) is an extension of a sports-focused Positive Youth Development (PYD) program that incorporates activities promoting college and career readiness alongside leadership training (Bates et al., 2019). YLA targets youth in urban communities and its participants engage in college and career readiness activities across 9 monthly 2-h long sessions offered throughout the academic year (September to May) (Bates et al., 2019). An evaluation of YLA using pre- and post-program surveys ($n = 19$) alongside interviews with participants showed that as a result of participating in YLA, adolescents felt more prepared for different college and career pathways (Bates et al., 2019). This finding is consistent with those of the MMFW program. Beyond strengthening their career-related outcomes, adolescents also improved their communication skills, problem solving and self-efficacy prior to and after participating in YLA.

Finally, School to Jobs (STJ), an activity-based group intervention targeting African American middle school adolescents from neighborhoods experiencing high levels of poverty (Oyserman et al., 2002). Through the STJ program, adolescents envision their futures (i.e., students' "future selves") and then practice skills they need to engage in and complete high school. Using a pre-post comparison group design, Oyserman et al. (2002) found that adolescents who attended the nine-week intervention reported a balanced sense of their possible future selves and developed more plausible strategies to attain these possible selves (Oyserman et al., 2002).

The positive results of these three CCR curricula suggests that by intentionally promoting and scaffolding students' college and career readiness, adolescents can achieve clarity with their career aspirations. Also, CCR curriculum interventions that weave in lessons about social-emotional skills can directly enhance adolescents' problem solving abilities and self-efficacy. However, what remains unanswered is whether these kinds of CCR curricular interventions can more broadly benefit some of the most vulnerable and underserved adolescents, particularly those that face challenging academic and life circumstances. We also have a limited understanding of how CCR curricular interventions can shape a broader range of outcomes and experiences, utilizing both quantitative and qualitative approaches.

2. The Paths to the Future for All (P2F4A) curriculum

P2F4A promotes adolescents' social-emotional development in areas such as self-awareness, goal setting and persistence as well as builds their knowledge of how to prepare for college and career pathways after high school (Gee et al., 2020). The research team iteratively designed P2F4A by modifying and expanding a version of the curriculum originally developed for young women with disabilities, Paths to the Future (P2F) - Girls (Lindstrom, Hirano, Ingram, DeGarmo, & Post, 2019). P2F4A targets 9th to 12th graders who face one or more of the following challenges that increase their likelihood of disengaging from school: (a) low school achievement, (b) retention or over age for grade, (c) low school attendance, (d) pattern of behavior referrals or suspensions, (e) low family socioeconomic status, and (f) identified with a learning or emotional disability. Table 1 includes a list of units, chapters and example lesson topics in the P2F4A curriculum.

P2F4A is designed to be taught within a classroom setting in a daily 50-min class period over one semester and contains three units:

Table 1
P2F4A curriculum: Units, chapters and example topics.

Unit	Chapter	Example topics
Unit 1. My Story – My Strengths	Ch. 1: Hello Self!	Self-awareness
	Ch. 2: Say What?!	Interpersonal skills and communication skills
	Ch. 3: Finding my Strengths	Understanding personal strengths
Unit 2. Navigational Tools	Ch. 4: Mindfulness	Coping skills and stress management
	Ch. 5: Skills for Success	Decision making and goal setting
	Ch. 6: Our Diverse World	Diversity, personal identity, mentors and role models
Unit 3. My Destinations	Ch. 7: Exploring All My Options	Option exploration, connections to school and work, and career exploration
	Ch. 8: Job Success	Cover letter, applying for a job, interviewing
	Ch. 9: College Options	College options, admission process, and financing

1. My Story - My Strengths (22 lessons). This unit introduces P2F4A and presents concepts designed to build interpersonal skills. It includes several team building and self-awareness activities as well as lessons focused on critical skills for post-school success including communication skills and understanding personal strengths.
2. Navigational Tools (20 lessons). This unit focuses on building students' coping skills and introduces concepts of diversity and personal identity. It includes mindfulness and stress management activities as well as lessons focused on setting goals as well as the importance of mentors, role models and support networks.
3. My Destinations (22 lessons). This final unit presents concepts focused on skills and knowledge needed to enter careers or post-secondary education. It includes mock interviews, expert panels, and a college campus tour as well as lessons focused on career mapping, workplace basics and the college admission process.

2.1. Conceptual foundations of P2F4A: Social cognitive career theory and possible selves

The design and structure of P2F4A is motivated by core tenets of social cognitive career theory (SCCT; Lent, Brown & Hackett, 1994) and possible selves (Markus & Nurius, 1986).

SCCT is an integrated career development framework that describes how people, their behavior, and environments mutually influence each other to shape their occupational and academic interests, choices, and attainment of career goals (Lent, Brown, & Hackett, 2002, pp. 255–311). Based on Bandura's general social cognitive theory of learning, SCCT "highlights relatively dynamic and situation specific aspects of both people (self-views, future expectations and behaviors) and their environments" (Lent, 2005, p. 103). Thus, SCCT accounts for the influence of individuals' identities and contexts such as race and ethnicity, gender, disability, and socioeconomic status, while also accounting for significant learning experiences that shape career behaviors and academic aspirations. Central to SCCT are the concepts of self-efficacy (beliefs about one's own capacities) and outcome expectations (imagined consequences of actions); both affect people's career interests and choices. Career interests and choices are, in turn, important predictors of career actions such as completing educational programs and pursuing specific careers (Lent et al., 2002).

P2F4A is also informed by the theory of *possible selves* (Markus & Nurius, 1986) which focuses on individuals' own conceptualization and aspirations of who they want to become in the future, both in the short and long term (Oyserman & Fryberg, 2006, pp. 17–39). Possible selves includes critical aspects of identity formation related to colleges and careers, including adolescents' imagined occupational and academic selves (Oyserman, Bybee, Terry, & Hart-Johnson, 2004). Further, like SCCT, possible selves acknowledges the systemic forces shaping how individuals see themselves in the future, such as underlying norms and social contexts (Anderman, Anderman, & Griesinger, 1999) as well as the kinds of supports and structures that individuals need to navigate the journey to attain those selves.

2.2. Present study

Our present study has two aims. First, we evaluate whether underserved adolescents who participated in the P2F4A curriculum experienced significant changes in their career-related and social-emotional outcomes. We not only examine outcomes that appear in prior studies of CCR interventions, like self-efficacy, but also their coping abilities and engagement. Second, we develop a more robust understanding of the curriculum effects by capturing adolescents' viewpoints about how the curriculum shaped their personal growth and development. Given the core tenants of SCCT and the theory of possible selves alongside existing empirical evidence of similar CCR curriculum interventions, we hypothesized that adolescents who were exposed to P2F4A would experience positive changes in their career-related expectations and social-emotional outcomes, such as their coping behaviors and engagement. Further, we hypothesized that engaging in the curriculum would promote their personal growth as they imagined their future career and educational pathways after high school.

Table 2
Characteristics of participating schools (N = 5).

Characteristics	School 1	School 2	School 3	School 4	School 5
	%	%	%	%	%
American Indian or Alaska Native	3.42	1.66	0.00	1.51	2.19
Asian	0.85	1.11	0.00	1.44	1.46
Black	0.00	0.00	4.22	1.37	4.38
Hispanic	20.51	13.85	74.65	31.56	6.57
Native Hawaiian or Pacific Islander	0.00	0.27	0.00	0.79	0.00
White	67.52	78.12	18.31	55.64	85.40
Two or More Races	7.70	4.99	2.82	7.69	0.00
Female	57.26	49.59	53.52	50.32	48.90
Male	42.73	50.42	46.48	49.68	51.10
Free and Reduced Priced Lunch	84.61	44.32	67.61	67.79	61.31

3. Research design

3.1. Sites

We used a purposeful sample (Patton, 2014) of five schools in the Western region of the United States that served our target population of underserved adolescents. Each participating school agreed to offer one semester-length course for credit that followed the P2F4A curriculum model. The curriculum was taught by a school employee such as teacher or school counselor who received a 3–4 h training on the curriculum alongside ongoing technical assistance from the research team. Three of our sites were comprehensive high schools while two were alternative education programs that served youth including those with disciplinary challenges, teenage parents and those involved with the juvenile justice system. Table 2 displays the demographic characteristics of the five schools in the study. Other than School 3, the schools in our sample served predominately White students. Four of the five schools included equal proportions of males and females. Most participating schools had over 60% of students who were eligible for free or reduced-priced lunch (FRPL), except school 2 which had 44% of students eligible to receive FRPL.

3.2. Samples and procedures

At each of our five schools, a school counselor or teacher who was knowledgeable about students' backgrounds selectively recruited students who were experiencing challenging academic or life circumstances (e.g., absenteeism, pattern of suspensions, etc.) and informed them of the opportunity to enroll in the P2F4A curriculum. Across the five participating schools, 61 students were referred to the study. We obtained student assent for students over 18 and for those under 18, student consent with a parental waiver. The Institutional Review Board at the investigators' primary institution approved the project and determined that the project carried only minimal risk to participants. As an incentive for participating in the study, students received a $20 gift card for participating in each data collection activity.

Table 3 provides a description of adolescents' challenges and barriers as reported by their teacher or school counselor. The most frequent academic challenge among the sample was absenteeism (62.3%) followed by credit deficiency (54.1%). The most frequently reported family and living challenges were low socio-economic status (SES) at 52.5% and difficult family circumstances at 47.5%. Also, 21.3% of students were reported to have past or current substance abuse. Students also experienced overlapping challenges and barriers. For example, a preliminary cluster analysis revealed a main cluster around academic challenges ($n = 16$; all experienced absenteeism, disciplinary issues and credit deficiency) as well as detention ($n = 12$; half in this group also experienced absenteeism alongside credit deficiency).

Table 4 summarizes the demographic background characteristics of the students in the sample who participated in surveys prior to and after participating in P2F4A. The sample was predominantly female (57.4%). By race, the sample was predominately White (63.9%) and by ethnicity, Hispanic (36.7%). A majority of students were 16 years old and in 11th grade.

We invited students through an announcement via the P2F4A instructor to participate in focus groups and individual interviews to gather their perceptions of the program. Interviews were conducted by five members of the research team (3 males and 2 females), all with previous experience working in schools with underserved youth. The team included members with doctoral degrees in education and training in educational research. Due to absenteeism and other scheduling challenges, 33 of the 61 adolescents in the sample were available to participate in either a focus group or interview. With this convenience sample, we conducted four focus groups, ranging

Table 3
Challenges and barriers experienced by sample participants (N = 61).

Challenge or Barrier	*n*	%
Academic		
Absenteeism	38	62.3
Suspensions or expulsions	18	29.5
Detention	24	39.3
History of dropping out	8	13.1
Credit deficient	33	54.1
Family and living		
Difficult family circumstances	29	47.5
Low SES	32	52.5
Homelessness	7	11.5
Student in foster care	5	8.2
Moved a lot	13	21.3
No means of transportation	3	4.9
Substance abuse and/or pregnancy		
Past or current substance abuse	13	21.3
Past or current pregnancy or parenting responsibilities	4	6.6
Health		
Mental health issue[a]	20	32.8
Chronic health issue	6	9.8

Note. [a]The term "mental health issue" was left up to the interpretation of the teacher or school counselor and could include either a learning or behavioral issue.

Table 4
Demographic characteristics of study participants.

	Quantitative Surveys		Qualitative Focus Groups or Interviews	
	$N = 61$	%	$N = 33$	%
Age				
14	2	3.3	1	3.2
15	11	18.0	7	22.5
16	22	36.1	9	29.0
17	20	32.8	8	25.8
18	6	9.8	4	12.9
Not reported			2	6.4
Grade				
9th	8	13.1	5	15.2
10th	19	31.1	11	33.3
11th	27	44.3	12	36.3
12th	6	9.8	1	3.0
Other	1	1.6	4	1.2
Not reported				
Gender Identity				
Female	35	57.4	16	55.2
Male	23	37.7	12	41.4
Transgender	1	1.6	1	3.4
Not reported	2	3.2	4	1.2
Ethnicity				
Hispanic	22	36.7	6	20.7
Race				
White	39	63.9	19	65.5
Black	5	8.2	1	3.4
American Indian or Alaska Native	4	6.6	1	3.4
Multiracial or Another Race	12	18.0	2	6.8
Not reported	1	1.6		
Has an IEP or 504 Plan	18	29.5		

from 4 to 11 students, and three individual interviews. Focus groups were conducted by research team members at the school sites and lasted, on average, about 32 min. In some instances, we conducted individual interviews which allowed participants to more freely express their opinions. Participants were provided with pilot tested questions and prompts, and focus groups and interviews were audio recorded. Participants did not know any of the research team members prior to their involvement in the study and at the beginning of the interviews or focus groups research team members informed participants that they were interested in understanding

Table 5
Reliabilities of measures.

Measure	Number of Items	Reliability
Vocational Skills Self Efficacy	31	.96
Vocational Outcomes Expectations	6	.75
Curriculum based measure	6	.87
A-COPE		
Ventilating feelings	6	.21
Seeking diversion	8	.53
Developing self-reliance and optimism	6	.82
Developing social support	6	.76
Avoiding problems	5	.51
Seeking professional support	2	.25
Engaging in demanding activity	4	.75
Being humorous	2	.75
Relaxing	4	.51
Solving family problems	5	.82
Investing in close friends	2	.65
Student Engagement Instrument		
Teacher-student relationships	9	.89
Peer support at school	6	.91
Family support for learning	4	.84
Control and relevance of school work	9	.86
Future aspirations	5	.84
Intrinsic motivation	2	.76
Self-Efficacy Questionnaire		
Social	8	.84
Emotional	8	.86

their experiences of the P2F4A curriculum. Repeated interviews were not utilized. Table 4 summarizes demographic characteristics of the focus group or interview participants.

Teachers who implemented P2F4A were provided with a full day training on the curriculum as well as ongoing technical assistance from the study team to support classroom implementation of the curriculum. Participating students were exposed to varying levels of the curriculum given variable student attendance as well as accommodations teachers made to account for factors like school holidays and standardized testing.

4. Measures

4.1. Quantitative

Our study included six primary outcome measures. Table 5 lists each of scales and associated subscales along with the internal consistency reliabilities based on our sample. While some of the reliabilities are below 0.80, a limitation of this study, we still included them given the exploratory nature of this pilot study.

Vocational Skills Self Efficacy. Vocational skills self-efficacy was measured with a 31-item scale (McWhirter & Chronister, 2003). For each item, respondents rated their confidence in completing various career-related tasks on a 5-point scale (1 = *no confidence at all*; 5 = *complete confidence*). Internal consistency reliability (i.e., Cronbach's alpha) for the 31 items was $\alpha = 0.96$.

Vocational Outcomes Expectations. Vocational outcome expectations were measured with a 6-item scale (Ali, McWhirter, & Chronister, 2005; McWhirter, Crothers, & Rasheed, 2000). Participants rated on a 4-point Likert scale on how much they agreed (1 = *strongly disagree*; 4 = *strongly agree*) with a set of statements about their career-related expectations and outcomes. Higher scores indicate more positive expectations about their anticipated career trajectories. Cronbach's alpha for the 6 items was 0.75.

Content Knowledge of the P2F4A Curriculum. We developed a 6-item instrument to measure students' confidence in their understanding of content covered in the curriculum. Items were rated on a 5-point confidence rating scale (1 = *not confident at all*; 5 = *complete confidence*). The internal consistency reliability of the instrument was $\alpha = 0.87$ indicating strong internal consistency.

Coping Behaviors. We used the Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987) to understand participants coping behaviors. The 54-item A-COPE instrument includes 11 subscales capturing how frequently students used coping behaviors when facing difficulties or feeling tense, such as: ventilating feelings, seeking diversion and developing self-reliance and optimism. Each item was rated on a 5-point Likert scale (1 = *never*; 5 = *most of the time*). Reliabilities of each subscales are listed in Table 5.

Student Engagement Instrument. We measured student engagement in school and learning using the Student Engagement Instrument (SEI; Appleton, Christenson, Kim, & Reschly, 2006) which included 6 subscales. These subscales are summarized in Table 5 alongside their reliabilities. Each item of the subscale was rated on a 4-point Likert scale of agreement (1 = *strongly disagree*; 4 = *strongly agree*).

Self-Efficacy Questionnaire. Students' self-efficacy was captured using the Self-Efficacy Questionnaire for Children (SEQ-C; Muris, 2001) which had 2 subscales. The subscales were rated on a 5-point Likert scale (1 = *not at all*; 5 = *very well*). The first subscale was *social,* which was measured with 8 items and had a reliability of 0.84. The second subscale was *emotional* which was measured with 8 items. The reliability of this subscale was $\alpha = 0.86$.

5. Data analytic plan

5.1. Quantitative

We used paired sample *t* tests to analyze whether adolescents experienced pre-post changes in our selected measures and adopted a standard significance level (0.05) to test the null hypothesis that the pre-post change was zero. Before conducting these analyses, we screened the data for normality and outliers. Overall, the pre- and post-data on each measure approximated normality, and there were a few outliers (defined as *z*-scores greater than 3.0). We restricted our analyses to students who had both pre- and post-data ($n = 46$).

Of the 61 adolescents who completed the pre survey, 15 (24.5%) did not complete the post survey. To assess whether attrition was systematic or not, we compared the demographic characteristics and baseline measures of those who completed both surveys to those who did not. Compared to those who completed both surveys, adolescents who did not complete both surveys were more likely to be students of color ($p = .026$; 60.0% vs. 28.3%); less likely to be living with their father ($p = .045$; 26.7% vs. 56.5%); and had higher developing self-reliance and optimism scores on the A-COPE ($p = .021$; $M = 23.7$ vs. 19.9).

To account for the clustering of adolescents within schools, we assessed the robustness of the results from our paired *t* tests to results from 2-level hierarchical linear models (HLM). We first generated change scores for each of our outcomes (i.e., the post outcome minus the pre outcome). Then, using these change scores, we fit random intercept only models for child *i* in school *j* that included a grand mean (γ_{00}), a random effect for school (u_{0j}) and residual variation at the student level (r_{ij}). The model in composite form was as follows:

$$\Delta\text{OUTCOME}_{ij} = \gamma_{00} + u_{0j} + r_{ij}$$

In this model, the grand school level mean (γ_{00}) captures the average pre-post change. We tested whether the estimate of this change significantly differed from zero at a conventional 0.05 level of significance.

5.2. Qualitative

Focus group and interview data were coded and analyzed using a grounded theory approach (Charmaz, 2006; Glaser, 2001), and a two-stage process (Miles, Huberman, & Saldaña, 2020). First, we developed a broad set of descriptive codes based on our initial review of the transcripts. Then we used descriptive codes, such as "positive aspects of curriculum" and "student impact," to assign concrete labels to individual passages of text utilizing Dedoose, a web based qualitative software program. To ensure that analysis and interpretations were not idiosyncratic or biased, all interview transcripts were independently coded by two members of the research team following a common coding scheme. In the second phase of analyses, we used cross case methods (Miles et al., 2020; Patton, 2014) to further describe and verify our findings. During this phase, we conducted a second level of coding and analysis to identify specific sub themes within each of the broader categories. After completing this second level of detailed analysis, we created a written summary documenting key themes and sub-themes identified across respondent groups, including supporting quotes from the coded transcripts. Participants did not provide feedback on focus group/interview transcripts, or the themes and sub-themes identified.

6. Results

6.1. Quantitative pre-post surveys

Table 6 displays descriptive statistics for each outcome, pre and post, along with relevant test statistics from the paired *t* tests. T-tests that differ significantly from zero ($p < .05$) are in bold. The point-biserial *r* is also provided as a measure of effect size and uses the convention: 0.10 (small), 0.30 (moderate), and 0.50 (large) (Cohen, 1988).

We found that adolescents' confidence in understanding key curricular concepts about college and career readiness positively changed from pre ($M = 3.24$, $SD = 0.99$) to post ($M = 3.49$, $SD = 0.91$), $t\,(45) = 2.18$, $p < .05$. However, their vocational outcome expectations negatively changed from pre ($M = 3.26$, $SD = 0.48$) to post ($M = 3.07$, $SD = 0.62$), $t\,(45) = 2.65$, $p < .01$. In terms of effect sizes, these results represent moderate effects.

Several coping behaviors also significantly changed. We detected positive changes in whether adolescents sought out diversions (e.g., reading, shopping, etc.) and relaxing experiences (e.g., listening to music) when facing difficulties. Their scores on the seeking diversions subscale of the A-COPE significantly and positively changed from pre ($M = 23.67$, $SD = 4.76$) to post ($M = 25.47$, $SD = 5.17$), $t\,(45) = 2.42$, $p < .05$ while on the relaxing subscale, scores increased from pre ($M = 13.31$, $SD = 2.14$) to post ($M = 14.02$, $SD = 2.17$), $t\,(45) = 2.51$, $p < .05$. Similarly, we found a positive change in whether they solved family problems pre ($M = 16.33$, $SD = 5.75$) to post ($M = 18.41$, $SD = 6.43$), $t\,(45) = 2.55$, $p < .05$. Finally, we found that they were more likely to avoid problems, from pre ($M = 19.57$, $SD = 3.42$) to post ($M = 18.08$, $SD = 4.18$), $t\,(45) = 2.99$, $p < .01$ (note: items on the avoiding problems scale were reverse coded so lower scores mean that adolescents were *more* likely to avoid problems). All of these results reflect moderate effect sizes.

Table 6
Results from paired T-tests.

Measure	Pre		Post		Test Statistics			
	M	*SD*	*M*	*SD*	*t*	*p*	r_{pb}	
Vocational Skills Self Efficacy	3.40	0.84	3.30	0.83	0.96	.340	.14	
Vocational Outcomes Expectations	**3.26**	**0.48**	**3.07**	**0.62**	**2.65**	**.010**	**.37**	[a]
Content Knowledge of P2F4A Curriculum	**3.24**	**0.99**	**3.49**	**0.91**	**2.18**	**.034**	**.31**	[a]
A-COPE								
Ventilating feelings	18.34	3.29	18.11	3.27	0.53	.598	.08	
Seeking diversion	**23.67**	**4.76**	**25.47**	**5.71**	**2.42**	**.020**	**.34**	[a]
Developing self-reliance and optimism	19.88	5.31	20.77	4.95	1.42	.162	.21	
Developing social support	21.57	5.28	21.82	5.31	0.42	.670	.06	
Avoiding problems	**19.57**	**3.42**	**18.08**	**4.18**	**3.06**	**.004**	**.42**	[b]
Seeking professional support	4.39	1.95	5.11	2.42	1.99	.053	.28	
Engaging in demanding activity	12.28	3.89	12.93	3.61	1.26	.216	.18	
Being humorous	7.56	2.16	7.71	2.05	0.53	.596	.08	
Relaxing	**13.31**	**2.14**	**14.02**	**2.17**	**2.33**	**.025**	**.33**	[a]
Solving family problems	**16.33**	**5.75**	**18.41**	**6.43**	**2.55**	**.014**	**.36**	[a]
Investing in close friends	7.28	2.26	7.48	2.16	0.61	.547	.09	
Student Engagement Instrument								
Teacher-student relationships	2.80	0.56	2.74	0.64	0.92	.365	.14	
Peer support at school	2.74	0.68	2.76	0.67	0.27	.790	.04	
Family support for learning	2.96	0.68	2.92	0.76	0.36	.720	.05	
Control and relevance of school work	2.80	0.47	2.70	0.63	1.17	.248	.17	
Future aspirations	3.06	0.61	2.95	0.75	1.56	.126	.23	
Intrinsic motivation	2.94	0.85	2.78	0.83	1.20	.238	.18	
Self-Efficacy Questionnaire								
Social	24.28	6.66	24.76	6.98	0.47	.643	.07	
Emotional	23.62	6.92	24.27	6.90	0.83	.411	.12	

[a] $p < .05$.
[b] $p < .01$.

Finally, some changes were statistically indistinguishable from zero. For instance, certain coping behaviors, including developing self-reliance and optimism did not show significant improvement. Also, we did not detect significant changes in their engagement or self-efficacy.

To assess how robust each of the significant results in Table 6 was to the clustering of children within schools, we fit a series of HLM models. These results are summarized in Supplemental Table 1 A. One result—a negative change in vocational outcome expectations that was statistically significant using a paired *t* test—was no longer significant at conventional levels of significance. The rest of the HLM estimates remained robust, in terms of their magnitude, direction, and significance, with the paired *t*-test results.

6.2. Qualitative focus groups and interviews

Qualitative data from focus groups and interviews revealed several key themes demonstrating how P2F4A influenced adolescents' connections with each other, their postsecondary readiness, as well as their personal growth and development. First, we outline the major components students identified as enhancing their postsecondary readiness. Then, we describe how students developed new skills and grew personally through their participation in P2F4A. Within each category, we describe and elucidate the primary themes that emerged through grounded theory analysis.

6.3. Enhancing postsecondary readiness

P2F4A helped students reflect more deeply on college and career readiness. Lessons and discussions offered structured opportunities to explore a variety of future career options and learn about pathways to achieve these hoped for post-school outcomes. For students who had already started thinking about college and careers, experiences with the curriculum deepened and reinforced their plans. P2F4A also focused on teaching attitudes, behaviors, and strategies to build skills and dispositions that students will take with them beyond their formal schooling. Students reflecting on their experience in the P2F4A course described postsecondary readiness benefits according to two main themes: (a) enhanced career knowledge, and (b) relevance of course topics to real life.

Enhanced career knowledge. A student shared: "*Coming into this class, I knew what I wanted to do, and I still want to do that. But this class made me want to do it more, just because thinking through it, (…) I can see where I could be going.",* while another noted: *"it will teach you a lot about your future, and things you need to do to get to where you want to be."*

Relevance of course topics to real life. Students described that the content and structure of the P2F4A curriculum offered some unique benefits that supported their development. Students highlighted several aspects of the curriculum not found in any of their other high school classes, including lessons focusing on future goals and interests, as well as how to engage in healthy relationships, and deal with sexual harassment. One student commented that "*This class is more based on your life and the life of other people around you, and what you're going to do in your future. So you have to put a lot more thought into it.*"

Participants felt that P2F4A curriculum content could be immediately applied to real life contexts and was directly applicable to situations outside of class:

> "I see things that we learn about in class that are relevant outside of the class."
>
> "Sit down, pay attention actually listen to what they have to say because all this stuff can actually change you. It will better you as a person whole, wholly."

One student explained the impact of the class on how she thinks about her current relationships:

> … touching on the subject of unhealthy relationships and things like that. You don't ever really think about relationships like that. But when you're reading through a paper that identified traits of unhealthy relationships [in class], you're like … 'Are these people toxic to me? Are these people helping me? Am I helping this person?' Because it's important to see that you can be a victim or you can be making someone else the victim.

6.4. Individual skill development and personal growth

We asked students to describe the most important thing they learned about themselves through the P2F4A course and two main themes emerged: (a) strengthened communication skills, and (b) building relationships both inside and outside the classroom.

Strengthened communication skills. Communication is vitally important in sustaining relationships in all aspects of daily life. Focus group participants expressed how the class supported their communication skill development and enabled them to share personal experiences in a non-judgmental setting. For instance, one student noted: "*I liked how open we could be with each other. No one really judged each other, so we could say our own honest opinion about things.*" When reflecting on their own experiences, another participant believed that the class *"helped everyone open up. Like, we'd start talking about a certain subject and everyone would just kind of like, chime in, and they'd give their own personal experience*." Engaging class activities and discussions also helped students form closer connections with their classmates. One student likened the class to a mini community and explained, *"… well, I learned that I can communicate with others, I started to get that more from this class, just communicating with other people, my peers and also the instructors."*

Focus group participants expressed that they felt valued and listened to in new ways in the P2F4A class. Course activities provided students with the opportunity to express their opinions—opinions that were valued. For instance, one student told us: *"Path[s] to the Future they discuss … our issues and connect to us on different levels and they talk to us and they listen … so it's pretty cool*".

Building relationships both inside and outside the classroom. Within the P2F4A class, certain students identified a bond that

formed between students. One student shared, *"With the fellow classmates, I think it bonds us because we all shared stuff that we probably didn't want to share."* Another student explained, *"It helped me a lot too, and I got to discuss stuff that I probably wouldn't have shared with anybody else. It helped me bond with other students that I'd never talked to before and on a more personal basis."*

For some students, these newly found communication skills influenced their relationships outside of class, including with peers and family members. One student remembered that, "*I took a lot of [P2F4A] stuff home and shared it with my family and we got closer too."* A different student explained, *"This class has made me more open with my friends because usually I try to hide away how I'm feeling with my friends and not tell them about my problems. But this class has made me a lot more open with that."* Another student reflected on how the course influenced his relationship with his younger brother:

> I'm saying this [class] actually changed the way I looked at things. It made me look and see now, I have a younger brother and he was looking up to me and I was not doing good. I wanted to change so that he's actually better himself too. So that's why I'm going to college and I'm going to graduate and all that.

7. Discussion

Through our pilot study of the P2F4A curriculum, we contribute to an emergent evidence base on the effectiveness of college and career readiness curricular programs and advance our understanding of how these programs can benefit undeserved adolescents, a group who often faces limited access to tailored supports that enable them to acquire core skills, especially social-emotional focused ones, that can promote successful transitions into careers or post-secondary education (Dymnicki et al., 2016). We found that prior to and after exposure to the P2F4A curriculum, adolescents experienced a positive change in their knowledge of core college and career readiness curricular concepts. We also detected positive changes in adolescents' coping behaviors, including seeking diversions, relaxing and solving family problems. Through a series of post-intervention focus groups and interviews, adolescents also described the benefits of participating in P2F4A, noting growth in their communication skills, a newly found ability to reflect upon potential career options, and an affirmation that the P2F4A content was useful in real life.

While this study found that underserved adolescents experienced positive gains concomitant with P2F4A, the results of this pilot study should be treated as exploratory and preliminary. More definitive conclusions about the efficacy of the P2F4A curriculum can only be made with study designs using random assignment or quasi-experimental methods.

Nonetheless, our findings showed that several positive changes occurred from before to after exposure to P2F4A, including changes in adolescents' emotion focused coping behaviors (e.g., seeking diversion and relaxing) that can help them manage tension (Patterson & McCubbin, 1987). Evidence of these changes adds support to previous studies whose findings demonstrate that school-based interventions can promote stress management and coping skills among high school students (Zenner, Herrnleben-Kurz, & Walach, 2014). Our findings of changes in emotion-focused coping strategies (e.g., pursuing relaxing experiences) and coping via developing social support (e.g., helping solve family problems) are important because these kinds of strategies can help adolescents regulate stress (Plancherel & Bolognini, 1995). Moreover, given that the challenges and barriers experienced by underserved adolescents in our study could be sources of stress (Stroud et al., 2009), these types of coping strategies offer alternatives to the kinds of maladaptive coping strategies, such as ventilating feelings and substance use, they might pursue in the wake of such stress (Boekaerts, 1996, pp. 452–484). Although we found positive changes in several emotion focused coping behaviors, we also found that post-intervention, adolescents had significantly higher likelihood of avoiding problems. While we did not anticipate this result, the change could have been attributable to other time-varying influences (e.g., negative peer influences) occurring at the same time that students were taking part in the curriculum.

We also detected that their vocational outcome expectations decreased—another change we did not anticipate. Given that career development is a complex interplay between self-efficacy, outcome expectations, and goals (Lent et al., 2002), this finding suggests that students may have been initially more optimistic about their self-efficacy, expectations, and goals; yet, after exposure to the P2F4A curriculum, they were more realistic about their vocational expectations. This decrease is consistent with findings from other CCR curriculum evaluations. For example, Perry et al. (2018) found that 9th graders were less certain about their career choices after exposure to a CCR curriculum. The decline in expectations may be a short-term effect that is part of the natural career developmental process through which adolescents more deeply and iteratively re-examine their college and career interests.

Beyond the changes we detected, it is equally important to acknowledge the changes that we hypothesized would occur, but we were unable to detect. For instance, we did not detect changes in student engagement or social and emotional self-efficacy. One plausible explanation is that some students had limited exposure to the P2F4A curriculum given that teachers implemented it with varying degrees of fidelity. For example, although all four teachers completed or nearly completed units one and two, only one teacher was able to begin unit three. Further, given that some students experienced overlapping challenges, including detention, disciplinary issues and chronic absenteeism, they may have not been able to fully engage in significant parts of the curriculum that focused on self-efficacy. Finally, given that out-of-school factors also influence student engagement and self-efficacy, the P2F4A curriculum by itself may have been unable to counter numerous competing out-of-school influences on adolescents' engagement or self-efficacy.

Our qualitative findings about P2F4A's influence on interpersonal relationships underscores a benefit of the curriculum that extends beyond enhancing adolescents' knowledge about college and career opportunities. Due to the discussion-based activities embedded in many of the P2F4A curriculum lessons, teachers promoted positive peer relationships by providing students with opportunities to share experiences and bond with each other in ways not typical of their other classroom experiences. Generating these kinds of positive classroom environments where student voice is encouraged and where students develop strong interpersonal bonds can be particularly important in promoting adolescents' well-being (Doll et al., 2009, pp. 213–227).

In summary, by interweaving social-emotional skill development lessons with the practical know-how of college and career planning, the P2F4A curriculum has dual benefits for undeserved adolescents. Beyond changes in adolescents' expectations of career outcomes and boosting their college and career know-how, P2F4A was also associated with changes in adolescents' social-emotional abilities, enhancing their coping skills and opening new avenues to strengthen communication skills and build more supportive peer relationships, both in and out of the classroom. Collectively, these enhanced abilities are all assets that adolescents can leverage as they navigate toward and through college and careers. For instance, building supportive relationships with both peers and family can be essential in promoting underserved adolescents' academic success and adjustment in college (Dennis, Phinney, & Chuateco, 2005). When considered in the context of Bronfenbrenner's ecological model of development (Bronfenbrenner & Morris, 2006) and a developmentally informed systems change approach (National Academies of Sciences, 2019), the P2F4A curriculum program purposefully shapes adolescents' interactions in their schooling microsystems—not just with explicit skill-building in key social-emotional abilities, but also in the ways the curriculum was delivered so that students had opportunities to relate to and open up with each other and the teacher in new ways through discussion based activities. This added benefit, a byproduct of how the curriculum was designed to be taught, underscores the importance of scaffolding discussions that lead to positive classroom-based interactions so that they are supportive of adolescents' growth and development. Finally, given our qualitative finding that the reach of the P2F4A content extended into adolescents' families—by both sharing curriculum content with family members and enhancing the desire to be a role model for younger family members—the curriculum proved to be a strong conduit between adolescents' schooling and family microsystems.

From a practitioner standpoint, a key implication of our findings for CCR curricular programs is that the content of the curriculum and the specific learning strategies supporting the content are equally important in shaping adolescents' outcomes. Communicating hopes, dreams and aspirations around college and careers is a personal endeavor that can help adolescents connect more deeply and personally with each another in ways that they might not be able to do so via classroom experiences tied to their standard academic coursework. Delivering content via active learning strategies, especially discussion-based activities, is critical because those kinds of classroom interactions can help promote and reinforce communication skills as well as strengthen relationships with peers—all skills that can help them navigate future college and career pathways. Given the importance of content delivery, another implication for practice is how CCR curricula programs like P2F4A identifies and trains educators who engage adolescents in curriculum content. The curriculum's discussion-based components alongside the personal nature of the content requires educators who can generate and sustain classroom environments that are supportive and equitable. This involves, in part, supporting educators so that they can build community as well as enhance students' belonging and emotional safety, including affirming students' identities (Collaborative for Academic, Social, and Emotional Learning, 2021).

The transition into young adulthood is a critical developmental period for adolescents as they formulate their identities and plan for their future selves. This period is even more important for underserved adolescents, many who are often marginalized due to long-standing deficit views of their promise and potential (Valencia, 2012). Our pilot study has shown that the P2F4A college and career readiness curriculum can equip underserved adolescents with tools that can aide them in navigating through this transition so they can ultimately fulfill their future college and career aspirations.

Supplemental Table 1A
Results From 2-Level Hierarchical Linear Models (HLM)

	(1)	(2)	(3)	(4)	(5)	(6)
	Vocational Outcome Expectations	Content Knowledge of P2F4A Curriculum	A-COPE (Seeking diversions)	A-COPE (Avoiding problems)	A-COPE (Relaxing)	A-COPE (Solving family problems)
	−0.187	0.322*	1.791*	−1.523**	0.727*	2.267**
	(0.098)	(0.130)	(0.730)	(0.527)	(0.309)	(0.806)
N	45	45	43	44	44	45

Note. Standard errors in parentheses. Models fit to data using a 2-level HLM (students nested within schools).
*p < .05.
**p < .01.
***p < .001.

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