Individual teaching methods: Work plans as a tool for promoting self-regulated learning in lower secondary classrooms?

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Abstract
To stimulate individualised learning and give students some autonomy and responsibility in relation to their own schoolwork, Norwegian teachers often use work plans as an instructional tool. A work plan is a document that describes different tasks students are supposed to complete within a certain time period, normally two to three weeks. This article explores whether the use of work plans can be used as a tool for promoting self-regulated learning (SRL). The analyses draw on data from the PISA+C27 video study. The data include video observations from five lower secondary mathematics classrooms (15-year-olds). Our analyses suggest the teachers rarely provided explicit instructions, cognitive feedback or autonomy-supportive learning strategies.

Keywords: self-regulation, student strategies, autonomy, feedback, scaffolding

Introduction
Self-regulated learning (SRL) has been a key topic in education research over the last decade (Michalsky and Schechter 2013; Perry, Hutchinson and Thauberger 2007; Tillema and Kremer-Hayon 2002; Vrieling, Bastiaens and Stijnen 2012), and SRL and “learning to learn” are educational goals in several national educational policies, including Norway’s. However, numerous studies underscore how self-regulated ways of working rely on students’ capacity to scaffold and monitor their own learning (Pressley 1995; Reeve 2006). Recent studies from the Nordic countries indicate that individualised work and instructional models, such as work plans, put too much pressure on students who find it hard to plan and regulate their own work (Dalland and Klette 2012; Ståhle 2010; Österlind 1998).

In this study, we discuss how work plans might support SRL in lower secondary classrooms. The focus is on how the use of work plans influences students’ learning possibilities in ninth-grade mathematics classrooms.

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The integration of students into mixed-ability and non-streamed classes is an important Norwegian educational principle (Dalland and Klette 2012). Norwegian teachers use work plans (see the Appendix) as an instructional tool in order to differentiate learning according to students’ abilities, to promote students’ responsibility for their own learning and give them some autonomy and freedom of choice in relation to schoolwork (Klette 2007).

Work plans are plans or schedules that describe what students are supposed to do in different subject areas over a certain period of time, normally two or three weeks. Work plans often consist of a list of assignments and tasks developed by teachers. The tasks are usually divided into the following three levels of difficulty: low, moderate and high. The differences between the three levels are normally based on the number of tasks and not on varied and challenging academic assignments (Dalland 2007). The consequence is that students working at the highest level must perform more of the same tasks than students working at lower levels. However, the students are often free to choose which level to work at in each subject as well as where to do the assignments (Klette 2007). Hence, the use of work plans gives students more responsibility for their own learning and requires they plan and regulate their own work. In Sweden, Own Work (egent arbete) represents a similar practice (Österlind 2005; Ståhle 2010).

Both work plans and Own Work originate from instructional programmes emphasising students’ autonomy and making students responsible for their own learning (Dewey 1958; Moran 1975; Parkhurst 1994; Wang and Stiles 1976). Although never explicitly linked to SRL (Perry, Phillips and Hutchinson 2006; Reeve, Ryan, Deci and Jang 2008), work plans require autonomous students who are able to plan, monitor and take responsibility for their own school work. As such, work plans build on several principles identified as critical for SRL.

While some recent studies analyse the use of work plans (Bergem 2009; Helgevold 2011) and Own Work, few studies have linked work plans with research on SRL. Olaussen’s (2009) research is quite unique in combining these two approaches to instruction, but differs from ours in that it uses data from the primary level rather than the secondary level.

The analyses presented in this article are guided by our main research question: Does the use of work plans promote SRL? The analyses draw on video data from five lower secondary mathematics classrooms and video-stimulated interviews with students and teachers from the same classrooms. Below we present the key principles of SRL, paying special attention to the role of autonomy, feedback and scaffolding structures. These concepts are discussed in relation to research on work plans.

**Principles of SRL**

Zimmerman described self-regulated students as “metacognitively, motivationally, and behaviourally active participants in their own learning process” (1989, 329).
By definition, SRL entails students being able to collaborate with their peers; be engaged in their own learning; diagnose their own learning needs; seek assistance when needed; set their own goals; seek information; choose appropriate learning strategies; supervise their own learning; monitor their time and evaluate their own progress (Perry et al. 2007; Zimmerman and Schunk 2009). Self-regulated students are strategic; they show personal initiative and motivation for learning; they focus on personal progress and deep understanding and use feedback to select effective learning strategies (Perry et al. 2007; Schunk, Meece and Pintrich 2007). Instructional features, such as choice (Turner and Paris 1995), complex and meaningful tasks (Blumenfeld 1992; Perry and Rahim 2011), self-evaluation (Corno 2001), feedback that focuses on the use of learning strategies (Hattie 2009; Perry, Phillips and Dowler 2004) and scaffolding from teachers and peers (Clark 2012; Corno 2001; van Velzen 2002) can provide opportunities for students to develop SRL. Blumenfeld (1992) observes that while the use of challenging, varied and meaningful tasks often promotes students’ use of learning strategies, memorisation and drills often lead to surface learning and cause students to want to complete the tasks as quickly as possible.

According to Zimmerman (2000), students must learn how to become self-regulated. Self-regulation develops within the individual with help and guidance from external sources, such as teachers and peers. Zimmerman’s cyclical model of SRL (Zimmerman 2000; Zimmerman and Campillo 2003; Zimmerman and Moylan 2009) consists of the following three ongoing and interdependent phases: the forethought phase (i.e. goal setting, strategic planning, motivation beliefs, outcome expectations); the performance phase (i.e. self-instruction, help-seeking, self-observation) and the self-reflection phase (i.e. self-judgement, self-evaluation) (Panadero and Alonso-Tapia 2014, 452). In order to help students become self-regulated, they need to receive feedback in relation to each of these three phases. Järvelä and Järvenoja (2011) state that self-regulation is not developed solely within the learner; both the learner and others can facilitate the regulation. This ‘co-regulation’ is thus an interplay between the learner and the social context (Järvelä and Järvenoja 2011). Hofer, Yu and Pintrich (1998) emphasised that teaching students to become self-regulated learners takes time and cannot be a short-term experiment.

However, promoting SRL has proven difficult, and many students are not self-regulated (Perry et al. 2007). They tend to select poor strategies (Bergem 2009; Österlind 2005), choose easy tasks (Dalland and Klette 2012; Jackson 2006), avoid working (Dalland and Klette 2012; Stähle 2010) or procrastinate (Bergem 2009; Jackson 2006) in completing their assignments. Perry et al. (2006) emphasise that in order to ensure students can successfully adopt SRL, students must be shown how to use appropriate learning strategies and be allowed to make decisions related to their own learning process. They need to cooperate during school hours, work on
complex and meaningful tasks, have opportunities to experiment with different strategies and working methods and receive feedback from peers and teachers (Kistner et al. 2010; Perry et al. 2006). Teachers have to ensure that their students acquire different learning strategies, learn when and how to use them and be given enough time to rehearse and develop strategies on their own (Zimmerman 1998). By using instructions and cognitive feedback, teachers can guide students to become more self-regulated (van Velzen 2002). Scholars underscore the role of autonomy, feedback and scaffolding structures as key principles for promoting SRL (Olaussen 2009; Reeve and Jang 2006).

**Autonomy**

Reeve (2006) sees autonomy as a cornerstone for the development of self-regulated learners. Autonomy-supportive teachers facilitate students’ cooperation and participation and clarify their learning goals (Bieg, Rickelman, Jones and Mittag 2013). Cognitive autonomy support can assist students in managing their motivation for learning (Reeve and Jang 2006).

Autonomy-supportive teachers (according to Perry, 1998) encourage students’ need for control so that they can tailor their learning to particular tasks and situations, i.e. deciding whether to work independently or with their peers. Autonomous learners are willing to take responsibility for their own learning by choosing objectives, methods and tasks and organising and executing their schoolwork (Pajares 2009). However, it is important that students have internalised standards for what are to be regarded as good learning objectives, reasonable choices of working methods and good task solutions (Holec 1981).

Jang, Reeve and Deci (2010) have investigated teachers’ instructional styles. Their findings show that both autonomy and structure are important in order to support students’ classroom engagement. They argue that control is not essential for structure and that structure can be presented in an autonomy-supportive or controlling manner (Jang et al. 2010). Structure refers to the degree of clarity, distinctiveness and precision of the information teachers provide to students. Structured teachers provide understandable, explicit and detailed information about different expectations, take the lead in various educational activities, offer guidance during the activity and provide constructive feedback (Jang et al. 2010). For students to develop the necessary autonomy skills, it is important that teachers do not provide either too much or too little structure (Jang et al. 2010). Too little structure can make it difficult for students to learn relevant skills, while too much structure can make it difficult for students to see causal relationships (Jang et al. 2010). “When teachers provide too much structure, students may learn task-relevant skills but come to hate the experience if it is overly scripted and hence void of a sense of personal causation” (Jang et al. 2010, 590). Hence, students’ engagement and
motivation are highest when teachers provide both autonomy support and structure (Jang et al. 2010).

Autonomy support seems to have become identical with “meaningless choice” (Stefanou, Perencevich, DiChitio and Turner 2004, 100), and students are often not allowed to make what Stefanou et al. (2004, 100) term “academically significant decisions”. Stefanou et al. (2004, 101) identified three ways autonomy support can be manifested in the classroom: (1) Organisational: students can choose their group members, the type of evaluation and due dates for assignments; (2) Procedural: students can decide how they will demonstrate their competence and can also discuss their needs; and (3) Cognitive: students can discuss strategies and approaches, find solutions to different problems, formulate individual goals, evaluate solutions and receive informational feedback. According to Stefanou et al. (2004), it is important that teachers, in addition to providing organisational and procedural autonomy support, offer cognitive autonomy support. Cognitive autonomy support is important for promoting students’ motivation and for developing their engagement in higher cognitive processes (Stefanou et al. 2004, 108–109).

**Feedback**

Feedback is also critical for self-regulation (Greenwood and McCabe 2008; van Velzen 2002) and has been recognised as an important contributor to learners engaged in SRL. According to Greenwood and McCabe (2008), teachers must operate with clear time limits and distinct expectations, communicate these to students and provide adequate feedback on students’ work when promoting SRL.

There are two types of feedback: external and internal. While external feedback is provided by visible sources, such as teachers or peers, and is normally given after tasks have been completed, internal feedback is self-provided and used to monitor learning while working on different tasks. External feedback can either be outcome feedback, which gives students information related to grades and results, or cognitive feedback, which provides them with information they can use to achieve good task performance. Cognitive feedback includes comments and evaluations of the mental processes that are essential when solving different tasks. The main point of cognitive feedback is to fill the gap between what the student actually understands and how they can learn what they are aiming to understand (Sadler 1998). Cognitive feedback includes, for instance, information about how students can acquire the learning content, how they can use various learning strategies and how they can store the learning in their long-term memory. Hence, cognitive feedback is normally provided to students to help them become more aware of their own metacognition, which is particularly important when it comes to students’ use of learning and self-regulation strategies.
In contrast to cognitive feedback, outcome feedback provides little information and external guidance on how to self-regulate. Even though cognitive feedback gives students more guidance in terms of self-regulation, the most common feedback is outcome feedback (Butler and Winne 1995).

**Scaffolding**

As the third principle of SRL, scaffolding covers the verbal support teachers and peers use to guide students through tasks they cannot manage without help; a sufficient scaffolding strategy is critical when promoting SRL (Wood, Bruner and Ross 1976).

According to Vygotsky, children learn little from tasks they can solve independently. To advance students’ learning, teachers need to provide students with learning experiences that are within the zones of the students’ proximal development (Tomlinson et al. 2003; Vygotsky et al. 1978). As interaction is important when learning new skills or strategies, Vygotsky et al. (1978) suggest that teachers allow less competent students to cooperate with their more skilful peers.

As previously indicated, scaffolding (Wood et al. 1976) is closely connected to the zone of proximal development (Vygotsky et al. 1978). With appropriate assistance from teachers or more capable peers, students can manage tasks, skills and activities that exceed their own capabilities and development levels. With increased understanding and control, students need less assistance (Wood et al. 1976) and finally manage self-scaffolding (Wertsch 1985). According to Holton and Clark (2006, 128), self-scaffolding, or metacognition, can “be seen as a form of internalised conversation in which the student interrogates their epistemic self”. Other types of scaffolding include when teachers provide constructive feedback to students; when teachers question a student’s approach to a specific problem (Simons and Klein 2007) and when students work collaboratively (Holton and Clarke 2006; Pressley 1995).

In short, students need to make independent decisions in relation to their own learning process (Perry et al. 2006); they need to receive cognitive feedback on the use of various learning and self-regulation strategies (van Velzen 2002) and they need time to practise the various strategies under the guidance of teachers or more competent peers (Kistner et al. 2010). So far, we have discussed the key elements of SRL. We now turn to the existing research on work plans.

**Existing Research on Work Plans**

Research shows that Norwegian and Swedish students work on tasks individually one-third of the time they are in school (Carlgren, Klette, Mýrdal, Schnack and Simola 2006). The transition from teacher-led whole-class teaching to more individual forms of school work affects the traditional classroom interaction
(Carlgren et al. 2006). Today, Norwegian school teachers use less time on whole-
class teaching and discussion (Bergem 2009; Klette 2007) and spend more time
providing help and guidance to individual students (Klette 2007).

Empirical studies from Norway (Bergem 2009; Dalland and Klette 2012;
Helgevold 2011) and Sweden (Ståhle 2006) suggest that many students prioritise
social activities and non-academic work during lessons devoted to work plans and
then complete their work plans at home (Bergem 2009) – or they do not complete
them at all (Dalland and Klette 2012; Westlund 2003). Research also suggests that
students make use of different strategies when trying to complete their work plans
(Bergem 2009; Österlind 2005; Ståhle 2010).

Bergem (2009) conducted interviews with 60 lower secondary students from six
ninth-grade classrooms to determine how students used strategies to regulate their
learning during work plans. Bergem (2009) distinguishes between three student
strategies. The first strategy (Strategy 1) refers to students who complete their
assignments/work plans within the first couple of days. The second strategy
(Strategy 2) refers to students who delay their work plans until the last couple
of days, while Strategy 3 is used by students who distribute their tasks evenly
throughout the period. Drawing on Bergem’s strategies (2009) and based on
interviews with 93 lower secondary students, Dalland and Klette (2012) claim that
girls have a tendency to use Strategy 1 and Strategy 3 while boys prefer Strategy 1
and Strategy 2. Findings from this study further show that both high- and low-
achieving students use procrastination strategies (i.e. Strategy 2). Although the
high-achieving students normally manage to calculate when they need to start
working to finish the plan in time, low-achieving boys find it difficult to start
working on the tasks in the work plan and postpone their work until the last few days
(Dalland and Klette 2012).

Swedish studies also point to the way in which the use of Own Work contributes
to the use of different student strategies (Österlind 1998; Ståhle 2010). Österlind
(1998), for example, describes the following five different strategies: (1) students
who experience Own Work as a tool relate to the plan in a relaxed way, appreciating
the enhanced independence and control; (2) ambitious students focusing on both
individual achievement and their own effectiveness experience Own Work as a rail
and use the plan in order to finish the requested tasks as fast as possible; other
students experience Own Work as a guide – either (3) voluntarily; (4) unreflectedly;
or (5) reluctantly. These five strategies bear resemblance to Woods’ (1980)
descriptions of four negotiation strategies students might use in relation to academic
work: hard work, work avoidance, open negotiation and closed negotiation. While
hard-working students are committed and identify with the goals set by the teacher,
the work-avoiding students show both a lack of commitment and a refusal to
negotiate (Woods 1980, 14). Ståhle (2010), 169–170), who also studied the use of
Own Work, divides the class into the following four groups: ideal students, regular
students, low-achieving students and wandering students. Ideal students are self-driven. They use various self-regulation techniques; they reflect on their own learning, plan the work and spread the work evenly throughout the period. Regular students, however, find it hard to work independently; they are not self-driven, are not able to reflect on their own learning and do as little work as possible. While low-achieving students are unable to work independently, wandering students find it hard to concentrate on tasks and do little work during the period.

These studies show that many students find it hard to self-regulate. Research further suggests that students’ abilities to use work plans seem to be taken for granted by teachers. Even when some students struggle to get started or to calculate when they need to start working on the plan (Bergem 2009), they are often left to navigate their use of work plans without guidance or assistance from their teachers (Dalland and Klette 2012). Klette (2007), for example, claims that giving the students the freedom to choose what to do and when to do it might place too much of a burden on them unless they are also provided with sufficient scaffolding strategies.

When using work plans, students are normally given the opportunity to work on their own, which is meant to give teachers more time to support children in need of academic assistance. However, studies show that even if teachers are given more time to help individual students in work-plan-regulated classrooms, many students, especially those who struggle to get started, receive little help (Klette 2007). Hence, there is little guidance, correction and feedback concerning the development of self-regulated strategies (Olaussen 2009). Further, when students use work plans, they normally work on different levels, subjects and tasks, making it difficult for them to cooperate with their peers (Olaussen 2009).

Olaussen (2009) examined how teachers contribute to SRL and autonomy by comparing work-plan-regulated classrooms with non-work-plan-regulated classrooms. She observed four groups of third-grade students (eight-year-olds) from two different schools. Olaussen’s (2009) findings showed that, in the work-plan-regulated classrooms, 85% of the lessons were spent on individual work and students were encouraged to work independently on tasks and assignments. The teachers provided comments, directives and instructions about what their students were supposed to do, and only 8% of the teachers’ feedback was autonomy-supportive. In the non-work-plan-regulated classrooms, 50% of the lessons were spent on individual work. In these classrooms, teachers spent more time on whole-class instruction, there was more cooperation among the students and 35% of the teachers’ feedback was autonomy-supportive. Olaussen (2009) concluded that the use of work plans restrains both self-regulation and autonomy. In work-plan-regulated classrooms, most of the teachers’ time is spent on individual instruction related to tasks and assignments, and thus there is little time for cognitive feedback and discussions that can promote self-regulation and autonomy.
Even though teachers probably use somewhat different methods to provide autonomy-supportive environments in third-grade classrooms than they do in ninth-grade classrooms, Olaussen’s (2009) findings are still interesting. Despite the differences in the ages of students in Olaussen’s study (primary level) and our study (secondary level), existing research (Klette 2003, 2007) suggests that instructional practices might not differ that much. In work-plan-regulated classrooms, students normally work individually on tasks and assignments and there is less teacher-led instruction (Bergem 2009; Klette 2007; Helgevold 2011).

To summarise, previous research emphasises the critical role of autonomy, feedback and scaffolding when promoting SRL. The research further underscores the need for students to learn how to become self-regulated. A review of the research on the use of work plans and Own Work suggests that many students prioritise social and non-academic work and that some struggle to get started and to complete the required assignments. Thus, researchers suggest that students’ abilities to use work plans seem to be taken for granted by teachers (Dalland and Klette 2012). Bergem (2009) and Ståhle (2010) suggest that students develop strategies that might be counterproductive to learning, either using procrastination strategies (Strategy 2) or completing the required assignments during the first few days (Strategy 1). While the use of work plans seems to be disadvantageous to some students (Bergem 2009; Klette 2007; Österlind 2005), particularly low achievers, who find it difficult to organise and plan their required assignments, it might benefit others (Österlind 2005), particularly high achievers, who are able to calculate and monitor their own work. However, the ability to calculate when to start working in order to finish a work plan on time is not the same as self-regulation (Olaussen 2009; Pajares 2009).

In the analysis that follows, we use student autonomy, type of feedback and scaffolding strategies as the analytical categories (see Table 1) for analysing how work plans in Norwegian lower secondary classrooms might contribute to SRL.

**Data Sources and Methods**

This analysis draws on selective data from the PISA+ video study (see Klette 2009). The PISA+ video study involved video observations of 15-year-old students in

| Dimensions     | Description                                                                 |
|----------------|-----------------------------------------------------------------------------|
| Student autonomy | Students’ opportunities to make decisions in relation to their own work Students’ opportunities to cooperate during school hours |
| Feedback        | Use of outcome feedback by teachers Use of cognitive feedback by teachers Students’ monitoring of their own learning |
| Scaffolding     | Teachers’ motivation of students                                             |

Table 1. Overview of the analytical dimensions

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six ninth-grade mathematics, science and reading classrooms in Norway. The six classrooms were selected to provide a high degree of variation in terms of demography (urban, rural and inner-city classrooms), ethnicity (multicultural classrooms and ethnic Norwegian classrooms) and pedagogical organisation (traditional and alternative models of classroom organisation) (Klette 2009). Each classroom was video recorded for three weeks using a three-camera approach: one camera captured the classroom, one camera was remotely controlled and followed the teacher and one camera focused on a pair of students (i.e. a focus group). The video recordings of the classrooms were supported by video-stimulated recall interviews (Lyle 2003; Morgan 2007) with students (the focus group) and teachers. In addition to answering questions concerning their own learning (students), their own meaning-making (students), their work plan strategies (students) and their teaching strategies (teachers), videos of the previous lessons were used to stimulate discussions during the interviews. The interviews were semi-structured and lasted for about 45 minutes (Bergem 2009).

This article is based on data from five of the six PISA mathematics classrooms covering 42 lessons in which the teachers used work plans to organise their students’ work. The analysis draws on 34 video recordings from mathematics lessons; 8 video recordings of study lessons devoted to working on the assignments from the work plan; 24 video-stimulated recall interviews with 47 (26 girls/21 boys) maths students (one male student was interviewed alone) and 5 video-stimulated recall interviews with each of the five mathematics teachers.

In contrast with science and reading classrooms, where whole-class teaching, group work and discussion were more frequent, the students in the mathematics classrooms mostly worked individually with work plans during mathematics lessons.

The students were divided into “high achievers” (ha) and “low achievers” (la) on the basis of their reports during the interviews. Dalland and Klette (2012, 409) discuss this categorisation.

The analyses of the interviews involved a three-step process. The interviews were first transcribed thematically while observing the video recordings. After transcribing all the interviews, the students’ answers were organised and grouped according to both gender and school, making it easier to detect differences and similarities between schools, genders and students’ attainment levels. Finally, the statements were analysed, enabling the typical strategies students employed when using work plans to be identified. Comparing transcripts from the interviews with the videos of the classrooms can provide reliable descriptions of the use of work plans and self-regulated strategies because it is possible to compare what the students and teachers state they did with what they actually did in class.

By analysing the use of autonomy, feedback and scaffolding strategies in five of the PISA+ classrooms, we aimed to identify whether the use of work plans promoted SRL from the students’ perspectives. We were interested in the students’
opportunities to make decisions in relation to work plans, their opportunities to cooperate with their peers and the types of feedback and scaffolding strategies provided by the teachers. Table 1 summarises the three dimensions used to analyse the findings.

Anonymised extracts from the interviews and the classroom observations are provided to illustrate the use of autonomy, feedback and scaffolding strategies in these five classrooms.

**Findings**

The five classrooms were largely similar in the way they used work plans, with the period for the work plan lasting between two to three weeks, the teachers deciding on the assignments and tasks and the tasks in the plans divided into three levels of difficulty. The number of study lessons in which the students completed work plan tasks during the school day varied from two to ten hours per week. However, all the students completed tasks in the work plans during mathematics and study lessons. Consequently, both the mathematics and study lessons provide rich material on how the students approached their plans and cooperated and worked on them.

The mathematics teachers began all mathematics lessons by recapitulating what the students had been working on using question-and-answer dialogue. This was followed by individual seatwork, where the students worked independently. When introducing the study lessons, however, the teachers asked the students to continue to work on the tasks in the plan. Only a few of the mathematics and study lessons ended with the teacher summarising the main tasks, clarifying learning goals or discussing different student problems.

**Student autonomy**

As outlined above, student autonomy covers both students’ participation and cooperation with their peers. The teachers chose themes, formulated learning goals, defined assignments and tasks, gave instructions on how to tackle the different tasks and evaluated the students’ work. Students were given autonomy regarding which level to work at in each subject, when and where to do the assignments, and whether to work alone or to cooperate with their peers. Even if the teachers did not clearly specify that the students could work independently or collaboratively during lessons, the students seemed to know that they could choose to cooperate with their peers if they wanted to. The Norwegian Pupil Survey highlights a weak link between the use of work plans and students’ participation (Skaalvik, Garmannslund and Viblemo 2009). Bergquist (2005) points out that participation in defining goals, planning assignments, choosing content and time spent on specific tasks might serve as motivating factors for students and help to develop their critical and analytical attitudes in relation to their schoolwork.
**Student participation**

With respect to the typologies of strategies of time allocation and work plans presented above, our data show that they have significant implications for how students’ participation influences their learning possibilities, as illustrated by the following quotations from the videotaped interviews with Anne, Martin and Jon:

Interviewer:  How much mathematics do you think you do during a week?
Anne (ha):  My goal is to finish the maths tasks during the first couple of days – at home.
Interviewer:  All of the maths tasks?
Anne (ha):  Yes. I usually finish the maths tasks first.
Interviewer:  So you do everything during the first couple of days?
Anne (ha):  Yes.
Interviewer:  And the rest of the time?
Anne (ha):  I do other things. Or just relax.

While Anne (ha) said that her aim is to finish all the mathematics tasks during the first couple of days at home (*Strategy 1*), Martin (la) usually finishes the plan during the last couple of days (*Strategy 2*) and does little schoolwork throughout the first weeks of the period.

Interviewer:  When you work with a work plan, do you estimate how much work you have to do each week or do you try to finish the plan as fast as possible?
Martin (la):  I always end up doing everything at the end of the period.
Interviewer:  You don’t do that much the first week?
Martin (la):  No.
Interviewer:  And then you ... 
Martin (la):  Then I have to do everything in the last couple of days.
Interviewer:  Last couple of days, right – at school or at home?
Martin (la):  At home.

Jon (ha) also said that he starts working on the plan during the last week of the period. However, the data suggest that doing the work at home is a chosen strategy among several students, both high achievers and low achievers, but one which seriously limits their possibilities of receiving sufficient help and feedback from their teachers.

Interviewer:  Do you work a lot at home on maths or do you do most of the work at school? Do you manage to finish the plan during study lessons?
Jon (ha):  I wouldn’t exactly say that I work very much during study lessons.
Interviewer: So you don’t do very much?
Jon (ha): No.
Interviewer: Nothing, or do you just skip maths?
Jon (ha): Nothing. I mostly work at home.
Interviewer: Do you finish the plan during the first week or do you postpone the work until the last couple of days?
Jon (ha): I’m the type of guy who begins the plan during the last week.

All the students ended up doing most of the required assignments at home, but there was significant individual variation in terms of how students completed assignments at home and in what order. While Anne (ha) and Jon (ha) seemed to know when to start in order to finish on time, Martin (la) had difficulty getting started, fulfilling the plan on time and receiving sufficient help from his teachers.

Even when the study lessons allocate time for working on tasks in the work plan, several students reported they typically use this time for social activities and end up doing a minimum of academic work during these lessons. For example, Jon (ha) spent a whole study lesson playing “noughts and crosses” with two other boys, without any comments or interventions from the teacher. Others reported that few of their fellow students focus on academic work during the study lessons:

Like, one time during a study lesson, we were sitting in the classroom where it was supposed to be quiet, but it wasn’t. Everyone was talking, even when one of the teachers was there. So, we went into the study room where only two of 20 students or so were working. Then we went out to the hallway to work, but in the hallway there were students running around screaming and making noise. There was one teacher in the classroom and one teacher in the study room, but neither one did anything (Linda, la).

As indicated, several students seemed to choose procrastination strategies (Strategy 2) and/or work at home to accomplish their required work plans. In a prior study, Dalland and Klette (2012) showed that, among 74 students (mathematics and science classrooms), only 15 used Strategy 3 – that is, spreading the tasks evenly throughout the period – and that several students ended up doing the tasks at home \( n = 34 \) or not finishing the work plan at all \( n = 10 \). Thus, avoiding working (Bergem 2009; Helgevold 2011) or minimising efforts (Jackson 2006) seem to be side effects of the use of work plans in Norwegian secondary classrooms, and students indicate that teachers provided very little guidance to support students’ learning environments and their engagement with SRL.

**Student cooperation**
In all five classrooms, the students were encouraged to collaborate during the mathematics lessons. Although some pointed out that they prefer to work with
classmates who are academically similar, most students said they cooperate with classmates during school hours even if they are working at different levels of difficulty.

Anne (ha) and Britt (la) generally sit together and work quietly throughout the whole mathematics lesson. Even if the girls are working at different levels of difficulty, they still discuss solutions and answers, as illustrated by the following excerpt from the videotaped mathematics lesson:

Britt (la): The sum of three uneven numbers in succession is 69. What are the three uneven numbers?
Anne (ha): Hm. I hate these kinds of tasks.
Britt (la): Do you understand this one?
Anne (ha): Yes, I just have to think. You can divide 69 by three or by four. I don’t remember.
Britt (la): Then we divide 69 by three. [uses a calculator] The answer is an uneven number. Can we write 23 then?
Anne (ha): Wait. We can take 23 and then add 23. That’s 46. Then, we have two different numbers, and then divide 46 by two.
Britt (la): Wait – 46 divided by two . . .
Anne (ha): If we divide 46 by two, it is . . .
Britt (la): [uses a calculator] 23 . . .

Lucas (ha) and Marcus (ha) are both high achievers. Even when they are sitting together, they rarely cooperate on maths tasks:

Interviewer: Do you collaborate on different tasks?
Lucas (ha): No.
Marcus (ha): Not on maths tasks. In order to cooperate, we have to be on the same task. It takes a longer time to finish the tasks when you collaborate.
Interviewer: So when you are working with work plans, you do not cooperate, but instead work independently?
Lucas (ha): Yes.
Marcus (ha): Yes.
Interviewer: So you rarely collaborate and discuss tasks and solutions with the person sitting next to you?
Lucas (ha): Yes.
Marcus (ha): Yes.

As these excerpts illustrate, the girls in our study demonstrated that they like to discuss solutions and answers. The boys, however, were less inclined to embrace
cooperation and, if they did collaborate, their cooperation was targeted at exchanging correct answers (Dalland and Klette 2012; Helgevold 2011).

**Feedback**

Most of the teachers' feedback in the observed classrooms could be characterised as outcome feedback and was related to the students' grades, their academic results, how many tasks they had completed in the work plan and whether they had understood the different mathematics tasks. Although some students did little schoolwork during the work plan period and used the time at school for social activities, the teachers gave very little feedback on their use of work plan strategies and/or motivation/encouragement to work. Several low-achieving students said they struggle with the tasks in the work plan. They also reported that working with mathematics is boring and monotonous and they find the tasks difficult and thus become demotivated. There were very few examples of the teachers giving the students cognitive feedback, such as encouraging them to reflect on their own strategies or redirecting them to use new strategies. None of the teachers explicitly guided the students to become more aware of their work approaches. They seldom motivated the students by challenging their thinking, offering constructive feedback on tasks or encouraging them to use new learning strategies. In one interview, a teacher explained that he did the following to keep his students on track:

Teacher 1: We asked them how many tasks they had completed in the work plan and how they worked on the different tasks and subjects. One of the questions we asked them was how they used the work plan as a learning tool.

Two teachers pointed out that they try to guide their students to become more self-regulated (Teachers 2 and 3 below). However, the video recordings of the lessons show that these teachers, for the most part, were commenting on the students' planning capacities and whether they were able to achieve the learning goals.

Teacher 2: [Talking to one low-achieving student who usually postpones the work]. It is important that you try to do a little bit of homework every day. When you are given a new work plan, you immediately have to start working.

Teacher 3: [Talking to the whole class]. Let me see. How many of you are more or less finished with the work plan? I don’t mean that you have completed all of the tasks, but that you have achieved all of the learning goals.

Several students claimed the teachers rarely check their work. As the written tasks and assignments are often not corrected and marked by the teachers, some students neither finish the plan nor work on the plan at home.
Karen (la): They rarely check your work. They check twice a year or something like that.
Interviewer: Yes.
Mari (la): I haven’t finished the plan for quite a while because they don’t check whether or not we have completed all of the tasks. […] We often don’t hand in the plan at all. And then, many of us think that, ‘Oh, then we don’t need to complete it because we have to spend quite some time at home in order to finish the plan’.

There were few comments and incidents portraying internal feedback – that is, the students’ ability to monitor and comment on their own learning while working on the different tasks. In addition, there were few explicit comments by the teachers on strategy use or on how students could become more aware of their own metacognition.

However, Hanne (ha) reflected explicitly on her use of work plan strategies during the interview. She said she normally spreads the tasks evenly throughout the period (Strategy 3), manages to do most of her work at school and usually begins with mathematics because it is her favourite subject. In addition to using Strategy 3, she has developed her own strategy based on her preferences and desire to have fun while learning. Even when she completes the tasks in all subjects, she works with the subjects she regards as fun at the beginning of the work plan period.

**Scaffolding**

As mentioned earlier, scaffolding can be done as part of the feedback. With sufficient help, feedback and scaffolding strategies, students can manage tasks that are too difficult for their own capabilities (Palinskar and Brown 1984; Vygotsky et al. 1978). However, in classrooms heavily grounded in the use of work plans, students might end up spending a considerable amount of time working alone with little or no support and encouragement from their teachers (Bergem 2009; Helgevold 2011). When the “teachers’ active engagement within substantial subject matter is reduced to a minimum” (Carlgren et al. 2006, 309), the learning process becomes not only individualised but also privatised (Klette and Lie 2006).

During a mathematics lesson, Thomas, who is a low achiever, repeatedly leaned back in his chair and fiddled with his MP3 player. The teacher asked him to turn the volume down because he was disturbing the other students. After 25 minutes of doing almost no mathematics, he left his desk and sat down in an empty chair next to two of his classmates.

Teacher: Why are you sitting here, Thomas?
Girl: He likes to talk to us.
Thomas (la): Yes, this is so boring.
Teacher: Kindly return to your desk please.
Thomas (la): Oh. [Gets up and returns to his desk. Sits down, fiddles with his MP3 player, turns on the music and starts writing.]
Teacher: The lesson is almost over. Are you looking forward to the break?
Thomas (la): Yes. This is boring.

This episode illustrates the teacher’s lack of motivation, encouragement and scaffolding skills. The teacher accepts Thomas’ negative emotions, but she appears unable to inspire him to do further work. One of the teachers’ main responsibilities is to motivate students to do academic work. A side effect of using work plans, however, seems to be that students largely have to motivate themselves (Carlgren 2005; Ståhle 2006).

Although the high-achieving students seemed to be more focused on working with the work plan, the low-achieving students seemed to be more easily distracted. They fiddled with different things, leaned back in their chairs, talked to their peers and chewed gum.

Throughout the lesson, Mari (la) regularly whispered to the girl sitting next to her. She fiddled with her hair and frequently scribbled on the cover of her textbook. After the teacher explained different mathematics tasks on the blackboard, Mari said (to herself) that she did not understand a thing. Even though Mari had problems getting started, the teacher did not intervene.

Discussion
Work-plan-regulated classrooms require students to have some degree of metacognitive competencies and self-regulated strategies. They must organise their own time, choose tasks that are in accordance with their own ability level, use effective learning strategies and evaluate their own learning (Carlgren 2005; Österlind 2005). According to Bergquist (2005), offering students the autonomy to make decisions regarding assignments, learning content and when to work with the different tasks can develop their analytical attitudes regarding schoolwork. However, in work-plan-regulated classrooms, where the students are allowed to choose when and where to perform the different tasks, some students do little academic work during school hours (Bergem 2009; Dalland and Klette 2012; Helgevold 2011; Österlind 1998). While high achievers want to minimise their efforts and complete the tasks within a minimum amount of time, low achievers procrastinate because they have difficulty getting started (for more details, see Dalland and Klette 2012). Our findings also show that students use participation strategies (i.e. opportunities to make decisions in relation to their own schoolwork) to avoid doing schoolwork in work-plan-regulated classrooms. In the present study, work plans were not coupled with optimal levels of scaffolding, cognitive feedback and support that could have prompted learners’
engagement with SRL. Hence, classroom environments need to incorporate both autonomy and support to encourage students’ SRL.

Although work plans are frequently used to allow students more autonomy and choice with regards to tasks, content and the pace of learning, students’ options are often quite limited. Normally, they are allowed to decide when and where to do the assignments (Klette 2007) and which level to work at in each subject (Dalland 2007), but they are not allowed to make “academically significant decisions” (Stefanou et al. 2004, 100–101).

When promoting SRL, teachers have to provide students with adequate feedback. However, the students in our study reported that their work is not followed up on and evaluated by their teachers, and some of them \((n = 10)\) used this as an argument for not finishing the plan at all. Further, the differences between the three levels of difficulty are normally based on the quantity of tasks and not on varied, complex, challenging and meaningful tasks (Blumenfeld 1992; Perry and Rahim 2011) which, according to Blumenfeld (1992), can often stimulate the students’ use of learning strategies.

Students’ self-regulation is influenced by the learning experiences they have in cooperation with their peers, and is developed in collaboration with others (Järvelä and Järvenoja 2011; Olaussen 2009; Zimmerman 2000). With few exceptions, the students in our study preferred to cooperate when working with work plans. Many students who preferred working alone, however, claimed that it would have taken them longer to cooperate with their peers on tasks. Thus, spending time cooperating on tasks and themes that one already understands is viewed as unnecessary. However, even when students were seated together with peers who possessed different areas of competence, teachers did not provide the students with sufficient scaffolding strategies to use their follow students as competent others. Helgevold (2011) claimed that students cooperate when they experience academic challenges but see little value in cooperation when it comes at the expense of their own time to finish their tasks. Thus, for collaboration to be successful, students appear to prefer an equal partnership in which both parties contribute and work together on the different tasks. Our example of student cooperation is interesting with regard to this idea. Anne (ha) and Britt (la) cooperated even though they were working at different levels of difficulty. This example challenges Helgevold’s (2011) notion of equal partnership and is in agreement with the idea of less capable students learning from their more competent peers (Vygotsky et al. 1978; Wood et al. 1976).

For students to become self-regulated learners, teachers must be autonomy-supportive, provide cognitive feedback and promote students’ self-reflective thinking. Autonomy-supportive teachers encourage students to use different self-regulation strategies, challenge their meaning-making and focus on learning-supportive dialogues (Olaussen 2009; van Velzen 2002). Further, when promoting SRL, students need
opportunities to engage in complex and interesting tasks and to make decisions that involve metacognition (Perry et al. 2006; Stefanou et al. 2004).

Explicit how-to instruction related to choosing useful learning strategies and reflecting upon their own learning and metacognition can help students become self-regulated learners (van Velzen 2002). Our findings show that the PISA+ teachers rarely teach their students how to become self-regulated, and there are few signs of cognitive feedback related to students’ use of self-regulated strategies.

**Conclusion**

Our data show that the use of work plans promotes SRL to a limited degree in PISA+ classrooms. Even when students could choose which difficulty level to work at, when and where to do the different tasks and whether they wanted to collaborate with their peers, there was little use of autonomy-supportive teaching. The decisions regarding when and where to do the different tasks are factors that allow students to work little during school hours, postpone their work or never accomplish their assignments. Regarding the teachers’ scaffolding strategies, they rarely motivated their students to work. The teachers accepted their students’ negative emotions, but were unable to help them become more interested and engaged.

The use of work plans requires self-regulated students who understand their learning processes, are persistent and have confidence in their ability to learn. This study shows that students’ ability to self-regulate is often taken for granted by their teachers. In work-plan-regulated classrooms, students are expected to be self-regulated, work independently on tasks and assignments, use appropriate learning strategies and monitor their own learning. For students to become self-regulated, however, teachers must initiate challenging tasks and activities for all students in addition to providing structure, cognitive feedback and autonomy-supportive learning environments.

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Appendix A

Tasks:

Norwegian

Goal 1
Be able to explain what
construction an article.

Goal 2
In addition to Goal 1:
Be able to write an introduction to
an article.

Goal 3
Formulate your own goals.

Mathematics

Goal 1
Know the rules on
unspoken variables.

Goal 2
Same as Goal 1:
Be able to solve
equations with more than
one component.

Goal 3
Same as Goal 1 and 2:
Be able to solve equations
containing parentheses.

Appendix A

Cecilie P. Dalland & Kirsti Klette

present tense. Vocabulary: descriptions of house – rooms and furniture.

www.bama.

www.fruit.no

Sources:

Goal 1
Theme:

Rooms in an apartment.

Accusative. NB memorise. You

the singular in nominative and

article and personal pronoun in


Goal 2

Theme: Grammar: Subjects in nominative and direct objects in accusative. Repetition of verbs in

the present tense.

Goal 3:
In addition to 1 and 2: Work book p. 55, task 20, 21 and 22.

Tasks:

Goal 3: In addition to 1 and 2: Work book p. 55, task 20, 21 and 22.

To learn the names of places in the city on p. 36 in the text book. You have to know at least 20 of them.

To know definite and indefinite
article and personal pronoun in the
singular in nominative and accusative.

To know definite and indefinite
article and personal pronoun in the
singular in nominative and accusative.

To know definite and indefinite
article and personal pronoun in the
singular in nominative and accusative.

To be able to explain photographs
of the connection between the light and the
pictures in an eco-system.

Work tasks

Goal 1:
Read page 261 – 264.

1. Complete the task from Tuesday. Use your own

words.

2. Draw the picture on page 299 and write an

explanation. Use your own words.

Goal 2:
Read page 263 – 267.

1. Complete the task from Tuesday. Use your own

words.

2. Do the task on page 307.

Goal 3:
Read the assignments before the autumn break.

Students: fill in your own goals in the box below.

In the subjects below?

Homework?

Points on

Final marks

Assessment of your own behaviour and order this period:

Behaviour: Order:

Assessment on own work effort this period

Good Fair Poor

If you have not attained the goals for the period – explain why:

What is the name of the book you are reading at the moment
(Norwegian/English)?

What is the most interesting you have learned during this period?

Comments from student (or guardian):

Student:s signature

Teacher’s signature

Figure 1. Illustration (and an excerpt) of a typical work plan