Creating a level playing field in Albemarle County Public Schools

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Acknowledgements
Those that know me well know that I have a flair for the dramatic, but I mean it when I say I wouldn't have made it to this point if it weren't for the people around me. I'm so grateful for my family who has done everything to support me, for my friends who have taught me so much, and for the professors and faculty at UVA and Batten who have challenged me. I'd also like to give a special shoutout to Kim Link, who brought me into Albemarle County Public Schools (ACPS) as an intern and encouraged me to continue with my research, and Professor Ray Scheppach, who provided so much constructive feedback and wisdom over the past year.

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This report was prepared for Kim Link of ACPS.

Disclaimer
The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

Honor pledge
On my honor as a student, I have neither given nor received unauthorized aid on this assignment.

Jacob S. Shapero

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Introduction

My first introduction to the field of education policy was in the spring of 2020 during Batten's 48 Hour Project. The topic I received was on de facto segregation in Charlottesville Public Schools. In the summer of 2020, I worked as an intern for Albemarle County Public Schools (ACPS). I worked on projects aimed at improving equitable access for the work and community-based learning program. These experiences taught me that there was no such thing as an achievement gap. This implies that certain students are not as gifted or hardworking as others, which is not the case. Instead, there are opportunity gaps. Some students lack the educational opportunities that wealthy, white students have had their entire lives.

This paper aims to address some of the disparities in access to educational programs and opportunities that economically disadvantaged students and students of color have experienced for far too long. The alternatives we discuss in this paper will not close the opportunity gaps completely. Instead, they must be accompanied by deeper, systemic changes. Only then will we see schools where all students have the same opportunities.

Executive Summary

The number of students in Albemarle County Public Schools that permanently drop out during four years of high school is too high. This is especially true for English Learners and economically disadvantaged students. English learners have a dropout rate of 35%, a rate that is eight times higher than the division average. And while economically disadvantaged students make up 32% of the division, they make up over 90% of the dropouts. Dropouts impose large costs to society through increased utilization of government programs and lost productivity. Importantly, they also perpetuate systemic disadvantages for the same minority groups.

Students are thought to drop out for three primary reasons: low motivation/perceived competence, poor academic performance and disciplinary issues, and low socioeconomic status. For students of low socioeconomic status, their parents are often unable to support them in school and experience financial issues that force them to pull the student out of school. As a result, when economically disadvantaged students and English learners drop out of high school, they are also increasing the likelihood that their children will do the same, creating a vicious cycle.

While it is difficult for Albemarle County Public Schools to address a student's socioeconomic status, they can design programs that address academic performance, disciplinary issues, low motivation, and low perceived competence. The division has a large amount of discretion over their teaching methods and programs as long as they meet the state prescribed standards of learning. However, because they receive an allocation of funds from the Commonwealth, changes in programs and teaching methods should not represent a drastic increase in the budget.

Keeping in mind the dropout risk-factors that Albemarle County Public Schools can address and its legal and financial constraints, we consider five policy alternatives: letting present trends continue, expanding the work and community-based learning program, expanding the culturally responsive teacher certification program, providing more targeted counselor interventions, and introducing a values-based writing exercise.

We compare these five policy alternatives on five different criteria: their cost-effectiveness, proficiency, equity, political feasibility, and ability to implement. Using those measures, the best option is to introduce a values-based writing exercise. Because it is highly cost-effective and equitable, it improves student proficiency, and it is politically feasible, a values-based writing exercise will be the best option for the county.

When implementing the program, we recommend first hiring the coordinator, clarifying the specifics of the program, training the teachers and rolling out the program at one school, evaluating the results, and then deciding whether to implement the program at the county level.

Problem Definition

The number of students in Albemarle County Public Schools that permanently drop out during four years of high school is too high. This is especially true for English Learners and economically disadvantaged students.

The dropout rate for all of Albemarle County Public Schools (ACPS) is 4.4%, or 48 students per year (VDOE). This number is on a relative rise over the past five years. The dropout rate was 2.6% for the class of 2016, and has gradually increased to a rate of 4.4% for the class of 2020. This is in contrast to the trend set by state dropout rates, which have stayed steady (and slightly decreased) over the past five years.

The dropout rate in Albemarle County is slightly lower than the average dropout rate for the state of Virginia, which is 5.1%. However, ACPS has a higher dropout rate than neighboring counties, like Charlottesville City PS (2.6%), Fluvanna County PS (2.0%), and Greene County PS (3.9%).

The dropout rate in Albemarle County is concentrated among two marginalized groups. The dropout rate for students who are English Learners (ELs) is over 30 percentage points higher than the overall dropout rate for ACPS – at 34.8%. Of the 48 students that dropout per year, 31 are English Learners. The dropout rate for students who are currently (or were at point) economically disadvantaged is 11.7%, or 45 students per year. Of the 48 students that dropped out of Albemarle County Public Schools, over 90% were economically disadvantaged at one point.

Background

Why is dropping out a problem?

Dropouts impose large costs on other members of society, which is known as a negative externality. Negative externalities are costs caused by an action that affect a party who chose not to take part in that action and receive those costs. In this case, the action is dropping out. Dropping out affects more than the person who drops out. They also impose costs on other members of society. Society might have to provide additional social services to dropouts because of their decreased job prospects. But, when deciding whether to dropout, the student often doesn't consider this effect on others. As a result, there tends to be too much of this behavior in society. This necessitates government intervention.

Costs to society come in two forms: direct costs and opportunity costs. Direct costs are the out-of-pocket costs paid by society to address the problem. An example of this is the cost of paying for a social program for a dropout. On the other hand, opportunity costs are those borne by society but not directly paid. An example of this is the lost value from a dropout spending less time working.

There are direct and opportunity costs associated with dropping out of high school. Many have conducted cost analyses to study the total societal cost of a high school dropout. The estimates of the total social costs associated with dropping out range from $209,000 to $392,000 per high school dropout (Caterall 2011) (Sum et al 2009), with a middle of the range estimate of $292,000 (Belfield and Levin 2007). When scaled up to include all of the dropouts in one ACPS graduating class and using the estimate in the middle of the range, the cost to society exceeds $13 million each year.

Direct costs:

1. Welfare programs: Dropouts have higher unemployment rates and lower wages than high school graduates. As a result, high school dropouts are 47% more likely to be on any welfare program (Belfield and Levin 2007). Because high school dropouts are more likely to rely on social insurance programs like TANF, SNAP, and housing assistance, they impose direct costs on society.

2. Health programs: Education is strongly and negatively associated with many conditions of poor health (like heart conditions, strokes, hypertension, high cholesterol, depression, and diabetes) and behaviors that lead to poor health (like smoking) (Cutler and Lleras-Muney 2006). This causes dropouts to enroll in Medicaid at rates that are 2-3 times higher than high school graduates (Belfield and Levin 2007). Higher Medicaid enrollment rates translate to more payouts and more direct costs to society.

Additionally, those that are not enrolled in Medicaid but do not have health insurance impose costs to society by seeking uncompensated care, or hospital care provided but for which no payment was received. Society eventually directly pays for the cost of uncompensated care.

3. Crime: Of the entire set of criminal activities, 48% involve individuals with less than a high school education (Harlow 2003). Furthermore, graduating high school reduces crimes by 20% for murder, rape, and other violent crimes; by 11% for property crime; and by 12% for drugs-related offenses (Lochner and Moretti 2004). Because dropouts interact with the judicial system much more than graduates, they impose direct costs to society in the forms of incarceration, court fees, and rehabilitation programs.

Opportunity costs:

1. Lost productivity: Dropouts are less productive because they have a shortage of skills to provide for their employers and have less experience to draw on during job training. This reduces the nation's output and productive capacity. Because they have less skills, they are also less likely to be hired in the first place. As a result, there is a reduction in national income/GNP (Catterall 1987).

2. Lost employment: Dropouts are more likely to be incarcerated. While incarcerated, they are unable to contribute to the labor force. Further, dropouts are more likely to die earlier because of decreased health. Because they've passed away earlier, they are unable to contribute to the labor force. This leads to a lower GNP, as they are unable to help in producing output.

3. Unsafe communities: Dropouts are more likely to commit violent crimes and have drug related offenses than graduates. This creates a less safe community that hurts other law-abiding members of the community, whether that be through lower property values or through being a victim of crime.

And these do not include the costs of dropping out on dropouts themselves. Dropping out of high school reduces income, decreases mental and physical health, and increases the likelihood of incarceration. All of these impacts decrease overall well-being. While most dropouts claim they acted in their best interests at the time of leaving high school, on average the decision is viewed unfavorably (Peng et al 1983). Because high school dropouts do not foresee the long-term consequences of their actions, this represents an internality. This market failure produces a need for government intervention.

<u>What are the reasons that students drop out?</u>

The three most commonly studied predictors of high school dropout are: demographic factors/family environment, academic performance/retention, and school related beliefs and behaviors (Parr and Bonitz 2015).

1. Socioeconomic status and family background

Dropout research has found family background to be one of the primary determinants in the likelihood that a student will leave school (Fitzpatrick and Yoels 1992; Nam, Rhodes and Herriott 1968). Students may be pulled out by family issues such as new parenthood or the need to care for a relative, or financial issues such as the need to work (Jordan, Lara and McPartland 1996; McNeal 1997). These issues are more commonly associated with students of low SES

(Elfenbein and Felice 2003). However, it can also be the source of a falling out factor, as parents are unable to support their student's education because they are busy working. Parental involvement and encouragement of education are strong predictors of dropout (Jimerson et al 2000; Tseng 1972). Jimerson et al (2000) found that parental involvement in school through development was a statistically significant predictor of dropout status at age 19.

With this theoretical understanding, it makes sense that researchers find that a high socioeconomic status is associated with a lower likelihood of dropping out (Alivernini and Lucidi 2011; Battin-Pearson et al 2000; Jimerson 2000; Janosz et al 1997). Students with higher SES often have opportunities other than dropping out to address problems that conflict with school, or they may receive more support from family.

2. Academic performance and retention

Poor academic achievement and disciplinary problems are two of the strongest predictors of dropping out. In Suh et al's (2007) research, when taking into account over 20 variables representing personal, behavioral, familial, and school-related characteristics of the participants, GPA in the eighth grade and having previously been suspended were two of the variables most correlated with dropping out. The other variable is SES, which corroborates another commonly accepted predictor of dropping out.

There is ample research suggesting that academic performance is a strong determinant of dropping out (Battin-Pearson et al 2000; Gleason & Dynarski 2002; Goldschmidt and Wang 1999; Hardre and Reeve 2003; Janosz et al 1997). This link has been observed consistently, but there is still some question over the magnitude of the correlation between GPA and dropping out. Some researchers have found it as the strongest predictor, while others have found that it is important but not the strongest.

The research on discipline is more limited than the research on academic performance, but there is still strong evidence to corroborate Suh's research. Deviant behaviors, which are often expressed as disruptive school behaviors, increase the dropout risk for many students (Farmer and Payne 1992; Gruskin et al 1987; Reyes 1989; Tindall 1988). Marchanks III et al (2015) found that a typical student who received a discipline of in-school suspension or more severe was 23.7% more likely to drop out of school that year, even after controlling for other factors. Similarly, Jimerson et al (2002) found that being retained in a grade for disciplinary reasons can be a better predictor of dropping out than academic performance.

3. Student motivation and school-related beliefs

The third commonly studied predictor of high school dropout is student motivation and value of education. While much of the literature suggests that school-related beliefs are strong predictors of dropping out, there is an important limitation to many of these studies: they analyze the relationship between school-related beliefs and the self-reported intent to drop out, but not the decision to follow through on these intentions.

In one study of Italian secondary school students, Alivernini and Lucidi (2011) found that students' self-determined motivation was the most powerful predictor of intentions to drop out one year later. They utilized a longitudinal design that took socioeconomic status and academic performance into account. Higher self-determined motivation was associated with lower intention to drop out, even when other variables, like SES and academic performance, were controlled for.

Similarly, Dunn, Chambers, and Rabren (2004) conducted a study on students with mental retardation and learning disabilities that did and did not drop out. Dunn et al found that the dropout rate among students who believed that school was not important and who could not identify a helpful person or class was 80%, which was much higher than the 29% dropout rate among students who believed school was important to their future, and who could identify a helpful person or class. They found this was especially true for students with learning disabilities, as the probability of dropping out for a student with learning disabilities who did not feel he or she was being prepared for life after high school and did not identify a helpful class and a helpful person was 86%.

This research is supported by Legault, Green-Demers, and Pelletier (2006), who found that students who placed less value on school were statistically significantly more likely to report intentions to drop out. Additionally, Hardre and Reeve (2003) found that perceived competence is significantly predictive of intentions to stay in school. Sarrazin et al (2002) suggest that students' lower perceived competence translates into lower levels of self-determined motivation, which then translates into dropout behavior

There is some literature that suggests school-related beliefs and low perceived competence (which impacts motivation) have limited effects on dropouts. Parr and Bonitz (2015) used a nationally representative study of 15,753 high school students that integrated groups of variables (demographic background, student behaviors, and school-related beliefs) with the goal of predicting high school dropout. Their results indicated that socioeconomic status, academic performance, parental involvement, and absenteeism were most predictive of high school dropout. However, self-efficacy and task value added little explanatory power. In other words, those factors played a minor role in high school dropout when stable demographic variables, such as SES, were included. This research suggests that motivation/school-related beliefs may play a role for high school dropouts, but it might not be as important as other researchers suggest. Another possibility is that motivation and stable demographic factors are very predictive of each other, known as multicollinearity. Multicollinearity would increase the standard errors and limit researchers' ability to distinguish between the effects of the two collinear variables, in this case motivation and stable demographic variables.

Overall, the literature has centered around three main predictors of dropping out. For the most part, these predictors are widely accepted and are valuable in considering how Albemarle County Public Schools can reduce the number of dropouts.

What is the legal and financial landscape of public education in Virginia?

The legal foundation of public education in Virginia is Title 22.1. in the Code of Virginia. Chapter 1 states there will be a system of free public elementary and secondary schools established, maintained, and administered by the Board of Education, the Superintendent of Public Instruction, division superintendents and school boards.

General supervision of the public school system is vested in the Board of Education, which consists of nine members appointed by the Governor. They serve four-year terms and are approved by the General Assembly. The Board of Education is able to adopt regulations and promulgate them if necessary to carry out its powers and duties, but must prepare a statement describing the administrative impact of such regulation on divisions.

Every year, the Board of Education must submit a report on the condition and needs of public education in the Commonwealth. They identify school divisions and specific schools that failed to maintain the standards of quality, and report this to the Governor and the General Assembly. These standards of quality are subject to revision only by the General Assembly, pursuant to Article VIII, Section 2 of the Constitution of Virginia. To ensure the integrity of the standards of quality, the Board of Education will determine and prescribe the standards every other year.

In addition to creating the standards of quality and ensuring that they're met, the Board also receives, allocates, and dispenses funds appropriated by the General Assembly and applies for, accepts, and receives grants of federal funds and funds from other public and private sources. The Director of the Department of Planning and Budget oversees and approves the disbursement of all funds appropriated to the Board. The head of the Board, the Superintendent of Public Instruction, is appointed by the Governor and confirmed by the General Assembly, for a term coincident with that of the Governor making the appointment.

The Board of Education is responsible for dividing the Commonwealth into school divisions in a way that best promotes meeting the Board's standards of quality. Each school division is supervised by a school board. Each board has between six and nine members, which each member serving a term of four years. In addition to the division school board, there is also a division superintendent of schools. Together, the division school board and division superintendent are responsible for managing, maintaining, and controlling all division property and operating the public schools in the division. They determine the length of the school term, the studies to be pursued, the methods of teaching, and who to employ, as long as they meet the standards of quality.

The division school board will receive funds for the establishment, support and maintenance of the public schools in the school division. These funds consist of state funds appropriated for public school purposes and apportioned to the school board, and federal funds appropriated for educational purposes and apportioned to the school board. The state Board and General Assembly are responsible for this disbursement of these funds. The division school board manages and controls the funds they receive. The division superintendent prepares, with the approval of the school board, and submits an estimate of the amount of funds they'll need for each academic year. If the length of the term of any school or the schools in a school division is

less than 180 teaching days or 990 teaching hours in any school year, the amount of funds it receives will be reduced in the same proportion as the length of the school term. The total funds received, and the total amount of spending, in the 2019 school year was $195 million. 72% of these funds came from the county ($140 million), 25% came from the state ($50 million), and about 3% came from the federal government ($5 million).

Given this organizational structure, school divisions (led by the superintendent) have a large amount of discretion in the programs that they implement. The Virginia Board of Education is tasked with providing general supervision over school divisions, ensuring that they meet standards of quality, but the division school board and superintendent wield much of the decision-making ability. While Albemarle County Public Schools has considerable discretion over which programs to implement and how they implement them, it does not have as much discretion over the budgetary/funding process for their programs. The School Board determines how funds are to be spent, but the amount of funds they receive are determined by the General Assembly and the Board of Education, with assistance from the county's board of supervisors. Because of its limited control over the total level of funding for the county, the superintendent must consider the financial burden of any suggested interventions. In order to spend money on an academic program, they must take away funds that would have been allocated to other sources.

What does Albemarle County Public Schools look like?

Albemarle County Public Schools (ACPS) serves about 14,000 students in preschool through grade 12 in Albemarle County, Virginia, the sixth largest county by area in the Commonwealth of Virginia. There are over 33 schools in Albemarle County, made up primarily by: 15 elementary schools (PK-5), 6 middle schools, including 1 charter middle school (6-8), 4 high schools, including 1 charter high school (9-12), and 3 science and technology academies (9-12).

ACPS has a division superintendent with a cabinet to assist them in making decisions. Their cabinet consists of the: deputy superintendent, division attorney, assistant superintendents, and chief operating officers. There are three directors of education who report to the deputy superintendent: elementary education, secondary education, and special education. The directors of education collect information from, plan with, and supervise the principals that lead the schools falling under their command. For example, the director of secondary education would overlook the principals of the four high schools and the directors of the three academies in the county (Albemarle County Public Schools).

ACPS has 1,342 teachers (including classroom teachers, speech pathologists, school counselors, instructional coaches, and librarians) and 13,532 students from Pre-Kindergarten to Grade 12. Of these students 31.7% (4,287 students) are economically disadvantaged and 10.1% (1,361 students) are English learners. The 2020-2021 ACPS budget is $193,741,120 with a per-pupil expense of $13,609.

What is Albemarle County Public Schools doing to address the problem?

Albemarle County Public Schools currently operates two programs aimed at reducing dropout rates, especially for traditionally at-risk students: 1) work and community-based learning and 2)

culturally responsive teaching certification. Work and community-based learning allows high school students to receive experiences in the workforce that are coordinated by the school and related to their interests. These experiences are thought to improve student academic performance by relating and integrating classroom material to career interests and raising motivation. Culturally responsive teaching is a pedagogical technique that encourages students to relate course content to their cultural context. By training teachers in this technique, ACPS aims to create lesson plans and environments that support the diverse identities and experiences in the classroom. These environments and lesson plans reduce the threat minority students feel and enable strong performance for all students.

Evidence on Potential Solutions

ACPS can combine information gained from: 1) the three accepted predictors of dropping out, 2) the legal and financial landscape of public education in the county, and 3) the demographic profile of its county, to determine the best ways to address its dropout problem. Alternative policies should address one of the three accepted predictors of dropping out, should abide by the legal and financial constraints of a school division, and be tailored to the demographic profile of Albemarle County. The policies below are the best practices that meet these standards:

1. Create a more personalized learning environment for English language learners.

This policy suggests creating extracurricular activities sponsored by EL teachers in order to create a more welcoming environment for students. Extracurricular activities have been shown to improve self-worth and increase exposure to post-secondary opportunities, both of which have an effect on dropout risk.

English language learners (ELLs) represent over 60% of the students that drop out of Albemarle County Public Schools. This group also has the highest dropout rate in ACPS: 37.3% (VDOE). According to the Migration Policy Institute, the dropout risk is particularly high for ELL students because of 1) low academic expectations and 2) difficulties forming a sense of identity and connection with the school. These factors can diminish English language learners' sense of academic self-worth and reduce their ability to identify helpful people and classmates. This leads to disengagement and isolation (Sugarman 2019). With a limited connection to teachers and other cultural aspects of the school, they are prone to issues associated with low motivation, like absenteeism, which is a statistically significant predictor of dropping out.

By creating ELL-teacher-sponsored extracurricular activities that are welcoming to ELLs, they can create a more personalized environment for these students. These extracurricular activities have many positive effects that can reduce dropout rates. First, they will help students set goals and give them a taste of post-high school opportunities. Second, they will also improve the relationships between ELL students and teachers, which can chip away at the low academic expectations that create low self-worth in ELL students (Rodriguez et al 2020). Fostering positive relationships with teachers has been shown to reduce dropout risk ($e(\text{coefficient}) = 0.476$, $p < .01$) (Kim 2015). And third, they can offer more opportunities to improve English proficiency, which is a strong predictor of dropping out (Lofstrum 2007). Lofstrum found that when including English as a second language and limited English proficiency variables, the gap in dropout probability between Hispanic students and white students dropped by 10 percentage points.

2. Create a formal mentoring program for economically disadvantaged students.

This policy suggests creating an in-school mentoring program for economically disadvantaged students. When 1) using best practices with respect to training and supervision and 2) selecting youth based on environmental risk factors (e.g., socioeconomic disadvantage) rather than behavior risk factors, programs have had significantly large effect sizes.

The literature suggests that the more environmental risk factors a young person has, the less likely he or she is to have a naturally-occurring mentor (Bruce and Bridgeland 2014). In other words, socioeconomically disadvantaged students, who are already at higher risk of dropping out, are also less likely to find mentors that could increase their academic effort and increase motivation. Because of lower effort and motivation, students are less likely to perform well academically and are more likely to drop out of school. However, Cavell et al (2009) conducted a meta-analysis of 59 mentoring studies and found significant effect sizes (ds = .24 and .25) for programs using best practices. These effect sizes increased when they took place in an academic setting. Other literature supports this, with results suggesting that students with mentors made significantly higher academic gains than students without them, even after controlling for ability (Thompson and Kelly-Vance 2001).

3. Use targeted counselor interventions for at-risk youth.

This policy suggests enhancing student support operations by identifying young students with an elevated risk of dropping out. Then, counselors should make targeted interventions specific to each student's risk profile to ensure that they stay in school. Research shows that earlier interventions tend to be more cost-effective than waiting for students to get to high school.

Risk factors that predict high school dropout often manifest and influence student achievement trajectories long before they reach high school. This suggests that it may be more difficult to address the high school dropout problem at the high school level. To limit the negative impact of risk factors, theory and research suggest that it may be more efficient to intervene earlier in students' academic careers. Although school failure is a multifaceted problem (family, social, economic and personal factors), classification algorithms are becoming increasingly accurate in identifying at-risk students. Pradeep et al (2015) used rule induction and decision tree methods to predict a student's failure or dropout with over 96% accuracy. Because of the high accuracy associated with these classification methods, Albemarle County can be highly efficient with their counselors.

Early identification allows counselors to bolster protective factors in students while also addressing risk factors so that they don't compound. Lee-St. John et al (2018) conducted an analysis that drew on individual student data from Boston Public Schools from 2001–2002 through 2013–2014. They used a propensity score-weighted Discrete Event History Analysis. The results from their research provided direct empirical evidence that a systematic and individually tailored student support intervention during elementary school years can lead to lasting and meaningful effects. Intervention students had approximately half the odds of dropout ($p<.001$) (Lee-St. John et al 2018).

4. Introduce a values-based writing exercise

This policy suggests introducing a values-based writing exercise to seventh and eighth grade students. Writing exercises, a form of social-psychological intervention, are designed to improve at-risk minority student performance by reducing stereotype threat. Stereotype threat is the fear of confirming a negative stereotype aimed at one's group could. This undermines academic performance in minority students by elevating their level of psychological threat. Because the

in-class writing exercises force students to reaffirm their self worth and value, they will reduce the amount of threat that at-risk minority students experience and translate to better academic performance. By having students reaffirm their sense of personal adequacy or ‘‘self-integrity’’ through a series of brief in-class writing assignments, we can reduce the amount of threat that minority students experience and improve classroom performance.

Cohen et al (2009) find that this writing intervention, when given to students 5 times per semester for all of seventh grade, improves the grades of black students and reduces the racial achievement gap by 40%. Over 2 years, the grade point average of black students was, on average, raised by .24 grade points. The effects on low-achieving black students were even larger, as their grade point average improved by .41 points, and their rate of remediation and grade repetition was reduced by approximately ⅔.

When Cohen and colleagues revisited the students two years after their initial intervention, they found that their improvements persisted. Because initial performance and psychological states affect later outcomes by providing a baseline and trajectory, small psychological interventions, like writing exercises, can interrupt a negative track and have long-lasting effects.

5. Expand work-based learning to include summer employment opportunities.

This policy suggests expanding ACPS’ work-based learning (WBL) program to include summer internships and jobs. Work-based learning helps students earn academic credit or get paid by pairing them with employment opportunities in the community. This program has been shown to increase motivation, which leads to lower dropout risks. Expanding WBL to the summer will increase the accessibility of these workplace experiences, so more students can reap its benefits.

Work-based learning consists of school-coordinated workplace experiences that are related to students’ career goals and/or interests, are integrated with instruction, and are performed in partnership with local businesses and organizations. WBL experiences enable students to apply classroom instruction in a real-world business or service-oriented work environment. The Virginia Department of Education (VDOE) recognizes 11 WBL experiences, including job shadowing, mentorship, service learning, externship, school-based enterprise, internship, entrepreneurship, clinical experience, cooperative education, youth registered apprenticeship, and registered apprenticeship. Some of these experiences provide opportunities to receive either school credit or to get paid (VDOE).

These experiences provide an opportunity for students to make classes in academic subjects more interesting, more relevant to their future, and more hands-on. Bridgeland et al’s (2008) report presents original and secondary research that shows the ability of service-learning to address some of the principal causes of dropping out, like student motivation. Their research builds on other literature suggesting that these experiences improve almost every aspect of education that has an effect on graduation rates.

However, Albemarle could expand on the success of the WBL program by offering some of the same opportunities during the summer. This could make the program even more accessible and a better taste of post-secondary opportunities if it was expanded to include summer employment.

Students who have participated in summer employment programs have been found to have improved academic performance on standardized exams that have a direct effect on dropout rates (Schwartz et al 2015). Schwartz et al used student-level data from Summer Youth Employment Program files from the New York Department of Youth and Community Development and New York City Department of Education (NYCDOE) administrative data files. They matched students from each of these files for the 2005-2008 program years and found that summer employment participation has positive impacts on student academic outcomes, like the number of students who pass the New York State Regents Exams. They find that these effects are particularly large for students who participate in SYEP multiple times.

6. Increase incentives for the Culturally Responsive Teaching certification program.

This policy suggests increasing incentives for the Culturally Responsive Teaching (CRT) certification program. The CRT program helps teachers create a more welcoming environment for marginalized students, which has been shown to lead to better performance from their students. As of the 2020-2021 school year, approximately 5% of ACPS teachers have gone through the training program. By increasing the incentives, more teachers will have the opportunity to attend and benefit their students.

Culturally responsive teaching is thought to reduce the racial achievement gap and address the disproportionate representation of diverse students in special needs programs. (Griner and Stewart 2015; Shevalier and McKenzie 2012). The theoretical framework and evidence are substantiated by extensive research finding that measures of teacher preparation and certification are some of the strongest correlates of student achievement in reading and mathematics, both before and after controlling for student poverty and language status (Darling-Hammond 2000). Although, it is important to note that there is little empirical evidence suggesting that culturally responsive teaching improves minority student performance.

However, only approximately 60 of the 1,344 teachers in the county are certified. With limited exposure to culturally responsive teaching, students are unable to reap the full benefits of the program. By increasing the incentives for teachers to participate in the certification program, more teachers will participate in a program that has shown to improve minority student performance.

Criteria for Evaluation

When comparing possible alternatives to the status quo, we will evaluate them on five criteria: 1) cost-effectiveness, 2) equity, 3) proficiency, 4) political feasibility, and 5) ability to implement. We will use an ordinal ranking procedure, where a score of one indicates that a given alternative is better than the others on a certain criterion. We will weigh the scores that the policy receives by the importance of each criteria, and then sum the weighted scores to find the total effectiveness of an alternative policy. The alternative with the lowest total score will be the policy that we recommend.

1. Cost-effectiveness (35%) - Cost-effectiveness relates the cost of the alternative to the anticipated number of dropouts prevented. To calculate the cost-effectiveness, we divide the additional costs of the new program to the baseline/status quo division budget by the number of dropouts the policy saves. By dividing the net present value of the total cost of the policy over the next ten years by the sum of the number of dropouts prevented over the next 10 years, we find the amount of money spent to prevent one student from dropping out. A lower number indicates higher efficiency, as the division has to spend less money to prevent one dropout. I will measure this criterion using Department of Education dropout statistics and the financial cost to the division of implementing a suggested alternative. This criterion has a weight of 35%.

2. Equity (35%) - Equity measures the distributional effects of the benefits of the program. If a policy alternative benefits at-risk minority students more than students who are not at-risk, it will receive a better score. In Albemarle County Public Schools, the dropout rates are particularly high for at-risk students. The dropout rate for economically disadvantaged students is approximately three times larger than the dropout rate for all students, and the dropout rate for English learners is approximately eight times larger. Because ACPS' mission is to ensure all students become successful 21st century citizens, it is important to understand the distributional effects of a policy. We will measure this criterion using theoretical research. This criterion has a weight of 35%.

3. Proficiency (10%) - Proficiency measures the policy's effect on the quality of the education a student receives. One option to reduce the number of student dropouts is to decrease the standards for students. However, this option would fail to achieve its goal of creating students and citizens ready to participate in the 21st century. As a result, we need to include a measure of how the alternative affects readiness for participating in the workforce. We will measure this criterion by estimating the effects of the alternative on NAEP scores. This criterion has a weight of 10%.

4. Political feasibility (10%) - Political feasibility measures the probability that the program will be approved. Measuring a program's likelihood of adoption involves studying the decision maker and the key stakeholders. If a policy requires a decision maker above the division level or by a body that is not controlled by the superintendent, it will be less feasible. But even if the superintendent is the decision maker, we also need to consider the viewpoints of the key stakeholders. If they oppose the policy, then it's unlikely the superintendent would adopt the policy because they need to maintain strong relationships

with the stakeholders. Key stakeholders in this scenario could be teachers, counselors, and parents. This criterion has a weight of 10%.

5. Ability to implement (10%) - Ability to implement measures the bureaucratic complexity and difficulty associated with implementing the policy after it has been approved. There are many factors that affect a program's implementation: 1) the number of parties involved in implementing the policy, 2) the possibility of technological issues, 3) whether the skills of the bureaucracy align with those needed by the policy, 4) whether there is enough funding to sustain the program, and 5) whether the bureaucracy is on-board with the policy. If there is: a large number of parties involved, a technological issue, a mismatch in skills, limited funding, or limited buy-in, the policy becomes much more difficult to implement. Poor policy implementation will undermine the effectiveness of the suggested alternative. This criterion also has a weight of 10%.

Alternatives

Of the six best practices on potential solutions to the dropout problem, we considered four of them as alternatives, in addition to letting present trends continue. Together, they represent the five policy options to addressing this issue: 1) let present trends continue, 2) expand the work and community-based learning program, 3) expand the culturally responsive teacher certification program, 4) provide more targeted counselor interventions, and 5) introduce a values-based writing exercise. We ultimately decided not to include a mentorship program or an English learner after-school program because of their high costs, and limited political feasibility and ability to implement. More information on the calculations can be found in the supplemental spreadsheet.

Alternative 1: Let present trends continue

Cost-effectiveness: Alternative one suggests that Albemarle County Public Schools take no additional action in addressing the problem. This alternative outlines what the dropout problem in ACPS will look like over the next 10 years, assuming we freeze current trends in education at the division level.

UVA's Weldon Cooper Center predicts 13.21% population growth over the next 10 years, for a compounded annual growth rate of approximately 1.25%. There are 1,076 members of the 2020 cohort. Assuming that all age groups grow evenly, ACPS should expect to have 1218 students per cohort by 2030. This population information will shape both the predicted number of dropouts and the predicted budget for the county.

Over the past three years, the dropout rate has plateaued between 4% and 5%. We assume a constant dropout rate of 4.25% over the next 10 years. By multiplying the fixed dropout rate by the number of students in the cohort each year, we find the total number of dropouts per year. We then sum the yearly dropout numbers over the next ten years to find the total number of dropouts over the next 10 years. We find that 490 students will drop out over the next 10 years.

Over the past three years, the per-pupil expenditure has plateaued between $13,600 and $14,200. We assume a constant per-pupil expenditure of $13,800. By multiplying the fixed per-pupil expenditure by the number of students in the cohort each year, we find the annual budget per year. We then sum the yearly expenditure over the next ten years to find the total amount spent over the next 10 years. Then, we take the net present value of the total amount spent over the next 10 years, using a 3% discount rate. We find that the total expenditure will be approximately $1.8 billion over the next 10 years.

When comparing these values to the state average dropout rate and state average per-pupil expenditure (Henrico County Public Schools) (Virginia Department of Education), we find that Albemarle County Public Schools is spending approximately $2.87 million dollars to prevent one dropout.

Equity: Compared to the other alternatives, this policy option makes no strides towards improving equity.

Proficiency: Compared to the other alternatives, this policy option makes no strides towards improving proficiency.

Political feasibility: Because this alternative requires no additional programs to be approved, this program is highly politically feasible.

Ability to implement: Because this alternative requires no additional programs to be implemented, this program is easy to implement.

Alternative 2: Expand the work and community-based learning program

Alternative two suggests expanding the work and community-based learning program (WBL) to include summer opportunities. Work-based learning helps students earn academic credit or get paid by pairing them with employment opportunities in the community. This program has been shown to increase motivation because students are exposed to the work environment and make connections between schoolwork and employment. Increasing motivation decreases the probability of dropping out. Work-based learning exists during the school year, but does not continue formally into the summer. By building a formal program over the summer, the WBL program will become more accessible and provide students a constructive way to stay motivated over the summer.

This will require hiring one additional employee at the division level to support the existing WBL team. This alternative will require that an additional coordinator be hired for three years in order to establish the summer program. Because this alternative policy suggests hiring additional personnel, this would require additional funding from the county.

Cost-effectiveness: Because the program requires an additional coordinator for the next three years to establish the summer work-based learning (WBL) program, this will require the division to pay for the salary, benefits, overhead, and office space for the coordinator for the next three years. Using a discount rate of 3%, the net present value of the total cost over the next ten years of the program represents a $200,000 increase to the baseline division budget. We add the cost of the program to the baseline budget in order to find the total expenditure over the next 10 years.

In their examination of New York City's Summer Youth Employment Program (SYEP), Schwartz et al (2015) find that on average, participating in the SYEP program increases the probability of passing a state standardized exit exam by .9 percentage points. Ou (2009) finds that failing an exit exam decreases graduation rates by 1.5 percentage points when compared to those who just barely pass. When combined, these findings suggest an approximate .014 percentage point decrease in dropout rates. When scaled across the increasing number of students in a graduating cohort in ACPS, this represents a decrease in the number of dropouts by 1.6 over the next 10 years. And when we compare this estimate to the state averages for dropout rate and budgeting, we find that under this policy alternative, the division is spending $2.83 million dollars to prevent one dropout.

Equity: While Schwartz et al (2015) did not look for any disproportionate effects on economically disadvantaged participants, there is other research that suggests that work and community-based learning programs have reduced achievement gaps between higher- and lower-income students (Scales et al 2006). As a result, this policy represents a middle-of-the-road equity alternative.

Proficiency: Participating in the SYEP program in NYC showed a small but statistically significant effect on Regents standardized test scores. The average treatment effect for one year of participation was an increase in probability of passing the state exam by .9 percentage points. This treatment effect increased to 1.5 percentage points when students participated in the

program more than once. These small but significant impacts on test scores represent an average proficiency alternative.

Political feasibility: Because the work and community-based learning program was implemented by the ACPS superintendent, the superintendent also has the authority to expand the program. The decision to expand would not significantly affect counselors and teachers, and would provide additional opportunities to students and parents. Further, the program represents a small, yearly expenditure for the first three years. As a result, this program is highly politically feasible.

Ability to implement: The framework for the work and community-based learning program already exists. Expanding the program requires one additional hire for the division to supplement the group that already works on the program. While hiring the additional employee represents a relatively small challenge, their impact could be limited if they are unable to find community members and organizations willing to partner over the summer.

Alternative 3: Expand the culturally responsive teacher certification program

Alternative three suggests modifying the Culturally Responsive Teaching (CRT) certification program. The CRT training helps teachers create a more welcoming environment for marginalized students, which should lead to better minority student performance. All ACPS educators and administrators, with 3 or more years of experience, may pursue the ACPS CRT Certification. Educators receive 90 recertification points and $1,000 for completing the certification process. However, only 63 educators of over 1,300 in ACPS are certified. This policy suggests eliminating the requirement that educators have 3 or more years of experience.

According to the National Center for Education Statistics, 16.1% of elementary school teachers have 4 or less years of experience. We assume that this is true for Albemarle County Public Schools. We also assume that the distribution of teachers within the first four years is constant, i.e. 4% of teachers have one year of experience, 4% of teachers of two years of experience, etc. Using these assumptions, approximately 12% of elementary school teachers have three years or less of experience. By eliminating the three-year experience requirement, this policy would increase the pool of culturally responsive educators by over 150 teachers. Because this alternative suggests increasing the number of certified culturally responsive teachers, it will require additional funding from the county.

Cost-effectiveness: Because the certification takes two years on average to complete, we assume that if the change in eligibility was implemented at the start of next year, there would be two years of no increase in spending. We also assume that all 150 teachers will receive the certification over the next 10 years. We then assume that the distribution of teachers who are certified from the third year through the tenth year after the change is constant. This represents 150 teachers over 8 years, or 18.75 each year. Each teacher that becomes certified through the CRT program receives $1,000. This represents a yearly cost to the county of $18,750. Using a discount rate of 3%, and no additional costs until the third year of the policy's life, the net present value of the total cost over the next ten years of the program is slightly above $124,000, which we add to the net present value of the baseline total operating budget. We add the cost of the program to the baseline budget in order to find the total expenditure over the next 10 years.

While we are able to calculate the total cost of the policy, we are unable to calculate the estimated effect on the number of dropouts. Theory suggests that this better understanding of students increases teacher quality through improved communication and a more supportive environment. Despite the extensive literature on culturally responsive teaching, there is no empirical evidence on the effectiveness of the program. As a result, in measuring the cost-effectiveness of the alternative, we assume that there will be zero dropouts prevented. When we compare the estimated effects on budget and number of dropouts to the state averages, we find that under this policy alternative, the division is spending $2.87 million dollars to prevent one dropout. This represents a conservative estimate.

Equity: The culturally responsive teaching model was designed to reduce the racial achievement gap for underachieving minority students in urban centers. Many researchers, including Allen (1992), Clay (2011), and Fleming (1991), cite the caring and supportive relationships formed at HBCUs as evidence for CRT's ability to create environments where minorities can succeed.

Scholars use this as evidence that the culturally responsive teaching model can help alleviate racial achievement gaps through their more welcoming environments (Gay 2014). Again, while this alternative lacks empirical support, it has a strong theoretical backing in reducing disparities in achievement, particularly benefitting at-risk minority students.

Proficiency: Because CRT reduces discrimination by emphasizing diveristy and a culturally accepting atmosphere, it helps students of all backgrounds perform without fear of confirming stereotypes. CRT also improves student-teacher interaction and creates a path for individual learning, which improves the educational experience. As with the analysis of cost-effectiveness, there is limited empirical evidence tying CRT to academic performance, so we will assume a limited effect on academic performance.

Political feasibility: Because the culturally responsive teaching certification program was implemented by the ACPS superintendent, the superintendent also has the authority to expand the program. The decision to expand would represent an additional investment in teacher quality and provide additional incentives to teachers, which should be a positive gesture towards two important stakeholders: teachers and families. This is especially true in the given climate, where race and anti-racism policies are at the top of the agenda. Finally, the program represents a small, yearly expenditure. As a result, this program is highly politically feasible.

Ability to implement: Because the CRT certification program already exists, the only change would be to the eligibility requirements. There is limited opportunity for the bureaucracy to impact this rule change. There are also limited opportunities for technological error. As a result, this program has a high ability to implement.

Alternative 4: Provide more targeted counselor interventions

Alternative four aims to provide more comprehensive and efficient student support operations. Using the City Connects model from Boston College, this system builds on the existing infrastructure already present in schools and in surrounding communities. Counselors can intervene early in at-risk students' academic careers. By connecting them to the proper support and services in elementary school, counselors can help improve academic performance for years to come, ultimately reducing dropout rates (Boston College).

This alternative requires one additional full-time master's-level school counselor or a school social worker to serve as a system coordinator. Counselors will meet with teachers and counselors to review each student every year. They will discuss each student's struggles, both in and out of the classroom. The coordinator will maintain partnerships with community agencies and maintain a standard set of practices with respect to oversight and implementation.

Coordinators will support counselors in providing the best resources to help support the student and ensure that counselors are able to track which resources have been provided, and to remind counselors if this has not occurred. This alternative uses identification strategies to classify students as being at-risk of dropping out while they are still in elementary school. These strategies are becoming increasingly accurate in predicting which students will dropout, even at an early age, which enables counselors to prioritize support to the most at-risk students.

Cost-effectiveness: The average salary for a master's-level school counselor or a school social worker in Albemarle County Public Schools is $49,120. When including benefits, overhead, and office space, the yearly expenditure for one of these counselors is $103,000. But because the program requires a coordinator at each elementary school, and there are 15 elementary schools, this represents a yearly cost to the county of $1.5 million per year. Using a discount rate of 3%, the net present value of the total cost over the next ten years is about $13 million, which we add to the budget. We add the cost of the program to the baseline budget in order to find the total expenditure over the next 10 years.

In their analysis of the City Connects program in Boston Public Schools, Lee St. John et al (2018) find that the probability of dropout for students who were part of the counseling program was 9.2%. This dropout rate is approximately 45% lower than the dropout rate for students who were not selected to participate in the program (16.6%). When scaled for the number of students in Albemarle County Public Schools over the next 10 years, a 45% decrease in the dropout rate represents about 210 less students dropping out. And when we compare this estimate to the state averages for dropout rate and budgeting, we find that under this policy alternative, the division is spending $960,000 dollars to prevent one dropout, which is a highly cost-effective improvement.

Equity: While all student groups demonstrated more improvement in reading scores than students who were not part of the City Connects program, the positive effects were largest for English Language Learner (ELL) students. For students who attended the program from grade 1 through grade 5, the achievement gap between ELL and non-ELL students shrunk, with similar results in writing (Boston College).

Proficiency: In addition to the improvements in reading and writing, and reduced dropout rates, the program also has a statistically significant positive impact on unadjusted SAT-9 reading and math scores for third through fifth graders.

Political feasibility: While the division superintendent has control over the teaching methods for the county, they have limited control over the allocation of funds they receive. The City Connects program requires a large per-year expenditure, so the superintendent might need to work with the school board to cut funding from other areas of the budget. This increases the probability of alienating important stakeholders. The program has been replicated in other school districts and shown promising results, which should improve its favorability, but because of the large expenditure, this policy alternative is not very politically feasible.

Ability to implement: Introducing the City Connects program requires the division to hire 15 new coordinators. The program will also require the coordinators to work closely with the existing counselors. This involves a large number of parties involved in implementing the policy. It is also unclear whether there are enough funds to sustain the program or whether the bureaucracy is on board. While teachers are likely to appreciate the additional student support, some counselors may oppose additional employees in their department. Lastly, there is the potential for technological challenges in identifying and tracking at-risk students. As a result, this policy is not easy to implement.

Alternative 5: Introduce a values-based writing exercise.

Alternative five suggests introducing a values-based writing exercise for middle school students. Values-based writing exercises help students reduce the stereotype threat that at-risk minority students face when performing in an academic setting. By reaffirming important aspects about their identity, minority students are less likely to recall feelings pressured by stereotypes. This helps improve student attitude towards academics and increases resilience when at-risk minority students experience failure. As a result, minority students who undergo the values-based writing exercises are less likely to perform poorly academically, and when they do perform poorly, they are less likely to internalize their failure as part of their identity.

Cost-effectiveness: This alternative requires that the county hire a master's-level counselor or administrator in order to spearhead the training and implementation process. The average salary for a master's-level school counselor in Albemarle County Public Schools is $49,120. When including benefits, overhead, and office space, the yearly expenditure for one of these counselors is $103,000. In addition to the administrator of the program, the division must also consider the value of the time spent training the teachers who will implement the program.

We will train all seventh and eight grade teachers each year. Each training session will take two hours. Because the average ACPS teacher has 14 years of experience, and 69% of ACPS teachers hold advanced degrees, we assume that their time is equal to $40 per hour, using the ACPS pay scale. To find the number of total hours spent training, we found the number of teachers at the middle school level. There are approximately 600 teachers in secondary education (ACPS). Assuming the distribution is constant through all 6 grades (7-12), there are 100 teachers in each grade, or 200 teachers that need to implement the program. With 200 teachers receiving training once per year for 2 hours, with a wage of $40 per hour, the training process represents a yearly cost of $16,000. This represents an increase to the budget of $750,000 over the life of the program. We add the cost of the program to the baseline budget in order to find the total expenditure over the next 10 years.

In their experiment, Cohen et al (2009) find that their writing intervention reduces black students' rate of remediation and grade repetition by over ⅔, approximately 72%. Combining this information with additional research by Temple et al (2004) that finds that when comparing similarly achieving students, those that have to go through remediation or repeat a grade are more than 50% more likely to drop out. Because the results from Cohen et al apply only to at-risk minority students, we scaled the program's effects to just black and Hispanic students, holding their proportion of the school makeup and their dropout rates the same. When we do so, we find that the values-based written exercises prevent approximately 100 dropouts over the life of the program. Comparing these estimates to the state averages for dropout rate and budgeting, we find that under this policy alternative, the division is spending $1.5 million dollars to prevent one dropout, another highly cost-effective improvement.

Equity: Cohen et al (2009) found that this program had no effect on high-performing European Americans. Instead, its effects were solely concentrated on students who are typically the least affected by educational interventions: low-perform, at-risk minority students. As a result, this program is highly equitable.

Proficiency: In addition to the reduced remediation rates that impact the probability of students dropping out, Cohen et al (2009) find that minority students experience an average increase in their GPA by .24 points, with even larger results for poorly performing students. For low-academic performers, the increases in GPA increase to .41 points on average.

Political feasibility: The division superintendent has control over the teaching methods for the county, and therefore has the control over whether to introduce this program. The program also represents a small yearly expenditure, so it is unlikely to require cuts from other areas of the budget. However, the program requires teachers to go through another training program and give up teaching-time in the classroom to administer the exercises. As a result, the program is moderately politically feasible.

Ability to implement: The division needs to hire one additional coordinator, which should not pose a large challenge. But, the coordinator will have to train all of the middle school teachers and ensure that students have the instructional time to complete the writing exercises (five per semester). Because of the potential lack of buy-in from teachers, receiving additional training and having to reduce instructional time, this program will be somewhat difficult to implement.

Table 1: Outcomes Matrix

Criteria	**Policy 1: Let present trends continue**	**Policy 2: Work-based learning**	**Policy 3: CRT certification**	**Policy 4: Counselor support**	**Policy 5: Writing exercises**
Cost-effectiveness (35%)	4 ($2.87M /dropout)	3 ($2.83M /dropout)	5 ($2.88M /dropout)	1 ($960K /dropout)	2 ($1.48M /dropout)
Equity (35%)	5	3	4	2	1
Proficiency (10%)	5	3	4	1	2
Political feasibility (10%)	1	3	2	5	4
Ability to implement (10%)	1	3	2	5	4
Weighted score	3.85	3	3.95	2.15	2.05

The columns above represent the potential policy alternatives, while the rows represent the criteria which we evaluated them on. The numbers that populate the matrix represent the ordinal ranking of the five policy alternatives based on those criteria. The final row represents the weighted average of the five criteria. The weights are as follows: 35% for cost-effectiveness and equity, and 10% for proficiency, political feasibility, and ability to implement. A lower score represents a better alternative. Accordingly, the writing exercise is the best option for Albemarle County Public Schools.

Recommendations and Implementation

In accordance with the outcomes matrix, we recommend that Albemarle County Public Schools adopt policy alternative five, introduce a values-based writing exercise. The values-based writing exercise is the best overall option because of its balance between the positive impacts on student achievement, particularly for low-achieving at-risk minority students, and its political feasibility and ability to implement.

The second-best policy alternative according to weighted score, providing targeted counselor interventions, is more cost-effective and proficiency-oriented than the writing intervention. The additional counselor support makes larger impacts on the total number of dropouts, test scores, and classroom grades. Counselor interventions outscore the writing exercises on two of the five criteria, cost-effectiveness and proficiency. But, the writing exercises outscore the counselor interventions on three of the five criteria: equity, political feasibility, and ability to implement.

ACPS should implement the values-based writing exercise policy alternative in three phases: 1) hire the coordinator and create the plan, 2) implement the plan at one pilot middle school, and 3) learn from failures at the pilot school and roll-out the program to the other middle schools.

Phase one requires hiring the coordinator, who will help organize the program. The coordinator will finalize the script that the teachers will follow when introducing the intervention, identify the time needed for a satisfactory response, and coordinate with the head of the department of the instruction to determine the best time during the school day to administer the program. Many middle schools in Fairfax County, VA have a designated study hall period. We recommend that the coordinator administers the program during that block, five times per semester, to minimize the amount of instruction missed and maximize the effects of the program. The coordinator must also consider when they plan on training and rehearsing the intervention. They must decide whether it will supplement an existing staff meeting or if it needs to be an independent piece of training over the summer. We recommend training teachers over the summer.

Phase two requires training the teachers and administering the program at one middle school in the division. We recommend picking the school with the lowest test-scores and most at-risk students to go first. This pilot program will serve as an opportunity to work out the kinks of the program. The coordinator should solicit feedback from the teachers that have administered the program in order to improve the program for when they execute at all middle schools. We recommend implementing the intervention at one pilot program for the first three to four years, with half the students receiving a values-affirmation exercise and the other half of students receiving a placebo intervention by random assignment. By conducting this experiment within one school, the division can evaluate the effectiveness of the program before expanding it to all of the middle schools within the division.

The final phase, phase three, entails rolling out the program to the entire division level. We reach phase three pending a successful rollout in phase two. Phase three builds on the initial success of phase two and ensures that all students have access to the benefits of the intervention.

Conclusion

Albemarle County Public Schools has a dropout problem. Not only are there too many dropouts and experiencing a relative increase over the past five years, but the dropouts are concentrated among underrepresented students, like economically disadvantaged students and English learning students. These impose large costs on society and perpetuate systemic inequalities.

There are three primary reasons that students dropout: socioeconomic status, low motivation and low perceived competence, and poor academic performance and disciplinary issues. The division has limited ability to impact the socioeconomic status of students, but they do have control over motivation, perceived competence, academic performance and disciplinary issues. Given the constraints placed on division by the state of Virginia, we recommend considering five policy alternatives: letting present trends continue, expanding the work and community-based learning program, expanding the culturally responsive teacher certification program, providing more targeted counselor interventions, and introducing a values-based writing exercise.

After evaluating these five policy alternatives on five different criteria, including: cost-effectiveness, proficiency, equity, ability to implement, and political feasibility, the best option is to introduce a values-based writing exercise. Because it is highly cost-effective and equitable, it improves student proficiency, and it is politically feasible, a values-based writing exercise will be the best option for the county.

When implementing the program, we recommend first hiring the coordinator, then clarifying the specifics of the program, training the teachers and rolling out the program at one school, evaluating the results, and then deciding whether to implement the program at the county level.

Appendix

Common assumptions made in the cost-effectiveness analysis:

- Add $10,000 for health and dental benefits per hire
- Add 25% of salary for cost of retirement and life-insurance benefits per hire
- Add 25% of salary for overhead costs per hire
- Add cost of 100 square feet per hire
- Hold proportion of demographic groups constant, i.e. Hispanic students make up 13% of ACPS
- Hold dropout rates for demographic groups constant, i.e. Hispanic dropout rate remains 14.7%

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