

Chapter # 5

MASTERY, PARTICIPATION, AND MOTIVATION IN SECONDARY SCHOOL

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ABSTRACT

Mental health issues have been on the increase for years in Norway, and after the pandemic, school absence has been an increasing problem. To meet these challenges, several national initiatives have been launched. The current study will present experiences from a health promoting project called SAMM – A systematic approach to mastery, participation, and motivation, where a five-step method has been applied. A quasi-experimental study with test and control groups was carried out, including an intervention of four sessions spread over about a month, and repeated throughout the school year. Seven upper secondary school classes were included as test groups, resulting in 132 student participants. Five control groups were included, resulting in 132 control students. Finding an appropriate scale to measure the effects of the intervention proved challenging. The General Self-Efficacy Scale was used despite a rather limited focus. An ANOVA-analysis has been carried out, showing no significant difference between test and control groups over time. However, the approach in the intervention relates to several aspects of health promotion, and a more extensive scale would perhaps have been more adequate to measure possible effects.

Keywords: health promotion, mastery, participation, motivation, secondary school.

1. INTRODUCTION

Mental health issues have been on the increase for years in Norway (Reneflot et al., 2018), and school absence has been an increasing problem (Alver, 2020). Some of the problems students report concern lack of motivation, pressure, varying degrees of anxiety, high drop-out, loneliness, and increased degree of bullying (Bakken, 2024; Enstad & Bakken, 2022; Parlikar et al., 2023). As much as 10 % of the students drop out of upper secondary school (SSB, n. d., table 12971), and the number is highest for boys in vocational studies, with 19 % dropping out. There is a significant need for implementation of measures to improve the situation and to support students in dealing with their struggles. To meet these challenges, several national initiatives have been launched. Renewed curricula emphasizing life mastery and public health have been implemented (The Norwegian Directorate of Education, 2017). In addition, various health promotion projects have been developed and executed in schools as part of a national public health programme (Helmersen & Stiberg-Jamt, 2019). The goal of implementing life mastery and health promotion as part of the teaching is to strengthen the students' robustness and their mental health and prevent school dropout and all the consequences that may follow. One of the challenges related to dropout is unemployment. Studies have shown correlations between employment and school results, and that disability benefits and financial social assistance are almost exclusively received by people who have not completed upper secondary school (Falch et al., 2009).

In general, young people most in need of being followed up in social systems have not completed upper secondary school, and they have a higher risk of getting drug problems and mental health issues (Furuberg & Myklebø, 2013). Costs related to social problems and benefits are high in Norway, and these costs are carried by society. This is some of the background for the recent initiatives in school, implementing life mastery and health promotion in education.

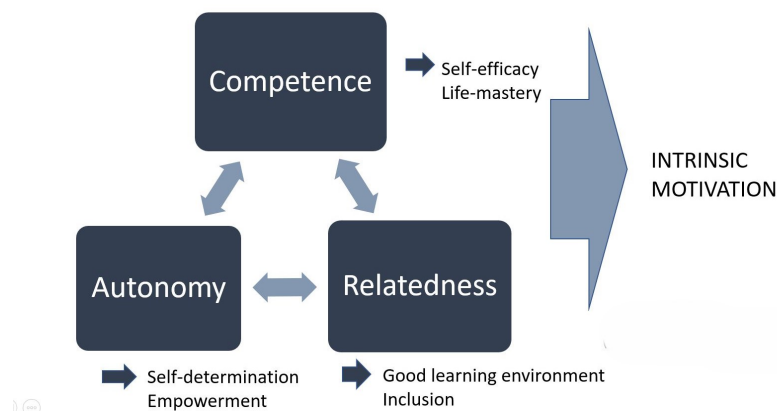
The current study presents an example of a health promoting initiative - a project called SAMM – A Systematic Approach to Mastery, Participation and Motivation, and investigates the potential of a five-step method developed in this project. The following research questions will be discussed: Can the five-step method support students to experience mastery, participation, and motivation? Does the approach support students' self-efficacy? How can possible effects of the five-step method be measured? To answer these questions, a quasi-experiment has been carried out, examples of students' reflections are given, and the results are discussed in relation to other studies from the SAMM-project, as well as the theoretical foundation of the method.

2. BACKGROUND

The five-step method in SAMM was developed in the context of upper secondary school to support students who struggled with requirements in school (Langeland & Horverak, 2021). The SAMM-project was part of a regional initiative in the south of Norway, called Health Promoting Kindergartens and Schools, which started in 2017, as one of several initiatives in a national public health programme. The method was transferred from upper secondary school and adjusted to lower secondary school, primary school and adult learning during the project period from 2017 to 2023. The current study includes data from the implementation in upper secondary school.

The approach builds on a combination of self-determination theory (Ryan & Deci, 2017) and health promotion theory (Antonovsky, 2012). According to Ryan and Deci's (2017) self-determination theory, intrinsic motivation is achieved when the basic needs of competence, autonomy, and relatedness are met (figure 1).

Figure 1.
Self-determination theory and intrinsic motivation.



Competence concerns mastery of tasks in everyday life, and this could be related to Bandura's (1997) theory on self-efficacy: If a person experiences mastery in one situation, the expectation to master again, or the self-efficacy, is strengthened. Autonomy concerns participating in making decisions and having agency, setting own goals, and working towards these (Ryan & Deci, 2017). Relatedness concerns having relations to others, which for example may be achieved by feeling included in a learning environment. The term "self-determination" implies the importance of autonomy for individuals, but according to Ryan and Deci (2017), autonomy is not enough - the needs for competence and relatedness must also be met to achieve intrinsic motivation.

The theory on intrinsic motivation has some parallels to health promotion theory, or more specifically, Antonovsky's (2012) salutogenic theory. According to Antonovsky, people who experience that they understand a situation, have resources to manage it, and find it meaningful to invest in doing something, achieve a strong sense of coherence (SOC), which makes them robust in dealing with stress. Both Antonovsky (2012) and Ryan and Deci (2017) are concerned with identifying competence, or resources to handle situations, having the possibility to influence one's own situation, and finding motivation and meaning. In the following, the different aspects of self-determination theory will be elaborated on in relation to studies on which the theory is based, followed by an explanation of Antonovsky's (2012) salutogenic theory.

2.1. Intrinsic Motivation and Self-Determination Theory

Intrinsic motivation concerns having a wish to do an activity, and the activity in itself is the goal or the reward (Ryan & Deci, 2017, p. 70). In contrast to this, extrinsic motivation concerns a wish to achieve something because of an act or behavior. To be intrinsically motivated means seeking new situations and challenges to explore and learn (Ryan & Deci, 2000). To do something based on one's own wish is also a typical example of autonomous behavior, as this implies being in control of one's own actions. Studies have shown that students who have teachers that facilitate autonomy in the learning situation experience increased intrinsic motivation, curiosity, and a desire for challenges (Deci et al., 1981; Flink et al., 1990; Ryan & Grolnick, 1986). A review of studies on language learning strategies shows that experiencing having control in one's own learning process influences students' motivation positively (Lamb, 2017).

Different nuances of motivation are defined in the frame of self-determination theory, from amotivation, via extrinsic motivation to intrinsic motivation (Ryan & Deci, 2000; 2017). Even though one may not be intrinsically motivated to do something, one may experience autonomous motivation. This means that the value of the action is appreciated, even though one may not wish to do the action itself. The more autonomously motivated an action is, the more likely it is that one may develop a wish to act. In a school context it is unlikely that students will be intrinsically motivated for all learning activities. Therefore, it is important that they have integrated the value of learning, and of participating in learning activities, so that they become active learners by setting goals, choosing strategies, and working towards achieving their learning goals.

The second basic need described by Ryan and Deci (2017), the need for competence, is not only met by experiencing mastery, but also by getting positive feedback from the surroundings, which again leads to intrinsic motivation (Boggiano & Ruble, 1979; Deci, 1971). As mentioned, Bandura's (1997) social cognitive theory also emphasizes motivation and the experience of mastery. However, in Bandura's (1977) theory on self-efficacy, mastery and motivation are related through the belief in one's own ability to master, leading to motivation to act in a new situation, while in self-determination theory, the needs for

competence, autonomy, and relatedness are the driving forces for intrinsic motivation (Ryan & Deci, 2017). The concepts are still related; if one believes one can master something, this could be argued to be the same as experiencing competence.

The third basic need presented by Ryan and Deci (2017), the need for relatedness, is related to studies showing that students who experience their teachers as warm and caring, show more intrinsic motivation than other students (Ryan & Grolnick, 1986; Ryan et al., 1994). Findings from studies concerning language learning, also confirm that a sense of belonging may lead to intrinsic motivation for students (Dörnyei, 2001; Chang, 2010; Koga, 2010). Experiencing acknowledgement and being included by peers are also sources for good mental health and quality of life (Skaalvik & Skaalvik, 2018). Studies have shown that a safe and including environment, where students are supported by peers and teachers, positively influences students' engagements, efforts, thriving, and attendance in school (Fredricks et al., 2004).

2.2. Health Promotion Theory and Sense of Coherence

Antonovsky (2012) was concerned about identifying what made people experience good health, rather than focusing on symptoms causing health problems. He identified three factors that made people resilient and robust in handling stress in everyday life through having a strong sense of coherence, and these were comprehensibility, manageability, and meaningfulness (figure 2). Comprehensibility concerns understanding a situation, and one's own role in that situation, manageability is about identifying own resources and resources in one's surroundings, and meaningfulness includes seeing the value of own contribution and feeling a possibility to influence a situation.

Figure 2.
Health promotion theory and sense of coherence.



The definition of comprehensibility does not separate between wanted or unwanted situations in life, it is about having the ability to place what happens in an understandable context. Having an understanding of the situation, leads to experiencing manageability, which includes identifying resources in oneself and one's surroundings, and to use these to handle situations in life in the best possible way. The third factor, meaningfulness, is about

seeing the value of one's own engagement, participation, and involvement when facing challenges. Antonovsky (2012) points to meaningfulness as most central and refers to this as a motivation component.

To see meaning in being engaged and participating actively in one's own life will increase the chances of being able to cope with challenges and different happenings in life. This could also be related to the theory of agency, emphasising active participation in one's life as a central motivation (Skaalvik & Skaalvik, 2015). Conditions for agency include having the possibility to set personal goals, plan strategies to reach the goals, carrying out the plans, and adjust goals and strategies when needed. Believing in one's ability to manage this is crucial to develop self-efficacy, which again influences the motivation to be an agent in one's life (Bandura, 1997). Experiencing meaningfulness is also related to participation, or more specifically influencing decision making (Payne, 1980). Without the possibility to participate and influence decisions, one may experience that one's potential is ignored, which again would negatively affect the experience of meaningfulness (Antonovsky, 2012).

Antonovsky (2012) points to research on robustness and resilience that emphasizes the importance of experiencing engagement in one's self and life (Kobasa & Maddi, 1982). Engagement is described as a robustness factor, and concerns having the ability to believe that what one does is right, important, and interesting. Another factor is the feeling of having control, or being able to influence one's surroundings. People with a large degree of control feel less powerless and paralyzed in difficult situations; they feel competent to take responsibility, to act, and to influence what happens in life. A third factor is the ability to see changes in life as an opportunity for development rather than a threat towards the existing.

A central metaphor in Antonovsky's (2012) work is the description of life as a river (figure 3, based on Antonovsky's metaphor, previously published in Langeland & Horverak, 2021). A river may be calm or have strong currents. What decides to what degree a person may be able to swim does not only depend on the river, but on the person's swimming ability. Without swimming skills, the person will drown, regardless of whether the river is calm or not. Being able to swim is compared with having a strong sense of coherence, which makes a person able to cope with stressful and challenging situations. Believing in one's own ability to understand and handle situations, at the same time as experiencing motivation and meaning, will strengthen a person's robustness in dealing with adversities, challenges, and difficult events in life (Antonovsky, 2012).

Figure 3.
Life as a river.



3. RESEARCH METHODOLOGY

This study has a mixed methods design (Teddle & Tashakkori, 2009), including a quasi-experiment (Shadish et al., 2002) with test and control groups, but without randomization. An intervention with the five-step method described below was implemented through four sessions over a month and repeated every two to four weeks throughout the school year in the test groups. In the control groups, there was no such intervention, and teaching was carried out as usual. The General Self-Efficacy Scale (Schwartz & Jerusalem, 1995) was used to measure at the beginning and the end of the school year as pre- and post-tests. All data was collected anonymously and on paper, and the students were informed that it was voluntary to participate in research. The students elected their own codes so that the responses on pre- and post-tests could be related for each student. As there was no way to identify the respondents, the project was not reported to the Norwegian data protection services for research. A two-way repeated measures ANOVA was used to analyze possible significant differences between test and control groups. In addition to quantitative data collected, the students' reflections from the implementation of the five-step method were collected as qualitative data. Examples from the students' reflections are included in the findings. The sample and the implementation of the method are described in the following.

3.1. Sample

The sample included seven test groups and five control groups from the same upper secondary school, in total 132 student participants in each group. The school where the study took place is a combined upper secondary school with both general study students and vocational students, as well as students taking a third extra year to build on vocational studies to achieve competence to be admitted to universities. The sample was a convenience sample, and it was collected in the period from 2018 to 2022.

Table 1.
Participants.

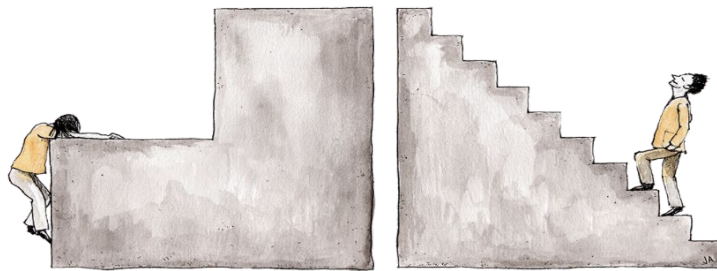
Test or control group	Year in uss. (and age)	Type of group	Number of students
Test 1	1 (15-16)	General studies class with media specialization	22
Test 2	1 (15-16)	Vocational class – sales and transport	14
Test 3	2 (16-17)	Vocational class – sales and transport	4
Test 4	2 (16-17)	Vocational class – child and youth worker	12
Test 5	3 (17-18)	Extra year vocational class (study comp.)	25
Test 6	1 (15-16)	General studies class	30
Test 7	2 (15-16)	General studies class	25
Control 1	1 (15-16)	General studies class	25
Control 2	3 (17-18)	Extra year vocational class (study comp.)	26
Control 3	1 (15-16)	General studies class	29
Control 4	2 (16-17)	General studies class	24
Control 5	2 (16-17)	General studies class	28

Note. uss. = upper secondary school

3.2. The Five-Step Method Intervention

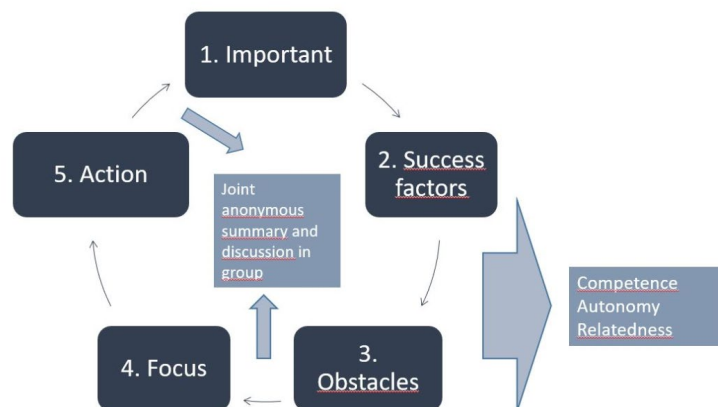
When applying the method, an illustration of two different sets of stairs was shown, one with extremely large steps, and one with small, appropriate steps (figure 4, previously published in Langeland & Horverak, 2021). The students were asked to reflect on how they experienced life, learning, and tasks, and how they could make the steps manageable. The five-step method was presented as a tool to help the students make the steps become more manageable.

*Figure 4.
Life compared with stairs.*



The five steps include the following questions the students were to discuss and answer (figure 5): 1) What is important in your life, and what goals do you have? 2) What about yourself and your life is good? Can you use this to achieve your goals? 3) Is there something in yourself or in general that stops you from reaching your goals? 4) What do you choose to work on the next month to achieve your goals? 5) What will you do to carry this out? In the first session, questions one to three were discussed, and in the second session, the students moved on to discussing questions four and five and making an action plan. In the following sessions, the plan was evaluated and revised.

*Figure 5.
The five-step approach in SAMM.*



In each session, the students wrote their personal reflections in books without names, which were handed over to the teacher at the end of the session. This is the qualitative data collected in the study. The teacher made an overview of the students' reflections and showed it to the students in a PowerPoint presentation the following session, followed up by a discussion on how to solve different challenges, what strategies that could be used, and how to make a good plan for handling difficulties. The reason why the process was done anonymously is that the students are to dare to be honest without fear of stigmatization or evaluation. In addition, this process creates an openness where the students see themselves in a community and recognize common strengths and challenges.

4. FINDINGS AND DISCUSSION

This study aimed at investigating the potential of a five-step approach to support mastery and motivation for upper secondary school students. The results of the ANOVA-analysis showed no significant difference between the groups. However, the reflections from the implementation of the method give some insight into the processes the students go through when applying the approach.

When reflecting on question one, what is important to them and what are their goals, they listed for example friends, family, education, good grades, a good job, and sports. In addition to these types of external factors, some students expressed a strong wish for good health, both physically and mentally. Regarding the second question, identifying success factors, some students listed qualities as being a good listener, a good friend and a caring peer. One of the students expressed that what was her weakness was also her strength, as she had dyslexia, and this had made her the person that she had become – hardworking, stubborn, patient, and happy. To question three, many students listed grades, tests, pressure, stress, lack of sleep, levels of anxiety, sadness, mental issues, and lack of motivation as obstacles. Some students reported having low confidence, negative thoughts, and a feeling of not being good enough. Dyslexia and disruptions from social media were also mentioned.

When working with questions four and five, different focus areas and action plans were made. Several students chose more sleep as focus area and planned to go to bed earlier. Some planned to put the mobile phone away or turn it off. When it comes to school-related topics, some students listed that they wanted to do well in tests and exams, and to improve their grades. Some planned to practice or take breaks, others wrote that they wanted to improve their concentration. Some wanted to focus more on training and planned to exercise more regularly. These are examples of student reflections from working with the five-step method.

4.1. Theoretical and Practical Considerations related to the Five-Step Method

The first question, what is important in life, invites students to think about what they really want in life (Langeland & Horverak, 2021). It is important to reflect on this, because often other persons tell them what to do and what matters – learning grammar, achieving higher grades in mathematics, etcetera. In addition, youths are affected by friends and social media on how to act, look, or think. As different surveys have shown that an increasing number of children and youth experience health challenges of different types (Bakken, 2024; Reneflot et al., 2018), it is not surprising that there is a focus on health in the student reflections. Reflecting on what is important in life also relates to Antonovsky's (2012) theory, concerning meaningfulness, which is the most important factor to achieve a sense of coherence.

The second question, concerning what is good in life, may help students understand that everyone has strengths and qualities, and that success factors are individual and personal (Langeland & Horverak, 2021). Children and youths find themselves in a situation where they are evaluated by peers, friends, parents, and teachers, as well as known and unknown people on social media. This may result in them mixing up their own success factors with others' definitions and requirements of success and accomplishments. When a student finds qualities that are normally not evaluated or applauded by the surroundings, but that they understand are valuable, they may get increased belief in their own competence, which may lead to increased motivation (Ryan & Deci, 2017), and a better possibility to cope with stressful events in life (Antonovsky, 2012).

Reflections on question three, concerning obstacles, reveal that the students struggle with negative feelings about themselves. Students that over time experience not being good enough, or that they cannot handle different situations, will gradually lose their motivation and experience of mastery. Victories that may be huge for themselves, but small in the light of the society's or the school's requirements and expectations, lose their value when the feedback tells them that they are not good enough (Langeland & Horverak, 2021). Teachers may help students build self-confidence and self-efficacy by facilitating experiences of mastery (Bandura, 1977). This may be achieved by spending time on questions four and five in the method, about choosing focus areas and making plans, which may also support autonomy and intrinsic motivation (Ryan & Deci, 2017).

When working with question four and five, the teacher may show what obstacles or important aspects most of the students are concerned with, but also what a minority is concerned with, and the class may decide on individual or joint focus areas for their action plans (Langeland & Horverak, 2021). To work together as a group may contribute to the students acknowledging each other, which may empower the students by strengthening their self-feeling, and ability to handle adversities and become more resilient (Olsen & Traavik, 2010). At the same time, it is important that the students identify their individual strengths and qualities - resources that may help them cope in life (Antonovsky, 2012). A realistic approach to what is sensible to work on is also necessary. To achieve self-acknowledgement and see own victories, the students must choose realistic goals and strategies they can carry out. This is important to support manageability (Antonovsky, 2012) and autonomy (Ryan & Deci, 2017).

Sometimes the students reveal problems that may need support from people outside the classroom, for example the school nurse or other adults (Langeland & Horverak, 2021). This could be for example students who reveal eating disorders, self-hurting, or suicidal thoughts, and in these types of cases, qualified help is necessary, and urgent. Applying the five-step method in a classroom context is not sufficient for such serious issues, and a teacher is normally not qualified to handle these types of problems. In these cases, the teacher will have to try to identify the student, for example by looking at handwriting, recognizable signals in the text, or by having individual talks with each student in class. Sometimes, it may be difficult to know when interference is necessary, for example when it comes to gaming addiction and addiction to social media. If the teacher has a suspicion that a youth is up gaming all night, so it affects sleep, social life, or mental health, it should be considered whether the problem is to be discussed in class, or whether the problem is to be considered so serious that the student needs professional help. Even though it may not be problematic with gaming and social media, this may develop into serious problems that youths cannot solve on their own. It may be possible to discuss with the school nurse or the school counselor, if the teacher is uncertain about how to approach such situations.

What is important when working with the five-step method is to focus on finding solutions, and that all problems, small and big, most often have a solution, and that they can be dealt with either alone or with help from others (Langeland & Horverak, 2021). Everyone has resources in themselves and in their surroundings, and supporting students to identify these resources may make them develop a strong sense of coherence and robustness in life (Antonovsky, 2012). The students may be reminded of the importance of acknowledging their own and others' qualities and skills, and that using these may strengthen the experience of autonomy, mastery, and participation, which again strengthens intrinsic motivation (Ryan & Deci, 2017). Experiences from applying the five-step method reveal potential to support students to reflect on personal strengths and obstacles and finding solutions to deal with difficult situations in life by applying the approach.

4.2. Discussion of Findings

This study showed no significant effect on self-efficacy of the five-step method applied. However, previous studies show that many students report that they like the method, and many students have reported becoming more motivated and better at planning and following up on their plans (Horverak & Aanensen, 2019; Horverak et al., 2020; Horverak, 2020). Another study where the method was applied in a second language learning setting showed potential of the method to help students choose strategies for language learning, and to reduce foreign language anxiety (Horverak et al., 2022). The five-step approach is dynamic, and is adjusted to the students' needs, whether it concerns life skills or challenges in a subject. The dynamic nature of the five-step approach makes it difficult to carry out an effect study covering all aspects that may have been influenced by the approach.

One of the benefits of applying the five-step approach is that students are given acknowledgement and respect when provided with an opportunity to focus on their qualities and success factors (Langeland & Horverak, 2021). Reflecting on personal qualities is extra important for young people because they are easily influenced by and concerned with what others think, which can cause them to overlook or underestimate what is positive about themselves (Langeland & Horverak, 2021). Applying the five-step approach may help students balance their focus on positive aspects in their situation and possible challenges, and through discussions in the class and with their teacher, they may find solutions in difficult situations. An essential goal of using this method is that the students develop robustness and become better at finding solutions to deal with challenges (Langeland & Horverak, 2021). Identifying resources and solutions together with others may support students to experience intrinsic motivation through autonomy, competence and relatedness (Ryan & Deci, 2017), as well as a strong sense of coherence through comprehensibility, manageability, and meaningfulness (Antonovsky, 2012).

5. FUTURE RESEARCH DIRECTIONS

The sample of the current study was a convenience sample, limited to one school, which makes it difficult to generalize based on the findings of the study. Further studies that are more extensive and randomized are needed. In addition, finding an appropriate scale to measure the effects of the intervention proved challenging, as the purpose of using the method includes a multitude of different aspects related to the students' intrinsic motivation (Ryan & Deci, 2017), self-efficacy (Bandura, 1997), and sense of coherence (Antonovsky, 2012). As both Ryan and Deci's (2017) and Antonovsky's (2012) theories are linked to mastery and self-efficacy, the chosen measuring instrument was limited to measuring self-efficacy (Schwartz & Jerusalem, 1995). This means that the data collection for the

quasi-experiment had very limited scope, which may have caused other effects to have been ignored. The method's main purpose is to contribute to the students' experience of intrinsic motivation, mastery, and participation (Langeland & Horverak, 2021; Ryan & Deci, 2017), and to achieve this, there is a need for experiencing trust, autonomy, competence, relatedness, safe surroundings, recognition and respect, among others. These aspects are incorporated into a newly developed framework for health promotion (Horverak et al., 2024a, 2024b), building on Antonovsky's (2012) theory on sense of coherence. This framework also relates to descriptions of general resistance resources (Antonovsky, 2012; Idan et al., 2022), which include factors in an individual and the environment that support a sense of coherence. Analyses of general resistance resources show correlations between sense of coherence and the basic needs of autonomy and competence (Idan et al., 2022). The scales from both Antonovsky's (2012) tradition and self-determination theory (Ryan & Deci, 2017) were considered, but found inappropriate to apply in the context of the current study. The inappropriateness of the scales has been confirmed by youths in a more recent study (Horverak et al., 2025). A scale covering more of the health promoting aspects, and that youths find appropriate for a school context, is needed, and would have been more adequate to measure effects of the five-step method in SAMM.

6. CONCLUSION

To conclude, the results of this study show that applying the five-step method described above had no effect on students' self-efficacy. However, the five-step method for working with mastery, participation, and motivation relates to several aspects of self-determination and health promotion. Some of these are revealed in the examples of students' reflections from the implementation. A more extensive scale covering more of these aspects would perhaps have been more adequate to measure possible effects, however a scale that incorporates all the mentioned factors does not exist. There is a need for a scale covering more aspects of universal health promoting initiatives, aimed at supporting students to experiencing mastery and motivation.

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