Post-secondary Outcomes of Innovative High Schools: The Big Picture Longitudinal Study

Karen D. Arnold
Erica Brown Soto
Katherine Lynk Wartman
Lucy Methven
Paul Gordon Brown

Boston College

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Abstract

The small school movement is a leading school reform effort intended to reduce educational inequality. The Big Picture Longitudinal Study uses mixed methods to track graduates of a national network of innovative high schools to study whether and how a personalized, interest-based secondary school design is associated with improved post-secondary outcomes for low-income students. Findings show that the Big Picture Learning model is highly effective at fostering positive relationships, helping students discover and pursue their interests, and raising high school graduation and college entrance rates. Results are mixed in the areas of science and mathematics college readiness and in six-year college persistence rates. The study points to the trade-offs characteristic of small schools; the difficulty of sustaining secondary school gains in the post-high school ecology of low-income students; and the shortcomings of traditional colleges in serving this population.

Big Picture Learning (BPL) is a network of innovative high schools that has emerged over the past 15 years as a leading example of the small school movement, a major educational reform effort intended to reduce educational inequality. Initiated with funding from the Lumina and Irvine Foundations, the Big Picture Longitudinal Study tracks graduates of 23 BPL schools to study whether and how this personalized, interest-based secondary school approach is

associated with improved post-secondary outcomes for low-income students. The study was designed to document outcomes of the BPL high school design, to understand the conditions for successful transitions to college and careers, and to inform school improvement. It supports the BPL mission of reducing social inequality through a fundamental redesign of education that provides opportunities for social mobility and self-realization for socioeconomically disadvantaged youth. The primary aim is to influence secondary and post-secondary policy and practice by demonstrating how BPL's innovative design of personalized, relevant schools affects student outcomes on a broad spectrum of personal, vocational, and relationship measures.

This paper seeks to identify the elements of an innovative approach of a high school education for first generation, low-socioeconomic status students that predict positive outcomes for post-high school life. The focus of the research is how these students perform, how the BPL design shapes them, and how ready they are for college and life beyond the Big Picture.

Big Picture Learning

The Big Picture Longitudinal Study follows six years of graduates from Big Picture Learning schools, a growing high school network that has gained national and international attention for success in graduating urban low-income students of color and working in partnership with students to assure their admission to college (Levine, 2002; Littky, 2004; McDonald, 2005). The first BPL high school opened in Providence, Rhode Island in 1996, and the first class graduated in 2000 with a 96% high school graduation rate and 98% college acceptance record (www.bigpicture.org/big-picture-history/). With significant support from the Bill and Melinda Gates Foundation, BPL began spreading the design, which now includes over

fifty schools in the United States and associated schools abroad. Most of the schools are public schools in urban school districts, some started from scratch and others converted from existing schools.

Big Picture Learning schools are designed with several unique characteristics in mind to offer students a personalized, real-world-based high school experience that supports them in aspiring to higher education and helps them succeed in gaining admission to four-year colleges. Students remain together in a small *advisory* with the same teacher and group of fellow students for four years. The advisory is the core of the BPL experience. Another hallmark of these schools is Learning Through Internships (LTIs), which entail real-world placements in students' self-identified areas of interest. These two days a week spent in the working world help students understand their passions, plan career goals for the future, and practice academic skills in settings beyond the classroom. Furthermore, every BPL student is expected to take college entrance examinations, apply to at least one post-secondary institution, and complete financial aid applications. With slight variations across schools, 95-100% of students are accepted into college with financial aid (Arnold, Fleming, DeAnda, Castleman & Wartman, 2009; Washor, Arnold, & Mojkowski, 2008). BPL has also been notably successful in involving parents in schools, a perennial problem for most urban schools (Jun & Colyar, 2002). Advisors are expected to get to know the families of their advisory inside and outside of school. A parent or guardian attends student learning plan meetings and exhibitions, which are arranged to accommodate parents' schedules. Parents are also included in the schools' extensive college information and admission support activities.

The Small School Model

American high schools have been the focus of national attention for decades because of low graduation rates—particularly among students of color—and student performance that lags behind international peers (Bloom & Unterman, 2014). Amid widespread calls for education reform, the creation of small schools has been a popular approach that has received broad support. New York City is an example of an urban public school system that divided its large high schools into smaller "schools within schools" beginning in 2002 (Darling-Hammond, Ancess & Ort, 2002; Unterman, 2014). Funding sources for small school initiatives in cities such as New York, Chicago, and Philadelphia have included private organizations like the Annenberg Foundation and the Bill and Melinda Gates Foundation (Semel & Sadovnik, 2008). The Bill and Melinda Gates Foundation in particular had invested over $1.5 billion by 2006 in a variety of schools nationwide with different approaches to reform. This Gates initiative followed two basic strategies: "the creation of brand-new small schools and the conversion of existing schools into smaller entities" (Shear & Means, 2008, p. 2022). Generally speaking, these small schools possess a shared school-design model and belong to an organization or network, such as the Big Picture Learning network, that provides implementation resources as well as professional development and learning (Ravitz, 2010).

Contemporary small schools deliberately moved away from "a standardized, mechanical view of curriculum" and toward "critical engagement, interactive meaning-making, and self-realization in the context of real-world experiences" (Ravitz, 2010, p. 291). Theodore Sizer and Deborah Meier were among the leading education reformers who catalyzed and influenced the

modern small school movement by creating smaller, more personal schools in the 1980s, based on the belief that "the large, impersonal bureaucratic comprehensive high school was part of the reason for low achievement and high dropout rates in urban schools"(Semel & Sadovnik, 2008, p. 1745). Educational reformers Dennis Littky and Elliot Washor founded Big Picture Learning in 1995 from this perspective; in fact, they incubated the idea at Sizer's Annenberg Institute for School Reform at Brown University.

The current philosophy and structures of the small school movement can be traced to the child-centered progressive schools of the early twentieth century, which typically enrolled fewer than 500 students, were rooted in the educational ideas of John Dewey, and emphasized the problem-solving or inquiry method, individual and group learning, and field trips (Semel & Sadovnik, 2008, p. 1747). Many elements of the early child-centered progressive schools are clearly present in the BPL approach, including the role of teacher as "facilitator rather than the authoritarian figure from which all knowledge flows"; the preference for individual or small group work over formal classroom instruction; flexible physical space; an emphasis on independent study and project work; and a changing curriculum that adjusts to students' interests and needs (Semel & Sadovnik, 2008, p. 1748).

Research findings about the successes and challenges of small schools in the United States have been mixed. In an early example of a longitudinal study of student outcomes, the Progressive Education Administration found that students at thirty high schools given the opportunity to make radical, progressive changes to their learning approaches "achieved in college distinctly higher standing than that of students of equal ability with whom they were

compared" (Aikin, 1942). The contemporary literature began in 1964 with Barker and Gump's book, *Big School, Small School: High School Size and Student Behavior* (Bloom & Unterman, 2014), followed by many studies demonstrating the benefits and shortcomings of small high schools. Regardless of whether the variable school effects findings are an artifact of different reform approaches—for example, the differing contexts of new startup schools contrasted with conversion schools—or the result of different methodologies, it has been difficult for researchers to come to a consensus about the impact of small schools on student outcomes. Studies in the 1980s claimed evidence that "decreasing school size could promote student motivation and achievement, teacher engagement, and effective management practices [and] have a positive impact on lowering dropout rates both in smaller religious and nonreligious schools" (Wyse, Keesler, & Schneider, 2008, p. 1880). Over the next two decades, more studies emerged that asserted small schools were serving students better than larger schools "by creating a sense of belonging, improving interpersonal relations, strengthening teacher commitment, increasing student participation, developing greater program coherence, and modestly increasing student expectations" (Wyse et al., 2008, p. 1881). Small schools purportedly have better attendance and graduation rates, smaller classes, more cohesive academic curricula (Bloom & Unterman, 2014), and increased college application rates (Darling-Hammond, Ancess, & Ort, 2002; Wyse et al., 2008, p. 1895). Some of this work has looked specifically at policy relevant subgroups, such as low-income students of color, and found that small school reform can markedly improve graduation rates (Bloom & Unterman, 2014; Darling-Hammond et al., 2002).

However, for every study demonstrating gains, there has been other research suggesting

caution and presenting "discouraging implications of the return on the investment in these smaller school environments" (Wyse et al., 2008, p. 1894). Mathematics is still the most intractable problem: Gates Foundation schools were found to perform "lower in math and only slightly higher in English and reading than larger schools in the same locations with similar student populations" (Shear & Means, 2008; Wyse et al., 2008, p. 1881). Interestingly, Phillips (1997) uncovered a link between communitarian values and lowered mathematics achievement: "In schools where teacher caring was high, mathematics test scores were low, suggesting that 'teachers in some schools may be more concerned with maintaining affective relations with students than with imparting skills'" (Wyse et al., 2008, p. 1881). This indicator is of particular concern given that mathematics performance often "serves as a 'gatekeeper' for many forms of higher education" (Wyse et al., 2008, p. 1894). Some researchers also had conflicting findings about post-secondary expectations of education, including number and type of colleges to which students had applied (Bloom & Unterman, 2014). One evaluation of Gates Foundation schools actually found "no improvement after conversion [to a small school model] in student attendance or grade-to-grade progression" (Shear & Means, 2008, p. 2023).

Weighing small schools in the balance, it seems clear that there are some areas in which these reform model schools excel and other in which more progress is needed. Using indicators of school climate as the measure, the data indicate that converting from a large high school to a small school model generally translates into higher expectations, greater personalization, and more respect and responsibility (Shear & Means, 2008, p. 2023). However, moving beyond metrics related to sense of community and considering small schools in terms of their effects on

increasing achievement, "it would appear that this reform may not be working as effectively for the population for which it was designed" (Wyse et al., 2008, p. 1882). Even this conclusion needs to be taken as provisional, however, given the conflicting ways that researchers operationalize *achievement* and the contradictory results across studies. It seems imperative, given the tangle in the empirical research, that small schools be evaluated on effectiveness in achieving their own expressed goals, as well as on common metrics such as high school graduation rate and college entrance and degree attainment.

Conceptual Framework

The Big Picture Longitudinal Study is conceptually positioned in the literature on the antecedents and consequences of socioeconomic inequality in educational attainment as effects of ecological human systems. Although U.S. college enrollment rates are rising, gaps in college enrollment by family income are particularly pronounced and remain stubbornly resistant to change (Bailey & Dynarski, 2011). The college enrollment and success rates of economically and educationally challenged youth (Walpole, 2007) occur within a complex ecology of overlapping educational and out-of-school environments (Perna, 2006; 2007; Thomas & Perna, 2005; Tierney & Venegas, 2007; 2009). From an ecological perspective, students are seen as being influenced by—as well as shaping—multiple settings within their direct experience. Additionally, students are indirectly affected by more distant environments such as policy, institutional, and cultural contexts. Educational reform efforts to address socioeconomic gaps in educational attainment include the national movement toward small, personalized high schools that attempt to build strong connections between adult staff and students that reach across student

environments to impact students' entire ecologies (Ayers, Klonsky, & Lyon, 2000).

The ecological model of college readiness (Arnold, Lu, & Armstrong, 2012) is based on the leading developmental systems model: human ecology theory (Bronfenbrenner, 1974; 1979, 1993, 2005). This systems approach challenges current conceptual and research methods that consider readiness components as person-level factors or variables. Instead, interactions among personal traits, experiences, environmental characteristics, and time collectively determine college readiness. Small schools therefore attempt to influence students in their immediate settings and relationships, while connecting these elements surrounding them so that community context is congruent with future labor possibilities and the students' wider ecologies.

Methods

The Big Picture Longitudinal Study triangulated multiple longitudinal data sources to trace student outcomes. Specifically, the study administered web-based surveys designed for the project to students and advisory leaders, in addition to collecting student college enrollment data available through the National Student Clearinghouse (NSC) (www.studentclearinghouse.org/colleges/studenttracker/). The research team additionally used an innovative data collection strategy intended to go beyond the NSC college information. Building on enduring close relationships between students and their high school mentors, the Connector Study collected information about alumni through phone interviews with c*onnectors*: former high school advisors (teachers) and other adults who were identified by school principals as likely to be in touch with their former students two years after high school (Arnold et al., 2012b).

Table 1

Big Picture Longitudinal Study Instruments over Time

Instrument Name and Data Collection Timeframe Relative to High School (HS) Graduation	
Study Instrument	Data Collected
Senior Transition Survey	Last term at BPL
Advisor Survey of Seniors	Last term at BPL
First Fall Update Survey	October post-HS graduation
National Student Clearinghouse Student Tracker	2-7 years post-HS graduation
Connector Study Interviews	2-8 years post-HS graduation

Between 43% and 94% of BPL graduates from the Classes of 2006 to 2011 from 23 schools (n=1,916) completed baseline high school exit surveys designed for the study about their high school experiences, college admissions and post-secondary plans in the month before graduating from their high school. The survey instruments included a web-based Student Transition Survey and an Advisor Survey, given to students and advisors, respectively, in the month before high school graduation. Seniors' advisors provided surveys on each graduating student (n=1,830) in roughly the same percentages (54%-90% response rate). The First Fall Update surveyed new alumni (n=695) with another web-based survey in the October following high school graduation. This First Fall Update survey covered students' post-secondary activities and college experiences, but with response rates that were significantly lower than the baseline exit surveys (20%-33%). A single attempt at a planned all-alumni survey in 2007 yielded fewer than 50 responses, so this data collection was not continued. Instead, study data about college outcomes come from National Student Clearinghouse (NSC) Student Tracker enrollment data reported by colleges. College Enrollment Tracker data were obtained from the

NSC in the winter of 2013 to reflect student enrollment patterns at that point in time.[1] More than 3,600 U.S. higher education institutions report their enrollments to the NSC, including community colleges and certificate programs that cover approximately 98% of U.S. post-secondary students (www.studentclearinghouse.org/colleges/studenttracker/). Data about personal, vocational, and civic outcomes of all alumni, including those not enrolled in college, were collected through the Connector Study. Connectors from the Big Picture classes of 2006-2011 were able to give first- or second-hand information about the post-college educational, vocational, and/or personal status of 95% (n=918) of their former students.

Sample

Study participants from the 23 schools represented in the Big Picture Longitudinal Study are representative of the population of U.S. youth whom Walpole (2007) has labeled "educationally and economically challenged students" (EEC). The majority of the 1,916 respondents are classified as low-income as indicated by eligibility for free/reduced lunch during high school (62%-74% across schools and graduation cohorts); 18% reported special needs qualifying them for Individualized Education Plans. Students of color are 75% of the sample, and 56% are native speakers of a language other than English, including an unknown number of undocumented immigrants; 80% of the longitudinal study participants would be the first in their family to earn a college degree. A majority of student participants across all years are female (56%), resulting in an overrepresentation of females among survey respondents. According to

[1] Although National Student Clearinghouse Student Tracker data is the most comprehensive and widely used college-reported enrollment source, the accuracy of the data has been questioned by some school officials (www.lohud.com/story/news/education/2014/11/20/local-superintendents-say-state-data-wrong/70026968/).

their advisors, the fathers of 36% of BPL students are entirely absent from their students' lives. In high school, about five percent of students reported caring for dependent children, although the Student Transition Survey did not ask directly if students were parents.

BPL students come from communities with high levels of academic underachievement, geographic transition, and high school dropout (Bailey & Dynarski, 2011; Walpole, 2007). There are no academic selection criteria to enter a BPL high school. Some motivated students are attracted to the educational approach, but many others come to BPL schools after being disengaged or struggling academically in their local (traditional) schools (Frishman, 2014, informal communication). These students resemble their demographic peers' school mobility to a certain extent: a quarter of the graduating seniors in the study had spent less than four years in their BPL high school. However, 12% of seniors had remained in the school for more than four years. Among many other features of the BPL design, the willingness to continue working with students until they were ready to graduate contributed to a remarkably high graduation rate of 92% across the network (www.bigpicture.org/schools/).[2]

Findings

Does the BPL approach work? The Big Picture Longitudinal Study attempted to answer this question in two ways, first by examining the fit between BPL distinguishers and study findings, and second by assessing the outcomes of BPL graduates in college and in life. These two approaches enable an evaluation of the design both in light of the network's own goals and in terms of the U.S. goal of increasing college access and success among low-income students.

[2] Depending on the year and set of Big Picture Learning Schools included, the on-time graduation rate ranges from 87% to 95%.

The results of the Big Picture Longitudinal Study include variability across individual schools and study years. This is an inevitable outcome of any multi-year, multi-site research study. In this case, variability also reflects BPL's flexibility in how schools realize the principles of personalized, real-world learning for different contexts and student populations. Although there were year-to-year changes in some items, most of the findings reported here appeared across the years of the study and at the same orders of magnitude. There were greater variations at the level of the schools than by year. The research team shared data with principals that enabled them to see their own school's results alongside the network-wide findings. However, small class sizes and changes at constantly-innovating schools preclude statistically sound school-level analyses.

Fit with Big Picture Learning Distinguishers

Big Picture Learning high schools feature individualized learning plans that engage students through exploring and following their own interests and passions. Distinguishers of the design also include strong, sustained relationships with adults; real-world engagement through extensive internships (LTIs); and authentic assessment in the form of products and oral exhibitions of learning. Finally, BPL schools aim to prepare all students for lives of self-realization and social mobility, including readiness for college and careers.

Seniors' responses on the Student Transition Survey generally reflected the success of BPL's unique curricular characteristics and learning goals. Specifically, students identified LTIs, advisors, exhibitions, assistance with the college application process, and the opportunity to take college courses as their most valuable preparation for the future. Students and advisors

reported that cultural characteristics of BPL schools—such as a supportive community, the expectation that all students apply to college, and encouragement to explore interests and develop personal qualities—were highly significant in preparing them for the future. Students and advisors testified to the value of independent studies, networking, and relational skill building. The strongly student-centered ethos of the BPL educational approach emerged throughout the findings.

Real-world learning and self-knowledge. Across graduation years, seniors ranked "What high school taught best" in this order: 1) knowing my own strengths and weaknesses; 2) naming my own interests and passions; 3) preparation for success in college; 4) public speaking; 5) learning on my own; 6) being tolerant; and 7) knowing how to make choices and decisions.

Advisors ranked each student's "ability to name and follow [his or her] passions" as the single greatest strength across their students, indicating that this quality was strong for 86% of their students; 79% of students believed that their BPL high school did an "excellent job" of enabling them to "be able to name and follow my passions." They reported, "The advisors help me accomplish my goals" and "[I have discovered] what I love and what I'm good at. I found my passion at [my school]." Self-knowledge and the ability to define and follow one's interests are strongly realized components of the BPL philosophy. This distinguisher is systematized through extensive structured opportunities for self-reflection, including a culminating autobiography and reflective exhibition.

Even more important than school-based self-reflection projects, the ability to name and follow one's passions is cultivated in the process of deciding upon, carrying out, and publicly

presenting the products from the students' Learning Through Internships. The two days a week spent in LTIs came up repeatedly in survey questions as the top or second most important preparation for the future: "The internship program gave me a front row seat to the real world." Students mentioned the skills and attitudes they learned, the interests they discovered, and the networks they built: "My LTI experience…taught me to succeed in a professional environment, interact and work with adults, effectively advocate for social justice, and be independent and responsible for my work."

Relationships. Along with real-world engagement, study findings demonstrated success in relational education, another BPL distinguisher. Besides out-of-school internship learning, perhaps the most unique component of the BPL approach to secondary education is the advisory system. Students enter high school in an advisory of 13-25 students and continue with these peers until graduation. A single adult advisor remains with that group of students over their high school years. The advisor is responsible for coordinating each student's learning across independent studies, internship, and possible group classes at the school or community college. Advisors oversee learning planning teams involving the student, a parent/guardian, and the LTI mentor. They assist students to implement and evaluate learning plans, projects, and exhibitions.

When asked how successful various aspects of the high school experience had been for preparing them for life after graduation, students placed their advisor at the top of the list (LTI and LTI mentor were rated as the second and third most important factors, respectively). Eighty-one percent of the students said they had another adult, other than a parent or guardian, "who is supportive of you, and who you can turn to." The most-mentioned person in this category was

the student's advisor: "[I valued] having amazing advisors who constantly push you to your limits." Students reported in the Student Transition Survey that their advisors were the most important non-parental influence in their decision to go to college: "The one experience that best prepared me was [having] my advisor. She was always there and ready to help whenever I needed it or answer any questions I might have!" Perhaps most tellingly, students stay in touch with their advisors. Eighty-five percent of alumni had been in in touch with their advisors in the five months after they graduated and 20% had been in contact at least six times. Connector Study data show that advisors were able to give information about 95% of their former advisees two years after graduation.

The relationships in BPL schools go beyond advisor and student. Besides frequent mention of the LTI mentors, students also cited principals, internship specialists, and staff members as influential adults and supporters: "One thing that my high school experience has prepared me for...was to build amazing relationships with my peers and other adults." Advisors reported that 90% of their students had multiple supportive relationships with adults and 87% had multiple supportive relationships with peers.

Parental involvement. High average student response ratings on most measures imply high parent/guardian involvement in their students' education. Across years, 77% said their parent or guardian was at the school at least once a month, and 89% said their parent and advisor communicated once a month or more. Perhaps influenced by their parents' systematic inclusion in substantive school activities, more than 90% of seniors said they talked with their parents about their school progress, post-high school plans, career goals, and future aspirations.

Advisors reported that their students each had at least one parent or guardian who was somewhat involved (48%) or extremely involved (40%) as an active member of the student's learning team, for instance by active participation in learning plan meetings and exhibitions, attending college preparation events, or communicating with them about their student: "Both parents [are] willing to take the necessary steps to support her for anything/everything." Importantly, advisors saw parents as more likely to be involved in high school than in college preparation aspects. A sizeable minority of parents were "not at all involved" in helping students research colleges (31%), making sure the student met application and financial aid deadlines (28%), or actively participating in filling out financial aid applications (23%). Only about half of parents/guardians were knowledgeable enough about the college admission process to be truly supportive of their students; as one advisor elaborated, "Mom struggles with understanding the importance of education and necessary steps to getting to college." For other parents, language was a barrier to supporting their student's college process: "Mother does not speak English." This suggests that between a quarter and a half of students rely on BPL schools as their primary or only support in navigating the search, admission, and financial aid process: "He just had a child and has no support at home." Still, many parents were actively involved in their students' college admission tasks.

Independence, resourcefulness, and personal skills. The experiences of seeking and holding internships and presenting exhibitions resulted in significant personal skills development. Students reported that schools were particularly effective in developing public speaking skills and the ability to interact with adults: "Because of my exhibitions, I am no longer

afraid of speaking in front of large groups and I am more outgoing." In general, students were highly confident in their schools' contributions to their personal development, oral communication, interpersonal skills, and ability to interact with those from diverse backgrounds: "This school made me come out of my shell." Students also credited BPL schools with preparing them well for work and life after high school: "High school has taught me that I don't have to wait for my dreams to come true. I can work towards my future and make change."

Advisors rated their graduating seniors as "well prepared" in most areas of personal development, especially in terms of the ability to articulate and pursue their interests. They rated their students more variably in organizational skills, motivation, and time management skills, which might have implications for students' success in college. After four years of advising the same small group of students and interacting with their families, advisors were able to make a holistic appraisal of each student's personal readiness for college. These assessments ran the gamut from "Will have a tough time handling the independence" to "He is strong but he has some destructive habits that could stand in the way of his success" to "She is a self-starter and extremely creative. I think she is going to thrive in college and achieve everything she desires." It is clear from advisors' many comments that they have deep knowledge about and care for their students: "She has faced a lot of challenges in her personal life and I still think that she needs to work on loving and respecting herself more." Advisor clearly worry about providing the right amount of support to help their students succeed while allowing them to become self-reliant enough to persist in college.

College Preparation

Although BPL high schools do not only measure success in terms of college acceptance, they do set a strong college-going culture, including the requirement that all students take college entrance examinations and complete admission and financial aid applications. Senior year exhibitions feature post-secondary planning. School staff members take students on college visits, invite alumni and other guests to schools to discuss college, and provide extensive support to parents in admission and financial aid processes. College-related outcomes of the BPL design can be evaluated through the longitudinal study in terms of academic and personal readiness for college, post-secondary aspirations, and college attendance and persistence.

Table 2

Big Picture Learning Students' Self-Assessed Academic Preparation

Student Responses to the Question: "How well has your school taught you to…"				
College-Readiness Skill	Poor Job (1)	Okay Job (2)	Excellent Job (3)	Average
Speak clearly and effectively?	2%	23%	75%	2.73
Learn effectively on your own?	2%	26%	72%	2.70
Write clearly and effectively?	3%	35%	62%	2.59
Think critically?	3%	35%	61%	2.58
Be a good reader?	4%	48%	48%	2.43
Analyze and solve math problems?	19%	53%	29%	2.10

Academic preparation. In keeping with their high school immersion in independent interest-based study and their practice in exhibitions, students felt particularly well prepared in the areas of public speaking and learning on their own (Table 2). Self-assessment in writing, critical thinking, and reading were more variable, but very few students said they were poorly prepared in these areas. However, only 29% of study participants rated their schools as "excellent" in mathematics preparation, and one in five seniors rated this area as "poor."

Advisors were confident of their seniors' speaking abilities, more mixed in their assessment of student writing, and concerned about mathematics proficiency. College readiness in science emerged as an area of weakness for a substantial group of graduating students, according to advisors. Table 3 shows the aggregated advisor results across the study years.

Table 3

Advisor Assessment of High School Seniors' Academic College Readiness

Academic Area	Extremely Weak	Somewhat Weak	Somewhat Strong	Extremely Strong
Breadth of general knowledge	5%	27%	49%	19%
Reading at the college level	9%	23%	40%	28%
Oral expression at college level	7%	21%	41%	32%
Writing at the college level	11%	30%	37%	22%
Mathematics at the college level	20%	39%	28%	9%
Science at the college level	20%	38%	23%	6%

College courses during high school. Approximately three-quarters of survey respondents (78%) took college courses while in high school. Of students who enrolled in college courses while in high school, 46% took three or more courses. Such courses are an important strategy in BPL's efforts to prepare students for college-level work and to connect students to colleges early in their academic careers: "Taking courses at [the community college has] helped a lot because we are getting real world experience about what college is like...and how the relationships have to be with the professors in order to understand the class."

Advisors helped students enroll in community college courses to fulfill content requirements for their individual learning plans. Encouraged at all of the schools, community college coursework was particularly convenient for students whose BPL high schools were

nearby or sometimes adjacent to community college campuses. One of the longitudinal study schools, Met Sacramento, was designated as an early college high school (Berger et al., 2014), in which students worked toward an associate's degree while enrolled in high school.

College aspirations and enrollment plans. BPL students have high college aspirations, with at least 80% of each cohort reporting that they expect to attain a Bachelor's or advanced degree. High expectations for higher education are not unusual for low-income students (Gandara, Gutierrez, & O'Hara, 2001). In fact, the minority of BPL students who did not plan to attend college immediately after high school had similar degree expectations to their college-bound peers; only 8% of the class of 2009 and 7% of the class of 2010 did not expect to attend college, for example. Expressed enrollment plans are a more realistic metric, especially given that the longitudinal study participants had each completed applications and been accepted to at least one college. In their last semester of high school, 80-86% of study respondents reported that they expected to attend college in the fall following graduation. Among the remaining students, half planned eventual enrollment. (Eventual college enrollment patterns are detailed later in the paper.)

Their overall BPL experience and advisor support influenced students' decisions to attend college. Nearly half (44%) of seniors decided to attend college while at their BPL high school. Even though the remaining students said they made an initial decision to go to college before entering high school, close to two-thirds (71%) reported that their BPL experiences influenced their decisions to go to college:

The best thing that this high school has done for me was not letting me quit even when I

thought applying for college was too hard. My advisor and guidance counselor showed me that I am good enough for college, and that if I put the effort forward, good things will come my way.

Students' understanding of the career benefits of a college degree was the most influential criterion in the decision to attend college, reflecting the highly vocational emphasis of most first-generation students. The next most cited reasons included access to college and admissions information and family and advisor encouragement: "[My school] gave me freedom to be myself and allowed me to figure out what I wanted to go to college for after high school." "Other" influences varied, but primarily reflected family relationships, such as an obligation to become the first to attend college or to serve as a role model to younger siblings.

The availability of a particular career-related program or major, the type of institution (two-year or four-year), and the institution's distance from home were students' top priorities in choosing colleges. These considerations remained consistent over study cohorts. Only 27% of students identified cost as one of their top three considerations. Even though institutional graduation rate and campus climate strongly influence the likelihood that a student will persist to the degree, very few seniors included aspects of campus graduation rates or institutional diversity among their top three considerations in choosing a college.

Advisors reported that seniors were highly committed to beginning college, saying that half of their students were "extremely strongly committed" and another thirty percent were "somewhat strongly committed" to beginning college, earning a degree and pursuing a particular interest area within higher education. This assessment matched students' responses: half of

students reported that they were "absolutely certain they would finish college." If they left college, the remaining students reported, it would be because it cost more than their family could afford (20%) or to accept a good job (14%). Less than five percent of students reported that they might need to leave college because of insufficient academic ability (4%) or insufficient reading or study skills (2%).

Career Plans and Outcomes

Big Picture Learning schools measure success holistically for every individual and work closely with students and their families to determine the best post-secondary plans for each student. The majority of students who were not planning to attend college in the fall after high school graduation intended to pursue employment. Four percent of seniors planned to enter the military, and 7-9% said they were headed into volunteer programs, training/vocational programs, or internships. It is important to note that nearly all of these students planned eventual college enrollment; 70% of them anticipated a gap of one to two years.

Unlike the larger group, students who were not planning immediate enrollment were at least somewhat concerned about their academic preparation for college. The top three reasons this group reported for delaying or planning to never attend college were: "Can't afford it" (40%); "Do not feel academically prepared" (26%); and "Want to make money" (23%).

Vocational and personal outcomes for BPL alumni were gathered primarily from the Connector Study. Direct information from students who were not enrolled in college was otherwise unobtainable due to an overrepresentation of four-year college attenders in the sample of respondents to the First Fall Update Survey after graduation and a very low response rate in

what was intended to be the first annual all-alumni survey.

Connectors were in close touch with their former students and interviewers received information about 95% of the students, with equal representation of conventionally successful students and students who were struggling and/or not in college. In addition to yielding more information than alumni response rates allowed, a significant benefit of this approach was the ability to contextualize student success. For instance, a connector characterized a young father who was not in college as a significant success because this graduate had defied his earlier path by "staying alive" and withdrawing from gang membership. Connectors' deep histories with the students allowed them to provide perspectives and commentaries that were unlikely to emerge from surveying the students themselves.

Connector Study data show that at least 19% of seniors in four class cohorts did not enroll in college but pursued other post-secondary plans. These students trained as EMTs and Certified Nursing Assistants (CNA), joined Year Up and City Year, and enrolled in vocational or technical schools. Over half of all college-going and non-attending graduates (66%) were working at paid jobs. Some students without career-related paid jobs or post-secondary credentials were happily pursuing their interests through side businesses or involvement in arts and civic domains. It is clear that productivity and success were centered in avocational arenas for this subset of the non-college cohort. Connectors repeatedly pointed to the achievements of students who never enrolled in college: "I got her as a ninth grader with a second grade reading and math level but I consider her one of the big successes because she did graduate in four years and when she graduated I also got her to finish a CNA program, and she did pass a state exam."

The internship experience that individuals gain through the LTI component of the BPL design provided students with skills that can be transferred to future careers. Strong career achievers include, for instance, students whose internships led them to excellent jobs that do not require college degrees. Connector Study data point to the fact that regardless of whether they go on to college, many students are following their interests and pursuing their passions after high school. Advisors reported that at least 46% of the alumni were studying or working in fields related to the internships they had at BPL schools. For example, one student who interned as a veterinary technician during her senior year of high school was still working at the same office. Though she had dropped out of the college where she was enrolled in a pre-vet program shortly before completing her fourth year, she had held a steady position as a vet tech for five years. Her advisor insisted, "The skills from the LTI got her the job, not her studying in college." Like many of her classmates, this student continues to benefit from the knowledge she obtained during high school that goes beyond traditional academic abilities.

Connectors reminded interviewers that it was an achievement to get some students to high school graduation, including many of the fifth-year seniors. It is important to reiterate that BPL's high graduation rates produce alumni who might have dropped out of other schools. Former advisors counted success in terms of where students began and did not assume that college was right for everyone. In this light, a student with autism spectrum disorder who became a forest ranger and a former gang member with gainful employment who is an involved father are appropriately considered success stories according to BPL goals, though neither ever enrolled in college.

Summer Melt

An unexpected finding from the Big Picture Longitudinal Study was the discovery of a substantial rate of "summer melt" (Arnold et al., 2009; Castleman, Arnold, & Wartman, 2012). This term refers to graduating seniors who have been accepted to college and indicated their intention to enroll immediately but who fail to follow through and enroll at their intended colleges. In the summer after high school ends, new graduates enter a vulnerable time in their educational careers: neither high school nor college is responsible for them during the summer months in which students are required to complete complex financial and informational tasks to finalize their college enrollment. For these low-income, first generation high school seniors, the period between spring acceptance notification and fall matriculation often features a continuation of fundamental decision-making about where—and even whether—to attend college.

In comparing reported enrollment plans and NSC enrollment data, the study found that an average of one-third of college-intending new graduates either attended a different college than they had planned at graduation, or did not attend college at all in the fall after graduation (Arnold et al., 2009). Previously absent from the research literature on low-income college student access, this BPL finding has been replicated with low-income students nationally (Castleman & Page, 2014).

Experimental interventions to stem summer melt began with a randomized control/treatment counselor intervention at one BPL school in 2008 (Castleman et al., 2012). The treatment group that received targeted assistance over the post-high school summer was significantly more likely to follow their June plan and to attend a four-year college (Castleman et

al., 2012). These positive effects have subsequently been replicated through a number of studies utilizing face-to-face or text-messaging interventions (Castleman & Page, 2013; Castleman, Page, & Schooley, 2014).

College Outcomes

Enrollment. The second source of information about BPL alumni college outcomes is the NSC Student Tracker. Nearly all U.S. higher education institutions report their enrollments to the NSC, including community colleges and certificate programs. The longitudinal study team analyzed results from nine BPL schools that have been longtime, consistent participants in the study. This data set includes post-secondary information from 1,044 BPL alumni.

Among the positive findings is that 93% of the class of 2006 and 97% of the class of 2007 began college (two- or four-year) at some time since graduating from high school. Immediate post-high school college entrance from all nine longitudinal study classes over the entire study period (2006-2011) is 69%. This compares to a national rate of 53% of students from the lowest income quartile attending college in the fall after high school graduation (U.S. Census Bureau and College Board Advocacy & Policy Center).

Only the classes of 2006 and 2007 had the typically-measured six years for graduation at the time NSC data were collected. By winter 2013, 24% of all 2006 graduates had received a degree of some kind; 18% from the class of 2007 had received a degree (Table 4). It is important to contextualize these findings by noting that the national average of low-income, first-generation students who began college in 2003 and graduated in 6 years is only 10.6%. Among students in the study schools who started at four-year colleges, 35% from the class of 2006 and

24% from the class of 2007 had earned a Bachelor's degree by 2013.

Table 4

Big Picture Learning Graduates' Degree Attainment Rates

Degree Attainment for BPL Alumni Ever Enrolled in a Postsecondary Institution, 7 Years (Class of 2006) and 6 Years (Class of 2007) Post-High School

College Status	Class of 2006	Class of 2007
Began college at some time since high school	93%	97%
Began at a 4-year college and attained a Bachelor's degree	35%	24%
Attained Associate's degree or other credentials of those ever enrolled	12%	18%
Began college and still enrolled	18%	23.5%
Began college but left without obtaining a degree; still unenrolled	28.5%	32%

BPL beats the national average for low-income high school graduates in these graduation rates (Pell Institute Fact Sheet 12/14/2011: Data source: U.S. Dept. of Education 2003/04 Beginning Post-secondary Students Longitudinal Study (BPS: 04/09)). Furthermore, it is important to remember that BPL schools graduate many students who might not have earned diplomas in conventional high schools, making their relative graduation rates even more impressive among their demographic peers.

Notably, BPL students from these nine schools started college at very high rates. Compared to their demographic peers, they also persisted in higher education at greater rates. However, degree attainment is lower than the 55% national overall 6-year graduation rate for all U.S. students beginning higher education. Results also vary by class year and high school; the percentage of students who enrolled in college in the fall after high school graduation ranged from 57-87%. The classes of 2010 and 2011 were the most likely to enroll directly (84% and 87%, respectively), but there was no clear pattern in the changing enrollment rates of the four

classes before them.

Table 5

Big Picture Alumni College Satisfaction Levels

Satisfaction with College Experience 5 Months after High School Graduation				
Category	Extremely Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Extremely Satisfied
Academic Experience	4%	11%	54%	31%
Social Experience	7%	15%	40%	39%
Overall College	4%	14%	48%	34%

College experiences. Attempts to obtain information about the college experience directly from BPL graduates were met with low response rates (20-33%). Those who did participate in the First Fall Update alumni survey reported liking college and feeling comfortable and welcome there. Over 80% of these respondents were enrolled in college full time, following their plan from their senior year of high school, and enrolled in the college they had planned to attend. Alumni were at four-year colleges (70%), community colleges (26%), and technical/vocational schools (14%). Most (72%) were working and only half (50%) were sure they had enough money to cover the upcoming year; 11% of respondents had already dropped at least one course. Undergraduate BPL alumni varied in how challenging they found their courses, but only 10% indicated the highest level of concern on this item and relatively few (21%) disagreed or strongly disagreed that "It should not be very hard to get a B (3.0) average here." Of those not in school, a few students had already dropped out (1%) and a larger group (17%) had not yet enrolled but planned to start college in the future.

Students continued to talk to their parents frequently, with 34% reporting a parent was "extremely well informed" and 43% "somewhat well informed" about their activities and

feelings. Half talked to a parent at least daily. The majority (85%) was still in contact with their BPL advisors. Only 61% had connected with an adult on campus, however. "There is really no one there for you at college," one graduate reported. Overall, the majority of college and non-college students who responded to the First Fall Update were somewhat or extremely satisfied with their progress toward their own goals (83%) and with their life overall (87%).

Discussion

The Big Picture Longitudinal Study was designed to discover what happens to students after graduating from BPL high schools and how their post-graduate lives are influenced by their innovative high school education. BPL schools differ sharply from nearly all public and private high schools in the U.S. Deliberately intended to be a disruptive innovation to urban secondary education (Christensen, Horn, & Johnson, 2008), these high schools are not organized around prescribed, subject-specific classes with shifting groups of peers, different teachers, and traditional testing. Instead, BPL offers small schools featuring advisories, an individualized interest-based curriculum, extensive internships, and authentic assessment. Does this radical approach "work?" By what criteria should it be judged?

A note of caution needs to accompany the answer to these questions. The longitudinal study cannot definitively answer the question of how BPL student outcomes relate to high school program design. From a methodological standpoint, the impossibility of a randomized control/treatment experimental design prevents causal conclusions. Much of the study information is self-reported. College graduation rates continued to change as the sample cohort gets older. At the point represented by NSC data, only two of the six represented classes had

been out of high school for at least the typical six-year timespan for measuring degree attainment. The extensive connector information about former students is second-hand. Finally, generalizations across the network need to be interpreted cautiously because not all BPL schools employ exactly the same practices and structures. In fact, the BPL design is deliberately flexible, encouraging constant experimentation and school variability according to local practices and state regulations.

Table 6

Summary of BPLS Findings of Student Outcomes

Strong Positive Outcomes	Mixed Outcomes
College aspirations, expectations, applications, enrollment	College readiness in core academic areas
Lasting relationships with adult mentors	6-year college degree rate
Student personal, interpersonal, vocational growth	
High college-going rates and immediate enrollment	

Despite these limitations, study findings indicate clear patterns in the relationship between a BPL education and students' readiness for successful adult lives. Dennis Littky and Eliot Washor founded the first BPL high school in 1996 with a definition of success that is different and broader than most high schools': student success is measured in adult self-fulfillment, meaningful work, financial security and upward mobility, healthy relationships, and civic engagement (Levine, 2002; Littky, 2004). For the founders of BPL, these outcomes are the purpose of high school; high school graduation and college degrees are the means to these ends rather than the final goal. Littky and Washor initiated the longitudinal study precisely because

their long-term vision of high school outcomes required assessment of graduates' adult lives.[3]

Criteria for Success

The BPL approach to high school education produces what it explicitly values. The cornerstone philosophical tenets of personalization, interest-based real-world relevance, close relationships, and preparation for college and careers emerge as the most important influence on students. All of the evidence across data sources and years of the longitudinal study points to BPL's significant success in the areas of relationships and real-world relevance. The schools excel in empowering students to discover and follow their own interests, form enduring relationships with diverse adults and peers and develop high levels of resourcefulness. Students are generally deeply engaged in activities related to their personal learning goals. In addition, graduating students have become confident communicators with adults and excellent public speakers. The schools are safe, interpersonally warm, and healing places for students who typically come to BPL high schools after negative previous educational experiences and with continuing immersion in communities dominated by the challenges associated with poverty. The elements of their BPL education that study respondents identify as best preparing students for the future are a close match with the large literature on positive youth development (Damon, 2004; Lerner, Almerigi, Theokas, & Lerner, 2005)

Relationships and relevance are two pillars of the BPL design that study findings indicate are extremely successful. These school distinguishers continue to function into early adulthood.

[3] Because of the focus on Big Picture Distinguishers and college enrollment, the Longitudinal Study researchers did not investigate externally-mandated accountability measures, such as state tests. See a study by Sara Suchman for an investigation of this topic in BPL schools.

Alumni remain in relationship with their former advisors, LTI mentors, and other school peers and adults. According to connectors, graduates continue to pursue the interests they identified in high school through jobs, avocations, and volunteerism. They continue to draw on their internships, sometimes by continuing into a job in the same organization, and nearly always in terms of drawing from the confidence, skills, and credentials that they gained in LTIs.

The close correspondence between BPL distinguishers and the outcomes reported by students and advisors points to success in developing social capital and sustaining healthy relationships with adults. BPL is effective in involving parents in schools, presumably influencing the high rate of communication between parents and their students about school, college, and future goals. BPL succeeds in graduating students from high school, socializing them for work roles, and giving them the tools to discern their interests and to pursue them vocationally and avocationally. The Big Picture Longitudinal Study shows BPL's high degree of success in producing student engagement, social capital, personal and vocational development, and high school completion among low-income, urban students. The innovative aspects of the BPL design relate directly to these outcomes.

The second central criterion for success is the measure of graduates' college and career attainment. The BPL high school experience dramatically increases students' aspirations for higher education. The schools set a college-going expectation and provide so much admissions support and assistance that virtually all students apply and are accepted to college. Nearly all of the students do begin college, either immediately after high school graduation or after short delays. In comparison with their demographic peers nationally, BPL alumni attend college in

significantly higher percentages.

Academic preparation and college persistence are less uniformly positive than relationships, real-world experiences, and college access. Students' academic preparation for college is certainly affected by their pre-college schooling, according to study results. Academic readiness for college is generally positive, but a minority of students and advisors point to concerns about preparation in mathematics and science. A smaller group reports weakness in reading and writing. Assessment of the personal qualities associated with college success (Conley, 2005, 2010) is generally positive but variable across students. Some BPL students leave high school with potentially insufficient organizational, time management, and independent learning skills for success in post-secondary education. Very few students indicate that they were worried about their ability to succeed academically in college. However, it is troubling that in the Advisor Surveys and Student Transition Surveys, so many advisors and students identified weakness in mathematics and science, given the well-known connection between post-secondary remedial coursework and college attrition (Arendale, 2010).

The summer after high school graduation can be a turbulent time in which students reconsider the choices they had made about where—and sometimes whether—to attend college in the fall. There is no single reason for their summer melt, but rather a cluster of financial challenges, informational barriers, and family and personal issues. Despite entering and graduating from college in greater percentages than low-income students nationally, BPL students resemble their demographic peers nationally in their non-linear college trajectory as confirmed by NSC data. BPL graduates persist in college but typically follow a pattern of

"swirling" in which they move in and out of colleges and alternate between full- and part-time study (McCormick, 2003). Graduates who responded to surveys after high school report doing well in college academically and socially, though the post-high school survey suffered from an unrepresentative response group.

In sum, the Big Picture Longitudinal Study suggests that the BPL design works extremely well in achieving its goals for its students' high school graduation and for student development in personal, interpersonal, and vocational development. On the criterion of college academic readiness and degree attainment, the outcomes are generally positive but more mixed. Similar to low-income students in general, many BPL graduates face a complicated set of interrelated decisions about choosing and paying for college. The classic college choice model of predisposition, search, and choice (Hossler & Gallagher, 1987) assumes a linear process in which students make a decision to go to college, consider where to apply, and then select a college to attend. This model does not account for the decision-making patterns of BPL students after graduation, in which a variety of challenges impel repeated reconsideration of whether, where, and how to attend college.

Intersection with Student Ecologies

These conclusions lend themselves to several interpretations. A human ecology perspective (Arnold, Lu & Armstrong, 2012) is a useful framework for understanding both the value of the BPL approach and the reasons why this educational reform of secondary education cannot single-handedly overcome disparities in the life chances of low-income and advantaged students. Students live within a matrix of interacting experiences, relationships, and

environments. During high school, the BPL school intentionally connects multiple aspects of students' lives: school, family, work, and key relationships. The very characteristics of the schools make this intentional congruence possible by drawing together students' community contexts as much as possible.

However, students still experience the effects of other ecological systems, such as poor prior schooling, family unfamiliarity with higher education, and problems associated with racism and poverty. For example, it is notable that the parents of BPL students were less involved in their individual student's admission and financial aid process than they were in their high school learning despite school efforts to integrate parents into the process. Subgroups of students additionally face dysfunctional family systems, early parenthood, and challenges with English language learning, special needs, or undocumented immigrant status. The majority of advisor comments about problematic personal readiness for college directly referred to difficult circumstances in students' lives outside of school.

Becoming the first in the family to earn a college degree requires access to financial and emotional support, faith in one's ability to succeed, and the knowledge and ability to negotiate the bureaucratic and academic tasks of college enrollment and persistence. The careful alignment of these factors provided by the BPL high school can break down under the weight of students' post-high school immediate settings. While in high school, many BPL students benefit from the time and effort on the part of staff to bring the many factors in their surroundings into balance and congruence. This type of support, however, is generally unavailable in settings beyond high school.

BPL students experience challenges emanating from levels of the environment in which they are not physically present. Financial aid policies and the timing of college loan applications in the summer, for instance, disadvantage students with few family financial resources and limited knowledge of complicated banking processes. Because these students come from marginalized social groups, their expectations are formed in light of messages from the larger culture about the likelihood of success for people like them. In short, even the best high school cannot singlehandedly overcome the conditions that produce and sustain systems of social inequality. In this light, BPL is very successful as measured by graduates' extremely high college-going rates and their dogged, if often inefficient, persistence toward degrees. More time is needed to determine the eventual graduation rate of most of the longitudinal study cohorts.

Intersection with the American Higher Education System

A different interpretation for the varied higher education outcomes is that the norms of U.S. higher education are to blame for the inefficient college trajectory of many BPL graduates. In sharp contrast to their high school experience, BPL college students encounter prescribed requirements and largely non-experiential learning. The expectation for proficiency in Algebra II, for example, might be more of an arbitrary requirement than a valid competency for students who are not specializing in math or science (Hacker, 2012). For the vocationally-motivated majority of first generation college students, the career relevance of decontextualized material can be off-putting and might cause them to be less engaged in learning. The relationships with educators that sustained students in high school are less accessible in higher education; approximately half of BPL college students lack even one personal connection with an adult on

campus. Without prioritizing graduation rates or student diversity during the college search, BPL alumni can flounder in college because of high student turnover on a particular campus or marginalization or outright racism in predominantly white institutions. There is evidence of these experiences in study interviews with students and advisors.

It is also possible, of course, that BPL provided too much support for students during high school or failed to prepare them academically. It could be that BPL alumni cannot succeed without more assistance than any college can provide. Much more research on BPL students' actual college experiences and access to their transcripts would be required to begin evaluating this possibility. BPL co-founder Dennis Littky has come to believe that it is colleges that need to change in order to value and engage BPL alumni, specifically, and low-income students in general. He has therefore begun a network of colleges, whose inaugural institution, "College Unbound," (http://collegeunbound.org/) enrolled its first entering class in 2009 in Providence, Rhode Island. BPL co-founder, Elliot Washor, has continued to expand the experiential, work-related education that appears to function so successfully in the BPL design (Washor & Mojkowski, 2013).

Educational rhetoric calls for all students to be "college and career ready" (ACT, 2011) and conceptualizes a quality education as preparing students for both higher education and occupations. The BPL approach is exceptionally successful in preparing students for work. It is equally effective in helping students aspire to higher education and complete the college admission process. Given these high school outcomes, the uneven subsequent progress of BPL students in higher education supports the contention that colleges require serious change in order

to create the conditions for success among underrepresented students and to take seriously the overlap between career and college readiness. Movement toward competency-based college education is one emerging trend that fits these conclusions. There are isolated examples of higher education programs, such as Brown University's BrownConnect, that target low-income students with experiential, for-credit programs aiming to prepare those without the financial or social capital to obtain unpaid internship opportunities for post-graduate careers (Brown University, 2014). However, most of the post-secondary innovations that target low-income students, such as distance learning and for-profit colleges, are even less capable than traditional higher education at offering the interest-based, experiential, relationally-rich experiences that worked so well for BPL high school students.

Conclusion

The Big Picture Longitudinal Study fits into the larger debate about post-secondary education in the United States: is there a model that does better at preparing students simultaneously for careers and college? The system of Big Picture Learning schools calls into question what college could or should be. The network of small, student-centered schools does an excellent job of graduating high school students and keeping them in the post-secondary pipeline longer than their demographic peers. The BPL design of relationships and relevance does an outstanding job of engaging students and making them feel cared for, supported, and connected to adults. BPL alumni are superbly prepared for work. Unfortunately, these accomplishments still fall short of solving the articulation problem between K-12 and higher education for students with non-dominant cultural capital and limited financial resources.

Although BPL alumni are more likely to persist in college and earn degrees than students from equivalent backgrounds nationally, initial evidence indicates that the percentage of BPL alumni college degree attainment still lags behind the national average for all U.S. high school graduates. The persistent challenges in mathematics preparation for the majority of students, and in college reading and writing for subgroups of students, are certainly related to BPL graduates' college outcomes. Trade-offs between the relational, experiential small school culture and college readiness in math appear as an issue for BPL and across the small school movement (Wyse et al., 2008). In any case, academic preparation is only one of the interacting factors affecting alumni outcomes. As early as the summer after high school graduation, the interacting effects of family, community, culture, finances, and college systems start to destabilize graduates' progression to higher education.

The results of the Big Picture Longitudinal Study indicate that it is possible to support students through the high school graduation and college application process; other current work demonstrates that it is possible to reduce the impact of summer melt on disadvantaged groups entering higher education. BPL schools and similar small-school networks continue to work on approaches to advanced literacy and numeracy that students find engaging and relevant. Uneven levels of college persistence point to a need for further work within the higher education community to retain these students. The current discourse of college access and success needs to move beyond the assumption that underrepresented students—not colleges—need to change. The Big Picture Longitudinal Study suggests that higher education should adopt some of the core principals of the BPL high school design in order to increase degree attainment among first

generation, low-income students. Finally, even radical reforms of secondary education and higher education are insufficient for overcoming social inequality. The ecology that reproduces this inequality is institutionalized in law, policy, the economy, and culture (Arnold et al., 2012a). In the end, equalizing the life chances of low-income students will require the common will to acknowledge, understand, and interrupt this interacting web of influences.

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