

Evidence-Informed Practice in Massachusetts (USA): A Systems-Level Analysis

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ABSTRACT:

This chapter examines Massachusetts (USA) public primary and secondary educators' use of evidence-informed practices. We pay special attention to the role of the Massachusetts Department of Elementary and Secondary Education (DESE) in this regard while employing the dual analytical frame laid out in this handbook's introduction. The first section provides relevant background/context and tentatively classifies the system according to the matrix. The next sections describe educators' use of evidence, and provide context, insights, and analyses in relation to the patterns presented. We note how certain forms of data are routinely being used (and describe DESE's role in facilitating and shaping such use), and we describe some bottom-up (and DESE-supported) research that is occurring within districts. Applying institutional analysis to this case, evidence-informed practice in Massachusetts is skewed top-down in important ways, but there is also recognition of and some earnest efforts also/instead to promote more bottom up EIP in and across Massachusetts schools and educational organisations. Overall, we advance this case as providing an example of a robust infrastructure at the macro-level (DESE) that can facilitate and shape EIP, and especially in relation to providing relevant and timely data and supporting its use by educators. Accordingly, our final section focuses on how/why DESE has been successful in these endeavors, as a way of drawing out key lessons. This chapter also includes an appendix containing links to a variety of tools, reports, and resources, which may be of interest to readers interested in further exploring or applying similar approaches.

KEYWORDS:

1. Education
2. Evidence Use
3. Research Use
4. Data Use
5. State Education Agency (SEA) Research Infrastructure
6. Learning Networks

Introduction

This chapter examines Massachusetts (USA) public primary and secondary educators' use of evidence-informed practices, paying special attention toward the role of the Massachusetts Department of Elementary and Secondary Education (DESE). To do so, we employ the dual analytical frame laid out in this handbook's introduction. Portions of this chapter have been published in "World-wide barriers and enablers to achieving evidence-informed practice in education: what can be learnt from Spain, England, the United States, and Germany?" by Malin *et al.* (2020; open access). This chapter builds upon findings presented there, providing further exploration as well as a more prominent focus on drawing out lessons for policy and practice.

As will be shown, Massachusetts (MA) provides a unique and informative case. For example, it appears by most measures to be among the top-performing state education system in the U.S. It is also a state in which considerable efforts have been made to increase and enhance the use of research in state educational policy and practice: in particular, DESE has shown a systematic and pioneering commitment to developing both the capacity and culture to support the use of research internally. DESE also maintains practices that reflect key U.S. federal law governing both evidence use and accountability requirements.

The chapter is laid out in the following manner. The first section classifies the MA public elementary and secondary school system using the dual analytical frame and provides relevant background/context. The second section describes educators' use of evidence. The third section applies institutional theory to the case, as a means of analyzing and explaining the patterns observed. The final section shares key lessons for policy and practice.

The Massachusetts School System: Background and Classification Relative to Analytical Frame

Placing the MA school system in the cohesion/regulation matrix is not entirely straightforward. Regarding the individualism-egalitarianism dimension, though MA and the U.S. are individualistic in nature, teachers in their work settings are often more communitarian (Shober, 2016). Most recently, however, MA has embraced neoliberal and managerialist education policies (Piazza, 2017; Horsford *et al.*, 2018); for instance, in 2012 MA enacted a law that limits seniority-based job protections for teachers and may undercut a communitarian, professional ethos. (Also see later discussion of *Race to the Top* policy). MA is also—relative to other U.S. states—socially cohesive (e.g. Wise, 2015 places it in the top 10 on this measure). However, the U.S. presently is conspicuously un-cohesive, and MA is not a marked exception. The political context is distinct in certain ways: It is a reliably "blue state"

(i.e., its citizens/voters predominately choose Democratic Presidential and down-ballot candidates), which positively correlates to some extent with attitudes about, and funding toward, public education (Malin, 2016). All considered, we have placed MA within the top right quadrant, the *fatalist* way, albeit with the understanding that this is a dynamic context and policy area.

MA is unique in that its K-12 students' academic achievement is consistently among the highest within the U.S. states (Papay et al., 2020) and near the top on international indices as well (Wong, 2016). MA has also, since at least 1993, been viewed as a leader in U.S. education reform¹. In 1993, the omnibus Massachusetts Education Reform Act introduced state-wide learning standards and an associated state testing/accountability system. Simultaneous with the increased accountability, state-based school funding also considerably increased. Notwithstanding these efforts and successes, educators and policymakers in MA have also taken note of, and have sought to rectify, considerable performance inequities for certain groups of students (i.e., based on class, race, ethnicity; Darling-Hammond, 2010; Papay et al., 2020).

In the U.S., as the federal constitution does not specifically address education, states hold primary authority, though states historically have also delegated much authority and responsibility downward—i.e., to school district levels. While MA has a strong/longstanding history of local control, “the fundamental constitutional duty to educate all children to a high standard rests with the Commonwealth’s [MA’s] executive and legislative officials” (Chester, 2014, p. 3). Education across the U.S. is a state responsibility, with state departments of education (SEAs) managing education. Thus, it is appropriate to examine U.S. school systems at a state level while attending to local variation (i.e., regions, districts, schools, and educator workforce) as well.

Still, it is important to understand that U.S. educators (including MA) are affected by federal policies. Since the early 2000s, educators have needed to respond to a largely federally-led emphasis on standardized test outcomes and a “what works” agenda, characterized by a “strikingly narrow focus on evidence of the [quantitative] impact of interventions” (Tseng and Coburn 2019, p. 351) from causal research, neglecting qualitative research and other types of evidence that are not from research conducted using causal design². Most notably, the No Child Left Behind Act of 2001 (NCLB) mandated high-stakes student achievement testing and required that school leaders and teachers reduce achievement gaps. While this led to greater use of data at the state, district, and school level, NCLB did not act as a general stimulus of the use of many types of data. Instead, NCLB led to an

¹ In fact, one can take a longer view and observe that Massachusetts has been a trailblazer in education reform, including the initiation of public schooling in the US, dating back centuries (Katz, 1976).

² Causal research is challenging to carry out in educational settings in the U.S. where neither educators nor students can be randomly assigned to schools or districts.

emphasis on use of data from federally required student state summative achievement assessments. This emphasis on high stakes testing contributed to other questionable practices to raise test scores (e.g., narrowed curricular offerings and a focus upon “bubble kids” who tested near proficiency cut-points; Datnow et al., 2013; Hackmann et al., 2019). However, the emphasis on the use of standardized assessment data did not lead to standardized data practices, as these continue to vary substantially across districts and schools. The 2015 reauthorization of the primary federal educational funding and regulatory law, Every Student Succeeds Act (ESSA), further narrowed the NCLB definition of evidence from “scientifically-based research”, which had little specification, to the explicit privileging of randomized control trials and other summative quantitative analyses.

In 2010, MA pursued and was subsequently awarded a \$250mm federal US *Race to the Top (RttT)* grant. *RttT* was an Obama-era federal grant competition (the largest ever of its kind in U.S. history), brought forth on the heels of a recession that left states with reduced tax revenues especially interested in federal educational funding. *RttT* was designed to stimulate particular state-level reforms, including: (a) adoption of core standards and assessments; (b) building data systems to collect and report student assessment outcomes, and inform teachers/school improvement; (c) the recruitment, development, and retention of effective teachers; and, (d) turning around low-performing schools (Horsford et al., 2018). In order to even be eligible to apply for this funding, MA and other states needed to develop and implement policies in these areas or reform, which clearly reflected a neoliberal approach to education reform. Districts and school leaders and their staffs – similar to the state – needed to engage in these reforms (e.g., revising educator evaluation systems) in order to compete for/receive the funding. Accordingly, these policy shifts introduced new regulatory pressures and privileged certain forms of data (more discussion to follow as part of institutional theory analysis).

MA’s educational system is hierarchically organized, albeit in some cases with overlapping authority and in some aspects with the higher (i.e., SEAs) administrative level serving more as a resource/support (and less as a heavy-handed regulator) to local districts and their educators. For example, and pertinent to this chapter, MA’s SEA was the first in the US to create a state research director position and a robust SEA research office (DESE’s Office of Planning and Research [OPR]).

Use of evidence: What does all of this mean in terms of MA educators’ engagement with research and evidence? This case draws primarily upon findings presented as part of a recent study, ‘Evidence use in Massachusetts School Districts’, completed by Hedberg (2018) for DESE’s OPR. This study was undertaken as part of early stage efforts by DESE/OPR to support MA districts’ evidence use and identify the data and evidence use practices and needs in districts. The interview study (N=22

district-level interview participants), drawn from a stratified sample of MA districts, “sought to understand how districts are currently using, building and sharing data and research” (p. 1). The current chapter utilizes insights from Carrie Conaway (2020), who then was OPR’s research director, and the second author, Kendra Winner, who has served as OPR’s Research and Evaluation Coordinator for over a decade.

The goal for Hedberg’s interviews and analysis was to gain insights to inform how DESE could support the use of evidence across more districts and schools and specifically in supporting the selection of evidence-based interventions, an ESSA requirement, by “low performing’ schools.” In brief, Comprehensive Support and Improvement (CSI) and Targeted Support and Improvement (TSI) schools³ are now required to select at least one intervention and/or program that is supported by evidence showing they improve outcomes in students and contexts similar to those of the actual schools selecting these strategies. Using evidence presupposes an ability to locate and assess evidence and, ultimately, to make contextualized decisions (e.g., using local information about student demographics and achievement, school resources, etc.). Following this survey’s administration and analysis, DESE/OPR designed and hosted trainings on finding, assessing, and using evidence both for school/district staff who were responsible for meeting these requirements and the internal DESE staff responsible for supporting these schools in their efforts to improve.

The first point we can take from the survey results is that ‘data’—and especially data from the MA state student assessment (Massachusetts Comprehensive Assessment System or MCAS) — are being used more frequently than research. In part, this finding reflects the aforementioned emphasis of federal policy on summative student achievement assessment and the focus of educators on these assessment results. Indeed, in this case educators reported their MCAS data is indispensable.

Hedberg observes, “looking at student performance data is becoming part of the regular routines for teachers and administrators”(p. 4). In general, the most frequently cited sources of data used by districts are those provided by DESE. In addition to MCAS, respondents specifically mention three DESE data tools and systems: [Edwin Analytics](#), [Resource Allocation and District Action Reports \(RADAR\)](#), and [District Analysis and Review Tools \(DART\)](#). All three of these are made possible by DESE’s development of a longitudinal data system and resources that bundle copious data into manageable interactive tools, standard reports, and queryable data pulls.

As outlined in the resources provided on [DESE’s Data Tools and Resources](#) web page, DESE has actively pursued the development of [Data Collections](#) (e.g., student assessment, data on public

³ See the USDOE’s ESSA [non-regulatory guidance](#) for the definitions of CSI and TSI schools and additional details about the ESSA evidence requirements.

school educators, student level demographic, and student course taking data), [Data Tools](#) (e.g., school and district profiles, DART, Edwin Analytics, and RADAR), [Data Resources](#) (e.g., student growth percentiles, Early Warning Indicator System [EWIS], and the Progress and Performance Index), and [Data Reports](#) (e.g., statistical reports, including but not limited to graduation rates, dropout rates, and educator evaluation data, as well as per pupil expenditure reports). Links to these and other resources are found in this chapter's Appendix. This focus on data collections and the additional tools, resources, and reports is to support educators in accessing and interpreting large combined data sets that district and school staff would be unlikely to otherwise have the capacity to generate. Both DESE's student-level demographic data collection and student assessment data are available and linked beginning in 2002. In 2005, data on English proficiency assessments was added and in 2007 data on educators was added. New data sets continue to be added over time, including data on student course taking (2011) and data on student views of school climate and culture (Views of Climate and Learning [VOCAL], which began in 2017). These tools and data systems allow DESE to support district and school use of data, including data from student assessments that are required by both Massachusetts state and US federal law, averting nearly 400 districts (including Charter Districts, which typically consist of one school) from individually collating, merging, analyzing, and reporting this data, repeatedly recreating the same wheel.

A number of these tools – RADAR, the DARTs, and the EWIS – have been created by DESE's OPR office as a way to continue to shine a light on data and information that might otherwise be difficult for educators to access. Educators interviewed for the study report that they use these kinds of DESE data and tools to measure student improvement, plan and target instruction, and improve instructional practices, among other things. While a few districts (N=6 of 19) have invested in one or more staff members whose function revolves around data or evidence, few have the resources to develop the type of longitudinal data systems and tools created by DESE. A number of the tools have the advantage of allowing districts to compare themselves to other similar districts as well as to state averages. For example, Figure 1 below is from the Success After College DART and illustrates the drop off in enrollment for ninth grade cohorts as they move from their first year of high school to enrolling a second year in college.

Figure 1 Here

Figure 2 illustrates the ability of the DART detail for English Language Learners to compare the proportions of English Learners making progress on the state assessment for English language proficiency (ACCESS for ELLs) over four years for two schools and the state.

Figure 2 Here

In terms of ‘building evidence,’ findings were mixed. On one hand, 81% of districts interviewed reported partnering with an outside organization to conduct research. On the other hand, of this 81%, under half of these (38%) utilized formal research questions or data collection and analyses in this type of research. Thus, most commonly—at least among this sample—districts engage in informal research in a few key areas (e.g., measuring the impact of district programs or practices, or tracking progress relative to district goals). Overall, districts appear to “have more systems for integrating data use in their decision-making than for integrating outside research” (p. 9). These systems/structures include data meetings (13 mentions), professional development (5), and dedicated data teams (5).

District and school capacity for analyzing data and conducting research and evaluation varies quite a bit in Massachusetts. The majority of Massachusetts school districts are small, with 4,000 or fewer students. In these districts developing data collection systems, much less coordinating and analyzing multiple data sets, is challenging at best if not impossible given their limited resources. A few larger districts, for instance the Boston Public Schools, have greater resources including funding and central office staff that have allowed them to create assessment and/or research offices that engage in data analysis and research. It is also the case that the data and research needs of districts vary across a number of factors simultaneously, to name a few, the number and type of students they serve, the teachers they employ, the difficulty in recruiting and retaining teachers, and student academic achievement levels. The data and research needs of a small rural district in the west that serves a small number of students who are predominantly white and low-income has different interests and needs than a large urban district serving large numbers of students of color, students who are English Learners, and low-income students.

Partly in response to the ESSA evidence requirements, OPR ran an Evaluation Program Pilot built on the assumption that different districts and schools both had different research needs and capacities and that they would be interested in conducting a supported evaluation of work they were already engaged and invested in. OPR’s hope was that districts and schools would volunteer to participate in

quarterly convenings, monthly research support calls, and to test a suite of evaluation tools in order to have the opportunity to engage in research of interest to them with support from DESE and a technical assistance partner, DMGroup. Originally, OPR planned to have one cohort of approximately ten schools and/or districts. However, they received many more applications to participate than anticipated and ultimately ran two cohorts with a total of 18 schools and districts completing the pilot (two districts/schools dropped out over the course of the year). The projects and research capabilities of the participants varied from small individual schools with no prior experience engaging in original research or data analysis to teams from larger districts that included analysts and research staff. The goal of the project was not to have participating educators create “perfect” research but instead to engage in more focused research efforts with research questions, data collection plans, and analysis strategies. The pilot provide these schools and districts with some of the skills and other support necessary to for them to engage in more rigorous research efforts. The pilot demonstrated that it is possible to move “evidence-based” efforts forward at the school- and district-level and that schools and districts have an appetite for this kind of work if can be designed specifically for their contexts and for issues that are of importance to them.

Those districts who participated in the interviews (Hedberg, 2018) reported using research evidence in a few specific ways—for instance, 25% noted looking at the research base as part of the process of selecting new programs or interventions. Respondents also reported using either data or research to ‘adopt new materials’ (9.13 on a scale of 1 to 10; 10=all the time), ‘select intervention’ (8.87), ‘provide professional development’ (8.27), ‘inform instruction’ (8.07), ‘allocate funds’ (7.53), and ‘allocate staff’ (7.0). Evidence was also used by some districts to measure program/intervention implementation and impact - primarily using MCAS data.

This study also inquired about barriers to evidence use. Responses suggest limited time/staff resources (12 mentions), value of available research (5), and lack of an evidence culture (3) present the largest obstacles. Confidence in engaging with research did not appear to be a considerable barrier, at least for these respondents. Cross-district evidence sharing appears to be modest amongst MA educators, with most sharing occurring ‘at conferences or collaborative meetings’ (p. 9). Hedberg (2018) globally sensed some ‘skepticism around research’ (p. 13) including vendor-produced research that was thought to be biased.

Lastly, it was clear that most educators accessed research indirectly and in a brokered fashion—i.e., through professional associations and conferences, and from other education publications such as the Marshall Memo (also see Malin, Brown, and Trubçecac, 2018; Malin and Paralkar, 2017). State

resources were also noted, again underscoring the importance of the broader system in facilitating or hindering use.

Application of institutional theory: When applying institutional theory to the MA case, some key elements are evident. First, we can see how formal policies (state and federal) have constrained educators' attention in certain directions (e.g., attentive to high-stakes testing data, and more generally toward data relative to other sources of evidence). Within that parameter, we can see the state attempting to be helpful, providing data in a timely fashion and in a format that educators report is useful. There also appear to be earnest and somewhat successful efforts to facilitate coherence across the system, with DESE assuming a leading role. The pattern thus appears to be a primarily top-down approach to evidence (and, more specifically, certain canonical data), whereby evidence from some other authoritative location is brought into practice (Martin and Williams, 2019). DESE, however, is also showing clear interest in encouraging/facilitating bottom-up use, e.g., by "facilitating the cross-pollination of ideas and resources by evidence-oriented practitioners" (Hedberg 2018 recommendation, p. 2). For example, and as previously noted, former and current OPR leaders and staff members are serious about supporting EIP within districts' ongoing work and projects, as a natural 'bottom up' way to move evidence-based efforts forward.

Despite considerable isomorphic pressures on MA educational organisations and educators, from the top, there also appears to be considerable organisational-level diversity in EIP. Some districts, for instance, have invested in data coaches or similar, whereas others have not. Meanwhile, some schools and districts are facing MA legislative mandate to improve or turn around their schools (again, a top-down policy), and educators within these districts are compelled to engage with evidence in different ways and with different levels of urgency⁴. Within such a situation, we suggest there is still potential for cross-district sharing if/when educators/organisations could network and form consortia according to common challenges and interests. Results of the evidence use survey suggest much of this potential is currently untapped, however there are some promising signs on the horizon. For instance, at the time this chapter was being written, the Program Evaluation Pilot was coming to a close and a number of both small and large districts asked DESE to facilitate a professional learning network where they can continue to discuss research issues amongst themselves both as individual school and district teams and as a cohort of educators interested in further embedding research and evaluation into their ongoing practices. OPR is still in the process of

⁴ In practice, however, school improvement plans (required by ESSA) rarely cite – and even less frequently accurately cite -- research that qualifies as evidence under ESSA; in our view, this reality is a reflection of barriers to research access, the learning curve around interpreting data/research, and challenges in matching evidence with specific school challenges or improvement strategies.

determining what format this will take but early iterations of this work project that OPR staff will schedule meetings on a regular basis (e.g., quarterly) and that the participating districts and schools would work with OPR staff to create agendas, determine topics, and guide the progress of the group. OPR is additionally considering holding monthly research and evaluation office hours to make some individual district/school support available. Participants in the pilot were grateful both for team time and for time to discuss and hear about the efforts of their colleagues across the state.

We can also see that the state, though a very important part of the evidence use system in several ways (e.g., via relevant laws, its assessments, and its research supports), is not the sole influencer beyond the level of the organisation. For example, professional associations play a key role in facilitating evidence sharing and use in MA, and certain other brokers are performing important linkage functions as well. At the epistemic level, too, educators' scepticism toward research serves as a barrier to use, but the level of scepticism most likely varies considerably (a conclusion reached by Hedberg 2018, p. 2, whose recommendations relied upon leveraging and connecting educators who are more "evidence-oriented"). Overall, it would seem EIP in MA is skewed top-down in important ways, but there is also recognition of and some earnest efforts also/instead to promote more bottom up EIP in and across MA schools and educational organisations. Such bottom-up efforts, with some exceptions, typically do not include conducting formal research (Hedberg, 2018).

Key Lessons for Practice and Policy

MA, in our view, provides an example of a robust infrastructure at the macro-level (i.e., state-level, as with DESE) to facilitate and shape EIP. In this instance, what especially stands out is the ability of DESE to provide educators and the public with longitudinal data reporting and analysis, as well as research conducted by third-party independent research organizations. Here we consider how/why this has been possible, as a way of drawing out key lessons for practice and policy.

First, MA was one of the first states to develop its own state assessment. MCAS was under development prior to the NCLB federal assessment requirement, though the timing of the two together created both need and opportunity to begin tracking and reporting student achievement outcomes over time. In addition, MA moved quickly to connect the assessment data to both additional individual student and educator information in order to understand better the factors that influenced the assessment outcomes for different student groups, different districts and schools, and the state as a whole. This early start on developing a longitudinal data system was also supported by senior level DESE staff who were interested in using research and evidence to inform policy. Carrie Conaway, the first DESE research director, was brought on by senior staff with this evidence-based mind-set. DESE benefitted enormously from four federal Statewide Longitudinal

Data System (SLDS) grants. While the DESE Data Collection and Reporting staff are largely responsible for statistical reporting, over time collaboration with the research office led to the development of a series of data tools for both educators and researchers. As mentioned earlier, educators have access to a range of both public and confidential data. OPR also created a variety of strategies to work with researchers such as creating redacted public data sets (to ensure confidentiality of individual-level data), combined data sets, criteria for obtaining confidential data that meet federal and state confidentiality laws, and a process for the request, approval, and provision of data in a secure fashion. Robust and talented staff – not only in OPR but also in the Data Collection and Reporting Group at DESE – have been key to the success of these operations.

This case also underscores that EIP is best facilitated when tailored to individual district/school needs, especially in a context like MA where local control is both the rule and highly valued. DARTS and District and School Profiles enable such tailoring, and MA educators appreciate being able to compare themselves to other districts/schools they believe (or the algorithm indicates) are comparable to them. Likewise, the aforementioned (and apparently quite successful) efforts to stimulate local research via the Program Evaluation Pilot shows how more ‘bottom-up’ and tailored EIP can be supported.

It is also true that the narrow focus on student achievement as measured by high-stakes tests (per federal requirement) sometimes crowds out focus on other important areas, and this is a difficult challenge to fully overcome (e.g., it is difficult to collect large quantities of student-level data that is not quantitative, and to collect additional data beyond state/federal requirements entails work on the part of districts and schools). Encouragingly, though, DESE is working on an achievement gaps dashboard and already reports data other than academic achievement data such as the VOCAL student climate surveys (though students take these as part of the MCAS administration). In fact, there is a growing emphasis on assessing/reporting on non-academic factors (e.g., social-emotional learning) so changes are presently underfoot.

Appendix

Data Tools and Resources web page: <https://www.doe.mass.edu/research/resources/tandr.html>

Data Collections: <https://www.doe.mass.edu/research/resources/collections.html>

Data Tools: <https://www.doe.mass.edu/research/resources/tools.html>

Data Resources: <https://www.doe.mass.edu/research/resources/resources.html>

Data Reports: <https://www.doe.mass.edu/research/resources/reports.html>

ABCs of high school success and beyond: <https://abcs.sites.digital.mass.gov/>

DESE Reports Library – largely external evaluations: <https://www.doe.mass.edu/research/reports/>

Student culture and climate survey results: <https://www.doe.mass.edu/research/vocal/>

DESE Early Warning Indicator System: <https://www.doe.mass.edu/ccte/ccr/ewis/>

Analysis of Dropout Data: <https://www.doe.mass.edu/ccte/ccr/ewis/analysis-tool.html>

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Figure 1

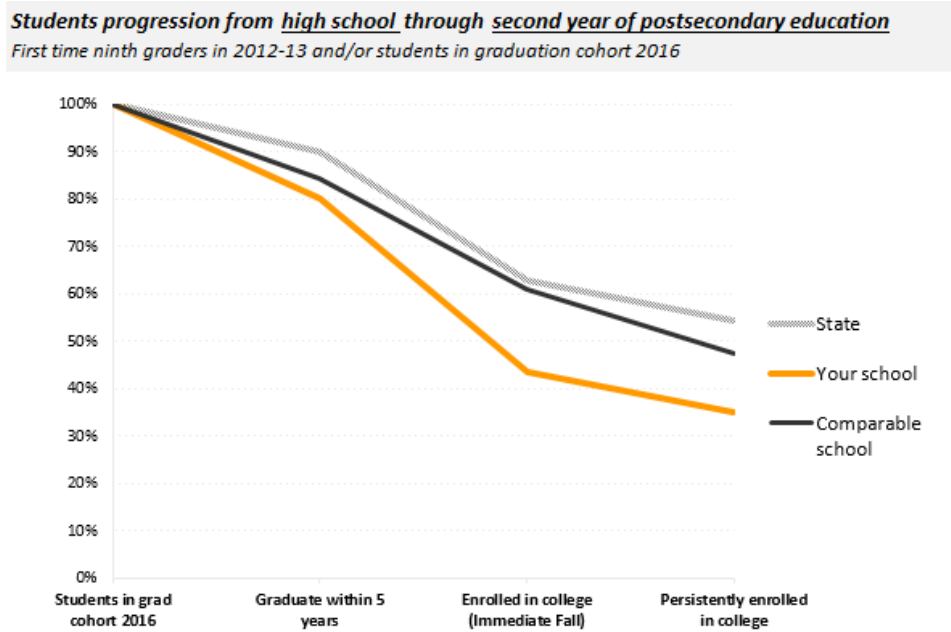


Figure 2

Percentage of EL students attaining proficiency on ACCESS for ELLs by Language Domains (Composite)

Note: From 2016 forward, attaining proficiency is defined as students who scored 4.2 or higher on ACCESS for ELLs. It was 5.0 or higher prior to 2016.

OVERALL

