

Nation Building and AI

Vasiliki Fouka and Bryony Reich

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1 Introduction

For centuries, governments have intervened to forge national identities and national cohesion. At the unification of modern Italy in 1860, Mazzimo d’Azeglio famously remarked, “Italy has been made; now it remains to make Italians.” Italian elites then implemented a range of policies to create a national identity, including enforcing a national language (Tuscan was chosen) and introducing compulsory schooling.¹ Government policies to form national identities and create national cohesion have ranged from the introduction of compulsory schooling, like in Italy, to the orchestrated integration of different groups, to repression and persecution of those who fall outside the desired identity.

We refer to policies that aim to form citizens’ national identities to shape the polity as “nation building” policies. Within political economy, an active literature has emerged to examine the role of such policies (Rohner and Zhuravskaya, 2023, Forthcoming). This chapter considers the impact of artificial intelligence (AI) on policies of nation building.

While nation building policies are implemented through various channels, to constrain the remit of this chapter, we will focus on nation building via education. Education is considered perhaps the most powerful tool for nation building. Napoleon I articulated the importance of state-controlled education in shaping the views and identity of children and, through this, the cohesion of a nation: *“There cannot be a firmly established political state unless there is a teaching body with definitely recognized principles. If the child is not taught from infancy that he ought to be a republican or a monarchist, a Catholic or a free-thinker, the state will not constitute a nation.”*² A second reason to focus on AI and nation building in education is that, in the current context of AI, there is already a lot to say about AI in education and this will allow us to be more concrete in this chapter.

¹The author of the 1877 Italian compulsory schooling reform stated that the aim of compulsory schooling was to “create a population...devoted to the fatherland and the king” (Duggan, 2007).

²Quote from Ramirez and Boli (1987).

The chapter proceeds as follows. We first provide a brief introduction to the nation building literature in economics. We discuss how states nation build through education and provide examples of nation building policies from the literature. We discuss evidence on when nation building policies work (or fail). We then consider and speculate on the role of AI in nation building. We first discuss how AI will impact nation building technologies. Putting to one side incentives of policy-makers and citizens, we consider how AI will make nation building technologies more productive. If AI makes nation building technologies more productive, to what extent will this translate into more nation building? We discuss the role of AI in overcoming opposition to nation building by states and, finally, we consider the impact of AI on education more generally. We conclude the chapter by asking how AI will change the type of nation building that states wish to implement. We highlight the importance of research on government incentives and constraints to nation build.

To be clear, this is not an exhaustive discussion of AI and nation building. We will focus on nation building through education. We will not consider other natural channels of nation building such as via social media. Even within education, we limit ourselves to direct rather than indirect impacts of AI on nation building, such as through political change.

2 How do States Nation Build through Education?

Education forms a major part of nation building policies. Tilly (1975) writes that “almost all European governments eventually took steps which homogenized their populations:...institution of a national language, eventually the organization of mass public instruction.” Alesina et al. (2021) argue that nation building was a significant motivating factor in the development of state intervention in schooling and compulsory education. Hobsbawm (1990) describes how “states would use the increasingly powerful machinery for communicating with their inhabitants, above all the primary schools, to spread the image and heritage of the ‘nation’ and to inculcate attachment to it.”

We distinguish between three ways in which governments use education to nation build: by directly inculcating national identity, by shaping the values and preferences of students to create a homogeneous population, and by engineering contact across diverse groups in the school context. A growing body of papers in economics examine government education policies in these three broad categories. Here we illustrate with just a small fraction of the examples from this active literature.³

³For an expansive review see Rohner and Zhuravskaya (Forthcoming).

2.1 Building Common Identity

Governments use education to directly shape perceptions of belonging to a common nation and instill identification with that nation (Alesina et al., 2021). One means of achieving that is through curriculum content. Most countries introduced courses on national history, geography and literature in their curricula as they began to roll out public education in the 19th and early 20th century (Del Río et al., 2023). Throughout the 20th century and still in place in many countries today, part of the curriculum is explicitly dedicated to nation building and is referred to as “civic education.” National narratives still occupy a place in the modern educational systems of most countries.

A study by Ben Krause, Michael Kremer, Eduardo Rivera, and Enrique Seira provides evidence for the success of such narratives in instilling national identity. In their project “The Influence of Historical Narrative on Individual and National Identity,” these authors examine the impact of teaching the government narrative of Mexican history on national identity, and community participation. The Mexican government espouses an historical narrative, created after the Mexican Revolution, that Mexico is a place where cultures and races mix without becoming extinct and this interaction is what defines Mexican identity. The authors ask whether school activities can foster national identity and civic participation among marginalized groups.

The authors study a government program that takes secondary school students from marginalized secondary schools in the city of Puebla to historical museums and sites. Treatment was a 5-hour tour of museums and monuments. The tour script was “developed from textbooks, national curricula, and sites of Puebla” with the aim to provide a narrative of “mixed national identity of Mexico, of shared history, and national pride.” It included statements like “those with indigenous origins are great and are Mexican,” “Mexicans have built great things” and “men, women, indigenous have defended Mexico.” Krause et al. (2024) find that treated students were more likely to identify with an identity based on Mexican culture, more likely to report as indigenous, self report a darker skin color, and more likely to volunteer in a club to clean streets and parks.

Perhaps the most commonly employed means of nation-building in education is the use of a national language as a medium of instruction. By controlling the language of education, states both enabled communication across people of diverse dialects and cultural backgrounds and shaped those people’s perceptions of belonging to the same group. A study by Blanc and Kubo (2024) examines the most well-known case of national language dissemination in early compulsory education, that of France in the early nineteenth century. Using a detailed linguistic atlas and applying a regression discontinuity design that exploited

the state-mandated construction of schools and teaching in the national language in municipalities with above five hundred inhabitants, the authors show that the 1833 “Guizot laws” introducing mass primary public schooling led to significant linguistic homogenization and effects on national identification that persisted all the way into the second half of the twentieth century. This evidence complements findings of earlier studies on the role of language on national identity. Most prominently, Clots-Figueras and Masella (2013) find that the 1983 introduction of Catalan in Catalonia’s education system, which had previously been Spanish-only, strengthened Catalan identity among affected cohorts of students.

More broadly, the study by Blanc and Kubo (2024) identifies the effect of a bundled treatment and points to an impact of education on national identity formation that goes beyond the role of curriculum and language use. Compulsory education implies that the population undergoes a common standardized experience of schooling for a long period of time during childhood and adolescence. This very process, regardless of curriculum content and medium of instruction, instills in students shared knowledge and a common view of the world which contributes to the perception that they are members of the same community and to the internalization of a common identity.

2.2 Shaping Preferences and Ideology

Besides shaping educational content to directly build a common identity, governments also use schooling to instill a range of other preferences and values, or shape ideologies and beliefs. The values and beliefs transmitted through educational systems are those that align with the state’s ideology and goals (Dewey, 1916; Freire, 1970; Alesina et al., 2021; Paglayan, 2024). Such interventions in schooling have the effect of generating homogeneity among the schooled population, albeit homogeneity in the direction of the state’s goals, and contribute to the shaping of the polity.

We next describe two economics papers that examine changes in curricula (in China and Finland respectively) with the aim to instill in students a certain set of ideological beliefs.

Davide Cantoni, Yuyu Chen, David Yang, Noam Yuchtman, and Jane Zhang, in their paper “Curriculum and Ideology,” examine the causal impact of a curriculum reform in China on students’ views on government, political institutions, and economic institutions (amongst other things). The paper studies a textbook reform for senior high school students which was part of China’s Eighth Education Reform. An explicit aim of this reform was to shape students’ values and ideology. The substantially revised textbooks were introduced in different provinces between 2004 and 2010. The revisions included new material on government authority, to teach that the government is subject to the rule of law and should not abuse

its powers. New material was included to promote and develop student understanding of a “socialist democracy.” New sections on this topic were titled “The choice of election methods and its basis,” “Various ways of participating in democratic decision-making,” and “Orderly and disorderly political participation.” New material on the economy aimed to teach students about the “socialist market economy,” with new sections in the textbook including “Limitations of market allocation of resources” and “Basic characteristics of the socialist market economy.”

Cantoni et al. (2017) survey students at Peking University and find that students exposed to the new curriculum show views in line with many of the goals of the changed curriculum; they “have greater trust in government officials, view government officials as more civic minded, see China as more democratic, are more skeptical of unconstrained democracy, and express more skeptical views of unconstrained free markets.”

Jaakko Meriläinen and Matti Mitrunen, in their paper “Long-Run Consequences of Propaganda in the Classroom,” examine the impact of a “rogue” experiment in Finland from 1973 to 1975. This experiment exposed 5th grade children in one municipality to a new history and social studies curriculum based on Soviet and Marxist-Leninist ideology. The experiment was implemented to study how schools can shape a “functioning worldview.” Fifth grade history and social studies learning were based on a new student handout and accompanying teacher handout. The handouts described world history as a Marxist class struggle where the highest form of society was socialist achieved by workers’ efforts and revolution. They described the Soviet Union as a place with no unemployment and citizens as equals. The handouts emphasized class struggle and class hatred and asked students to “use these lectures to ponder how some became rich and other poor and how some of the population did all the hard work while others only enjoyed themselves.”

Meriläinen and Mitrunen (2024) find that students exposed to this experiment had substantially lower incomes compared to non-exposed cohorts. These students work fewer hours, select into occupations considered more civic-minded, like teaching and nursing, and were less likely to select into upper management.

In the same way a curriculum might aim to teach children to use math in daily life, curricula also typically aim to build national identity to form a citizen that contributes to a cohesive polity. This is also the case in democratic regimes. For example, the UK national curriculum has a statutory citizenship program of study.⁴ The “purpose of study” states that it “should foster pupils’ keen awareness and understanding of democracy, government

⁴The statutory requirements for the citizenship programs of study, published 11 September 2013 accessed at <https://www.gov.uk/government/publications/national-curriculum-in-england-citizenship-programmes-of-study/national-curriculum-in-england-citizenship-programmes-of-study-for-key-stages-3-and-4>

and how laws are made and upheld” and should “prepare pupils to take their place in society as responsible citizens.”

2.3 Engineering Contact

Finally, education achieves a nation building function simply by engineering contact in the classroom. By bringing together people from different backgrounds, compulsory schooling may increase cohesion and trust across diverse groups, fostering a cohesive society. Schooling is likely to have this effect as it often satisfies the conditions — such as equal status and common goals — identified by psychologist Gordon Allport (Allport, 1954) as requirements for positive contact across groups. Instances of nation-building through education that fosters contact across groups can be identified in a wide range of contexts, from 19th century United States to contemporary Africa. Bandiera et al. (2019) show that US states adopted compulsory education in response to large-scale immigration from Europe. Besides instilling American civic values to immigrants coming from countries without broad public schooling, US compulsory schooling laws plausibly also contributed to nation building by increasing contact and interactions across diverse immigrant groups and the local population. In Tanzania, Carlitz et al. (2022) study the effects of a program that created planned ethnically diverse villages in which children received education that emphasized the nation-state over tribal identities. Carlitz et al. (2022) find that this reform boosted national identity and intermarriage across ethnic lines. Though the distinct contribution of intergroup contact in the classroom has not yet, to our knowledge, been isolated by empirical studies relative to other components of educational reforms, these papers point to its likely relevance for nation building through education.

3 When does Nation Building through Education Work?

To understand how AI may affect nation-building through education it is useful to first briefly take stock of what we know in terms of when education successfully constructs common identity and when it fails to do so.

Key to understanding when nation building education works is the incentives of governments to undertake nation building and their objectives, as well as the incentives and constraints faced by citizens in following nation building policies or resisting. There remains much still to understand on these questions.

Alesina et al. (2021) study the incentives of states to nation build. The authors show that incentives and constraints are very different under democratic versus non democratic

regimes. Non-democratic regimes have more latitude in their choice of nation building policies, while democracies need to consider the views of the population to a greater degree when implementing nation building. Since nation building policies under a democracy are closer to the preferred policies of the population as a whole, democratic nation building may face less opposition. In contrast, nation building policies under a non-democratic regime may be unwanted and far from the preferred policies of the population.

Interventions to shape identity and preferences can face resistance and even backfire. Groups and communities have resisted attempts to change their identities since the earliest nation-building interventions (Weber, 1976), and citizens may oppose the state’s efforts to control ideology in education today. For example, in Hong Kong, protesters turned out in 2012 against the proposed introduction of “Moral and National Education,” accusing the government of aiming to indoctrinate students with pro-Chinese government propaganda in schools. The proposals were then shelved.

The strongest reaction originates from parents, who may not only oppose government intervention in their childrens’ schooling, but may actively substitute into activities that mitigate or compensate for the state content of nation building policies. Fouka (2020) studies the case of German language bans that were implemented, due to anti-German sentiment, in some US states after WWI and finds backlash as a response. Children of German immigrants exposed to the ban were more likely to marry within their own ethnic group, choose more “German” names for their children (e.g. switch from Daniel to Franz), and were less likely to volunteer in WWII. German-Americans placed importance on preserving German culture and language. Evidence suggests that parents whose children were subject to the ban substituted by investing more into children’s cultural identity: the effects were stronger for children with two German parents, stronger in communities with a higher share of Lutheran Church members (using German in schools and churches), and Lutheran Sunday pupil attendance increased after the ban. In Turkey, Sakalli (2019) identifies similar dynamics in terms of stronger religious identities for children of religious parents who were exposed to a secularization reform. Carvalho et al. (2024) generalize these empirical findings and show theoretically that, when education transmits identities that do not accord with those of parents, groups may respond in a variety of ways that include “dropping out,” “tuning out,” or “turning out” to oppose state content.

Fouka (2023) reviews recent empirical literature and identifies three factors that affect the success of nation building efforts through education. First, as evidenced in Fouka (2020) and Sakalli (2019), backlash is more likely with strong identities or a greater degree of distance of individuals’ and groups’ preferences from those the state attempts to instill through education. Second, the severity of penalties for those who resist nation-building also

matters, with backlash being observed in cases where enforcement of educational policies is less strict. Stricter enforcement may work through incentives for teachers and local elites to pass the government narrative to students. Blanc and Kubo (2024) show that the impact of state-sponsored education was larger when there was a greater concentration of local elites. These elites were involved in administration, supervision of schools and teaching, and funding. They also find a larger impact of state-sponsored education in places where most of the clergymen had sworn an oath of allegiance to the secular state.

Finally, backlash is least likely when educational reforms are combined with strong incentives to acquire education or to acquire the national identity espoused by the state. In 19th century France, as state education was rolled out, there were expansive opportunities for upward mobility via employment in state administration for those who spoke French and were educated by the state-sponsored system. Blanc and Kubo (2024) argue that in 19th century France, the impact of state-provided schooling in teaching children French was larger in localities where the benefits of schooling were highest. They proxy for the benefit of education using a measure of demand (children choosing to attend school) and the pace of technological progress (adoption of the steam engine) in different localities.

Incentives for acquiring education may also be provided indirectly, when minority groups (often the target of nation building efforts) face lower discrimination and fewer barriers to their full incorporation in society should they receive education. In a recent example from Germany, which faces rising diversity from immigration, Felfe et al. (2021) find that trust and cooperation in the classroom increase for immigrant students who were subject to a legal reform granting them birthright citizenship. By increasing those students' opportunities and chances of future inclusion, this policy increased social cohesion, enhancing any effect of schooling through intergroup contact.

4 The Role of AI in Nation Building Education

4.1 An Increase in the Productivity of the Nation Building Technology

AI has the potential to put a more powerful nation building technology in the hands of states. It is important to consider the implications of this. In this subsection, we discuss how AI could increase productivity in nation building education.

Acemoglu and Restrepo (2199) write about the impact of AI on education, “The potential improvements in terms of educational productivity could be quite large (we just do not know).” In this subsection, we highlight three ways in which AI productivity improvements

in education could translate to nation building education. First, AI may help to provide an effective and efficient way to embed nation building narratives throughout the curriculum. Second, AI can facilitate more personalized nation building in schools. Third, AI can be used to learn what works in nation building education. Echoing Acemoglu and Restrepo (2199), the potential increase in productivity in nation building education could be quite large.

We also discuss where AI productivity improvements in education do not translate to nation building education. In contrast to subjects such as mathematics, it is more difficult to access convincing nation building “outcomes” that can feasibly measure the amount of nation building “learned.” This may limit technological gains to nation building education.

Efficient and Enhanced Resources

AI can be used to generate resources more efficiently. For example, AI can assist teachers with project ideas, grading, and quiz creation (see Mollick and Mollick (2024) for various examples of prompts to generate teaching assistance). In the context of nation building education, AI could more efficiently embed nation building information, ideology, propaganda, into other aspects of the curriculum. To give an example, in the context of the Finnish experiment studied in Meriläinen and Mitrunen (2024), AI could embed ideas on class struggle and inequality into math learning, examples, and quizzes.

AI is also used to create enhanced resources such as experiential resources, role-playing scenarios, negotiation simulations, interactions with historical, fictional, or political characters, or even immersive virtual environments (for some current examples, see Mollick and Mollick (2023)). Meriläinen and Mitrunen (2024) describe how in the school experiment in Finland, children were split into groups called “rich” and “poor” where the poor were served worse food at lunch and had to build slum housing at recess. Students also organized a protest against Finnish capitalist society. This illustrates experiential exercises being used for nation building without AI. AI has the potential to provide states with novel and more efficient ways to generate experiential nation building exercises.

Many of the kind of resources discussed above are feasible without AI, but would require high levels of teacher time, expertise, and financing, beyond what is typically available in school settings. AI has the ability to embed nation building in standard and experiential resources much more cheaply and at scale, especially if the resources are put together by a centralized government department with strong expertise.

Personalized Learning

AI is already in use to personalize student learning. Owen Henkel and Lee (2024) studies the impact of additional mathematics tuition through an AI tutor available on WhatsApp

that is personalized to the student’s level and pace. Students in Ghana given access to the AI tutor saw significantly higher math growth scores. Learning can also be personalized by adapting to student engagement and preferred ways of learning.

Personalization in nation building education can be applied in the same way as other subjects. Historically, and still today, learning a common national language comprises an important element of nation building (see e.g. Clots-Figueras and Masella (2013)). This is of particular relevance for ethnically diverse countries, as well as for countries that experience an increase in linguistic heterogeneity through migration. AI makes it cheaper and easier to personalize language learning. Similarly, learning facts and details about government institutions, the legal system, and how to participate in democracy can be personalized to the student’s level and knowledge, in a similar way to mathematics education. Such personalization can be particularly useful for enhancing learning in civic education when students come from a wide range of origin countries with different institutions and political regimes.

Nation building education often aims to transmit a particular ideology, values, or sense of belonging to the nation. States may seek to use AI to personalize this aspect of nation building towards a group or individual. The government program studied by Krause et al. (2024) in the city of Puebla, takes students on tours of major historical sites in the city. This program targets potentially marginalized students to build up feelings of Mexican identity and belonging. Since AI facilitates personalization, states could use it to offer distinct educational content and messages to minority versus majority groups or different education approaches that facilitate inclusion in different ways for different groups.

States could also seek to use AI to target students who the state determines are “lacking” certain ideologies or values. Targeting of groups in this way is a feature of historical nation building policies, for example, US states targeted mainly German immigrants with language bans post World War I (Fouka, 2020). Alternatively, governments might seek to target areas of ideology or values that a student is more open to adopting. Empirical studies on the effects of nation building policies in education find heterogeneity in their effects, with success being lower for more culturally or linguistically distant groups or stronger prior identities (Fouka, 2020; Sakalli, 2019). States may choose to target those more amenable to a reform or, instead, those who are, at baseline, least likely to respond to it. This kind of targeting requires identifying personalized messages for different students and we discuss this in the next subsection.

Learning about Teaching Methodology

An exciting prospect of AI is the potential for learning about which teaching methods

and content work well and engage students, and for which kinds of student (Acemoglu and Restrepo, 2199). AI could even be used in the discovery of new teaching methods and learning patterns. Here we discuss how the ability of AI to learn about the effectiveness of different educational approaches applies to nation building education.

Empirical analyses of nation building often examine “broad brush” policies, in part because many nation building policies within education are relatively broad (for example, the introduction of new curricula or changes in textbooks and exams). In terms of understanding the details of what kind of nation building education works, there is a lot to learn. Does learning the institutional details of governance have a nation building impact? Does effective nation building require persuasive text and language? Does nation building require repeat exposure to ideas and ideologies or exposure through multiple channels? Is trust and cohesion facilitated by diverse students simply being in a class together, or can it be enhanced by students working on certain projects together?

Learning about the effectiveness of educational content and methods requires large data sets on teaching methods, content, and student outcomes. For example, a large dataset on math teaching, content, approach, and student’s answers to questions and engagement with the material could allow AI learning about which approaches work best and for which students. The immediate difficulty in translating this into nation building education is the question of student outcomes. If nation building outcomes are simply knowledge, for example about national history or governance and institutions, then these outcomes can be measured in the same way as other standard material. But nation building outcomes also include whether certain identity, values, beliefs, ideology, or feelings of belonging are held. These outcomes are harder to test than simply knowledge.

There are, however, economics papers that seek to test for outcomes on identity, values, and ideology. Krause et al. (2024) examines the nation building impact of the tours of Puebla using survey questions about feelings on identity and skin color, participation in student volunteering, and the choice to spend monetary winnings to buy Mexican art. Blouin and Mukand (2019) examine the salience of Hutu and Tutsi identity in Rwanda using a “Salience of Identity” test which captures subconscious or conscious categorizing of others on the basis of their ethnicity. They also examine the choice of who to engage with in a cooperative task and outcomes of a trust game. If it is difficult for states to feasibly acquire these kind of measures of student outcomes, however, this will limit the states ability to learn about nation building using AI.

4.2 AI in Overcoming Opposition to Nation Building

AI may make nation building technologies much more effective. Yet, as discussed, technological constraints are not the only constraints to nation building. Political constraints and resistance can both impact the implementation and effectiveness of nation building policies. Here we discuss how AI may play a role in reducing resistance to nation building within education.

Nation building typically requires teachers to transmit nation building policies into the classroom. Blanc and Kubo (2024) show that nation building was more effective in localities in 19th century France with greater concentrations of elites responsible for overseeing local teachers and their lessons, suggesting that teacher compliance was important to the success of nation building. Meriläinen and Mitrunen (2024) explain how the experiment to inculcate children with Marxist-Lenninist views in Finland was also intended for 9th graders (as well as 5th graders), however teacher opposition and resistance prevented the material from being taught to the 9th graders. To the extent that AI can facilitate the efficient creation of resources, including enhanced experiential resources and personalized lessons, at a centralized level, this reduces the reliance on teachers as a transmission channel for nation building.

An additional, indirect way in which AI may enhance nation-building is by increasing the appeal of education, counteracting any reasons that students or their parents have to resist or “tune out” in response to educational content. For instance, as explained in Section 3, resistance to nation-building interventions in education is higher when returns to schooling are perceived as limited. Parents who may oppose the ideological content of education will still send their children to school if they expect that education will benefit them later in life. By the same token, increasing engagement with education and the learning process in the classroom may work as a counterforce to any resistance on the part of parents. AI deployment in educational settings has been particularly successful in increasing student motivation to learn and engagement with class content (Ruan et al., 2021; Wu and Yu, 2024). The use of AI in enhancing the attractiveness of education for students and parents can thus work against any opposition to nation-building content.

AI may also be able to optimize team composition, informing how best to create diverse teams of students for various activities that will tend to promote integration and belonging rather than division and opposition.

4.3 AI-Driven Impacts on Education with Nation Building Implications

The biggest impact of AI on nation-building through education is likely to work indirectly, through AI's impact on education more broadly. All the ways of improving the productivity of *nation building education* just discussed – efficient and enhanced resources, personalized learning and learning about teaching methodology – will all the more apply to the improvement of productivity of *education writ large*. Because nation-building through schooling is achieved through a variety of means, some of which pertain to every aspect of the educational experience, such as sharing a classroom and common content over several years (Section 2), a general purpose technology that increases efficiency in education will increase the level of nation-building achieved at any given level of education. For this reason, the effects of extensive AI use in education on nation-building will likely be larger in those countries where educational technology and the quality of the educational system are currently worse.

One of the most important ways in which AI may facilitate nation-building without being used directly to transmit national identity or ideology is by reducing educational inequalities. In many countries, persistent religious, ethnic or other identity cleavages are perpetuated through accompanying educational and socioeconomic differences across identity groups (Alesina et al., 2016). Enhanced resources and advances in personalized learning through AI have the potential to improve educational outcomes to a greater extent among students of marginalized backgrounds or those who belong to minority groups. One concrete example is personalized language learning. Laitin and Ramachandran (2022) show that indigenous language instruction in Africa significantly increases literacy and that human capital is lower in linguistically diverse countries which rely on colonial languages as a medium of instruction in primary education. Personalized language learning through AI in education has the capacity to increase education and human capital overall, but also close educational gaps and enhance cohesion in societies where the language of the dominant ethnic group is imposed on members of other ethnicities (see also Ramachandran (2017)).

In addition to language, recent research in economics demonstrates the capacity of targeted educational interventions to improve outcomes for students of disadvantaged backgrounds. Carlana et al. (2022) find that tutoring and career counseling offered to high-ability immigrant students in Italy closed the gap in grade retention for male students, who displayed the largest gap in performance pre-intervention. AI may allow for a more cost-effective implementation of similar interventions at scale. Alesina et al. (2024) show that the immigrant-native gap in grades in Italian schools was reduced when teachers were made aware of their own biases (as reflected in an Implicit Association Test) prior to assigning

grades. The potential of AI technology for identifying such biases provides an additional opportunity to address educational gaps at scale. For example, AI may be used to analyze a large amount of teacher-generated data, including natural language from classroom interactions, to identify and remedy biases in instruction that may have adverse effects on students of disadvantaged backgrounds (Tan and Demszky, 2023).

By reducing persistent educational inequalities, AI may indirectly contribute to weakening the identity cleavages that map onto those inequalities and increasing social cohesion. This could be a more “benign” use of AI in nation building education, than applications that focus on direct transmission of values and beliefs.

Though the effects of enhanced resources and personalization on social cohesion through the aforementioned channels are likely to be large, extensive use of AI may also undermine some aspects of education that contribute to nation-building. As discussed in Section 2, the standardization of experience for youth in the schooling system is a major part of what contributes to common identity formation. Personalization of classroom experiences works against this homogenizing function of education and differentiation of teaching methods, content and approach for students of different backgrounds may to some extent highlight, rather than bridge their differences.

Finally, there is no doubt that AI will change education as we know it in fundamental ways. Modern education systems were introduced by states in the nineteenth century, in part, to standardize the population’s skills and values in response to democratization and industrialization (Gellner, 2008; Alesina et al., 2021) and they achieved their nation-building function through such standardization. It is hard to predict how education will respond to the challenges of the information revolution, but it is likely that its overall goal will be much less targeted towards homogenization and standardization of skills and preferences.

5 Conclusion

This chapter speculates on the role of AI in nation building. We could instead have speculated on exactly the inverse: the role of nation building in a world with AI. Nation building has been ubiquitous since the French Revolution and remains so today. As AI becomes more and more relevant, nation building will continue to be an important government policy. What kind of nation building should we expect governments to implement in a world with AI?

AI may shift the direction in which governments wish to shape preferences, values and ideology. Predictions on the implications of AI for jobs, inequality, and the role of work, range from the possibility that jobs will be obsolete and the role of work will be radically altered to the alternative that AI will simply continue the march of automation and resulting

inequality (see Autor (2024), Acemoglu (2024) for further discussion). The analysis of the Finnish experiment in Meriläinen and Mitrunen (2024) suggests that nation building can influence how citizens value and choose different forms of employment and their role as workers in society. Perhaps nation building will be used to shape future workers, albeit to a different shape than today.

In order to understand how states will nation build in response to AI and the changes AI brings, we need a firm understanding of the incentives and objectives of states in implementing nation building policies, as well as the constraints they face. Should we expect democracies to limit nation building to creating cohesive communities and fostering knowledge of democratic processes and institutions? Do non-democratic regimes have the same objectives and the same restraints when it comes to nation building? Should we expect non-democratic regimes to respond more nimbly to AI because they have more latitude when it comes to means of nation building?

While there is growing work on when nation building policies are successful, there is relatively little work on political decision-making (Giuliano et al., 2023) and the constraints that bind (Fouka, 2023). This chapter calls for more research on political decision-making and the incentives of those who make nation building policies.

References

- Acemoglu, Daron (2024) “The Simple Macroeconomics of AI,” *National Bureau of Economic Research Working Paper 32487*.
- Acemoglu, Daron and Pascual Restrepo, “The wrong kind of AI? Artificial intelligence and the future of labour demand,” *Cambridge Journal of Regions, Economy and Society*, 13 (1), 25–35.
- Alesina, Alberto, Michela Carlana, Eliana La Ferrara, and Paolo Pinotti (2024) “Revealing stereotypes: Evidence from immigrants in schools,” *American Economic Review*, 114 (7), 1916–1948.
- Alesina, Alberto, Paola Giuliano, and Bryony Reich (2021) “Nation-Building and Education,” *The Economic Journal*, 131 (638), 2273–2303.
- Alesina, Alberto, Stelios Michalopoulos, and Elias Papaioannou (2016) “Ethnic inequality,” *Journal of Political Economy*, 124 (2), 428–488.
- Allport, Gordon W (1954) “The Nature of Prejudice. New York: Doubleday& Co.”

- Autor, David” (2024) “Applying AI to Rebuild Middle Class Jobs,” *National Bureau of Economic Research Working Paper 32140*.
- Bandiera, Oriana, Myra Mohnen, Imran Rasul, and Martina Viarengo (2019) “Nation-building through compulsory schooling during the age of mass migration,” *The Economic Journal*, 129 (617), 62–109.
- Blanc, Guillaume and Masahiro Kubo (2024) “French,” *Working Paper*.
- Blouin, Arthur and Sharun W. Mukand (2019) “Erasing Ethnicity? Propaganda, Nation Building, and Identity in Rwanda,” *Journal of Political Economy*, 127 (3), 1008–1062.
- Cantoni, Davide, Yuyu Chen, David Y. Yang, Noam Yuchtman, and Y. Jane Zhang (2017) “Curriculum and Ideology,” *Journal of Political Economy*, 125 (2), 338–392.
- Carlana, Michela, Eliana La Ferrara, and Paolo Pinotti (2022) “Goals and gaps: Educational careers of immigrant children,” *Econometrica*, 90 (1), 1–29.
- Carlitz, Ruth, Ameet Morjaria, and Joris M Mueller (2022) “State-building in a diverse society,” nber working paper no. wp30731.
- Carvalho, Jean-Paul, Mark Koyama, and Cole Williams (2024) “Resisting education,” *Journal of the European Economic Association*, jvae008.
- Clots-Figueras, Irma and Paolo Masella (2013) “Education, Language and Identity,” *The Economic Journal*, 123 (570), F332–F357.
- Del Río, Adrián, Carl Henrik Knutsen, and Philipp M Lutscher (2023) “Education Policies and Systems across Modern History: A Global Dataset,” *Comparative Political Studies*, 00104140241252075.
- Dewey, John (1916) *Democracy and education: An Introduction to the Philosophy of Education*, New York, NY: Macmillan.
- Duggan, C. (2007) *The Force of Destiny: A History of Italy since 1796*: Penguin Books, London.
- Felfe, Christina, Martin G Kocher, Helmut Rainer, Judith Saurer, and Thomas Siedler (2021) “More opportunity, more cooperation? The behavioral effects of birthright citizenship on immigrant youth,” *Journal of Public Economics*, 200, 104448.

- Fouka, Vasiliki (2020) “Backlash: The Unintended Effects of Language Prohibition in U.S. Schools after World War I,” *The Review of Economic Studies*, 87 (1), 204–239.
- (2023) “Language policies in education and the possibility of identity backlash,” in *Nation-building: big lessons from successes and failures. CEPR E-book*, edited by Dominic Rohner and Ekaterina Zhuravskaya: CEPR E-book.
- Freire, Paulo (1970) *Pedagogy of the oppressed*, New York, NY: Continuum.
- Gellner, Ernest (2008) *Nations and nationalism*: Cornell University Press.
- Giuliano, Paola, Bryony Reich, and Alessandro Riboni (2023) “What Motivates Leaders to Invest in Nation-Building?” in *Nation-building: big lessons from successes and failures. CEPR E-book*, edited by Dominic Rohner and Ekaterina Zhuravskaya: CEPR E-book.
- Hobsbawm, E.J. (1990) *Nations and Nationalism since 1780: Programme, Myth, Reality*: Cambridge University Press, Cambridge UK.
- Krause, Ben, Michael Kremer, Eduardo Rivera, and Enrique Seira (2024) “The Influence of Historical Narrative on Individual and National Identity.”
- Laitin, David D and Rajesh Ramachandran (2022) “Linguistic diversity, official language choice and human capital,” *Journal of Development Economics*, 156, 102811.
- Meriläinen, Jaakko and Matti Mitrunen (2024) “Long-Run Consequences of Propaganda in the Classroom,” *Working Paper*.
- Mollick, Ethan R. and Lilach Mollick (2023) “Assigning AI: Seven Approaches for Students, with Prompts,” *The Wharton School Research Paper*.
- (2024) “Instructors as Innovators: a Future-focused Approach to New AI Learning Opportunities, With Prompt,” *The Wharton School Research Paper*.
- Owen Henkel, Nessie Kozhakhmetova, Hannah Horne-Robinson and Amanda Lee (2024) “Effective and Scalable Math Support: Experimental Evidence on the Impact of an AI-Math Tutor in Ghana,” *Working paper*.
- Paglayan, Agustina (2024) *Raised to Obey: The Rise and Spread of Mass Education*, Princeton, NJ: Princeton University Press.
- Ramachandran, Rajesh (2017) “Language use in education and human capital formation: Evidence from the Ethiopian educational reform,” *World Development*, 98, 195–213.

- Ramirez, F.O. and J. Boli (1987) “The Political Construction of Mass Schooling: European Origins and Worldwide Institutionalization,” *Sociology of Education*, 60 (1), 2–17.
- Rohner, Dominic and Ekaterina Zhuravskaya (2023) *Nation building: Big lessons from successes and failures*: CEPR Press London.
- (Forthcoming) “The Economics of Nation-Building: Methodological Toolkit and Policy Lessons,” *Annual Review of Economics*.
- Ruan, Sherry, Liwei Jiang, Qian Yao Xu, Zhiyuan Liu, Glenn M Davis, Emma Brunskill, and James A Landay (2021) “Englishbot: An ai-powered conversational system for second language learning,” in *Proceedings of the 26th International Conference on Intelligent User Interfaces*, 434–444.
- Sakalli, Seyhun Orcan (2019) “Secularization and religious backlash: Evidence from Turkey,” *Working paper*.
- Tan, Mei and Dorottya Demszky (2023) “Sit down now: How teachers’ language reveals the dynamics of classroom management practices.”
- Tilly, C. (1975) “Reflections on the History of European State-Making,” in Tilly, C. ed. *The Formation of National States in Western Europe*, Princeton NJ: Princeton University Press.
- Weber, Eugen (1976) *Peasants into Frenchmen: the modernization of rural France, 1870-1914*, Stanford CA: Stanford University Press.
- Wu, Rong and Zhonggen Yu (2024) “Do AI chatbots improve students learning outcomes? Evidence from a meta-analysis,” *British Journal of Educational Technology*, 55 (1), 10–33.