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Education and Political Participation

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Abstract

Whether education affects political participation is a long-standing and central question in political philosophy and political science. In this review, we provide an overview of the three main theoretical models that explain different causal pathways. We then synthesize the surge in research using causal inference strategies and show that this literature has generated mixed results about the causal impact of education, even when using similar methods and data. These findings do not provide clear support for any of the three theories. Our next section covers research on civic education and political participation. The quantity of civic education matters little for political participation, but how civic education is taught does matter. Namely, strategies falling under the rubric of active learning show promise. These strategies seem especially effective for historically marginalized students. Our final section calls for more research on how civic education is taught.

INTRODUCTION

Scholars have long argued that a healthy democracy requires an educated, politically engaged citizenry (Galston 2001). As Gutmann (1999, p. 49) wrote, "education, in a great measure, forms the moral character of citizens, and moral character along with laws and institutions forms the basis of democratic government." The leaders of the early American republic put it more succinctly. "Education," argued Noah Webster, "should therefore be the first care of a legislature" (quoted in Gutmann 1999, p. 48). Education is a necessary precursor of political participation. It is fundamental to self-governance (Dewey 1916). Public education in the United States owes its very existence to the imperative to inculcate civic virtue (Gutmann 1999, Holbein & Hillygus 2020).

Formal education indeed has a consistent and overwhelming association with political participation (Nie et al. 1996). The link between education and political engagement is among the most replicated and cited findings in political science. If scholars could use only one variable to predict voting, contacting public officials, signing a petition, or talking with others about public affairs, it would be the level of education (Verba et al. 1995). The association shows up for countries as well as individuals. As the population gains formal education, the country becomes more democratic (Glaeser et al. 2004; but see Acemoglu et al. 2005). As Nie et al. (1996, p. 2) wrote, "the notion that formal educational attainment is the primary mechanism behind citizenship characteristics is basically uncontested."

But does education cause participation? And if so, why? The first question turns out to have a surprisingly murky answer. For every positive finding, null results abound. Education has a null effect on democracy once confounds are adjusted (Acemoglu et al. 2005). Universal high school education and exponential increases in college degrees leave shockingly low levels of political knowledge and engagement largely intact (Delli Carpini & Keeter 1996, Nie et al. 1996, Prior 2018). In fact, younger cohorts are the most educated but the least politically active, and youth political participation has been decreasing, the Trump era notwithstanding (Galston 2001, p. 219; McDonald 2020). These dispiriting findings cannot be dismissed as an artifact of aggregate analysis. Rigorous studies of individual education have not solved the puzzle either.

Equally thorny is the question of why education would cause political participation. The literature offers three types of theories of the impact of education. The standard theory views education as an immediate, direct, and concrete cause of political participation; education teaches specific skills and knowledge. Theories of preadult socialization instead view education as a complex, long-term, and indirect cause of political participation. On this view, education transforms rather than trains. Finally, proxy theories view education as simply another ingredient in the compound of socioeconomic status (SES); the actual causes of political participation are socioeconomic, and education is merely correlated with status.

In recent years, an explosion of research has tested these models. Studies increasingly rely on causal identification strategies including instrumental variables, matching, panel data, and natural and controlled experiments. However, the literature has generated mixed results, even when using similar methods and data. These ambiguous findings do not provide clear support for any theory. In all, research calls into question the existence of any causal impact.

However, these studies typically take up only one facet of education, and a simple facet at that. They tend to view education as a quantity. Yet the type and quality of education surely matter for political participation. While standard civics and social studies classes often disappoint, active learning does show promise. Active learning includes civics taught with an open classroom climate, experiential learning, meaningful service learning, and critical pedagogy (Campbell 2006, Kahne & Sporte 2008, Kahne et al. 2013, Nelsen 2019).

In this review, we explore the three theories of education. We detail the conflicting findings and adjudicate among them. We document the dearth of well-identified studies and spell out the most useful methodological approaches. We then turn to studies of the content of education, where theories are plentiful but rigorous tests are scarce. We highlight promising research on active learning pedagogies. We make the case for innovative approaches to estimating the causal impact of education quantity—and more importantly, quality.

We focus on political participation as an outcome. Education can affect other important forms of political engagement, too. Civic education may affect civic norms, political knowledge, political efficacy, political attitudes, and political ambition (Torney-Purta & Wilkenfeld 2009, Gainous & Martens 2016, Green-Riley 2021, Kalla & Porter 2022). However, for manageability, we limit this review to political participation—actions, rather than attitudes and beliefs. Political participation is a vital element of democratic citizenship. Without it, even the most tolerant, reasoning, principled, knowledgeable, honest, and cooperative people lack sovereignty. Moreover, no act exemplifies self-governance more than the vote. The franchise has rightly been the focus of intense grassroots organizing for more than half the population and the starting point for liberation movements around the world (McConnaughy 2013, Teele 2018). Voting has also been the subject of the largest number of studies. As the sine qua non of democracy, and given the volume of research, we concentrate on voting and highlight other forms of political participation.

THEORETICAL MODELS

The association between education and voter turnout is among the most robust relationships in political science (e.g.,Verba et al. 1995, Nie et al. 1996). This relationship holds with both self-reported and validated turnout measures (Wolfinger & Rosenstone 1980, Katosh & Traugott 1981) and with controls for rival variables, including income and occupation (Wolfinger & Rosenstone 1980, Verba et al. 1995). Three main theories explain this relationship. (For a somewhat different definition of models, see Persson 2015).

Standard Model

In the standard model, education is a direct cause of political participation. School imparts political knowledge and specific skills necessary for being able to participate. The "capacity for self-rule" includes knowing how the political system functions, what citizens' rights and roles are, how to cast a vote, and verbal facility (Verba et al. 1995, Delli Carpini & Keeter 1996, Nie et al. 1996). Schooling, and especially civics education, is thought to increase political participation by increasing these skills and understandings. For example, Wolfinger & Rosenstone (1980) highlight two skills that education gives students. First, literacy enables students to access and interpret information presented in the news media. Second, education provides students with the skills to figure out the bureaucratic elements of registering and voting. Individuals with higher levels of education are more likely to have the skills needed to learn about and understand how—and why—they should vote. Verba et al. (1995) further argue that citizens need the civic skills imparted by education not only to be informed but also to effectively communicate their needs and preferences to politicians. In sum, education directly equips citizens with the essential ability to participate.

This model has been highly influential. It informs many studies of participation, and it is a core tenet of education policy. However, it struggles to explain why education levels and voter turnout trended in opposite directions for much of the past century. The American public has become increasingly educated, yet voter turnout has declined. Brody (1978) identifies this crisscrossed trend as the "puzzle of political participation in America." While caution is warranted in making

individual claims from aggregated statistics, these opposite trends call into question the standard model of education. If education directly causes increased voter turnout, then a more highly educated population should vote at higher rates, barring some powerful offsetting development. This puzzle has brought a surge of studies theorizing and measuring the causal relationship between education and turnout. We will dive into that literature in the next section.

Preadult Socialization Model

A more expansive view of education comes from the socialization model. On this view, education builds democratic character, inculcating deliberative habits and sentiments—respect for law tempered by autonomous thought, discussion to resolve disagreements, fairness, empathy, benevolence, honesty, mutual cooperation, and a commitment to core principles of democracy and justice—along with the skills to think critically, interpret patterns, and understand systems (Gutmann 1999, pp. 52, 58, 61). Even when schools do not teach civics, their "hidden curriculum"—the implicit signals from school rules or teacher conduct—affect moral views, sentiments, tastes, and habits (Gutmann 1999, p. 53). While the standard model emphasizes a well-defined set of specific skills, the socialization model instead views education as a complex "grand treatment" with a wide swath of long-term consequences.

This model comes from theories of "preadult socialization," where education, along with the family and the community, serves as a primary socializing agent during the early, formative years of life (Highton & Wolfinger 2001, Gimpel et al. 2003, Sapiro 2004, Stoker & Bass 2011). Schools socialize students by influencing a broad set of political attitudes and perceptions and transmitting civic norms (Almond & Verba 1963, Hess & Torney 1967, Campbell 2006). Civic norms are widely accepted notions about what a good member of the political community does. For example, some community norms may inculcate a sense of civic duty: One must vote to be a good citizen (Campbell 2013). Exposure to norms can affect adult political behavior. This socialization may happen not only in the preadult years, but also in young adulthood, including college (Klofstad 2015, Mendelberg et al. 2020). A number of school and classroom factors have been found important in the socialization process. They include the school environment and peer groups (Langton 1967, Ehman 1980, Klofstad 2015, Mendelberg et al. 2020) elementary teachers' attitudes (Hess & Torney 1967)—but not secondary teachers' attitudes (Langton et al. 1974)—and classroom climate (Ehman 1980). Among other potential reasons, secondary teachers' attitudes may not be important because the classes taught by these teachers are often ineffective in increasing participation. We discuss this possibility in a later section.

Political socialization is a long and complex process. Some of these processes are indirect. Moreoever, norms and climates take a while to be internalized. Once they are internalized, however, they may be strong drivers of political participation (Campbell 2006). Education may matter by transmitting worldviews, identities, and tastes, including answers to fundamental questions such as what individuals owe society, how responsive the political system is and to whom, and what government should do.

Education as Proxy

The third and final model is education as proxy. This model views education as a sorting variable rather than as a set of learning or formative experiences. The main driver of political participation is not something about education itself, but a confounding variable, such as social status. Those with higher social status pursue higher levels of education, and those with higher social status also participate in politics (Verba et al. 2005, Jennings et al. 2009). Education does not cause participation in politics; instead, social status does.

This sorting model was formulated partly to explain the puzzle of why participation declined despite rising education. The key aspect of the model is its focus on the relative aspect of education. An individual's social status is relative to those around them, so if more people have higher education, then the value of their own education diminishes. Since the relative value of education decreases as more individuals attend college, an overall increase in Americans attending college would not lead to an increase in participation. Unlike in the first two models, in this model education does not influence participation via any direct, absolute impact. It may not increase an individual's sense of belonging to a participatory community, or their enlightenment, or their cognitive capacity. Instead, it is a mechanism for social stratification in society. For example, in a provocative study, Nie et al. (1996) argue that the impact of education derives from the access it offers to the levers of power. They use social network centrality, as measured by an individual's self-reported relations to politicians and media personnel, to capture access to leaders, hypothesizing that "access to leaders is almost entirely a matter of social position" (Nie et al. 1996, p. 63). Education then sorts individuals into social statuses. Higher social status, relative to others, gives more access to political leaders, and this access drives participation.

The scope of the sorting model has been questioned. Nie et al. (1996) argue that the education-as-proxy model should theoretically apply to all forms of political participation. However, Campbell (2009) empirically tests the proxy model and finds that it holds only for activity that depends on social networks. These actions consist mainly of persuading others to vote for a candidate and raising awareness and contributions for a campaign. People need networks in order to encourage and persuade others to vote for their preferred candidate, but they do not need social networks in order to cast their own vote. The argument is that individuals with higher education and access to leaders may perceive their interests at stake from the electoral outcome, and this gives them more incentive to encourage their network to vote for their preferred candidate.

The combination of the scant research on the proxy model and Campbell's (2009) findings leaves space for further research to refine the theory behind the model and provide additional empirical tests of it.

Socioeconomic Status and the Three Models

These models each have a great deal to say about SES. That is because education is a component of SES, and there is a strong empirical association between SES and political participation (Verba & Nie 1972, Schlozman et al. 2012). However, each model conceptualizes the relationships among SES, education, and participation differently. As noted, for the proxy model, education, like income and occupation, merely represents the status effect of SES. In other words, all components of SES, including education, affect participation because they all proxy for status, and status in turn shapes participation.

In the standard model, by contrast, education causes increases in participatory resources, including civic skills (the resource model). This could be an egalitarian force, in theory, but in reality, parental income, occupation, and wealth strongly shape a child's education (Mendelberg et al. 2020). However, while education is an important source of skills, these can also be learned through adult civic associations. Membership in civic groups is not heavily determined by income, occupation, and other sources of power inequality (Verba, et al. 1995). This alternative pathway to skills can diminish the SES gap in participation (Brady et al. 1995).

Verba et al. (1995) offer a still more expansive view of education effects, one that combines the standard and socialization models. They too see education as a component of SES, and they too hypothesize that education causally imparts the resource of civic skills. However, in addition, they hypothesize that education may increase other types of participatory antecedents: being asked to participate and wanting to participate. Education increases a person's chance of being asked to

participate because it surrounds the person with politically active peers. Education thus increases mobilizing factors, such as contact with activists. Finally, wanting to act comes from psychological engagement, such as political interest and political efficacy. These motivations are precisely the types of processes that theories of socialization emphasize. In all, then, Verba et al. (1995) emphasize three types of mediating variables arising from education (skills, engagement, and networks), and each in turn affects participation. Since access to education is largely shaped by parental SES, education, in this view, can perpetuate an unequal voice (Burns et al. 2012).

Finally, some models of SES view it—and its education component—as having self-reinforcing socialization effects through culture and identity. Cultural theories of class, inspired by Bourdieau, hypothesize that education has a deep socializing effect on political participation by constructing class-based identities of active or passive citizens (Mendelberg et al. 2020). Specifically, some types of educational settings create a class culture that implicitly defines participation as an activity that middle class people are suited to, are interested in, engage in, and succeed in, and the political system as a place where people with higher SES belong. In this view, education has a causal effect as an agent of socialization, but specifically through the mechanism of class culture. Education stratifies participation by class background by implicitly signaling who belongs in politics.

Summary

The three models posit very different pathways to explain the relationship between education and political participation. Some of these pathways are of more limited scope than others. Some carry positive implications for democracy and others negative. Some are tractable to assess and others less so. If education directly teaches specific skills, its scope is limited, but its consequences are practical to implement—and to evaluate. Everyone can be taught specific knowledge and action repertoires. Education is a ticket to equality. However, if education is an indirect and wide-ranging process of socialization, it may have much more profound, long-lasting implications for political life and the nature of citizenship. That also makes its effects quite difficult to assess. Further, it means that education—if designed and implemented in particular ways—could have pernicious indoctrinating and hidden consequences, such as inculcating passivity and blind acceptance of authority, especially among citizens already facing structural disadvantages and marginalization. Finally, if education is a sorting variable, it does not teach either skills or tastes. It fails to fulfill even the more modest scope of democratic expectations. In fact, on this theory, education actually functions as an antidemocratic system reinforcing social status.

However, to evaluate these models, we must first tackle a fundamental question underlying all three: Does education cause voting?

DOES ADDITIONAL EDUCATION CAUSE POLITICAL PARTICIPATION?

As we noted, education is perhaps the strongest predictor of voter turnout (Campbell et al. 1960, Wolfinger & Rosenstone 1980, Milbrath & Goel 1982). However, that does not mean education actually causes individuals to vote. While different models theorize this causal pathway, whether education has a causal effect at all remains unclear. The causal identification revolution in political science and economics has led to a surge in empirical studies using new causal identification strategies to measure the impact of schooling on political participation. These strategies include instrumental variables, matching, random experiments, and panel data methods. As we shall show, however, these studies overall remain inconclusive about the causal impact of education on participation.

Instrumental Variables

Researchers have used instrumental variables to uncover the causal relationship between education and political participation. A common instrument used is compulsory education laws. Two studies have used compulsory education laws in the United States as an instrument to analyze the causal effect, but they found different results.

Milligan et al. (2003) use dropout age laws and child labor laws in the United States and the United Kingdom as instruments and find that additional education does increase self-reported voter turnout in the United States but not in the United Kingdom. The scholars define additional education by comparing high school dropouts with individuals who received 12 or more years of schooling. The impact of additional education on self-reported voter turnout in the United States holds when the analysis uses only dropout age laws, only child labor laws, and both as instrumental variables. Focusing on just dropout age laws as an instrument, Milligan et al. (2003) measure the impact of graduating high school on self-reported voter turnout among those who were induced to remain in school because of the dropout age law. The authors use a set of pooled biannual National Election Studies data from 1948 to 2000 for their main US analysis and complement that analysis with a less complete data set from the 1994–2000 waves of the Current Population Survey. The results are consistent across both data sets.

Marshall (2019) also uses US dropout age laws as an instrument and uses a two-sample two-stage least squares approach with data from the American Communities Survey and National Annenberg Election Survey for 2000, 2004, and 2008. Marshall finds that additional education does not increase self-reported voter turnout. Marshall (2019) uses years of completed schooling as the treatment variable instead of the high school graduation indicator used by Milligan et al. (2003). Marshall (2016) argues that coarsening the education variable can lead to upwardly biased instrumental variable estimates, since an indicator education variable measures the effect of dropout age laws only on completing high school but not on an additional year of schooling. If the dropout age laws affect other years of schooling that in turn affect self-reported voting, then the exclusion restriction is violated. Marshall (2019) then measures years of completed schooling ranging from 0 to 12 years and measures a constant effect of education on self-reported voter turnout for each additional year of education.

The divergence of findings from these two studies, which use the same instrumental variable with slightly different education measures on similar data sets over similar time periods, is puzzling. In line with Marshall's (2016, 2019) argument, one possible explanation could be that Milligan et al.'s (2003) estimates are upwardly biased due to coarsening the education variable. We used Marshall's code and data to compare treating schooling as a discrete variable with each year of education or a coarsened, binary variable for completing high school (**Table 1**). Marshall's finding that additional education does not increase self-reported voter turnout is robust to coarsening schooling. The second stage estimate is inflated, but only 12.2% of the entire sample

Table 1 The effect of schooling on self-reported voter turnout[a]

	Voter turnout (grade completed)[b]	Voter turnout (graduate high school)[c]
Schooling	0.040	0.154
Clustered standard error	0.035	0.364
Reduced form observations	140,316	140,316

[a]All specifications include state in which the respondent grew up, cohort, and survey year fixed effects and state-specific cohort trends. These are estimated using two-sample two-stage least squares estimation.
[b]Replicates Marshall's (2019) analysis using additional grades completed as the schooling variable.
[c]Replicates Marshall's (2019) analysis but uses a coarsened schooling variable indicating high school graduation.

did not graduate high school and 87.9% graduated high school (i.e., smaller p_t/p_k; see Marshall 2016). This suggests that the coarsening bias may not be too large and may not impact statistical significance.[1] The bias resulting from coarsening the education variable potentially explains the significant findings from Milligan et al. (2003), but it is also possible that this bias would not impact the statistical significance of their findings. We recommend future research to follow a similar approach to Marshall's (2019) by using additional completed schooling rather than coarsening schooling when using dropout age laws as an instrumental variable with different data sets.

Similar to Milligan et al. (2003), Dee (2003) uses child labor laws as an instrument, as well as another analysis using a distance to community college and the number of community colleges in a county as instruments. Dee finds that education does influence voter turnout. In another natural experiment, Berinsky & Lenz (2011) leverage the randomized Vietnam War lottery, which creates exogenous variation in education, as an instrumental variable. The authors use some college education as an independent variable and self-reported voter turnout as a dependent variable. The authors find little evidence of an influence of increased education on voter turnout.

These studies utilize various instruments to attempt to find a causal impact of education on voter turnout, using self-reported measures of education and turnout. The results are mixed and dependent on model specifications and data. The divergence in findings could result from one or more of the following factors: conceptualizations of education, instrumental variables, and time periods.

First, education as a treatment in each of these studies is operationalized slightly differently. Berinsky & Lenz (2011) and Dee (2003) focus on college education, and Milligan et al. (2003) and Marshall (2019) focus on high school education. Yet, the findings differ within the college education studies and within the high school education studies. It is possible that the difference in findings is the result of an exclusion restriction violation due to coarsening education, but this could only explain the findings from Milligan et al. (2003) and Marshall (2019).

Second, these studies use different instrumental variables. This means that the authors are analyzing the effect of education among different groups of individuals because compliers are not necessarily the same with each of these instruments. For instance, students compelled to attend an additional year of high school because of a dropout age law are not necessarily the same as those compelled to attend college because of their Vietnam lottery number. The effect of education could be heterogeneous and depend on the subgroup of compliers.

Third, the data used in these studies vary across time, and time may interact with different conceptualizations of education and instrumental variables. It is possible that there is no effect of college on voting during the Vietnam War (Berinsky & Lenz 2011) but that there is an effect during the 1980s (Dee 2003). It is also possible that the effect of education induced by dropout age laws was more powerful during the twentieth century than in the twenty-first century, which could partially explain the difference in findings between Milligan et al. (2003) and Marshall (2019).

These differences between high school and college education, the subgroups being analyzed, and time periods, may help explain divergent findings, but they are not well anchored in theory. Existing theories do not expect these heterogeneities across time and space. Why might education cause some groups, and not others, to participate in politics? Why might education be more impactful at different points in history? Future research should address these questions both theoretically and empirically.

[1] Unfortunately, we cannot replicate the Milligan et al. (2003) analysis using a noncoarsened measure for education because the data sets they used only have a coarsened education variable. This is why Marshall (2019) uses a two-sample two-stage least squares approach, allowing for the use of a data set with a noncoarsened education variable for the first stage and a data set with relevant outcome measures for the second stage.

Matching

Matching has been used to study the causal relationship between education and political participation, but it has run into methodological controversies. Kam & Palmer (2008), Henderson & Chatfield (2011), and Mayer (2011) call into question whether matching can isolate the impact of education on political participation.

Using propensity score matching to handle the nonrandom assignment of education levels, Kam & Palmer (2008) find that higher education is not associated with political participation and instead argue in favor of the education-as-proxy model, where the same factors that cause someone to get higher levels of education also cause them to participate in politics. Rather than looking only at self-reported voter turnout, the authors take an unweighted, additive sum of voting and other participatory acts as the dependent variable. However, the use of propensity score matching was criticized by Henderson & Chatfield (2011) and Mayer (2011), who replicate Kam & Palmer's (2008) analysis using genetic matching. More recently, King & Nielsen (2019) caution against using propensity score matching when matching to approximate a randomized experiment regardless of the domain of study.

Henderson & Chatfield (2011) and Mayer (2011) show that propensity score matching, used by Kam & Palmer (2008), is an inadequate matching technique because there is still a large amount of bias (Mayer 2011) and a lack of common support, since only five non–college attendees were matched to 44% of the college attendees (Henderson & Chatfield 2011). These scholars then use genetic matching with the same data set and covariates used by Kam & Palmer (2008). The results show a significant relationship between higher education and political participation, but the matching fails the Rosenbaum bounds, indicating that hidden bias likely exists. This means an unmeasured variable influences selection into treatment. People who attend college differ from those who do not in unobserved ways that matching on observables cannot address. Henderson & Chatfield (2011) argue that the strong assumptions needed to estimate an unbiased causal effect are likely not met, but Mayer (2011) finds the assumptions to be too strong. Mayer simulates an unobserved variable and finds that the unobservable would need to be fairly large to undo the estimated effect of education on voter turnout. Kam & Palmer (2011) respond to Mayer (2011) and Henderson & Chatfield (2011) by using genetic matching on a separate, new data set and find no effect of education on political participation. They conclude that there is insufficient evidence to claim education causes political participation and that any unobservable factor would bias estimates regardless of matching technique.

Overall, the above studies grapple with using matching techniques to estimate the causal effect of education on voter turnout. We follow the advice of King & Nielsen (2019), Henderson & Chatfield (2011), and Mayer (2011) and caution against using propensity score matching to approximate education as a random treatment. However, the appropriateness of other matching techniques is less certain. Matching relies on an unconfoundedness assumption in order to estimate a causal effect. This assumption states that there are no unobserved or uncontrolled factors that influence education and participation. This assumption is difficult to satisfy because selective forces influencing additional education tend to be strong. Future research should examine the viability of matching techniques other than propensity score matching, using the simulation approach used by Mayer (2011) and using other data sets with more common support.

Randomized Experiments

Ideally, to estimate the causal effect of education, researchers would randomly assign individuals to higher or lower levels of education. This is clearly infeasible and unethical. As a next-best approach, Sondheimer & Green (2010) analyze two experiments that varied other aspects of

education but indirectly induced higher graduation rates among students in the treatment conditions. One of the experiments, the Perry Preschool program, provided students in the treatment group with additional learning resources such as tutoring, teacher–parent visits, mentoring, and extracurricular activities. The other experiment, Student Teacher Achievement Ratio (STAR), quasi-randomly assigned students to smaller class sizes. The authors use the treatment assignment as an instrumental variable, with high school graduation as the treatment and voter turnout as the outcome. They find that improving the quality of education increases graduation rates, which in turn increases actual voting. This finding holds across the experiments, suggesting that it generalizes to various populations, settings, and educational interventions. The results could support all three models. Randomly increasing education causally increased participation, but the causal pathway could be (*a*) through imparting skills and attitudes, consistent with the standard model and the socialization model, or (*b*) through exogeneous shocks to education as a proxy for exogeneous shocks to social status, consistent with the education-as-proxy model. To adjudicate between these models, future research would have to test between competing mechanisms.

Panel Data

Alongside the use of instrumental variables, matching, and exogeneous shocks to education, scholars have used creative panel data approaches. Using panel data, Tenn (2007) compares individuals who will gain an additional year of education the following year with those who are one year older and currently have that additional year of education. A year of education and a year of age are the only difference between the two groups. Tenn also compares individuals who will not gain an additional year of education in the following year with those who are one year older and do not have an additional year of education. A year of age and student status are the only differences between the two groups. Comparing those who in the future will attain more education, but have not yet, with those who have attained more education allows Tenn to account for unobservable factors that influence individuals to attain more education. Tenn then looks at the effect of educational attainment and student status on self-reported voter registration and voting in the past election. Tenn finds that an additional year of education does not increase voter turnout, but it does increase voter registration. Student status has a positive, significant relationship with voter registration and voter turnout, causing Tenn to conclude that environmental factors of being a student—not an additional year of education—lead to increased voter participation. These findings would be consistent with a preadult socialization model or the education-as-proxy model rather than the standard model.

Summary

The above studies highlight the ambiguous effect of additional education on political participation. Studies using instrumental methods, matching, exogeneous shocks, and panel data have found mixed results. Milligan et al. (2003) and Marshall (2019) use dropout age laws as an instrumental variable on different data sets and find different results. Kam & Palmer (2008), Henderson & Chatfield (2011), and Mayer (2011) use different matching and robustness methods on the same data set with the same covariates and come to different conclusions. Sondheimer & Green (2010) use experiments as an exogeneous shock to high school graduation rates and find that education has an effect on actual voter turnout. Tenn (2007) uses panel data and does not find a short-term effect of additional education on voting.

These mixed findings could result from a few factors: level of education, subpopulation examined, time, and methods and assumptions. First, these studies define additional education differently (additional years of schooling, high school graduation, attending college, and graduating

college), and it is possible that these distinctions are driving some of the differences. Second, the findings are among different subpopulations of the American public. When using instrumental variables, the local average treatment effects are among those who complied with the treatment, and the use of different instruments and the same instrument at different time periods changes the subpopulation of people who would comply. Similarly for matching, observations receive different weights, and the observations receiving more weight may come from different subpopulations. Third, these studies cover different time periods and different time spans for measuring outcomes. It is possible that education affects political participation in the long term (Sondheimer & Green 2010) but not the short term (Tenn 2007) and that the relationship between education and participation is different during the Vietnam War (Berinsky & Lenz 2011) from that relationship during the 1980s (Dee 2003). Fourth, the models used and assumptions needed to causally identify the effect of education on political participation may help explain the different conclusions. In the Henderson & Chatfield (2011), Kam & Palmer (2008), and Mayer (2011) colloquy, the differences in their findings result from differing opinions on the use of matching and the unconfoundedness assumption to estimate the relationship between education and political participation.

Future research can advance this area of research both theoretically and methodologically. The literature suggests that education may affect political participation differently across levels of education, subgroups of the population, and time, but existing theoretical models of the causal relationship between education and political participation do not explain these distinctions or conditions on the relationship. The causal relationship between education and political participation is not robust to the use of different strong causal identification strategies on observational data. In future research, scholars should take note of the strengths, weaknesses, and assumptions required to use these methods and assess the robustness of the relationship while holding other factors, such as level of education and time periods, constant. Of course, research in this area would benefit from better approximating a randomized controlled trial and taking advantage of exogeneous shocks to levels of education.

CIVIC EDUCATION

The studies discussed above focus on the quantity of education. How much formal education matters? How many years of schooling make a significant difference? An equally important question, though, is whether the quality of education matters. In line with the standard and socialization models of education, education may matter specifically when students are taught about government, democracy, and civics. These civic education theories are built around the idea that education matters because students are taught the information and skills (standard model) or are imbued with civic norms and democratic attitudes (socialization model) necessary to be engaged citizens.

Several studies have explored the relationship between the number of civics classes and voter turnout. In an influential study, Langton & Jennings (1968) found no significant relationship between social studies and civics classes in high school and political participation. More recent research replicates these null findings. Using the National Longitudinal Study of Adolescent to Adult Health data (Add Health), Callahan et al. (2010) find no relationship between the number of social studies courses taken in high school and self-reported voter turnout approximately eight years later. These findings hold with family fixed effects to control for observed and unobserved family factors, which are often viewed as the most influential agent for political participation (Weinschenk & Dawes 2021, Holbein & Hillygus 2020). Holbein & Hillygus (2020) explore this relationship using five other data sources as well. They find that the number of civics courses has only a small relationship with self-reported voting in adulthood, approximately two percentage points.

As with the amount of education, any relationship between number of classes and political participation could be spurious. Confounding factors may influence both the number of civics or social studies classes a student takes and their voter turnout, even after accounting for family factors. Holbein & Hillygus (2020) use a difference-in-differences design, utilizing differences in the number of social studies class requirements across states and over time. They find no substantive effect of social studies classes on self-reported or actual voter turnout. To be sure, recent research on this estimator shows the potential for bias in the estimator if the treatment effect changes over time and if units move in and out of treatment and control conditions over time. This bias may suppress treatment effects (Goodman-Bacon 2018, de Chaisemartin & D'Haultfœuille 2020, Imai & Kim 2020). However, in this instance, the bias would need to be large, since the estimated effect of social studies classes on voter turnout ranges from −1.3 to 0.2 depending on model specifications.

There is very little research on the relationship between the number of social science college courses and political participation. In one of the only studies on this topic, Hillygus (2005) finds a positive association between the number of courses taken in social science in college and political actions such as attending political events, donating to campaigns, writing to officials, and self-reported voting. However, this finding may well be driven by self-selection. Students who are more interested in politics are more likely to take classes in the social sciences.

Overall, there is little to no relationship between social studies and civics courses and political participation. Studies that use designs to better approximate the causal impact of additional social studies classes on participation show that the number of social studies classes a student takes does not lead to higher voter turnout.

Types of Civic Education

While these studies find that civic education does not increase political participation, they are still focused on quantity rather than quality. These studies do not examine how civic engagement is taught. Perhaps many of these classes do not use the right pedagogy. The null effect of civics and social studies classes does not tell us what such classes might do if they are taught well. Fortunately, recent research has moved beyond conceptualizing civic education as a homogeneous treatment varying only in quantity and explores the elements that theoretically increase voting. How civic education is conducted may matter more than how much of it there is. While this concept is not new (Dewey 1916), empirical research has increasingly pinpointed the specific types of education that may promote political engagement. These all fall under the rubric of "active learning": an open classroom climate, meaningful service learning, critical pedagogy, and experiential learning.

Many of these studies suffer methodological difficulties. Most of the research relies on student-reported classroom perceptions and self-reported participation, a design with potentially serious problems. Using self-reported classroom perceptions rather than objective measures means that the findings from these studies might be driven by student-specific factors not related to the classroom teaching methods. Using student-reported classroom perceptions creates heterogeneity within a class unrelated to actual classroom instruction, since classroom instruction is done at the class level. Additionally, self-reported participation may be capturing something other than actual participation, such as the social desirability of participation. The drawbacks of using self-reported measures are coupled with weak causal inference methods. Students who report active learning in their classes, such as an open classroom climate or service learning, may be more likely to report greater participation for reasons other than classroom instruction.

But some studies use objective measures and causal inference designs. This relatively nascent area of research has great potential for understanding when, why, and how civic education is important for political participation. Research thus far has shown that an open classroom climate,

service learning, critical pedagogy, and experiential learning increase political participation. Additionally, civics curricula emphasizing active learning methods have an indirect relationship with participation. These curricula intensify students' civic attitudes, which in turn increases their voter turnout.

While we focus on political participation in this review, civic education may affect other forms of political attitudes and engagement. For instance, active learning in civic education may increase students' commitment to civic and social norms, increase their knowledge (Kahne et al. 2006, Torney-Purta & Wilkenfeld 2009, Gainous & Martens 2016), and increase females' political ambition (Kalla & Porter 2022). Active learning in education programs focused on public diplomacy can shape students' knowledge (Green-Riley 2021). The promise of active learning in civic education extends beyond political participation.

Open Classroom Climate

In a classroom climate characterized as open, political discussions are fostered in a way that exposes students to political discourse and encourages them to debate and handle disagreement respectfully (Ehman 1980). Recent studies have used the International Association for the Evaluation of Educational Achievement Civic Education Study 1999, which surveyed 14-year-old students, to assess the relationship between an open classroom climate and intention to vote. Overall, studies have consistently found that open classroom climates are correlated with intentions to vote. Campbell (2008) finds that students in a classroom with an open classroom climate are more likely to expect to vote when they become adults. Gainous & Martens (2012) reaffirm these results on open classroom climates.

These studies both rely on the same data set, but the relationship between open classroom climates and voter turnout appears to be robust to the source of data. In a two-wave panel study from high schools in Los Angeles and Chicago, Kahne et al. (2013) find in both samples that an open classroom climate had a significant relationship with intention to vote and participatory citizenship, such as working on a community project that involves a government agency. Given this relationship between self-reported open classroom climates and voter turnout, future research would benefit from using objective measures and stronger causal inference designs to rule out other factors that could be causing this positive relationship.

Service Learning

Service learning combines opportunities for students to engage in meaningful service activities in their community with reflection and academic learning. It differs from community service because it couples that action with academic frontloading, assessment, and reflection. Effective service learning involves students in confronting real-life issues and creating solutions with policy implications. Service learning in its definition and implementation varies greatly. Kahne et al. (2013) argue that service learning is more directly related to forms of civic participation such as volunteering in the community and solving local problems than to traditional forms of participation such as donating to a campaign and voting in an election. Service learning has been shown to have a positive relationship with many forms of civic participation outcomes (Kahne & Sporte 2008, Kahne et al. 2013), but there is not a robust relationship between service learning in social studies classes and voter turnout. Kahne et al. (2013) find service learning statistically and substantively insignificant at predicting intention to vote. Service learning may also be ineffective at increasing voter turnout years after high school. Weinschenk & Dawes (2021) use the Add Health data to look at the relationship between taking social studies classes that included service

learning in high school with self-reported voter turnout later in life. An advantage of this data set is that service learning is measured objectively using an established classification to code students' academic transcripts. These authors show that there is no substantive or significant relationship between service learning and voter turnout years after high school.

Importantly, none of these studies capture the quality of the service learning projects, and research has shown that the manner of implementation influences the success of service learning in increasing students' political engagement (Kahne & Westheimer 2006). Service learning is most effective when the service is meaningful and civic oriented, and students are given the autonomy to choose and design the project as well as the opportunity to reflect on the work (Gibson & Levine 2003). Essentially, service learning is most effective when it is rooted in active learning.

Future research would benefit from considering the quality of service learning. Studies would be improved by the use of objective measures for both service learning and participation, designs better approximating a randomized controlled trial, and more nationally representative samples of students. Further, it is possible that service learning affects traditional forms of participation in the short term but not the long term, so future research is needed to ascertain potential decays in the effect of servicing learning on traditional participation. If service learning affects specific forms of participation and not others, research would benefit from theorizing under what conditions service learning, or other pedagogies more broadly, affect participation.

Critical Pedagogy

Few studies have looked at the content of civic education. Yet, theories of democratic education emphasize the importance of the content (Gutmann 1999). Nelsen (2019) argues that critical pedagogy, which focuses on developing students' critical consciousness to change social, political, and economic hierarchies, shapes the willingness of students of color to participate in politics. Nelsen conducted a field experiment in Chicago public schools where students were randomly assigned a textbook excerpt using critical pedagogy or traditional pedagogy. Nelsen finds that, on average, students of color assigned to read the critical pedagogy textbook report higher likelihoods of participating in politics and civics than students of color assigned to read the traditional pedagogy textbook. With regard to the intention to participate in politics and civics, the gap between students of color and White students decreased when both read critical pedagogy textbook excerpts compared to traditional textbook excerpts. The critical pedagogy textbook had no significant effect for White students. These findings show that the content of civics instruction can be important for increasing political participation among students of color and closing racial participation gaps. This study is one of the few to use a random treatment and objective measure of civics instruction. Future research can build on these findings by using objective measures of voter turnout and participation as well as studying the impact of critical pedagogy in schools outside the Chicago area.

Experiential Learning

Experiential learning is the process of learning through reflection and doing. Experiential learning in civic education can include role play, simulations, field trips, and field experiences. There is little research on the relationship between experiential learning and political participation, but experiential learning may strengthen students' civic norms and increase trust in social institutions and knowledge of social institutions (Kahne et al. 2006). In one of the only studies with participation as an outcome of interest, Weinschenk & Dawes (2021) use the Add Health data to look at the relationship between taking high school social studies classes that included experiential learning and self-reported voter turnout later in life. Again, an advantage of this data set is

that experiential learning is measured objectively using an established classification to code students' academic transcripts. These authors demonstrate a substantive and significant relationship between experiential learning and voter turnout years after high school. The authors then try to account for observed and unobserved family factors by incorporating family fixed effects and argue that experiential learning has no effect on voter turnout after controlling for time-invariant family factors. However, the use of family fixed effects for examining experiential learning with this data set is inappropriate. The authors are relying on fewer than 36 pairs of siblings that had variation in experiential learning to make this conclusion. This sample size is too small to draw any conclusions about this relationship. Thus, there remains little research on the relationship between experiential learning and voter turnout, but the positive relationship from the Add Health data shows promise. Future research would benefit from using larger sample sizes and randomizing experiential learning to estimate the causal relationship.

Civics Curricula

A few studies have analyzed specific civics curricula. These civics curricula often include multiple pedagogical approaches such as simulations, open classroom climates, service learning, and discussions of current events. These studies use quasi-experimental designs comparing students who participated in the civics curriculum with similar students who did not participate. Exposure was by self-selection or teacher and administration selection, raising the potential for selection bias, though the control groups include students with similar demographic and academic characteristics such parental SES and political interest. Students in the control groups were taught using the regular civics curriculum. These studies find that aspects of civics content and methods can influence students' intention to vote and political engagement.

McDevitt & Kiousis (2006) use a quasi-experimental design to study the impact of the Kids Voting USA (KVUSA) curriculum, which was given to high school students before the 2003 elections, on self-reported voter turnout in the 2004 elections. The aspects of the curriculum that the authors examined include frequency of discussion about elections, teacher encouragement to express opinions, taking sides in classroom debates, analyzing political cartoons, analyzing political ads, homework assignments involving family discussion, service learning, working at a poll site, encouraging people to vote, and mock voting. The authors find that the curriculum did not have a direct impact on voting, but participation in KVUSA had an indirect effect on voter turnout in the 2004 elections, volunteering, and campus activism by impacting student–parent discussions during the students' time in the curriculum.

Pasek et al. (2008) use a quasi-experimental design to study the effect of the Student Voices curriculum on self-reported voter turnout in the 2004 elections. The Student Voices curriculum combines service learning with problem solving where students learn about problems in their community. Discussions and media are used, and local leaders visit the classroom to listen to students' concerns about the problems in their community. Like McDevitt & Kiousis (2006), Pasek et al. (2008) find that the curriculum's effect on voting is only indirect. Participation in the curriculum impacts students' internal efficacy, which is linked to political attentiveness, and this leads to increased self-reported voter turnout.

In contrast to the quasi-experimental designs focusing on a civics curriculum, Gill et al. (2018) study the causal impacts of being accepted to and attending a civically focused charter school on voter registration and turnout. Here, the treatment is not civic education specifically, but rather acceptance to a charter school that focuses on civics. The charter school, Democracy Prep, uses various teaching methods, such as having legislators visit students and having students attend public meetings, testify before legislative bodies, discuss essays on civics and governments, and

participate in get-out-the-vote campaigns. Seniors participate in an action civics project where they identify a problem, come up with solutions, put together a plan, and implement the plan. The authors utilize the randomized lottery system to measure the causal impact of being accepted to (intent to treat) and attending (treatment on the treated) Democracy Prep. The control group comprises students who applied to attend Democracy Prep but were not admitted. The authors find that both admittance and attendance have positive impacts on actual voter registration and voting, but only the impact on voting is statistically significant. While the treatment in this study is being admitted to a charter school and not civic education, the fact that the charter school highlights forms of active learning in civics instruction suggests that these methods may be effective at increasing voting turnout.

Education Among Historically Marginalized Students

A hallmark of political participation in the United States is its unequal nature (Hill & Leighley 1992, Schlozman et al. 2012). Political participation skews toward those who are White with higher SES. "The heavenly chorus sings with a strong upper-class accent," as Schattschneider (1960, p. 35) famously noted. While the participation gap between Blacks and Whites is less severe than it has been historically, the SES gap may be widening as economic inequality has risen. As Mendelberg et al. (2020, p. 2) note, "higher-income parents increasingly pass advantages on to their children by investing more time and money in cultivating them and securing better quality schooling for them, while the children of those who start out behind are increasingly likely to remain behind" (see also Lareau 2011, Reardon 2011, Putnam 2015). As education becomes more economically segregated, not only does its quality become less equally distributed across parental statuses, but economically disadvantaged students are surrounded by fewer students from participatory backgrounds, denying them the boost from peers' norms of political activity (Campbell 2006, Mendelberg et al. 2020).

One of the goals of civic education is to reduce these engagement gaps among young people (Gibson & Levine 2003). Active learning strategies in civic education show promise for closing civic engagement gaps. As mentioned above, Nelsen's (2019) study using critical pedagogy shows that the content of civic education matters for increasing participation among students of color and closing racial/ethnic civic engagement gaps. More generally, schools emphasizing active civics learning can increase the political participation of students of color and disadvantaged students (Gill et al. 2018).

Early education (preschool and primary school) programs using active learning outside of civic education may also increase participation among students disadvantaged by race or class. The Fast Track intervention included a curriculum aimed at teaching students through hands-on problem-solving applications, home visits, parent training groups, tutoring, friendship groups, and peer pairing. The program targeted at-risk schools. Fifty-five schools were randomly assigned to treatment and control groups where the treatment groups received the Fast Track program. Holbein (2017) matched participants from the treatment and control groups to voter files. Students who were assigned and exposed in the Fast Track intervention turned out to vote more than students who were not assigned or exposed to the program—by 7.3 (assigned) and 11.1 (exposed) percentage points, respectively. This is a large causal effect. The study offers strong evidence for the ability of early education programs to increase voter turnout among students in underserved communities.

These findings are robust. As we mentioned above, Sondheimer & Green (2010) use two experiments called the Perry Preschool Experiment and STAR, which created an exogeneous shock to graduation rates. The Perry Preschool Experiment targeted low-income students, and the majority of students in STAR were students of color and disadvantaged students. The authors also

analyzed the quasi-randomized "I Have a Dream" program. This program aims to provide financing and resources for disadvantaged students to attend college. All three programs induced an increase in graduation rates and increased voter turnout by about 5 to 9 percentage points (Sondheimer & Green 2010, tables 2–4). Educational programs among disadvantaged children can substantially increase voter turnout later in life.

These findings suggest that early education programs and civic education using active learning are effective at increasing political participation among historically disadvantaged students. While the findings on the causal relationship between education and participation in the broader population are unclear, exogeneous shocks to graduation among students of color and disadvantaged students appear effective at causing higher voter turnout. These studies use strong causal identification strategies and objective measures of education and political participation. We recommend that future research continue to use similar methods and advance theory on why education may be more effective for disadvantaged students.

Summary

A large literature examines specific components of education, including active civics curricula, civics-focused charter schools, and holistic early childhood interventions. The strongest of these studies use three elements: objective measures of the educational experience of interest; actual voter turnout records; and strong causal inference designs. Future research should strive to use all three, advancing beyond the pitfalls of self-reports and correlations. Adopting those research practices would benefit the literatures on open classroom climates, service learning, and experiential learning. Existing studies show a positive and significant relationship between political participation and each of these components of education (Campbell 2008, Gainous & Martens 2012, Kahne et al. 2013, Weinschenk & Dawes 2021). Civics taught with critical pedagogy increases students' willingness to participate in politics (Nelsen 2019). Civics curricula using active learning methods such as mock voting, political discussions, and visits from local leaders can indirectly increase students' participation a few years later (McDevitt & Kiousis 2006, Pasek et al. 2008). Even more, being accepted to a charter school that emphasizes civics increases students' voter turnout (Gill et al. 2018). Early educational programs for disadvantaged students also tend to use active learning (along with other components), and they also increase political participation.

Future research should replicate and extend these findings. In particular, while these findings show promise for active learning, none directly tests the effects of active instruction on political participation. Active instruction is itself changing rapidly, and the literature has yet to catch up with a rich set of innovative methods for teaching civics. Studies should include tests of the effectiveness of the pedagogical tools likely to best engage students, including online simulation games and high-quality videos, along with more traditional yet highly engaging exercises such as mock trials, elections, and role play. Future research would benefit from blending the leading literature on social studies and civics teaching methods and content with political science theories on political engagement.

CONCLUSION

Philosophers, leaders, and researchers have long viewed education as the bedrock of democracy. Since the 1950s, numerous empirical studies have reinforced this idea. As Philip Converse concluded, formal education is the "universal solvent" of political behavior (Nie et al. 1996, p. 2). Recent studies concur. Education "is almost without exception the strongest factor in explaining what citizens do in politics" (Nie & Hillygus 2008, p. 30). All these claims assume a simple

fact: education causes political engagement. Yet, despite hundreds of studies, the causal impact of education remains unclear. As education increases, citizens may—or may not—increase their engagement with democracy.

We cannot blame poor research designs for this uncertainty. While the literature on education and political participation began with a mere correlation, it increasingly relies on strong causal strategies. Those include instrumental variables, matching, panel data, and natural and controlled experiments. Nevertheless, the literature has generated mixed results, even when using similar methods and data. For example, Milligan et al. (2003) and Marshall (2019) both use dropout-age laws as an instrumental variable, but they find different results. Kam & Palmer (2008), Henderson & Chatfield (2011), and Mayer (2011) all use matching methods on the same data set with the same covariates, yet they come to different conclusions. The confusion is compounded when studies introduce additional differences. For example, Tenn (2007) finds no short-term effects of additional education on voting using panel data, while Sondheimer & Green (2010) find that random and quasirandom increases in graduation rates substantially increase voting in the long term. Future research would benefit from objective measures of actual behavior; multiple experiments that replicate across populations, time, settings, and treatments; and large, representative samples.

While the mixed findings may be the result of methodological fragility, they could instead reflect the complex true relationship between education and political participation. The effect of education may vary across levels and types of education, subgroups of the population, time periods, the timing of the outcome, and the type of participation. Future research can help elucidate this relationship by applying similar research designs across a range of contexts and applying different research designs within the same context. These two approaches will clarify the extent to which the mixed findings are the result of a complicated relationship between education and participation versus the artifact of research designs and data availability. If the relationship between education and political participation is contingent on levels of education, subpopulations, and timing, then a lot of theoretical work is needed to explain this relationship, since the current theoretical models do not address potential contingencies.

Despite the mixed findings about the effects of the amount of education, the literature has made important advances in its theorizing. For one, it has moved beyond conceptualizing education as a homogeneous treatment where only the quantity of education receives attention. Different types of education may matter. For example, while the number of civics courses on political engagement does not have a clear effect (Hillygus 2005, Albacete 2013, Holbein & Hillygus 2020), active learning approaches do show promise. Those pedagogies include civics taught with an open classroom climate, meaningful service learning, experiential learning, and critical pedagogy (Kahne et al. 2006, 2013; McDevitt & Kiousis 2006; Campbell 2008; Pasek et al. 2008; Torney-Purta & Wilkenfeld 2009; Gainous & Martens 2012, 2016; Nelsen 2019). However, more systematic methods are needed. Many of the positive findings rest on self-reported measures of both pedagogy and students' political participation, and weak causal identification. Even the stronger of these studies tend to rely on pre and post designs, survey self-reports, controls for only some potential observable confounders (Kahne et al. 2006, 2013), and nonrandomized treatment and control groups (McDevitt & Kiousis 2006, Pasek et al. 2008). Before we can conclude that a particular type of educational practice causes political participation, all spurious causes must be accounted for, including systematic measurement error. The best way to ensure this is through randomized experiments and accurate measures. Future research would benefit from following a methodological approach similar to Nelsen's (2019), where students are randomly assigned to a specific educational intervention and the researcher uses objective measures of exposure to that intervention.

Whether education affects political participation is a long-standing and central question in political philosophy and political science. Despite an explosion of recent research, the literature

yields conflicting findings. Future research would benefit from approaching the relationship between education and political participation with more nuance, paying attention to the level of education, time period, subgroup of the population, and type of education. Recent research shows promise for educational practices, such as active learning, that build what is meaningful and motivating for that particular population into the educational experience. Additional research is needed to causally estimate the effect of these specific programs on political participation.

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