Investigating teachers' and school principals' enactments of national testing policies: A Norwegian study

Ann Elisabeth Gunnulfsen*
Department of Teacher Education and School Research,
University of Oslo
a.e.gunnulfsen@ils.uio.no

Astrid Roe
Department of Teacher Education and School Research,
University of Oslo
astrid.roe@ils.uio.no

Abstract

Purpose: This paper examines teachers' reported experiences, practices, and attitudes on the use of national test results in a low-stakes accountability context. Whether the stakes are high or low, teachers and school leaders have different experiences, knowledge, and beliefs concerning how to use national test results to benefit individual student learning. This paper addresses how teachers experience school leadership and policy requirements for using national test results in local schools.
Design/methodology/approach: This article is part of a larger study conducted in a Norwegian educational context investigating school leaders' and teachers' enactments of policy demands via the use of national test results data. The sub-study reported in this paper is based on survey data from all lower secondary teachers (N = 176) in one Norwegian municipality. Micro-policy perspectives and the concept of crafting policy coherence served as analytical tools.
Findings: Diversity between the schools was found in how teachers perceive the principals' role. Practices and attitudes appeared restrained; somewhat conformed by, but still indifferent to the policy intention. However, there was a close relationship between the principals' facilitation of national tests and the teachers' practices of utilizing the results.
Originality/value: This study clarified how micro-policy works in local schools in a low-stakes context. A prominent difference was found between the policy intentions and local schools' practice of using national test results.

Keywords: Educational policy, national test results, school principals, teacher attitudes, teacher experiences, accountability, coherence

Introduction

Recently, accountability-driven policies have gradually been introduced in many countries' education systems (Elstad, 2009). Concepts like accountability, choice, and competition are part of modern Norwegian educational discourse and policy (Aas *et al*., 2016; Lindblad, Johannesson, and Simola, 2002; Møller, 2009). One definition of accountability policies highlights the types of coordination and control that the state and educational authorities have implemented to adjust the behaviors of local actors. Thus, accountability policies can be called "regulation by results" (Maroy and Voisin, 2015, p. 39). The consequences of a "hard" or high-stakes accountability system may include no advancement in salary, transfer or firing, and a loss of external reputation, such as with lower public rankings of schools. In "soft" or "reflexive" accountability systems (low-stakes systems), the consequences associated with accountability vary noticeably (Carnoy and Loeb, 2002: Harris and Herrington, 2006). For example, in a low-stakes context, an organization would be instructed to confront its results; use various measures to stimulate reflection on its practices; and foster changes in its practices, beliefs, or identity (Dupriez and Mons, 2014). From this perspective, Norwegian schools can be regarded as operating in a low-stakes accountability context.

Internationally, researchers have contributed to the understanding of how policy demands, characterized by high-stakes testing and accountability practices, exert pressure on schools (e.g., Ball, Maguire, and Braun., 2012; Hall, 2013; Hardy, 2014; Mintrop and Sunderman, 2009). In accountability-driven development, school leaders, such as principals and deputy managers, are expected to intervene to improve teachers' practices, helping to ensure that student performance meets the administration's accountability targets (Hallinger, 2005). The accountability aspects of national testing policies and school leaders' involvement are addressed in previous studies, which have reported a discrepancy between teachers' beliefs about and capacity for using test data. Some teachers perceive that they lack the ability and/or motivation to use large-scale test results to inform instruction (e.g., Datnow and Hubbard, 2016; Ingram *et al*., 2004; Young, 2006).

Recent findings in a Norwegian context revealed that 12 school leaders at four lower secondary schools complied with accountability policy demands by adding test results to the agendas of teacher and leader-team meetings (Gunnulfsen and Møller, 2016). By interviewing these 12 principals and deputy managers in one municipality, the researchers found that the school leaders' work with coherence between the central policy demands of national testing and teacher practice involved symbolic responses and interpretations that fit the preexisting

understanding of how to enhance school quality. This finding suggests that the school leaders were not directly governed by the new policy context. Another study, building on video data from formal leadership and teacher-team meetings in lower secondary schools, showed that principals often seemed to shape how national test results should be interpreted and used (Gunnulfsen, 2017). Different *policy actor roles* were illuminated (Ball, *et al*., 2012), and the deputy managers mostly functioned as the enforcers of the schools' testing policy work, while the principals mainly held roles as narrators and enthusiasts (Gunnulfsen, 2017). These studies focused on school leaders when investigating leadership and teacher practices; the present research builds on these two previous studies, contributing to the relatively unstudied area of school leadership from a teacher perspective and how teachers experience the demands placed on them by principals when dealing with the requirements for using national test data in local schools.

Investigating how teachers use national test results and how school principals facilitate this in a low-stakes context contributes to existing knowledge about how testing policy is enacted at the local school level in different ways. This article explores how Norwegian teachers experience their use of national test results and how they perceive the schools' leadership relative to this policy expectation. It seeks to answer the following research questions:

1. How do teachers perceive principals' facilitation of using national test results at the local school level?
2. How do teachers and teacher teams use the national test results, and what attitudes do teachers have toward national tests?
3. What is the relationship between the principals' facilitation of using national test results and the teachers' practices and attitudes?

In the next section, we outline the Norwegian context, before presenting the theoretical and analytical framework. Following this, we describe the study's methodology, and then we present the results. Finally, we summarize our findings and discuss their implications, making recommendations for further research.

The Norwegian Accountability Context

National tests include basic skills in reading, numeracy, and English[1] reading. In Norway, the government views test results as tools for improving school quality and enhancing individual student learning (Norwegian Directorate for Education and Training, 2013). Reading and numeracy are involved in all subjects, at all levels. Hence, teachers work to strengthen these skills in all text-based subjects.

National tests were introduced in 2004, mainly because of the mediocre Program for International Student Assessment (PISA) results for 2001 (Bergesen, 2006; Lie *et al*., 2005). During the first two years of implementation, researchers criticized the quality of the tests, while school leaders and teachers criticized the lack of information about the tests and increased workload. Moreover, teachers were concerned about the possible consequences of using league tables and the appointing of 'winners' and 'losers' in the newspapers and other media. Thus, the national education authorities decided to stop the tests in 2006 and spend one year improving them. In 2007, the tests were reintroduced in Norway (Roe, 2014; Lie *et al*., 2005). The relaunch was met with far less criticism, as the administration of the tests was shifted from the end of the 4th, 7th, 10th, and 11th grades to the beginning of the 5th, 8th, and 9th grades, to create the opportunity to enhance student individual learning throughout the rest of the school year. Further, to meet the revised quality criteria, the number of subjects was reduced from four to three, with the intention of using the results in formative student assessments; moreover, guidance material for using the test results to develop students' skills in the tested subjects was posted on the Norwegian Directorate for Education and Training's website (Roe, 2014).

Theoretical and Analytical Perspectives

This article uses a theoretical perspective on educational policy enactment found in the literature and builds on the idea of crafting policy coherence (Honig and Hatch, 2004; Seashore Louis and Robinson, 2012). The quality of school leadership is likely influenced by the degree of coherence achieved between individual leadership agendas and the policy agenda set by the authorities (Seashore Louis and Robinson, 2012). Thus, coherence is achieved when there is consistency between the initiatives from national and local authorities and the local school practices of school leaders and teachers. Local practices are a part of the micro-politics of the school (Ball, 2012; Blase and Anderson, 1995); Ball, Maguire, and Braun (2012) further highlight that policies in practice are often reinterpreted and reassembled at the local level of

[1] English involves only English as a second language; it is not a part of this study.

implementation. According to Daniels and Edwards (2012), a facilitating principal helps individuals and groups in understanding the challenges and knowledge they have in common and promotes the formation of a shared basis for future action.

Crafting Coherence

Through the alignment process of translation for crafting coherence, policies are repeatedly interpreted and assembled by local actors (Ball *et al*., 2012). Thus, the local context, in which the ideas are received, translated, and adapted into new practices, must be considered (Newman and Clarke, 2009). In the present study, the crafting of coherence is understood as stemming from the interactions between policymakers' policy initiatives and the school leaders' and teachers' policy practices (Seashore Louis and Robinson, 2012). According to Honig and Hatch (2004, p. 18), coherence "depends on how policy actors make sense of policy demands and on the extent to which external demands fit a particular school's culture, political interests, and conceptions of professionalism and on-going operations." Hence, the inevitable variety in the context and knowledge means that the coherence of a policy will vary across different policy actors, such as local authorities, school leaders, and teachers.

Rather than requiring a specific approach, the Norwegian authorities' initiative provides criteria for the schools to work with basic skills (Norwegian Directorate for Education and Training, 2013),[2] relating to the introduction of national testing. It is the responsibility of the superintendents, principals, deputy managers, team leaders, and teachers to integrate the local work with basic skills to ensure that the school's priorities meet the national requirements. In practice, these inside-out or bottom-up approaches to coherence may generate local ownership, but they may also fail to facilitate loyalty to the reform policies (Coburn, 2004).

Honig and Hatch (2004) argue for an approach that treats coherence as a process "requiring school and school district central office leaders to work in partnership to constantly 'craft' or 'negotiate' the fit between external demands and schools' own goals and strategies" (p. 17). The perspective of crafting coherence can also be viewed as what Seashore Louis, et al. (2013) describe as collective sensemaking; a social process in which a group of individuals respond to an external triggering event. Research also suggest that collective sensemaking and the crafting of coherence is directly related to teachers' perceptions of the principal's caring and trust, and hence indirectly related to knowledge sharing and organizational learning

[2] The Knowledge Promotion reform in compulsory and upper secondary education and training, levels 1–13, was launched in 2006 and revised in 2013 (www.kd.dep.no). National testing and basic skills were introduced as part of this reform.

(Seashore Louis and Murphy, 2017). This collaborative perspective suggests that neither local authorities nor school leaders or teachers can act alone to craft coherence in the school improvement efforts. Rather, the stakeholders must work together to learn about, refine, and support the school's improvement goals. In the context of our study, the interacting agents—the policy actors—are primarily the school teachers and their principals. However, from the perspective of crafting policy coherence, local authorities play a remote role when considering teachers' practices and attitudes related to working with national test results and how they perceive their school principals' facilitation of this work. Here, this perspective is illuminated through the context of the municipality.

A Micro-Political Perspective

Blase and Anderson (1995) define the real world of schools as a political world of power and influence, bargaining, and negotiation. The micro-political perspective is a fundamental dimension of school change, and it highlights the basic characteristics of human behavior and purpose. While micro-politics is about conflict and how people compete to obtain what they want, it is also about cooperation and how people build support to achieve their goals. The definition of micro-politics addresses all types of decision-making structures and processes in school settings. A micro-political perspective acknowledges the significance of all matters influencing the processes and distribution of symbolic and tangible resources. For example, people with positional authority may structure organizations to prevent others' decision making on key issues (e.g., via policies, controlling agendas, working with national test results). They may also attempt to socialize others to accept the status quo. Such processes, as well as actions by individuals and groups lacking formal decision-making status, are part of the micro-politics of a school setting (Blase, 2005).

Method

This article is based on a study conducted in a Norwegian educational context to investigate school leaders' and teachers' enactments of policy demands, exemplified in the use of national test results data (Gunnulfsen and Møller, 2016; Gunnulfsen, 2017). The study reported on here is based on survey data from lower secondary teachers (N = 176) in one Norwegian municipality. The population represents teachers with experience working with national test results in all lower secondary schools in the chosen municipality.

Identification of the Municipality and Selection Criteria

The 428 municipalities in Norway are responsible for providing ten years of compulsory education at the primary and lower secondary school levels. The municipalities vary both in their size and average income level. This study was conducted in one municipality; hence, we are unable to say if the results are representative of all Norwegian municipalities. However, the research questions apply to all lower secondary teachers in the country. Based on country-wide statistics from the national test results, we selected a municipality that, during the past three years, had earned a national and local reputation for doing systematic work on the national test results. The annual results from this municipality were compared with the results from the ten largest districts in Norway, and the comparisons revealed better results in the chosen municipality. Although the socioeconomic characteristics vary, most of the population in this municipality has a medium to high socioeconomic level. At the start of the school year, in autumn 2014, the superintendent introduced a change in the leadership structure in all schools. The new structure resulted in more formal leadership resources and expanded the responsibilities of those positions. The superintendent's rationale for this decision was to distribute responsibilities, including administration of the national tests and following up on the results.

Response Rate and Dropout Analysis

Teachers' email addresses are posted on each school's website. A total of 430 questionnaires were sent to all teachers in the municipality's 14 lower secondary schools via email. However, the comments from the teachers and school leaders showed that 130 respondents were not eligible for inclusion. Based on the information from the schools, we determined that the ineligible respondents were teachers in the practical aesthetic subjects (e.g., arts and crafts, music, physical science, and food and health); assistant teachers with no formal teacher education or responsibility for teaching; deputy managers[3]; and teachers whose emails were posted on the web page, but who were no longer employed at the school. In the free-text response area of the survey, one deputy manager wrote, "The questions are sort of inaccurate with regard to my position as a deputy manager. I am not responsible for following up this task."

[3] Deputy manager: In this study, the title "deputy manager" is given to people with formal responsibilities associated with the former assistant principal role. Deputy managers are currently responsible for managing subject matter and human resources in "their" grade levels, including economic responsibility for parts of the school's budget.

A total of 176 teachers responded. Based on the information from the schools and their websites, there is a high probability that 300 of the respondents who received the survey were eligible. Therefore, we estimate the response rate as 58.6%.

Survey Data and Analysis

The questionnaire

The authors constructed the questionnaire based on the results of two former qualitative studies on national testing policy enactment (Gunnulfsen and Møller, 2016; Gunnulfsen, 2017) and theories of crafting coherence related to policy demands (Honig and Hatch, 2004; Seashore Louis and Robinson, 2012). A set of items was then developed to cover four thematic areas, as follows:

1) Principals as facilitators of educational work in general, and specifically, national test results (7 items).
2) Teachers' individual work with the national test results (6 items).
3) Teachers' use of the national test results in teams and in general (5 items).
4) Teachers' personal attitudes toward the national tests and their results (9 items).

For thematic areas 1, 2, and 3, a five-point Likert scale, ranging from "not at all" to "to a very great extent," was used. For thematic area 4, the scale ranged from "strongly disagree" to "strongly agree." The survey was piloted on four colleagues at the University of Oslo and four lower secondary teachers who had no connection with the selected municipality. Furthermore, the authors' respective research groups at the University of Oslo scrutinized the survey. One of these research groups is exclusively quantitative. The group members' comments, in addition to the piloting efforts, provided validation of the instrument and resulted in minor changes, mostly involving deletions of items. The final survey also collected information about what subjects the teachers taught and how long they had been working in their profession. At the end of the questionnaire, a field was provided for voluntary supplementary comments.

The Statistical Package for the Social Sciences (SPSS) was used to analyze the results. Cronbach's alpha was employed to measure internal consistency, that is, how closely related items in each thematic area were as a group. Descriptive statistics were used to measure the distribution of the responses for each item. Bivariate correlations were conducted to detect covariance between the teachers' experiences with their principals and the teachers' practices and attitudes related to national tests. Finally, differences between 13[4] of the 14 schools were studied.

Limitations and Ethical Considerations

[4] One of the 14 schools was represented by only one teacher, so it was excluded from the comparison of schools.

The survey methods included critical analysis of the source materials. Self-reporting is the clearest limitation of the data, as this may reflect a respondent's intentions rather than his or her actual practices (Creswell, 2013). Another limitation is the relatively small size of the study sample. Moreover, establishing a logical link between questions and objectives may have a negative effect on the validity when less tangible concepts (Achinstein, 1968), such as attitudes and expectations, are involved. To ensure validity, we included several items in each of the four thematic areas to "cover different aspects of the concept and demonstrate that the questions asked are actually measuring it" (Kumar, 2011, p. 179).

We assured the teachers that all data would be treated anonymously; however, as their email addresses were obtained from official school websites, it would be possible to identify teachers at each school. To ensure their anonymity, the teachers' emails and schools' names were coded numerically.

Results

The survey mainly measured self-reported practices and attitudes related to the national test results. In terms of reliability, a validation of the 27 items as one construct showed a Cronbach's alpha of α = .92. When each of the four areas was treated as a construct, the Cronbach's alpha results were α = .83 for "facilitating principals," α = .70 for "teachers' individual work with the national test results," α = .83 for "the team's work with the national test results," and α = .71 for "teachers' attitudes toward the national tests."

Table 1 *Percentage distribution of teachers' experiences with principals as facilitators of educational work, in general, and of national test results in particular*

	Not at all	**To a small extent**	**To some extent**	**To a great extent**	**To a very great extent**
1. The principal has confidence in my work with basic skills (N=172)	0,0	0,6	4,7	51,0	44,0
2. The principal requests information about how I follow up on the national test results (N=173)	8,7	21,4	35,3	26,6	8,1
3. The principal represents the school's work with quality development in a good way with the wider community (N=174)	0,0	0,6	21,3	43,1	35,1
4. The principal is in dialogue with teachers on the curriculum content (N=174)	4,6	12,6	31,6	35,6	15,5
5. The principal is clear on what is expected of my work with the national test results (N=172)	7,0	15,7	34,3	29,1	14,0
6. The principal expects that teachers will work systematically with the national test results (N=172)	4,7	11,0	37,2	30,2	16,9
7. National tests is a topic at the *appraisal meetings* with the principal (N=169)	33,1	27,2	27,8	7,7	4,1

Table 1 presents the distribution of responses to the seven items used to measure the teachers' perceptions of their principals as facilitators of educational work in general, and specifically, the national test results. Items 1, 3, and 4 represent general aspects of the principal as a facilitator of educational work, whereas items 2, 5, 6, and 7 are directly related to the principal's role in promoting the national tests. These items were used to form a new construct, as follows: "Principals' facilitation of work with the national test results" (Cronbach's alpha, 0.87).

As seen in Table 1, almost all the teachers perceived that their principals had confidence in their ability to work with basic skills; most teachers were equally certain that their principals represented the school's work in a good way in the wider community. About half the teachers responded that, to a large extent, their principals communicated with them about curriculum content.

The responses to the four items measuring the principal's role as a facilitator and promoter of the teachers' work with the national tests were more diverse. When asked whether the principal requests information about how they followed up on the national test results, the teachers' answers were evenly distributed among the high and low response categories. Items 5 and 6 both relate to the principal's expectations of the teachers' work with the national test results. The percentage of teachers who answered "to a great extent" and "to a very great extent" was slightly lower when the teachers reported their personal views (item 5), rather than answering on behalf of teachers in general (item 6). Item 7 shows that national tests are a topic discussed either to a small extent or not at all at the appraisal meetings with the principals.

Table 2 *Percentage distribution of the teachers' work with the national test results*

	Not at all	**To a small extent**	**To some extent**	**To a great extent**	**To a very great extent**
1. I am involved in conducting the national tests. (N=174)	4,0	5,7	23,0	41,4	25,9
2. I take responsibility for following up on the school's national test results. (N=172)	3,5	10,5	33,1	41,3	11,6
3. I take responsibility for purposeful monitoring of the students in my course when the national test results are ready. (N=174)	2,9	8,7	43,6	39,0	5,8
4. I discover new aspects of my students' competence in dealing with their national test results. (N=173)	10,4	19,1	40,5	23,7	6,4
5. I use the assignments from the national reading test when I go through the reading results with the students. (N=160)	33,8	19,4	32,5	9,4	5,0
6. I use the assignments from the national tests from the national numeracy test when I go through the numeracy results with the students (N=151)	43,0	16,6	25,2	10,6	4,6

In Table 2, items 1, 2, and 3 relate to the teachers' responsibility for administering the tests and following up on the results. Most teachers who participated in this survey were involved in the national tests to some degree; only 4% reported that they were not involved at all. A majority also reported that, to some extent or to a great or very great extent, they were responsible for following up on the school's results (item 2) and the purposeful monitoring of their students' results (item 3). The results from items 4, 5, and 6 show the extent to which the teachers perceived the usefulness of the test results and the extent to which they used them. More than 70% reported that, to some extent or to a great or very great extent, they discovered new aspects of their students' competence through the national test results. However, only around 15% reported that, to a great or very great extent, they used the texts and tasks from the tests in reading and numeracy when they reviewed the results with the students. Further, 34% and 43% reported that they did not use the test material for this purpose at all in reading and numeracy, respectively. We also note that the response rate for item 6 was slightly lower than the response rate for the other items. This is probably because some teachers only found either reading or numeracy to be relevant to their practice.

National Tests, Teacher Teams, and Local Schools

In Table 3, items 1, 2, 4, and 5 address how the teacher team, or the entire school, used the national test results. Item 3 reflects the teacher team's autonomy in terms of how much time it was willing to spend on the national test results. As the table demonstrates, to some degree, the teacher teams took responsibility for the national test results; only 4.6% answered "not at all." In terms of more specific actions, 42% of the teachers engaged in discussions about teaching practice related to the test results (item 2) and the team's use of the national tests to improve students' learning (item 4) to some extent, while 32% engaged in these activities to a great or a very great extent. A total of 91% of the teachers also reported that using the national test results is part of their school's quality development plan, to varying degrees. Only 29.1% of the teachers claimed that, to a great or very extent, they have an influence on the time spent working with students on the national test results.

Table 3 *Percentage distribution of national tests in the teacher teams and the local schools*

	Not at all	To a small extent	To some extent	To a great extent	To a very great extent
1. The entire teacher team takes responsibility for monitoring student results on national tests (N=173).	4,6	11,6	43,4	28,3	12,1
2. The teacher team discusses the school's teaching practice in light of the national test results (N=174).	8,6	17,8	42,0	25,3	6,3
3. The teacher team has an influence on the time spent working with students on national test results (N=172).	11,6	19,2	40,1	21,5	7,6
4. The teacher team uses the national test results actively to improve students' individual learning outcomes (N=172).	5,2	14,5	48,3	26,2	5,8
5. Using the national test results is a part of the school's quality development (N=173).	8,7	13,3	40,5	33,5	4,0

The percentage distribution of answers showed that the "to some extent" category was the most frequently chosen among the five items. The reason for this may be that the teachers were more reluctant to take a clear position when they were answering on behalf of the whole teacher team, and not individually.

Teachers' Attitudes and Viewpoints

Table 4 shows the teachers' attitudes toward the national tests and views concerning their value. The responses to items 2, 6, 7, and 8 were positive. Item 2 showed that more than half the teachers agreed or strongly agreed that the test results were useful as tools for working with students' individual learning, while about one out of five teachers disagreed with this. About 40% of the teachers were not sure whether the national tests had contributed to new knowledge in reading (item 6) and numeracy (item 7), and fewer than 30% agreed or strongly agreed that the tests had contributed to new knowledge.

The responses to items 1, 3, 4, and 5 showed either problematic or negative aspects regarding national tests. Nearly one-third of the teachers agreed or strongly agreed that the national test results had little or no value for students' individual learning, whereas nearly 40% disagreed with this. The results from item 3 showed that the teachers were equally divided in their opinion on whether working with national tests took too much time away from other tasks. Almost half the teachers lacked knowledge about how to use the test results in reading (item 4). Around 40% gave the same response for numeracy (item 5). Item 9 focused on whether the publication of the results matters for quality work at the school; four out of five teachers were either neutral or agreed with the statement. This may indicate that the publication of test results is not a big concern for them.

Finally, there was a possible discrepancy between items 1 and 2, as nearly 40% agreed or strongly disagreed that the test results have little or no value, while 56% agreed or strongly agreed that they are useful tools in terms of individual student learning. This may have to do with the negative wording of item 1 and positive wording of item 2, but it may also highlight that the contents of the two items are slightly different.

Table 4 *Percentage distribution of teachers` perceptions/views/attitudes towards national tests*

	Strongly disagree/ Disagree		**Neither agree nor Disagree**		**Agree/ Strongly agree**
1. The national test results have little or no value in terms of individual student's learning and development (N=173).	4,0	35,0	29,5	23,0	8,0
2. The national test results are useful tools for working with individual student's learning and development (N=172).	5,2	16,3	22,7	51,2	4,7
3. The work with national tests takes too much time away from other, more important tasks in school (N=171).	6,0	27,0	33,3	26,0	7,0
4. I lack knowledge of how to use the national test results in reading in my subject(s) (N=170).	5,0	23,0	24,7	39,0	9,0
5. I lack knowledge of how to use the national test results in numeracy in my subject(s) (N=161).	9,0	26,0	26,1	31,0	9,0
6. National tests in reading have contributed to new knowledge about reading as a basic skill in my subject(s) (N=168)	7,1	23,8	40,5	25,0	3,6
7. National tests in numeracy have contributed to new knowledge about numeracy as a basic skill in my subject(s) (N=162).	12,3	24,1	39,5	22,8	1,2
8. The school's overall national test results are very important for the quality of our school's work (N=172).	11,0	17,4	40,1	27,3	4,1
9. Publication of the national test results has no value for improving the quality of our school (N=173).	4,6	15,0	26,6	28,9	24,9

Correlations

The construct based on items 2, 5, 6, and 7 in Table 1, "The principal's facilitation of work with the national test results," was first correlated with each of the following three thematic areas, which were treated as constructs: 2) "The teachers' individual work with the national test results," 3) "The team's work with the national test results," and 4) "The teachers' attitudes toward the national test results." Second, "The principal's facilitation of work with the national

test results" was correlated with each item in Tables 2, 3, and 4. The aim of this was to evaluate the relationship between the teachers' experience of their principals as driving forces to encourage them to use the national test results and their practices and attitudes. Values between 0 and 0.3 (0 and - 0.3) indicate a weak positive (negative) correlation, values between 0.3 and 0.5 (- 0.3 and - 0.5) indicate a moderate positive (negative) correlation, and values between 0.5 and 1.0 (- 0.5 and - 1.0) indicate a strong positive (negative) correlation.

Table 5 *Correlations between" Principal facilitation-" and the three constructs of "Teacher teams' use of-", "Teacher's use of -" and "Teachers' attitudes towards" national test results*

	Principal NT
Team	,728**
Use of results	,647**
Attitudes	,553**
**. Correlation is significant at the 0.01 level (2-tailed).	

Table 5 shows that there were strong correlations between "principal's facilitation" and the three constructs of the teacher team, use of results, and teachers' attitudes.

Table 6 shows that there was a weak correlation between the principal's facilitation and being involved in conducting the tests (probably because most respondents were involved in this). The strong correlations between items 2 and 3 and principal's facilitation indicated that the greater the driving force from the principal, the more responsibility the teachers took for following up on the national test results. Items 4, 5, and 6 represented more personal approaches to the test and results than the previous items did. Item 4 evaluated the usefulness of the test results. In items 5 and 6, the teachers reported the extent to which they used the tests. These three items showed moderate (items 4 and 5) and strong (item 6) correlations with principal's facilitation.

Table 6 *Correlation between teachers' experiences and principal's facilitation of work with national test results*

	Principal/NT
1. I am involved in conducting the national tests.	,214**
2. I take responsibility for following up on the school's national test results.	,537**

3. I take responsibility for purposeful monitoring the students in my course when the national test results are ready.	,547**
4. I discover new aspects of my pupils' competence in dealing with their national test results.	,382**
5. I use the assignments from the national reading test when I go through the reading results with the students.	,391**
6. I use assignments from the national numeracy test when I go through the numeracy results with the students.	,490**

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7 *Correlations between teacher-team and principal's facilitation of work with national test results*

	Principal/NT
1. The entire teacher team takes responsibility for monitoring the students' national test results.	,472**
2. The teacher team discusses the school's teaching in light of the national test results.	,610**
3. The teacher team has an influence on the time spent working with students on the national test results.	,393**
4. The teacher team uses the national test results actively to improve each student's individual learning outcomes.	,642**
5. Using the national test results is part of the school's quality development work.	,715**

**. Correlation is significant at the 0.01 level (2-tailed).

In Table 7, item 3 shows a moderate correlation with principal's facilitation, meaning that the greater the principal's driving force, the more influence teachers had on the time spent with students. Items 1, 2, 4, and 5 relate to the team's practice when dealing with various aspects of the national test results. Here, we found relatively strong correlations with principal's facilitation. The strongest correlation (0.72) was between principal's facilitation and the teacher teams using the results as a part of the school's quality development work.

Table 8 *Correlation of teachers' attitudes and principal's facilitation of work with national test results*

	Principal/NT

1. The national test results have little or no value in terms of individual student's learning and development.	-,357**
2. The national test results are useful tools for working with the individual student's learning and development.	,271**
3. The work with national tests takes too much time away from other, more important tasks in school.	-,254**
4. I lack knowledge of how to use the national test results in reading in my subject(s).	-,294**
5. I lack knowledge of how to use the national test results in numeracy in my subject(s).	-,191**
6. National tests in reading have contributed to new knowledge about reading as a basic skill in subject(s).	,311**
7. National tests in numeracy have contributed to new knowledge about numeracy as a basic skill in my subject(s).	,402**
8. The school's overall national test results are very important for the quality of our school's work.	,572**
9. Publication of the national test results has no value for improving the quality of our school's work.	,031

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8 shows the items representing the teachers' attitudes toward the national tests and use of the results. Overall, most items showed a moderate or strong correlation with principal's facilitation of working with national test results. Items 2, 6, 7, and 8 showed a positive correlation. Item 2 was a general expression of the national test results as useful tools for individual learning; it showed a weak, but positive correlation with principal's facilitation. However, items 6 and 7, which specifically related to the reading and numeracy tests, both showed a moderate correlation with principal's facilitation. Item 8 reflected the school's common policy regarding national tests, and it showed a strong correlation with principal's facilitation.

For the negatively formulated items, the correlation was negative, except for item 9. The negative correlation coefficient of – 0.36 in item 1 indicated that the more "useless" the teachers found the national test results to be, the less the principal was viewed as being a driving force. Item 3, expressing a negative attitude implying that working with national test results is a waste of time, also showed a negative correlation with principal's facilitation. However, items 4 and 5 pointed to more problematic issues, rather than negative attitudes—namely a lack of knowledge concerning how to use the test results. Here, the negative correlation was higher for reading than it was for numeracy. Item 9 related to views on the publication of the test results;

it was not directly related to the teachers' attitudes or experiences with national tests, and it showed no significant correlation with principal's facilitation.

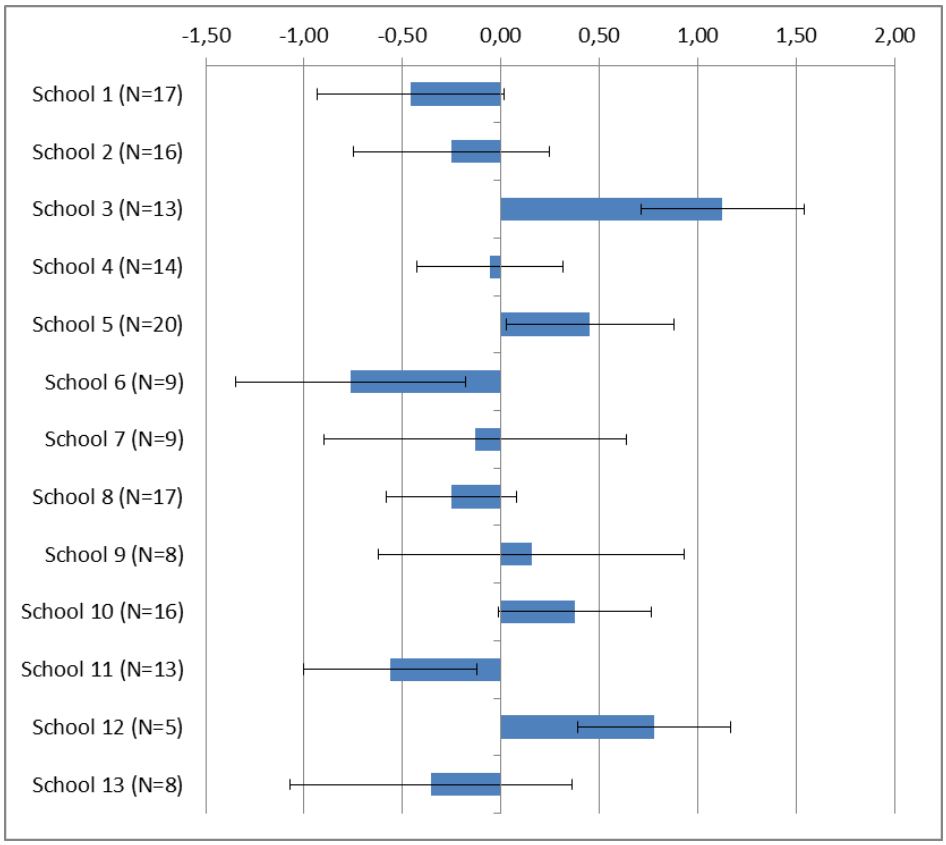

Figure 1 *Standardized mean values of the principal's facilitation construct for 13 of the 14 schools. Total mean =0, 1= one standard deviation. Error bars show 95% confidence interval.*[5]

To study the differences among the schools regarding teachers' experiences with their principals, the mean score for the principal's facilitation construct was standardized to 0, standard deviation = 1. As seen in Figure 1, each school was related to the total mean. Specific differences among the 13schools were found concerning how the teachers assessed their principals as facilitators for working with national test results. However, due to the relatively low number of respondents from each school, the differences among the schools were not always statistically significant ($p < 0.05$). Still, the differences in teachers' assessments of how their principals facilitated the work with national test results were more significant for schools 3 and 12 than schools 1, 2, 6, 8, 11, and 13.

[5] One school was represented with one teacher, and was excluded from the graph.

Summary and Discussion

Summary of the Results

Nearly all the teachers participating in the survey expressed that their principals had confidence in their work with basic skills. However, the teachers' responses were less consistent on issues concerning how the principals facilitated the schools' work with the national test results, and in many cases, the difference between the schools was significant. When the teachers reported on their practices, nearly half noted that they took responsibility for following up with their students' national test results, but only around 15% reported using the assignments from the tests in their teaching. In terms of attitudes and beliefs, the results showed that more than half the teachers agreed that the national test results are useful tools for working with individual students. However, under 30% agreed that national tests have contributed to new knowledge about reading or numeracy as basic skills. Nearly half the teachers reported that they lacked knowledge about how to use the test results in reading, and about 40% reported a similar lack of knowledge for mathematics. The correlations between principal's facilitation and each of the items showed, to varying degrees, that the more the principals facilitated the use of national test results, the more the teachers used the results. Correlation analyses showed moderate to strong correlations between the principal's facilitation and teachers' practices and attitudes.

Discussion

This study aimed to investigate how teachers in a Norwegian, low-stakes accountability context work with national test results and their perceptions of how their principals facilitate working with basic skills and the results. To that end, we posed the following research questions:

1. How do teachers perceive the principals' facilitation of using national test results at the local school level?
2. How do teachers and teacher teams use the national test results, and what attitudes do teachers have toward national tests?
3. What is the relationship between the principals' facilitation of using national test results and the teachers' practices and attitudes?

In the next section, the research questions are scrutinized, and the results are condensed to represent the relevance of each question in terms of the theoretical framework.

Diverse Perceptions of Principals' Roles among Schools and Teachers

A comparison among the schools, in terms of the teachers' perceptions of how the principal facilitated the use of the national test results and the school's work with basic skills, showed significant differences. This can be explained by the variance in the teachers' practices and attitudes. The variation may also be explained by the principals' and teachers' different roles in interpreting and translating policy intentions. Furthermore, an explanation may be found in the role of the deputy manager as an enforcer who contributes to crafting the coherence between policy intentions and local school practices, while also functioning as a messenger between the principals and teachers (Gunnulfsen, 2017). However, the role of the deputy manager was not included in this survey, and thus, the analysis relies on the findings from the two former studies, which formed the basis for the questionnaire.

The two qualitative studies, which consisted of interviews and video data from lower secondary schools in the same municipality selected for this survey, showed that principals play a key role as narrators and enthusiasts in interpreting how to use the national test results (Gunnulfsen and Møller, 2016; Gunnulfsen, 2017). The survey results indicated that the diversity among the schools may be due to the roles principals play; some strongly promote their view of how to use the national test results, while others do not emphasize the use of test results. From a micro-political perspective, the diversity among the schools can be explained by the power, influence, and negotiation in local schools (Blase and Anderson, 1995). In turn, these factors can be affected by human behavior and purpose. For example, principals with positional authority may structure the school to prevent decisions on issues related to national test results, and principals with stronger beliefs on the use of the results may structure the school to enhance these decisions.

This study found significant differences among the schools in terms of the teachers' experiences with their principals promoting working with national test results and basic skills. This confirms that consideration must be paid to the local school context in which policy intentions and ideas are translated and adapted into new practices (Newman and Clarke, 2009). Through an alignment process of translation for crafting coherence, policies are not only repeatedly and collaboratively re-interpreted and re-assembled by local school actors (Ball, Maguire, and Braun 2012); rather, they are also strongly influenced by individual principals. The differences among the schools, seen in conjunction with the notion of Norwegian lower secondary principals and deputy managers holding different roles in schools' work with crafting policy coherence (Gunnulfsen, 2017), is an important finding regarding how school leadership practices influence, and are influenced by, the translation to generate coherence between their

own leadership agendas and the national testing policy intention. This may be especially true and of interest in a policy agenda set in a low-stakes accountability context. Hence, the differences between the schools confirms that leadership

> derives from the context and ideas of individuals who influence each other. […] Leadership is an act bounded in space and time; it is an act that enables others and allow them, in turn to become enablers. (Foster, 1986, p. 187)

The finding that the teachers perceived high levels of confidence in their principals may be explained in two ways. The principal could delineate clear expectations regarding specific work with basic skills and still have confidence in the teachers, or he or she could not be as clear about specific expectations, but still have confidence in how the teachers work with national test results and basic skills. A principal who exhibits a high degree of confidence may also consciously express a high degree of indifference; this depends on how the principal communicates the sense of confidence. Either way, the principal's trust and confidence is important for achieving the collaborative formation of coherence, which neither school leaders nor teachers can craft or negotiate alone (Seashore Louis and Murphy, 2017; Honig and Hatch, 2004).

Restrained Practices and Attitudes—The Challenges of Crafting Coherence

The responses on whether the test results had value for the students' individual learning were contradictory. Nearly one-third of the teachers agreed or strongly agreed that the test results had little or no such value, whereas nearly 40 % disagreed with this claim. This could mean that the teachers interpreted the concept of *results* in different ways or the concept of *value* was understood differently. Furthermore, conforming to the practice of including the test results on the agenda in teacher meetings and leader-team meetings is not necessarily synonymous with valuing the use of the results for individual student learning. To craft coherence between the intention to use the test results to improve student learning and school quality, teachers and principals must make sense of the policy intention collectively. This collective sensemaking depends on the extent to which external intentions fit the school's "culture, political interests, conceptions of professionalism and on-going operations" (Honig and Hatch, 2004, p. 18), and the many local 'sense givers' within the school context (Seashore Louis, et al., 2013). The significant correlations between principal's facilitation and teachers' attitudes can be explained by a close association to a collective practice. The more the principals strongly facilitated the use of the national test results, the more positive the teachers felt about using them, and vice versa. Hence, some local actors may function as 'stronger' collective sense givers than others,

this meaning both school principals and/or teachers. This can also be explained by the finding that some teachers, and even some principals, made more use of the guidance material from the Directorate to determine how to use the test results to develop students' skills in the test subjects.

Although the results on the importance of an actively facilitating principal were significant, the teachers were reluctant to provide clearly positive or negative answers concerning their perceptions and experiences on behalf of the teacher team. This may be explained in that a clear mutual negotiation about the internal and external policies was less evident in some schools than others. For coherence to be achieved, mutual influence and the adjustment of internal and external policy agendas must be clear (Seashore Louis and Robinson, 2012). A clear mutual adjustment and influence also partly aligns with the superintendent level, and although our research questions and survey items did not include a focus on the role of local authorities, some regard for the superintendent level in our discussion can be justified, given the local context of this study. The superintendent of the municipality had recently introduced a change in the leadership structures of all schools, aiming to distribute responsibilities, including the administration of national tests and following up on their results, to the deputy managers. This responsibility was not recognized in the voluntary supplementary comments, where most deputy managers explained that the items were not relevant to them. On the one hand, this may have been because, in their new positions, they were part of the leadership team and wanted to be loyal to the principal. On the other, it may have resulted from an unclear adjustment of internal and external policy agendas.

Overall, our results support Honig and Hatch's (2004), claim that achieving coherence depends on a process that "requires school and school district central office leaders to work in partnership to constantly 'craft' or 'negotiate' the fit between external demands and schools' own goals and strategies" (p. 17). This partnership may be crucial in a low-stakes accountability context, where crafting coherence is a matter of instructing the local school organization to use various measures to stimulate reflection about its practices and foster changes in practices, beliefs, or identities (Dupriez and Mons, 2014). We found that, to a small extent, teachers used the test results to enhance individual student learning. However, those teachers had a strongly facilitating principal, and they all had the same superintendent and the same central office leaders. While the central office leaders seemed to have confidence in their leadership and the principals' role as facilitators, due to the change in leadership structure, the question is whether the central office leaders take their fair share of the responsibility regarding the use of national test results.

The league table practices and publication of results in the media may be perceived as relating to the inevitable varieties of contexts and divergent cognitions that craft a range of coherences to a given policy, which will also vary across different schools in a municipality. The potential fear of being ridiculed or developing a stigma attached to the school, principal and teachers may exert pressure to strive for better results. According to Maroy and Voisin (2015), the publication of results may also be loosely coupled (Weick, 1976) with local school-level practices, rather than contributing to crafting coherence.

The Close Relationship between the Principals' Facilitation and Teachers' Practice

The correlations showed that as the principal's facilitation of working with the national test became less distinct, the teachers appeared to become more indifferent toward dealing with national test results. By distinct facilitation, we mean that the principal acts as a driving force when promoting the teachers' work with national test results. When a principal was less distinct in facilitating the use of the national test results, the teachers reported that the results had little or no value for improving individual students' learning, the work took too much time away from more important tasks, and they lacked knowledge on how to use the results. In contrast, the more the principal served as a "driving force," the less likely the teachers were to have negative opinions about the national tests. However, a principal cannot establish a clear internal agenda alone, and a discretionary external policy will not independently help a principal in finding a more aligned focus. Hence, connecting the individual leadership perspective with Ball's (2012) micro-political perspective is a tool for understanding how schools and school leaders locally enact national policies more broadly and making sense of how teachers relate to the national test results. Furthermore, our study confirmed that local schools' policy enactments seem strongly influenced by individual principals' actions (Ball *et al*., 2012). However, even a principal with a distinct facilitating focus does not necessarily have the strategic skills required to integrate an internal policy practice into an external policy framework (Datnow, 2002). School principals and teachers can facilitate school practices for reasons that have little to do with their orientation to the external policy intentions of using national test results. Even so, whether he or she promotes systematic work with test results or not, the principal's significant facilitation role was demonstrated in our results.

It is significant that the more the teachers perceived their principals as facilitating the use of the national test results, the more they used the assignments in their classes when reviewing the results with the students, and the more positive attitudes they showed about this

work. The same correlations were found when the teachers responded that they discovered new aspects of their students' competences.

Concluding Remarks

The overall findings of this study imply that there is a strong correlation between how well the principals facilitate work with the national test results and the teachers' practices and attitudes. There was a direct link between the principals promoting work with national test results and how the teachers benefitted from and understood how to use the results. Another important finding was the diversity in the responses among the schools in the municipality. The study contributes to an understanding of the inside-out (Coburn, 2004) and collective approach to crafting coherence, but it also strengthens the role of the individual principal. Still, this study has some limitations; specifically, the survey relied on self-reported responses, and the sample size was small. Concluding that there is a direct association between the research questions and objectives may threaten a study's validity when abstract concepts (Achinstein, 1968), such as "attitudes" and "expectations," are involved.

Our study contributes to new knowledge about micro-policy work in local schools in Norway, especially because national testing is a relatively new policy demand and Norway is regarded as a low-stakes accountability context. The contribution is vital for developing a greater understanding of how schools use national testing data for developing school quality and individual student learning. Why the principals acted differently (according to the teachers' views) is a topic for further research. Future studies must seek to identify how the intentions of national testing and accountability contexts are translated and negotiated at the policy level, both locally and nationally. Another issue for further study is the extent to which the findings of this research are specific to the context of a low stakes-testing system. For instance, studies in countries with stronger external accountability policies have suggested that schools comply with and conform to increased external control of the schools' work (Coburn, 2004; Hall, 2013; Hardy, 2014). Therefore, future studies should include a comparative design and transnational analysis to draw attention to how the crafting of coherence and policy enactment play out in school leadership and teaching in a local school context.

References

Aas, M., Brandmo, C. and Bryant, D. (2016). “Revisiting instructional and transformational leadership: The contemporary Norwegian context of school leadership”, *Journal of Educational Administration,* Vol. 54 No 1, pp. 92-110.

Aasen, P., Prøitz, T. and Rye, E. (2015). “Nasjonal læreplan som utdanningspolitisk Dokument” [National curriculum as educational policy document], *Norsk Pedagogisk Tidsskrift,* Vol. 99 No. 6, pp. 417–433.

Achinstein, P. (1968). *Concepts of science: a philosophical analysis.* Hopkins Press. Baltimore, Maryland. USA.

Ball, S. J. (2012). *The Micro-politics of the School: Towards a Theory of School Organization*, Routledge, London.

Ball, S. J., Maguire, M., and Braun, A. (2012). *How Schools Do Policy: Policy Enactments in Secondary Schools*, Routledge, London.

Bergesen, H. O. (2006). *Kampen om Kunnskapsskolen* [The battle of the school of knowledge], Universitetsforlaget, Oslo.

Blase, J. (2005). "The micropolitics of educational change", in *Extending Educational Change. International Handbook ofEducational Change.* Hargreaves, A. (Ed.), Springer Netherlands, Dordrecht, Netherland, pp. 265–277

Blase, J. and Anderson, G. (1995). *The Micropolitics of Educational Leadership: From Control to Empowerment,* Teachers College Press, Columbia University., NY.

Carnoy, M. and Loeb, S. (2002). "Does external accountability affect student outcomes? A cross-state analysis", *Educational Evaluation and Policy Analysis*, Vol. 24 No. 4, pp. 305–331.

Coburn, C. E. (2004). "Beyond decoupling: Rethinking the relationship between the institutional environment and the classroom", *Sociology of Education,* Vol. 77 No. 3, pp. 211–244.

Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches,* Sage Publications, London.

Cronbach, L. J. (1951). "Coefficient alpha and the internal structure of tests", *Psychometrika*, Vol. 16 No. 3, pp. 297–334.

Daniels, H. and Edwards, A. (2012). "Leading for learning: How the intelligent leader builds capacity", National College for School Leadership. Available at:

http://www.education.ox.ac.uk/wordpress/wp-content/uploads/2010/07/Leading-the-learning.pdf (accessed 01 April 2017).

Datnow, A. (2002). *The Gender Politics of Eeducational Change*, Routledge, London.

Datnow, A. and Hubbard, L. (2016). "Teacher capacity for and beliefs about data-driven decision making: A literature review of international research", *Journal of Educational Change*, Vol. 17 No. 1, pp. 7–28.

Dupriez, V. and Mons, N. (2011). "Les politiques d'accountability. Du changement institutionnel aux transformations locales", *Education Comparée*. [Accountability policies. From Institutional Change to Local Transformations ", *Comparative Education*], Vol 5, pp. 7–16.

Elstad, E. (2009). "Schools which are named, shamed and blamed by the media: School accountability in Norway", *Educational Assessment, Evaluation and Accountability*, Vol. 21 No. 2, pp. 173–189.

Foster, W. (1986). *Paradigms and Promises: New Approaches to Educational Administration*, Prometheus Books, New York, NY.

Gunnulfsen, A. E. (2017). School leaders' and teachers' work with national test results: Lost in translation?. *Journal of Educational Change*, *18*(4), 495-519.

Gunnulfsen, A. E., and Møller, J. (2017). National Testing: Gains or Strains? School Leaders' Responses to Policy Demands. *Leadership and Policy in Schools*, *16*(3), 455-474.

Hall, D. (2013). "Drawing a veil over managerialism: Leadership and the discursive disguise of the New Public Management", *Journal of Educational Administration and History*, Vol. 45 No. 3, pp. 267–282.

Hallinger, P. (2005). "Instructional leadership and the school principal: A passing fancy that refuses to fade away", *Leadership and Policy in Schools*, Vol. 4 No. 3, pp. 221–239.

Hardy, I. (2014). "A logic of appropriation: enacting national testing (NAPLAN) in Australia", *Journal of Education Policy*, Vol. 29 No. 1, pp. 1–18.

Harris, D. N. and Herrington, C. D. (2006). "Accountability, standards, and the growing achievement gap: Lessons from the past half-century", *American Journal of Education*, Vol. 112 No.2, pp. 209–238.

Honig, M. I. and Hatch, T. C. (2004). "Crafting coherence: How schools strategically manage multiple, external demands", *Educational Researcher*, Vol. 33 No. 8, pp. 16–30.

Ingram, D., Seashore Louis, K. and Schroeder, R. (2004). "Accountability policies and teacher decision making: Barriers to the use of data to improve practice", *Teachers College Record*, Vol. 106 No. 6, pp. 1258–1287.

Kumar, R. (2011). *Research Methodology.* 3rd Edition, Sage Publications, London.

Lindblad, S., Johannesson, I. A. and Simola, H. (2002). "Education governance in transition: An introduction", *Scandinavian Journal of Educational Research*, Vol. 46 No. 3, pp. 237–245.

Lie, S., Hopfenbeck, T.N., Ibsen E.B. and Turmo, A. (2005). "Nasjonale prøver på ny prøve. Rapport fra en utvalgsundersøkelse for å analysere og vurdere kvaliteten på oppgaver og resultater til nasjonale prøver våren 2005" [National tests on new trial. Report from a sample test to analyse and assess the quality of items and results in the national tests in 2005], *Institutt for lærerutdanning og skoleutvikling* [Dep. of Teacher Education and School Research], University of Oslo, Oslo.

Maroy, C. and Voisin, A. (2015). "Comparing accountability policy tools and rationales: various ways, various effects?" in Kotthoff, H. G. and Klerides, E. (Eds.), *Governing Educational Spaces: Knowledge, Teaching and Learning in Transition* (pp. 35–58), Sense Publishers, Taipei. Boston, Rotterdam.

Mintrop, H. and Sunderman, G. L. (2009). "Predictable failure of federal sanctions-driven accountability for school improvement—and why we may retain it anyway", *Educational Researcher*, Vol. 38 No.5, pp. 353–364.

Møller, J. (2009). "School leadership in an age of accountability: Tensions between managerial and professional accountability", *Journal of Educational Change*, Vol. 10 No. 1, pp. 37–46.

Newman, J. and Clarke, J. (2009). *Publics, Politics and Power: Remaking the Public in Public Services*, Sage, London.

Norwegian Directorate for Education and Training [UDIR] (2011). *Nasjonale prøver. Veiledning for skoleeiere og skoleledere* [National tests. A guide for superintendents and school leaders], Oslo, Norway. https://www.udir.no/Upload/Nasjonale_prover/2010/5/Veileder_Nasjonale_prover_skoleeier_og_rektor.pdf?epslanguage=no

Roe, A. (2014). Lesedidaktikk – etter den første leseopplæringen. [Reading Didactics – after the first reading instruction] Third edition. Oslo: Universitetsforlaget [The University Press].

Seashore Louis, K. and Murphy, J. (2017). Trust, caring and organizational learning: the

leader's role. *Journal of Educational Administration*, *55*(1), 103-126.

Seashore Louis, K., Mayrowetz, D., Murphy, J., and Smylie, M. (2013). Making sense of distributed leadership: How secondary school educators look at job redesign. *International Journal of Educational Leadership and Management*, *1*(1), 33-68.

Seashore Louis, K. and Robinson, V. M. (2012). "External mandates and instructional leadership: school leaders as mediating agents", *Journal of Educational Administration,* Vol. 50 No. 5, pp. 629–665.

Weick, K. E. (1976). "Educational organizations as loosely coupled systems". *Administrative science quarterly*, Vol.21 No 1, pp. 1-19.

Young, V. (2006). "Teachers' use of data: Loose coupling, agenda setting, and team norms", *American Journal of Education,* Vol. 112 No. 4, pp. 521–48.