Getting policy done in educational practice: What happens when multiple central government policies meet clusters of organization routines in schools

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Abstract

This paper develops a new, broader, and more realistic lens to study (lacking) linkages between government policy and school practices. Drawing on recent work in organization theory, we advance notions on cluster of organization routines and the logic of complementarities underlying organizational change. This lens allows looking at how schools do (not) change a cluster of organization routines in response to multiple, simultaneous demands posed by government policies. Thirteen purposively selected Dutch secondary schools responding to three central government policies calling for concurrent change were analyzed, taking the schedule of a school as an exemplary case of a cluster of organization routines. Five distinct responses were distinguished, which can be sorted according to their impact on the whole organization. The study finds that ten of the thirteen schools did not change anything in response to at least one of the three policies we studied. However, all schools changed their cluster of organization routines, which impacted the whole organization in response to at least one of the three government policies. Therefore, looking at combinations of responses and considering the impact of change on school organizations qualifies ideas about schools being resistant to policy or unwilling to change and improve.

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Introduction

Worldwide central governments face the challenge of shaping education policies so that implementing curriculum changes stands to improve the quality of learning in hundreds if not thousands of schools and classrooms. Likewise, schools face a 'constant stream of policies' (Braun et al., 2010) and adopt coping strategies ranging from buffering to bridging (Coburn, 2004; Honig & Hatch, 2004; Honig, 2006; Yurkofsky, 2021). Research shows that a lens of organizational routines can help us understand the (lack of) linkages between policy demands and school practices (i.e. Ottesen & Møller, 2016; Sherer & Spillane, 2011; Spillane, 2012; Spillane et al., 2011; Tubin, 2015; Woulfin, 2015). Organization routines constitute the stabilizing core of internal school practices (Hubers et al., 2017; Wolthuis et al., 2020) while at the same time providing the opportunity for change in schools (Spillane, 2012). Organization routines appear to be essential components of very successful high schools in terms of student learning (Preston et al., 2017; Tubin, 2015), were found to structure the coordination and collaboration between multidisciplinary teams within schools (Stelitano et al., 2020), to facilitate learning within schools (Schildkamp & Datnow, 2020) and to structure learning across organizations (Farrell & Coburn, 2017).

We build on this line of work by examining how schools respond to external policies aimed at their curriculum by (not) adapting their organization routines. What our research adds is a broadening of scope in two ways. First, while other research mainly focuses on one specific policy, we take as a starting point that schools have to deal with multiple external policies simultaneously (Honig & Hatch, 2004; Honig, 2006). Second, while nearly all studies concentrate on one specific organization routine, we look at multiple interrelated routines in schools. Here, we draw on organization science, where theory development has only recently moved towards so-called clusters of routines (Hoekzema, 2020; Kremser & Schreyøgg, 2016). Logics underlying organizational change may be very different for single and clusters of routines (Kremser & Schreyøgg, 2016). By broadening the focus on (the lack of) linkages between multiple government policies and clusters of routines in schools, our research aims to resemble daily reality in schools more closely. After all, the fact that schools operate in an environment with multiple, often contradictory policy demands is long considered a prime reason why schools put buffers in place to ensure continuity in core processes of teaching and learning in classrooms (Meyer & Rowan, 1977; Weick, 1976). The big lesson from research on sustainable change in schools is that it calls for a comprehensive approach because school practices are highly intertwined (Desimone, 2002; Hill et al., 2022). Therefore, a broader and more realistic scope on (lacking) linkages between government policies and school practices may deepen our understanding and help overcome recurrent observations of schools feeling pressured to comply with policies rather than work on sustained quality improvement (Waslander et al., 2018; Yurkofsky, 2021).

The following question guides our research:

> "How and to what extent do schools adapt a cluster of interrelated organization routines in response to multiple central governmental policies?"

To answer this question, we explored how thirteen Dutch secondary schools responded to the simultaneous introduction of three government policies related to numeracy, literacy, and civic education. Our focus is on how schools do or do not adapt their schedules, as schedules represent an essential cluster of organization routines in schools. We find that clusters of routines differ widely between schools and that there are five distinctively different types of responses. These responses are salient when viewed through a lens of clusters of routines.

This article opens by developing a conceptual framework drawing on organization routines literature to study schools' responses to multiple central governmental policies. Section three sketches general background of Dutch secondary schools and describes three specific central government policies which posed external demands on secondary schools simultaneously. Section four outlines the design of the study, the selection of thirteen Dutch secondary schools, data collection, and data analyses. Then, in section five, we describe how the schools' schedules differed, how schools adapted in response to the policies, and how we interpret these adaptations. The final section draws conclusions and reflects on the results for theory and practice.

Conceptual framework

Organization routines are 'recognizable, repetitive patterns of independent action carried out by multiple actors' and considered the source of both stability and change in organizations (Feldman & Pentland, 2003; Hubers et al., 2017; Spillane, 2012; Wolthuis et al., 2020). To depict how organization routines may form sources of stability and change, Feldman and Pentland (2003) distinguish between ostensive and performative aspects of organization routines (see also: Spillane et al., 2011). The ostensive aspect of an organization routine represents an ideal or guide for behavior, relationships, and social interactions in the organization, whereas the performative aspect is how the routine is conducted by individuals. For example, a written policy of two meetings a year between teachers and parents to talk about a student's progress is the ostensive aspect; whether and how that happens is the performative aspect of the routine. Because of its performative nature, a routine is never the same when conducted in daily practice. It is the performative aspect of an organization routine that represents room to individuals for spontaneity and improvisation and for deviation from the format for behavior inherent to the ostensive aspect. So, teachers may decide during the school year that they want to meet parents three times a year or, infused by practicalities, organize a joint meeting for all parents together. Particularly this latitude for individuals in performing organization routines is an important internal source of organizational change (Feldman & Pentland, 2003). Our study is not about such internal sources of organizational change. Instead, it focuses on external sources of change by examining how ostensive aspects of organization routines are (not) adapted in response to multiple government policies.

Clusters of organization routines

Research on organization routines broadens its scope (Feldman et al., 2016). Such as considering a routine as a set of subroutines connecting multiple layers of an organization (Parmigiana & Howard-Grenville, 2011) or observing that a routine is not necessarily confined to one organization (Farrell & Coburn, 2017). Our study builds on another expansion: the shift from focusing on a single routine to the recognition that organizations are shaped by multiple, interrelated routines (i.e., Becker et al., 2006; Hoekzema, 2020; Kremser & Blagoev, 2020; Kremser & Schreyögg, 2016; Sele & Grand, 2016; Turner & Rindova, 2012; Wenzel et al., 2020). Schools are clear examples of organizations shaped by multiple routines (Farrell & Coburn, 2017; Spillane et al., 2011; Stelitano et al., 2020; Tubin, 2015; Wolthuis et al., 2020).

We build on the work of Kremser and Schreyögg (2016) who define a cluster of routines as consisting 'of multiple, complementary routines, each contributing a partial result to the accomplishment of a common task' (p. 698). In a school, routines related to learning activities of students, teaching activities of staff, the content of the curriculum, and organizational resources such as time, staff and space are all closely connected in order to accomplish the core and common task of schools, which is to educate students (Spillane et al., 2011; Tubin, 2015). These interdependent and closely linked operations constitute a cluster of routines. The most visible expression of this cluster is the schedule, communicating to each student, parent, teacher, principal and others involved in education who is to be where, when, to do what with whom. In fact, schedules express such close connections between so many individuals and so many aspects of daily practices in schools that it has become a classic topic in the field of operations research, known as 'the school timetabling problem' (Abramson, 1991; Burke et al., 2007; Veenstra & Vis, 2016). We consider the schedule of a school an exemplary case of a cluster of organization routines in accordance with the definition of Kremser and Schreyögg (2016). The fact that minor changes in a schedule can have major and disruptive effects in educational organizations (Tate et al., 2018) underscores that schedules represent the most crucial cluster of organization routines in schools.

The lens of a cluster of organization routines can advance our understanding of (lacking) linkages between government policies and school internal practices as it brings the embedded nature of such practices sharply into view. For example, possibilities and consequences of scheduling specific learning activities depend on particular features of physical spaces across locations, as they allow or restrict students' movement between facilities such as laboratories or sports fields. Particularities such as which teachers are available during what hours, given the size of their contracts, arrangements for non-teaching tasks, as well as power relations and privileges also support or obstruct learning activities to take place (Riehl et al., 1999). Schedules also express schools' pedagogical vision and judgements. For example, schools may want to ease first-year students in by avoiding long days at school, or they may propagate a promise of unlimited curriculum choices by making every combination of courses possible. So, behind the abstraction of clusters of routines are concrete factors faced by schools when (not) implementing government policies, and what is more, the realization that such factors are very much connected.

Programmed interfaces and the logic of complementarities

The idea that organization routines are combined into clusters offers a different perspective on organizational change. The dynamics of stability and change are very different at the cluster level of multiple, interrelated routines compared to single organization routines (Hoekzema, 2020; Spee et al., 2016; Turner & Rindova, 2018). The main reason is that routines within a cluster need to be connected to establish consistency (Kremser & Schreyögg, 2016; Turner & Rindova, 2018). Connections between routines are called interfaces. They do not come about spontaneously or ad-hoc but require deliberate programming in advance. So, a programmed interface refers to how an organization ensures interconnectedness between different routines within a cluster. For example, School One works with a schedule stating that a group of one hundred students and a team of five teachers must all be present in a wing of the building from 9:00 until 15:00 every day. This schedule combines large units of both students (one hundred), teachers (five), place (wing), and time (schoolday). Subsequently, teachers have considerable flexibility to decide which specific learning activities they offer to variable subgroups of students during the day. One the other hand, School Two works with a more traditional timetable composed of smaller units, connecting a fixed group of students (a class), with one specific teacher, at one particular location (classroom) during one specific timeslot (lesson). In both schools, the schedule manifests a cluster of routines. What differs, however, is how these schools connect routines that comprise the cluster. The programmed interface of School One is based on large units of students, teachers, space, and time, while the interface of School Two is based on much smaller units. This example also illustrates that changing the interface from large to small units profoundly affects all routines within the cluster.

The fact that routines in a cluster are stitched together by programmed interfaces has important consequences for organizational change: "The more task interdependencies between routines of a cluster have already been resolved by programming in the past, the more complex it becomes to reprogram the established interfaces in the future without losing the complementarities already realized" (Kremser & Schreyögg, 2016 p. 702). Therefore, change at the cluster level of organization routines can best be viewed as a process of making adaptations to already established connections, following a *logic of complementarities*. Put differently, organizations making changes will aim to do so in a way that leaves connections between different routines untouched. Likewise, the introduction of new routines will depend on their potential fit within an already existing cluster of routines. In the example used above, both schools will want to adopt changes without hampering their own, albeit different, way of scheduling. The logic of complementarities is so essential, according to Kremser and Schreyögg (2016), that it is the primary driver of organizational change and stability. All this is not to say that clusters of routines cannot change. However, it implies that changes can only occur in specific directions: clusters of routines can only follow a path-dependent adaptation trajectory. Change at the cluster level is very difficult for an organization to accomplish, as it impacts the connections between all routines that are involved and comes with high transaction costs in time, energy, and risk appetite.

A framework of four types of change at the cluster level of organization routines

To investigate how schools do (not) adapt their clusters of organization routines in response to external government policies, we take the conceptualization of Kremser and Schreyögg (2016) one step further (see also Hoekzema, 2020). Following the logic of complementarities in clusters of routines, we distinguish *four types of change*. They are sorted below according to increasing potential impact on the whole school organization.

Type 1: no change. This response is most likely when an external policy demand is considered inappropriate for the school, or the demand is either too small—so that pressure can be ignored—or too big and the school wants to avoid the expected disruption when introducing the policy.

Type 2: change of a single routine, no change at the cluster level. Although there is no adaptation at the cluster level either with this second type, it must be distinguished from the former type. Adaptations may be 'pushed' to the level of single routines to preserve complementarities at the cluster level. This is a feasible option when the interfaces between routines can remain unchanged. For example, no changes are made to the schedule but what a teacher teaches a group of students during a scheduled hour does change.

Type 3: change at the cluster level, no change in interfaces. In this case, adaptations are visible at the cluster level of interdependent routines, but the interface that stitches routines together remains untouched. For example: adding an hour to an existing schedule affects the routines of students and teachers, but the interface remains the same and is still a traditional timetable connecting a class, a teacher, a classroom, and a lesson. This type of adaptation is most likely when the necessary change cannot be contained to a single routine, but established complementarities between routines can be preserved.

Type 4: Change at the cluster level, plus change in interfaces. Changing interfaces is risky for organizations, for all routines within a cluster are affected, and established complementarities may be lost. In our example, this would be the case when School One introduces the traditional timetable of School Two, or reversed, when School Two adopts the kind of generic schedule of School One. Considering the major impact on an organization, we expect this type of change only when other types of change do not suffice to meet the policy demand.

Context and three education policies

The study is set in the Netherlands. We first provide the necessary background on Dutch education and school autonomy and how that is relevant to schedules of schools. Next, we outline the specifics of three governmental policies that posed simultaneous external demands on schools in 2015–2016.

Dutch secondary schools, tracks, profiles, and the schedule

Dutch schools enjoy a high degree of autonomy ranging from resource allocation, personnel matters, and infrastructure of buildings, to assessment and the grouping of

students. There is no national curriculum, but all schools must meet attainment targets. Secondary schools are free to decide on academic content, teaching methods, and pedagogical approach under the condition that students are sufficiently prepared to pass the nationwide standardized final exams. The law distinguishes seven different tracks in secondary education, ranging from a separate track for students with disabilities to pre-university education. Tracks differ in length and range from four years for the lower tracks to six years for the highest track. Schools need a license from the central government to offer a track.

Schools are organized in school districts based on religious, ideological, or educational convictions or visions. About one-third of schools are public; about two-thirds are independent (Hooge, 2017). All schools are publicly funded on an equal financial footing, primarily based on student numbers. In 2015–16 secondary education comprised 338 school districts with 1433 school locations and about one million pupils (Education in numbers, 2021). Funding takes the form of a block grant which only distinguishes between material and personnel costs (Hooge, 2017). Parents have free school choice and school fees are voluntary. The Dutch Constitution holds the central government responsible for ensuring a system of generally accessible education of good quality. Central government sets standards for schools to become eligible for funding while statutory requirements must ensure a minimal level of educational quality. All schools fall under the scrutiny of the Dutch Inspectorate of Education.

This context is, in two ways, relevant to the schedules schools can make. First, school autonomy applies also to the schedule: there are only general rules for the number of hours students must be engaged in learning activities during their whole school career. It is up to schools how they want to allocate those hours across years, subjects, and learning activities. For example, schools can teach students a foreign language by immersion during one school term, lessons during all periods and school years, or anything in between. Also, schools decide how they organize learning activities: they may offer separate subjects, combine subjects into projects or arrange the curriculum in any other way they see fit. Yet, compulsory exams at the end of secondary school are all subject-based.

Second, school autonomy allows for all kinds of educational innovation. In recent years, Dutch secondary schools use so-called profiles to drive curriculum innovation and gain a competitive edge in their local education market (Hooge et al., 2017). Such profiles range from bilingual education to extra focus on art or technology to particular offerings for sport-loving students. Schools do not need a license to offer any (combination) of these profiles. It is up to schools how they want to organize a profile. It may be separate *stream*, resembling a separate track, with students opting for the profile attending all classes together; it may be an optional part of the curriculum, giving students a choice between class A or class B for the same subject; it may be an extra-curricular activity, attended by students after school; or something else yet.

Three education policies

We selected three education policies calling for changes in secondary schools in the school year of 2015–16 (see also Waslander et al., 2018). The policies all aim at the

curriculum of schools, intervene deeply in their organizations, change daily school and classroom practices, and therefore the cluster of routines manifested in the schedule. However, they vary in degree of regulation and coercion and thus schools' leeway in implementation. The three selected policies on numeracy, literacy and civics education are described below, in increasing order of latitude for schools.

For *numeracy,* new performance standards were introduced. These standards were not incorporated into existing exams but came with a compulsory, separate test that all students had to take. 2015–16 was the first school year the numeracy test was to have real consequences for both students and schools. For students, the test was high-stakes and determined whether they passed their exams. If students failed the test after three attempts, they had to retake the national exams for all their subjects in the following school year. For schools, the test was mid-stakes (Hargreaves, 2020). The proportion of students passing the test was to become part of the Inspectorate's accountability framework, but no consequences such as fired principals or school closings were intended. The policy came into effect at the beginning of the school year of 2015–16, despite being heavily disputed by mathematics teachers and other education professionals from the outset, and despite being delayed several times following disappointing results in pilot schools. While the test was implemented, resistance remained, and under mounting political pressure, the Secretary of Education backtracked halfway through the school year. Students still had to sit the test, and the results were to be stated on their diploma, but it was no longer of any consequence. As will be clarified in the data collection section, we studied schools' responses in anticipation of the test having real consequences.

Concurrently new performance standards for *literacy* were introduced to improve student performance in four domains: oral skills, reading skills, writing skills, and basic skills, including spelling and grammar. These domains were already incorporated in national exams, but the new standards made what was expected of students more explicit. Schools were to determine whether students mastered the required level of oral skills; the other domains were incorporated into the final national exams for Dutch language. Students in the lower tracks had to pass the national exam for Dutch language to obtain their diploma; students in the higher tracks had some, albeit limited, options to compensate if they failed their national exam for Dutch language.

The *civic education* policy did not introduce anything new but instead abolished a requirement already in place. In 2011, community service for a minimum of thirty hours was introduced as a compulsory part of the curriculum. Schools received additional subsidies to organize these learning activities from that time onwards. After several years, a new government abolished the obligation of community service and the subsidy. From the school year 2015/2016 onwards, it was entirely up to schools to continue their established community service practices, adapt them or abolish them entirely. Regardless of the choices schools made, additional subsidies were no longer available, so expenses had to be paid for out of their block grant. Adapting the amount or form of community service, or abolishing it entirely, will impact organizational routines in schools and show up as changes in schedules.

Design of the study and research methods

To determine how schools do (not) adapt clusters of routines, we conducted a comparative case study of thirteen secondary schools. In the school year 2015–16, all three policies mentioned before posed a demand on secondary schools. During that year, we conducted fieldwork in secondary schools as part of a larger research project studying how the central government enacts policies that touch on internal practices of relatively autonomous schools and how the latter respond to that (see also Hooge et al., 2021; Theisens et al., 2016; Waslander et al., 2018). To examine possible mechanisms to translate government policies into school practices, the aim of the original study was to select schools with a maximum of variety in school internal practices. The concept of organizational routines was not part of the larger study's original theoretical framework. For our purposes in this paper, we collected additional documents and re-examined the original interview data from secondary schools from the perspective of clusters of routines. This proved possible for thirteen of the original fifteen schools; for two schools the interview data lacked sufficient detail to be entirely sure about interpretations from new perspective. Both were schools in a district where another school is still part of the selection. Below we describe how the thirteen case study schools were selected, what data were collected, and how the data were analyzed.

Selecting secondary schools

To select schools with a maximum of variety in school internal practices, we started by composing a long list of school districts based on several criteria: number of schools, tracks offered, location, and pedagogical vision or identity. Next, we asked three experts in the field which combination of school districts would best serve our goal. In this way, we obtained a shortlist of school districts. Each district had an alternative (combination) in case they were not able or willing to participate. About half of the school districts agreed immediately to participate; for the other half backups were contacted. One or two schools were selected within each of these districts, depending on size, again based on maximum variety. For this paper, we use the data of thirteen schools. To protect their anonymity, we gave participating districts are a letter and schools a number so that School C1 and School C2 are schools in the same district. Appendix A provides an overview of characteristics of these schools showing that districts identify as public, Christian, Catholic, Montessori, or Steiner; and that district can be small (<3 schools), medium (<10 schools), or large (>11 schools). The schools' locations are towns, cities (>100.000 inhabitants) and big cities (>350.000), they differ in size from small (<650 students) to medium (<1050 students) to large (>1600 students) and offer between two and six different (licensed) tracks. Notably, these schools offer zero to eight separate streams based on (unlicensed) profiles. School D1, for example, is a middle-sized school in a middle-sized district that offers three licensed tracks, ranging from vocational to pre-university education, and an additional eight separate streams for students choosing a particular profile. This

implies that students in the vocational track who choose a technology profile, for example, are in a separate group for all of their lessons than students in the same track who choose an arts profile.

Data collection

We draw on two data sources. The first is school documents. All Dutch schools must publish a yearly school guide to inform parents and students. These guides must adhere to several legal guidelines, such as providing information on the tracks and specific programs the school offers, what type of learning activities are offered, the schedules, and when the school is closed (for holidays or otherwise). See Appendix B for an anonymized exert of the data. School districts must also publish yearly reports and accounts to provide information on how they deploy block funding and additional subsidies. We collected these publicly available documents for the nine districts and thirteen case-study schools for two consecutive school years: 2014–15 and 2015–16.

The second data source is the fully transcribed interviews from the original study. For each school, two group interviews with two or three teachers were held, and individual interviews with people holding administrative positions in the school. Most often these were team leaders, location leaders, school principals and chairpersons of the district's executive board. For all thirteen schools combined, interviews are available with 54 teachers and 36 people in leadership positions. The interviews were conducted between September 2015 and May 2016. The interviews were semistructured and included changes that had (not) been made in response to the three policies mentioned above. During this period, the policy of the numeracy test took a turn (see "Context and three education policies" Section). In interviews conducted after this reversal, the main focus was on practices at the beginning of the school year. For this study, the transcriptions were re-coded in MaxQDA to ensure that all possible information on schedules and any changes made were included.

Data analyses

We analyzed the data in four consecutive steps. First, we made a thick description of each school's schedule for 2014–15. We based this description primarily on school guides. We used the interview data to finetune, particularly how the school planned learning activities such as day openings, projects or internships. Second, we described any changes a school made to the schedule for 2015–16 for each of the three policies. These changes were based on detailed interview data to obtain a description with sufficient detail to distinguish different types of changes (see "Context and three education policies" Section) and ensure that potential changes were a response to one of the three policies and not rooted in another reason. The descriptions derived from the interviews were then double checked against the school documents. This step resulted in an overview of changes schools had (not) made in their schedules because of the three policies, totaling 39 responses (13 schools * 3

policies, see Appendix C). The third step was to categorize the responses. Here, our sole focus is on what did (not) change in a schools' schedule as the manifestation of a cluster of organization routines. We used the four types of change in "Context and three education policies" Section as a provisional coding list. We added one category—symbolic change (gaming)—during the coding process and double-coded the responses independently, resulting initially in two cases of different categorization. The findings section outlines the ambiguity of both cases and our reasoning behind the final categorization. The fourth step was to compare the responses: for each school separately for the three different policies, across the thirteen schools for the same policy, and across all thirteen schools for all three policies.

Findings and analysis

Our study shows that the case study schools work with a wide variety of schedules, indicating that their clusters of organization routines differ extensively. We found distinctively different types of responses to the three concurrent government policies in the data. These can be categorized into five types: four of which fit our initial conceptual framework, ranging from no change at all to changes that affect the entire cluster of routines, including the interfaces that stitch routines together (see "Conceptual framework" Section), and fifth, the response of symbolic change that emerged from the data.

Wide variety of schedules

Clusters of organization routines differ widely across Dutch secondary schools, and the variety of schedules in the case study schools testifies to this. Apart from tracks and streams, aspects of time and rhythm also differed in the thirteen secondary schools (see Appendix A). For example, while a lesson lasts 45 min in School H1, a lesson can be more than double that length in School C1. Moreover, the maximum number of different subjects scheduled on any given day varies between six and ten. Schedules also differ in the steadiness of their rhythm. In School C2, for example, the first lesson is scheduled for 100 min while all other lessons last half that time, in a rhythm that is similar for all days of the week. In Schools F1 and F2, lessons are 50 min for four days of the week and 45 min for one day of the week, in a rhythm that repeats itself every week. Different still is School A1, which also works with days of shorter lessons but does so only occasionally and without much of a rhythm.

In addition, the case study schools have very different practices for learning activities such as projects and internships. While these learning activities are standard practice in some schools and show up as designated timeslots every week or every semester, they lack altogether in other schools. A good example is community service during the 2014–15 school year, which was compulsory. Some schools schedule it as a project, in which case all students of a year group are engaged in community service simultaneously. Other schools put it on the schedule but allow students

to choose when to conduct the service. Still, other schools make the service compulsory as required but do not put it on the schedule, which means that students must conduct the service in their own free time.

Responses to the central government policies

The five distinctly different responses of schools to the policies are summarized in Table 1 below (Appendix C provides details about each schools' response to each policy). We illustrate the categories in turn with examples from the case study schools.

Type 1: No change. A school deliberately makes no changes in response to a policy and retains already established practices.

We found this response predominantly for the civics policy: while the obligation and funding for community service were abolished, ten case study schools continued their practices. Only one school chose this response for another policy: School I2 made no changes in response to the policy on literacy.

Type 2: Symbolic change (gaming). A school changes its practices on paper in response to a policy, but the daily practice does not change.

This response was added to our initial framework to categorize a particular case properly. School E1's initial response to the numeracy test was no change. However, after the Inspectorate visited the school, voicing criticism about students' lacking opportunities to learn numeracy skills, the school replaced one lunch hour with a numeracy lesson in the written schedule. The school explained to the Inspectorate that students who struggled with numeracy had the opportunity to improve their skills through self-study during that hour. This written adaptation and explanation satisfied the Inspectorate. However, the interviews left no doubt that actual practices remained the same.

Type 3: Change of a single routine, no change at the cluster level. A school responds to policy demands by changing learning activities of specific lessons, but without it affecting the schedule. The distinction with Type 1 cannot be made from documents and is based on interviews with teachers.

Seven of the case study schools responded to the literacy policy in this way. In all of these schools, subject teachers of Dutch language adapted the learning activities during their lessons. In School F1, for example, more time was spent on grammar and spelling at the expense of drama. School I2 responded similarly to the numeracy

Table 1 Responses to clusters of routines (number of schools)

Responses/policies	Numeracy	Literacy	Civics
No change		1	10
Symbolic change	1		
Change of a single routine, no change at the cluster level	1	7	
Change at the cluster level, no change in interfaces	6	5	3
Change at the cluster level, plus change in interfaces	5		

policy by integrating numeracy skills more extensively into subject lessons for economics and mathematics. In all these cases, the schools' adaptation is 'contained' at the level of a single organization routine. Although practices for a few teachers during specific lessons are adapted, this does not affect the schedule, which indicates that the cluster of routines remains the same. For example, the allocation of hours across teachers remains the same, practices of other teachers are unaffected, the grouping of students is unchanged and assigning students and teachers to spaces is untouched.

Type 4: Change at the cluster level, no change in interfaces. A school's response affects the schedule, or the cluster level of organization routines, implying that several routines are involved. The data reveal examples of this type of change for all three policies, albeit in slightly different forms. For the *numeracy* policy six schools responded like this, five of which introduced numeracy as a new subject adding lessons to the schedule with the result that students have more lessons every week. This is an adaptation at the cluster level of routines, as it involves hiring new numeracy teachers, joint meetings and consultations between numeracy teachers and support staff, coordination across subjects, and allocation of students and teachers to spaces. The response of the sixth school, School B1, is somewhat ambiguous: this school also introduced a new numeracy subject but replaced 'choice hours' with compulsory numeracy lessons so that for students the total number of lessons remained the same. We categorize this response as type 4 also because it involves other routines in much the same way: School B1 also hired new teachers, saw coordination across subjects affected, and allocated students and teachers differently across spaces.

For the *literacy* policy, four schools responded by type 4 change, all of which increased the number of lessons for Dutch language on the schedule, resulting in students attending school longer. Although these schools did not introduce an entirely new subject, as was the case for numeracy, much of the impact was similar: for example, schools hired new teachers and teaching assistants, meetings of Dutch language teachers were affected, the allocation of students and teachers to spaces had to be adapted. In anticipation of the policy, School E1 responded like this in 2014–15, a year earlier than the other schools. This ambiguity was resolved by categorizing it as type 4 as, despite the timing, it was a response to the policy.

In three case study schools, type 4 responses were observed to the *civics* policy. School A1 integrated part of the formerly compulsory community service activities into another subject 'world and career orientation', redesigned it, and increased the number of hours on the schedule. The remaining part of community service was made voluntary and reduced from 40 to a maximum of 20 h. This response affected the schools' routines in much the same way as described above, for example: the redesigned subject required more teaching capacity, coordination between subjects was affected, as was the allocation of teachers and students across spaces. Schools H1 and H2 adapted their practice of 30 h of scheduled community service to 20 h of activities to be performed during after-school hours, leaving the compulsory nature intact. In both schools the response affected the schedule and several routines involved, such as a reduction of teaching capacity for community service activities and opening up available timeslots for other subjects.

Responses in this category have in common that adding, substituting, and eliminating lessons follow the structure of a schools' schedule. So, if a school works with 45-min lessons, additional lessons for numeracy or literacy are also 45 min. If a school has shorter lessons one day a week, the added lessons follow the same rhythm. The schools' responses neither affect how students are grouped: the added or reduced lessons apply to all students in a given track and stream. How a class, a teacher, a classroom, and a lesson are connected remains intact. Put differently, the interface remains the same, and established complementarities embedded in a schools' schedule is preserved.

Type 5: Change at the cluster level, plus change in interfaces. The vital difference between this type and the former is that the structure underlying a schools' schedule is affected. This type of response has the most far-reaching consequences, as it involves a change in the interface that stitches several organization routines together. We observed this type of response in five schools, all to the numeracy policy and all schools in noticeably similar ways. Students use software during self-study to improve their numeracy skills in these schools. Based on the software's information, teachers continuously monitor student progress and decide whether and if so, what kind of additional instruction or supervision is offered to whom, when, and for how long. For example, students not practicing regularly may temporarily be obliged to attend scheduled hours for self-study under supervision until they are back on track; lessons for instruction by a teacher are scheduled for students who struggle with the same specific element, such as percentages, regardless of their year group, track or stream. Consequently, the structure of the schedules changes: from a completely group-based schedule to individualized schedules; from an entire track- and stream-based schedule to joint lessons for students from all tracks and streams; and from a preplanned schedule towards a schedule that can change at any time during the school year. All five schools use digital technology to allow for this type of change. Although schools apply this new practice only to teaching numeracy skills, it has consequences for the entire organization. While learning activities of separate tracks and streams were planned relatively independent of each other, coordination across all year groups, tracks and streams is now required to allow students to participate in the same numeracy lessons. In addition, offering numeracy instruction to subgroups of students only in case they need it also requires flexibility in teaching capacity and available spaces.

Analysis

The logic of complementarity at the level of clusters of routines is helpful in explaining how the thirteen case study schools respond to each of the three policies separately and combined. This analysis builds on four observations from the data.

First, all schools changed something to their schedule in response to three concurrent policies, indicating that organization routines changed in all schools due to external policies and that none of the case study schools was resistant to all demands posed by government policy.

Our second observation is based on the combination of responses: all schools make changes to their most crucial cluster of routines, the schedule, in response to at least one of the three government policies we studied.

Third, each government policies appears to evoke different types of responses (see Table 1) despite the observation that specifics of schools' schedules, and therefore their clusters of routines, differ widely. For instance, the introduction of the numeracy test resulted in change at the cluster level of routines in eleven of the thirteen schools; adaptation of learning goals in literacy affected only the activities during lessons in Dutch language in seven schools; and in response to the civics policy, ten of the thirteen schools did not change anything in their practice.

Fourth, the case study schools combine types of responses to different policy demands in many different ways. Table 2 (below) displays these various patterns of responses. For example, schools B1, F2 en G1 make changes in their schedule at the cluster level in response to the numeracy and literacy policies, whereas in response to the civics policy they make no changes. Another pattern of responses emerges at school E1, making no or only symbolical change in response the civics and numeracy policies while changing the schedule at the cluster level in response to literacy policy.

How can the initial theoretical notions of clusters of routines and the logic of complementarities help explain these observations? For reasons of the potential impact on the entire organization, schools are likely to prefer changes to single organization routines over changes to clusters of routines, which will be preferred over changes in programmed interfaces between different routines within a cluster. Therefore, schools are likely to opt for a response with the least organizational impact, provided they comply with policy requirements. This matches our observations. Out of the three policies studied here, the numeracy policy came with the highest stakes for students and schools, to which schools responded in ways that had the most organizational impact. The literacy policy came with lower stakes, to which many schools responded by limiting change to the level of a single routine. The responses of other schools did affect the schedule, and thus the cluster level of routines, but the underlying structure of the schedule was nowhere affected. The predominant response of 'no change' to the civic education policy

Table 2 Combinations of responses to clusters of routines (type of response)

School/policies	Numeracy	Literacy	Civics
B1& F2 & G1	4	4	1
C1 & D1 & I1	4	3	1
C2 & F1	5	3	1
H1 & H2	5	3	4
A1	5	4	4
E1	2	4	1
I2	4	1	1

Type 1: No change

Type 2: Symbolic change

Type 3: Change of a single routine, no change at the cluster level

Type 4: Change at the cluster level, no change in interfaces

Type 5: Change at the cluster level, plus change in interfaces

fits the same pattern: schools preferred to stick to established practices despite abolished obligations and funding.

Two sets of findings seem at odds with a general pattern of schools responding to policies in ways that have the least impact on the organization from a perspective of clusters of routines and complementarities. Three of the case study schools changed their cluster of routines in response to the civics policy, while 'no change' sufficed (see Table 1). All three schools reduced the number of hours students had to commit themselves to community service, but none abolished the practice altogether. These schools' schedules changed, hence their cluster of routines. However, the change proved marginal because reduction of community service had minimal impact on the organization. Community service takes place outside of the school and does not involve teachers, nor does it require any space within the school. These specific learning activities are thus not as closely connected to other organization routines within the cluster. It indicates that the degree of interdependence between organization routines within a cluster may be a relevant factor in future research on clusters of routines (Hoekzema, 2020).

Another set of finding relates to the numeracy policy. Most schools responded in ways that affected their schedule but not its underlying structure, changing the cluster of routines without changing the programmed interfaces. However, some schools did change the schedule structure, affecting the interfaces between several routines. Our data cannot answer why some schools choose the most impactful type of response. We could not find any consistent relationship between a case study school's schedule and whether that school opted for this type of response: a school's tracks and streams were not related to this type of response, nor was a school's (lack) of rhythm in the schedule. Additional in-depth interviews with school leaders and teachers would be required to tap into underlying reasons for the fastidious undertaking of changing the entire structure of the schedule or interfaces between routines, and how this is thought to improve numeracy proficiency of students. However, this was beyond the scope of our study.

Conclusions and reflection

This study aims to develop a broader and more realistic perspective on (lacking) linkages between government policies and school practices by extending educational research showing the essential nature of routines in schools (Farrell & Coburn, 2017; Sherer & Spillane, 2011; Spillane et al., 2011; Tubin, 2015) with recent notions on clusters of routines representing multiple interrelated routines in organizations, stitched together by interfaces (Hoekzema, 2020; Kremser & Schreyögg, 2016). While research has thus far focused on responses to one policy and/or one routine, this article shows that our understanding of relations between policies and school practices can be advanced by studying empirically if and how schools adapt their clusters of routines in response to multiple policies. This research angle provides a more realistic representation of (lacking) linkages between policies and school practices as schools constantly deal with multiple, simultaneous external policy demands (Braun et al., 2010; Honig & Hatch, 2004) while ensuring continuity in highly

intertwined processes of teaching and learning (Desimone, 2002; Hill et al., 2022). We distinguished five distinct responses based on the notion 'logic of complementarities', rooted in conceptualizations of clusters of organization routines (Hoekzema, 2020; Kremser & Schreyögg, 2016), which can be sorted according to their impact on the whole organization. These categories made it possible to compare one school's responses to different policies, several schools' responses to the same policy, and several schools to several policies. The study shows that schools deal with multiple, simultaneous policy demands by combining responses, in a way that is least demanding in terms of time and energy and poses the least risk to the entire school organization. Although ten of thirteen case study schools did not change anything in response to one of the three policies we studied, all schools changed their schedule and, therefore, their cluster of organization routines in response to at least one of the policies. Therefore, broadening the scope of research on (lacking) linkages between government policies and school practices, by studying changes schools make to clusters of organization routines in response to multiple government policies, seriously qualifies ideas about schools being resistant to policy or unwilling to change and improve.

Limitations

Ours is a small-scale study, analyzing the responses to multiple central government policies of only thirteen, albeit purposely selected, Dutch secondary schools. The findings must therefore be interpreted as empirically based building blocks to advance our thinking about clusters of organization routines in schools rather than providing conclusive evidence. Future studies, using representative and more heterogeneous samples, are needed to validate our findings.

A second limitation is that it shows only for a "snapshot" of one school year how secondary schools respond to multiple central government policies in shaping their (clusters of) organizational routines. In anticipation of the literacy policy, School E1 anticipated its response, which suggests that schools may also disperse responses over time. A longitudinal design is needed to examine how and to what extent schools adapt clusters of interrelated organization routines *over time* (Turner & Rindova, 2018).

Reflection

A lens of clusters of organization routines underscores the risks and difficulties of change in school practices. Demands from different simultaneous external policies can easily cause perceptions of overload and overregulation at the school level: schools have simply insufficient capacity to deal with all demands. When central government policies demand too much too fast, schools will be left with few resources to really improve teaching and learning.

Appendix A: Overview schools, characteristics of schedules and responses to challenges

Schools	A1	B1	C1	C2	D1	E1	F1	F2	G1	H1	H2	I1	I2
District													
Vision/identity	Montessori	Christian	Steiner	Steiner	Christian	Christian	Christian	Christian	Public	Public	Public	Catholic	Catholic
Size District	Middle	Small	Small	Small	Middle	Middle	Small	Small	Middle	Small	Small	Large	Large
School													
Location school	Big city	City	Big city	City	Rural	City	City	Rural	Big city	Rural	City	Rural	City
Size school	Middle	Large	Middle	Middle	Middle	Large	Large	Small	Small	Small	Large	Middle	Middle
No tracks	4	6	3	3	3	6 & 3	2	4	4	3	3	6	6
Streams	3	7	0	0	8	2	1	0	0	2	2	0	0
" / lesson	50 & 40	70 & 60	100 & 50	100 & 45	45 or 90	50 & 40	50 & 45	50 & 45	50	45	45	50	45
Responses													
Numeracy	5	4	4	5	4	2	5	4	4	5	5	4	4
Literacy	4	4	3	3	3	4	3	4	4	3	3	3	1
Civics	4	1	1	1	1	1	1	1	1	4	4	1	1

Type 1: No change
Type 2: Symbolic change
Type 3: Change of a single routine, no change at the cluster level
Type 4: Change at the cluster level, no change in interfaces
Type 5: Change at the cluster level, plus change in interfaces

Appendix B: Exert of data, anonymized and translated

"The school works with lessons of 45 minutes. Integrated projects last a multitude of lessons. Supporting lessons and supervision is also included in the schedule. In Location Z we work with separate lunch breaks. This is mainly to provide first year students with additional space in the canteen."

Location Y

Lower years		Higher years	
1st hour	08.25–09.10	1st hour	08.25–09.10
2nd hour	09.10–09.55	2nd hour	09.10–09.55
Break	09.55–10.15	Break	09.55–10.15
3rd hour	10.15–11.00	3rd hour	10.15–11.00
4th hour	11.00–11.45	4th hour	11.00–11.45
5th hour	Break 11.45–12.30	5th hour	11.45–12.30
6th hour	12.30–13.15	6th hour	Break 12.30–13.15
7th hour	13.15–14.00	7th hour	13.15–14.00
8th hour	14.00–14.45	8th hour	14.00–14.45
Break	14.45–14.55	Break	14.45–14.55
9th hour	14.55–15.40	9th hour	14.55–15.40
10th hour	15.40–16.25	10th hour	15.40–16.25

Lesson tables first year students.

	Track1		Track2		Sports track2		Bilingual2		Tech	
	Sem1	Sem2	Sem1	Sem2	Sem1	Sem2	Sem1	Sem2	Sem1	Sem2
Geografy	2	2	2	2	2	2	2	2	2	2
Arts	2	2	2	2	2	2	2	2	1	1
Music	1	1	1	1	1	1	1	1	1	1
Science1	2	2	2	2	2	2	2	2	2	2
English	4	3	4	3	4	3	5	5	4	3
French	3	3	3	3	3	3	3	3	3	3
History	2	2	2	2	2	2	2	2	2	2
ICT	1	1	1	1			1	1		
PhysEd	4	4	4	4	6	6	4	4	4	4
Dutch	4	4	4	3	4	3	4	3	4	3
R&D									5	5
Science2	2	2	2	2	2	2	2	2		
Math	4	4	4	4	4	4	4	4	3	3
Projects	5	5	5	5	4	4	4	4	5	5
Numeracy	1	1	0	1	0	1	0	1	0	1
Total	37	36	36	36	36	35	36	35	36	36

Source: school guide

Appendix C: School responses to policies

See Tables 3, 4 and 5.

Table 3 School responses to numeracy policy

School	Changes made between 2014–15 and 2015–16	Category	Type
A1	Added lessons for new subject numeracy on the schedule; students use digital methods; students from different tracks, profiles and years are grouped anew specifically for numeracy, based on need of teaching support; all students study at school	Cluster & interfaces	5
B1	Added lessons for new subject numeracy on the schedule; grouping of students unchanged; lessons for numeracy substitute formerly 'choice hours'	Cluster	4
C1	Added lessons for new subject numeracy on the schedule; grouping of students unchanged	Cluster	4
C2	Added lessons for new subject numeracy on the schedule; students use digital methods; students from different tracks and years are grouped anew specifically for numeracy, based on need of teaching support; students requiring additional support study at school, other students can study at home	Cluster & interfaces	5
D1	Added lessons for new subject numeracy on the schedule; grouping of students unchanged	Cluster	4
E1	No changes made to the schedule; school policy is to integrate numeracy in lessons of other subjects such as economics and mathematics; Inspectorate is told that students struggling with numeracy can use their unscheduled hours to ask for teaching support	Symbolic	2
F1	Added lessons for new subject numeracy on the schedule; students use digital methods; students from different tracks and years are grouped anew specifically for numeracy, based on need of teaching support; students requiring additional support study at school, other students can study at home	Cluster & interfaces	5
F2	Added lessons for new subject numeracy on the schedule; grouping of students unchanged	Cluster	4
G1	Added lessons for new subject numeracy on the schedule; grouping of students unchanged	Cluster	4
H1	'Guided selfstudy' for numeracy, meaning that students use digital methods; teachers monitor progress and decide whether support or compulsory lessons are required; students from all tracks, profiles and years are grouped anew specifically for numeracy based on need; for some students compulsory lessons for numeracy can be added temporarily to their schedule	Cluster & interfaces	5

Table 3 (continued)

School	Changes made between 2014–15 and 2015–16	Category	Type
H2	'Guided selfstudy' for numeracy, meaning that students use digital methods; teachers monitor progress and decide whether support or compulsory lessons are required; students from all tracks, profiles and years are grouped anew specifically for numeracy based on need; for some students Cluster & interfaces 5 Appendix C compulsory lessons for numeracy can be added temporarily to their schedule	Cluster & interfaces	5
I1	Added lessons for new subject numeracy on the schedule; grouping of students unchanged	Cluster	4
I2	No changes made to the schedule; subject teachers for economics and mathematics integrate numeracy into their lessons	Cluster	3

Table 4 School responses to literacy policy

School	Changes made between 2014–15 and 2015–16	Category	Type
A1	Added lessons for already existing subject of Dutch language on schedule	Cluster	4
B1	Added lessons for already existing subject of Dutch language on schedule	Cluster	4
C1	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
C2	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
D1	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
E1	Added lessons for already existing subject of Dutch language on schedule; a year earlier, in anticipation of the policy	Cluster	4
F1	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
F2	Added lessons for new subject literacy on schedule; grouping of students unchanged	Cluster	4
G1	Added lessons for already existing subject of Dutch language on schedule	Cluster	4
H1	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
H2	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
I1	No added lessons on the schedule; content of Dutch language lessons adapted	Single routine	3
I2	No change; content of Dutch language lessons not adapted	No change	1

Table 5 School responses to civics policy

School	Changes made between 2014–15 and 2015–16	Category	Type
A1	Community service activities were partly integrated into the subject of career orientation, redesigned it and increased the number of hours on the schedule. The remaining part of community service was made voluntary and reduced in hours from 40 to a maximum of 20 during students' school careers	Cluster	4
B1	No change	No change	1
C1	No change	No change	1
C2	No change	No change	1
D1	No change	No change	1
E1	No change	No change	1
F1	No change	No change	1
F2	No change	No change	1
G1	No change	No change	1
H1	30 h compulsory community service during school hours and on the schedule, were replaced by 20 h after school hours and not on the schedule	Cluster	4
H2	30 h compulsory community service during school hours and on the schedule, were replaced by 20 h after school hours and not on the schedule	Cluster	4
I1	No change	No change	1
I2	No change	No change	1

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