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Astrid Hoås Morin

# Influence of the Psychosocial School Environment on Adolescents' Mental Health, Wellbeing, and Loneliness

Impact of a Psychosocial School Programme and Other Factors

**NTNU**  
Norwegian University of Science and Technology  
Thesis for the Degree of  
Philosophiae Doctor  
Faculty of Social and Educational Sciences  
Department of Education and Lifelong Learning



Norwegian University of  
Science and Technology



Astrid Hoås Morin

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Thesis for the Degree of Philosophiae Doctor

Trondheim, December 2021

Norwegian University of Science and Technology  
Faculty of Social and Educational Sciences  
Department of Education and Lifelong Learning



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Til Elisa og Victor



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Trondheim, May/August 2021.

Astrid Hoås Morin

## Summary

This PhD project is designed to study factors in the psychosocial school environment that may help prevent mental problems, loneliness and promote wellbeing among students in upper secondary school in Norway. This topic has been approached in two ways: First, by examining the longitudinal relationships between students' perceptions of the psychosocial classroom environment and school loneliness (Article I). Second, through evaluating the effectiveness of the psychosocial school programme VIP partnership on students' perceptions of the social classroom environment (Article II), self-reported internalizing problems, happiness, and loneliness (Article III). The latter paper also examined whether students' baseline level of social anxiety moderated the programme's effectiveness.

Student data were collected after one week, 10 weeks and six months into the school year 2017/18, by means of electronic self-reporting questionnaires administered in school classes. A quasi-experimental test-control group design was employed, and the sample comprised 3,155 first-year students at 17 upper secondary schools in Norway. In addition, teacher data were collected to assess programme fidelity.

The key findings of Article I were that that students' school loneliness was uniquely and strongly predicted by their experience of the social classroom environment, and that perceptions of emotional and instrumental support from teachers did not significantly predict this outcome. Overall, these results indicate that the peer-setting within the school context is particularly important for adolescents' socioemotional functioning.

The main finding in Article II was that participation in VIP partnership was associated with more positive perceptions of the social classroom environment in five of the ten test schools ( $d = .19-.51$ ), and that the effectiveness on this variable appeared to depend on the number of years teachers had used the programme. These results may indicate that the effects of the programme on this outcome is related to the implementation timeframe.

Next, the findings of Article III suggested that participation in VIP partnership was associated with higher levels of happiness ( $d = .12$ ), and lower internalizing problems in the subgroups with no ( $d = .30$ ) and low ( $d = .14$ ), but not high, social

anxiety symptoms at baseline. No significant effects were found for loneliness at post-test or for any outcome measure at six-month follow-up. These results suggest that the overall effectiveness of VIP partnership on these outcomes is temporary and limited.

These somewhat modest findings from Article III are largely consistent with results from other environment-based, universal school programmes for mental health, and should be seen in the context of a range of potentially moderating factors related to the type of intervention (universal), the complexity of the outcome phenomena and the school context, as well as various methodological features.

Importantly, qualitative data from teachers indicated that many experienced the programme as positive because they believed it provided the students with various social opportunities. In this sense, the study results can be taken to indicate that one should possibly reduce the expectations of achieving considerable effects from the programme on students' mental health and loneliness and focus as much on the potential *intrinsic value* of the programme.

## Sammendrag

Denne ph.d.-avhandlingen studerer faktorer i det psykososiale skolemiljøet som kan bidra til å forebygge psykiske problemer og ensomhet og fremme trivsel blant elever i videregående skole i Norge. Dette temaet har blitt tilnærmet på to måter: For det første gjennom å undersøke de longitudinelle sammenhengene mellom elevenes oppfatninger av det psykososiale klassemiljøet og ensomhet (Artikkel I). For det andre, gjennom å undersøke virkningen av det psykososiale skoleprogrammet VIP-makkerskap på elevenes oppfatninger av det sosiale klassemiljøet (Artikkel II), selvrapporterte psykiske problemer, lykkefølelse og ensomhet (Artikkel III). I sistnevnte artikkel ble det også undersøkt om elevenes nivå av sosial angst modererte virkningen av programmet.

Elevdata ble samlet inn i skoletiden gjennom elektroniske selvrapporterings-skjema, henholdsvis én uke, 10 uker og seks måneder ut i skoleåret 2017/18. Designet var kvasiekperimentelt med test- og kontrollgrupper, og utvalget var 3155 førsteårsstudenter ved 17 videregående skoler i Norge. I tillegg ble lærerdata samlet inn for å undersøke programfidelitet.

De viktigste funnene fra Artikkel I var at elevenes ensomhet i skolen ble sterkt predikert av hvordan de opplevde det sosiale klassemiljøet, og videre, at oppfatning av emosjonell og instrumentell støtte fra lærere ikke predikerte ensomhet. Samlet sett indikerer disse funnene at jevnalderssettingen i skolen er spesielt viktig for ungdoms sosioemosjonelle fungering.

Hovedfunnet i Artikkel II var at deltakelse i VIP-makkerskap var forbundet med mer positive oppfatninger av det sosiale klassemiljøet i fem av de ti deltakende testskolene ( $d = .19 - .51$ ), og at effekten på denne utfallsvariabelen så ut til å avhenge av antallet år lærerne hadde brukt programmet. Disse resultatene kan indikere at virkning av VIP-makkerskap på dette utfallsmålet er relatert til hvor lenge programmet har vært brukt på skolen.

Til slutt viste funnene fra Artikkel III at deltakelse i VIP-makkerskap var forbundet med høyere lykkefølelse ( $d = .12$ ), og lavere nivåer av psykiske problemer blant elever uten ( $d = .30$ ) og med lave ( $d = .14$ ) symptomer på sosial angst ved første måling, men ikke blant elevene med høyere symptomnivåer. Det ble ikke funnet noen signifikant virkning av programmet på ensomhet ved posttest, eller på noen av

utfallsmålene ved seksmånedersmålingen. Samlet sett tyder resultatene på at virkningen av VIP-makkerskap på disse utfallsmålene er kortvarig og begrenset.

De beskjedne funnene fra Artikkel III samsvarer i stor grad med resultater fra andre miljø-sentrerte, universelle skoleprogrammer for psykisk helse, og bør sees i sammenheng med en rekke potensielt modererende faktorer knyttet til intervensjonstype (universell), kompleksiteten til utfallsfenomenene og skolekonteksten, og ulike metodiske aspekter.

Et viktig funn var at kvalitative data fra lærere indikerte at mange opplevde VIP-makkerskap som positivt fordi de mente det ga elevene ulike sosiale muligheter. I den forstand kan resultatene fra studien sies å antyde at man muligens skal redusere forventningene om å oppnå store programeffekter på elevenes psykiske helse og ensomhet og fokusere like mye på programmets potensielle *egenverdi*.



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## Articles

**Article I:** Morin, A. H. (2020). Teacher support and the social classroom environment as predictors of student loneliness. *Social Psychology of Education*, 23(6), 1687–1707. <https://doi.org/10.1007/s11218-020-09600-z>

**Article II:** Morin, A. H. (2020). The VIP partnership Programme in Norwegian Schools: An Assessment of Intervention Effects. *Scandinavian Journal of Educational Research*. <https://doi.org/10.1080/00313831.2020.1791247>

**Article III:** Morin, A. H. (2021). Promoting Positive Social Classroom Environments to Enhance Students' Mental Health? Effectiveness of a School-Based Programme in Norway. *Manuscript submitted for publication*.



## **1. Introduction**

Adolescence has been identified as a developmental period characterized by major changes. This includes the onset of puberty, cognitive maturing, growing school demands, school transitions, and more complex social relationships. All these factors can contribute to increasing the risk of mental health challenges and related problems such as loneliness during the adolescent years (e.g., Gore et al., 2011; Hankin, 2015).

Worldwide, there are reports of a high and growing incidence of mental problems and loneliness in young people. In many countries, including Norway, strategies have been called for to help tackle these issues by improving the mental health and wellbeing of all children and youth, and not just those who suffer from illness. Most young people spend large parts of their everyday lives in educational arenas, meaning that schools have a unique potential to offer services to virtually all students. Schools consequently have a fundamental role in countries' public health work (Meld. St. 19, 2018; Meld. St. 34, 2012; Norwegian Ministry of Education and Research, 2011; Norwegian Ministry of Health and Care Services, 2003, 2016; Weist et al., 2003; WHO, 2002).

Consistent with research (e.g., Allodi, 2010; Eriksen & Lyng, 2015), practitioners and policy makers in Norway support the idea that efforts to enhance the psychosocial school environment and promote healthy social relationships in the classroom can contribute to improving students' mental health, wellbeing, and learning (Norwegian Ministry of Health and Care Services, 2013, 2019; NOU, 2015: 2 ; The Norwegian Directorate of Health and Social Affairs, 2007). School programmes targeting the psychosocial school environment have accordingly become a widely used approach to support students' mental health and wellbeing in Norway. Many of these programmes receive public funding through various government subsidy schemes, with the intention that schools can use them free of charge as part of their systematic work with mental health.

One school-based programme to which this applies, is VIP<sup>1</sup>-makkerskap [VIP partnership]. VIP partnership is a universal prevention and promotion programme for mental health that was established by the VIP School Programme [VSP] in 2015. Since then, the programme has been used by 150 of Norway's 415 upper secondary schools. Its foundation is described by VSP as a response to schools' reports of psychosocial challenges such as social exclusion, loneliness and students' social vulnerability in the move from lower to upper secondary school (VIP School Programme [VSP], 2015, 2016). VIP partnership was accordingly designed to help build a secure and inclusive classroom environment for students starting a new school level (VSP, 2020c).

The programme targets first year upper secondary students in Norway, who from the first day of school after the summer are assigned into partnerships with fellow students and take part in various social activities to get better acquainted with their classmates. VIP partnership has a total duration of nine weeks, with a change of partners and partner groups after three and six weeks. The aim of the programme is that by facilitating social participation among students, schools and teachers can help strengthen the social and collaborative climate in the classroom and thereby help to prevent mental problems and promote wellbeing and a good mental health (VSP, 2015, 2016, 2017a). As VIP partnership targets interpersonal activities within the school environment to support students' wellbeing and mental health it can be categorized as a psychosocial intervention (England et al., 2015).

### **1.1. Framing the Topic and Research Questions**

With the increasing use of school programmes, it has been emphasized that these need to be rigorously evaluated so that practitioners and policy makers can infer whether they seem promising, or at worst, produce harmful effects. However, studies suggest that the majority of programmes have not yet been rigorously evaluated, and few provide adequate information on the quality of programme implementation (O'Reilly et al., 2018; Werner-Seidler et al., 2017).<sup>2</sup> This motivates the establishment of well-designed studies when assessing whether school programmes work as they were intended. The

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<sup>1</sup> "VIP" is a Norwegian acronym for "Veiledning og Informasjon om Psykisk helse i skolen", which translates in English to "Guidance and Information on Mental Health in School".

<sup>2</sup> See the literature overview in Chapter 3.

primary objective of this PhD project is therefore to evaluate the effectiveness of VIP partnership on students' perceptions of the social classroom environment, mental health, happiness, and loneliness, in a sample of first year upper secondary students in Norway.

A premise for prevention and promotion programmes is that mental health outcomes can be altered by strengthening the determinants that support health and minimizing the determinants that undermine health. In addition to examining whether VIP partnership is effective, it is therefore considered relevant to study the relationships between other risk and protective factors in the psychosocial school environment that may be linked to emotional health in adolescents.<sup>3</sup> Further knowledge in this area is essential to know where future efforts ought to be directed.

Like mental health, loneliness has emerged as a worldwide public health concern both due to the high rates of prevalence and the potentially damaging impact on individuals' physical and mental health and wellbeing (Ercole & Parr, 2019; Meld. St. 19, 2018; Norwegian Ministry of Health and Care Services, 2017, 2019; The Norwegian Directorate of Health and Social Affairs, 2014). While it was previously thought that loneliness mainly affected the elderly, research in recent years has shown that young people are also a particularly high-risk group (Ercole & Parr, 2019). The adolescent years for instance involve a shift from parents towards the peer group as a source of social support (Hafen et al., 2012; Helsen et al., 2000), which may lead to instability in social experiences and in turn increase the risk of this unpleasant emotional state (Goosby et al., 2013; Heinrich & Gullone, 2006; Vanhalst et al., 2013). As such, the thesis will examine factors in the psychosocial school environment that may influence adolescents' perceptions of school loneliness. This subject is closely related to the main theme of VIP partnership, about creating inclusive social classroom environments.

Taken together, this PhD project can be described as a study of factors in the psychosocial school environment that may help prevent mental problems and loneliness and promote wellbeing among students in upper secondary school. This topic will be approached in two ways: First, by examining the longitudinal relationships between students' perceptions of emotional and instrumental teacher support, the social classroom environment and school loneliness (Article I). Second, by evaluating the

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<sup>3</sup> Referring to individuals aged 10–19.

effectiveness of VIP partnership on students' perceptions of the social environment in their classes (Article II), internalizing symptoms, happiness, and loneliness (Article III). The evaluation of VIP partnership is given primary attention in the thesis through Articles II and III and forms the basis for the literature overview in Chapter 3. Against this background, the main research question is:

*To what extent can a psychosocial school programme and other factors in the psychosocial environment help prevent mental problems and loneliness and promote wellbeing among upper secondary students in Norway?*

Three sub-questions have guided the research and will be addressed in the final discussion in Chapter 6. They should be seen in the context of the research questions underlying each article, which are presented in Table 2. The questions are:

- 1) What are the longitudinal relationships between students' perceptions of emotional and instrumental teacher support, the social classroom environment and school loneliness, and do these associations vary by gender? (Article I)
- 2) Does participation in VIP partnership enhance students' perceptions of the social environment in their classes? (Article II)
- 3) Does participation in VIP partnership impact students' self-reported happiness, internalizing problems, and loneliness, and does the programme's effectiveness vary as a function of students' baseline level of social anxiety (no, low, and high symptoms)? (Article III)

To explore the research questions, data were collected one week, 10 weeks and six months into the school year 2017/18, by means of electronic self-reporting questionnaires administered in school classes. The research employed a quasi-experimental test–control group design, and the sample consisted of 3,155 first-year students at 17 upper secondary schools in Norway. Table 2 offers a further overview of the data and descriptions of the participants and findings.

I will continue this introduction by clarifying concepts that are central to the thesis in Section 1.2. Next, Section 1.3 outlines the prevalence of mental health problems, wellbeing, and loneliness among young people in Norway. Further, Section 1.4 describes the development of the global field of mental health promotion and



prevention in public health. Then, Section 1.5 addresses school programmes for mental health in a Norwegian context, before moving into a summary of research in this field. This will be followed by a section on the content and establishment of VIP partnership as well as the associated school programmes VIP and the Danish Network in Section 1.6. Finally, Section 1.7 presents the further structure of the thesis.

## **1.2. Clarifying Central Concepts**

*Mental health* is a complex and multifaceted phenomenon, and the literature suggest a strong lack of consensus regarding its content and conceptualization (Galderisi et al., 2015). In the current thesis, mental health is used as an overall concept containing both positive and negative dimensions.<sup>4</sup> *Poor mental health*, *mental health challenges* and *mental ill-health* are used as collective terms that incorporate negative aspects such as *mental problems* and *mental disorders*. Mental disorders, also called mental illness, refer to conditions of such a degree that certain diagnostic criteria have been met, whereas mental problems point to emotional symptoms and conditions that are perceived as stressful to the individual, but that do not necessarily coincide with established diagnoses (Mykletun et al., 2009; Sletten & Bakken, 2016).

Mental disorders and problems can be further divided into *internalizing* and *externalizing* components. The former is generally identified as focusing on emotional elements like depression and anxiety, whereas the latter is centred on behavioural aspects like conduct problems and ADHD (e.g., Kovacs & Devlin, 1998; Willner et al., 2016). This thesis mainly concentrates on the internalizing aspects of mental health.

Next, a *good* mental health comprehends a broad range of positive components such as individuals' evaluation of a good quality of life, meaning in life, positive relationships with other people, psychological resources such as resilience and the ability to cope with the challenges of everyday life, as well as the absence of serious mental problems and disorders (Keyes, 2010; WHO, 2005b).

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<sup>4</sup> This differs from some of the English literature where mental health is commonly used as a synonym to positive health (e.g., WHO, 2018), whereas mental illness is used to refer to the negative aspects of mental health.

A concept closely related to, and sometimes used interchangeably with good mental health, is *wellbeing*.<sup>5</sup> While the wellbeing literature is overflowing with various terms and models and seems to be characterized by little uniformity, the concept has commonly been understood as consisting of *subjective* and *psychological* dimensions (Ryan & Deci, 2001). Subjective wellbeing is grounded in hedonic perspectives of pleasure, and is typically perceived as individuals' experiences of life satisfaction, positive affect (e.g., contentment, happiness), and low levels of negative affect (e.g., sadness, anger) (Diener, 2000, 2012). Psychological wellbeing is in turn rooted in ideas about eudaimonia and optimal human functioning (Vittersø, 2016), and has been conceived as consisting of autonomy, environmental mastery, personal growth, experiencing positive social relationships, purpose in life, and self-acceptance (Ryff, 2014; Ryff & Singer, 2008). In this thesis, wellbeing is studied through the sub-dimensions positive affect (feelings of happiness in Article III) and students' experiences of positive interpersonal relationships (perceptions of the social classroom environment in Articles I and II, and perceived teacher support in Article I).

The *psychosocial school environment* moreover refers to the interpersonal relationships and social environment within the school context, as well as students' and teachers' experiences of these (Norwegian Ministry of Education and Research, 2003). The sub-dimensions of the psychosocial school environment of most relevance to this thesis are students' perceptions of the social classroom environment and teacher support.

Next, *loneliness* is generally understood as an unpleasant emotional state that occurs when there is a discrepancy between a person's aspired and actual social relationships (Perlman & Peplau, 1981). Loneliness is not considered a mental illness, but is established as a major risk factor for mental ill-health (Hawkey & Cacioppo, 2010). Another form of loneliness is *social isolation*, which results from lack of social participation with others. People who are socially isolated do not necessarily feel lonely, and lonely individuals do not necessarily lack social contact in an objective sense (Hawkey & Cacioppo, 2010). However, researchers have demonstrated that individuals

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<sup>5</sup> This thesis focuses on *subjective/psychological* wellbeing, namely how life is experienced and evaluated by the individual, rather than objective indicators of wellbeing like material living conditions and objective state of health (Reneflot et al., 2018).

who are socially isolated run a greater risk of becoming lonely, and that being surrounded by meaningful social relationships is crucial for experiencing social belonging (de Jong-Gierveld et al., 2018). In the current thesis, *school loneliness* is therefore taken to embrace both adolescents' feelings of loneliness and feelings of social isolation.

A *determinant* refers to the positive or negative factors that substantially influence individuals' mental health, wellbeing, and/or loneliness (Miles et al., 2010). The determinants of mental health and wellbeing cover a variety of social, environmental, biological, and individual factors which interact in complex ways. Some examples include prenatal environments, genetics, living environments, education, access to economic resources, exposure to drugs, connectedness to and participation in a community, social support networks, as well as personal behaviour and coping abilities (WHO, 2017). To enhance people's health, attempts are made to modify these determinants through strategies described as *treatment*, *prevention*, and *promotion*.

Treatment refers to services provided to those who have a mental illness, with the goal of curing or reducing symptoms of the disorder. Prevention is in turn understood as efforts to avoid or minimize the development of disorders, problems, and risk. Prevention strategies thus focus on protecting against illness by addressing risk factors for poor mental health (Miles et al., 2010; WHO, 2002). Such strategies are commonly divided into three categories, depending on the target group. *Indicative* prevention targets individuals who are at high-risk for mental problems, but do not meet the diagnostic criteria for a mental disorder. Next, *selective* prevention concentrates on individuals or subgroups with known and increased risk of developing problems, while *universal* strategies are delivered to all students irrespective of their health risk (Arora et al., 2019; WHO, 2002).<sup>6</sup>

While prevention is based on an illness model that involves reducing negative aspects of mental health, promotion is viewed as strategies to enhance or optimize the

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<sup>6</sup> Such strategies may also be referred to as tier 1 (equivalent to universal prevention), tier 2 (equivalent to selective prevention) and tier 3 (equivalent to indicated prevention) interventions, or as primary (preventing illness before it occurs, equivalent to universal and/or selective interventions), secondary (early identification, i.e., indicated prevention and treatment,) or tertiary (rehabilitation) prevention.

positive aspects of mental health and wellbeing. Such strategies thus address protective or promoting factors for mental health (Miles et al., 2010; WHO, 2002). Promotional activities in schools are typically offered to enhance the mental health and wellbeing of whole populations of students and may therefore be labelled as universal strategies. Importantly, prevention and promotion can involve overlapping and complementary activities but result in different outcomes. For example, a mental health prevention intervention that is aimed at decreasing depressive symptoms among students in a school class may also result in increased wellbeing (WHO, 2002).

### **1.3. Adolescent Mental Health, Wellbeing, and Loneliness**

Research consistently shows that the prevalence of mental disorders is relatively low among children, and then increases in early adolescence (Gore et al., 2011; Hankin, 2015). In western countries, the short-term prevalence (up to 30 days) of disorders like depression and anxiety in youths aged 13-17, has been estimated to approximately 2.5–3.1 % and 5 %, respectively (Ford et al., 2003; Reneflot et al., 2018). While boys are more often than girls diagnosed with externalizing disorders like ADHD, Tourette’s syndrome, autism spectrum disorders and behavioural disorders, girls are overrepresented in the prevalence of internalizing disorders, and this gender difference persists through adulthood (Reneflot et al., 2018).

Several population studies have moreover examined adolescents’ self-reported mental problems (e.g., P. L. Andersen & Bakken, 2015; Bakken, 2019, 2020; Sandnes, 2013; von Soest & Wichstrøm, 2014). One of the largest youth studies in Norway is Ungdata, which is conducted regularly among school students across the country. The results from 2020 showed that 11 % of boys and 29 % of girls aged 15-16 reported what are considered as high levels of internalizing problems (Bakken, 2020).

While the bulk of the literature has focused on the prevalence of mental disorders and problems, researchers have increasingly focused on the positive aspects of mental health and wellbeing (Seligman & Csikszentmihalyi, 2000). In Norway, recent national estimates among youths aged 15-16 show that 88-90 % of boys and 79-80 % of girls report high levels of life satisfaction (Bakken, 2020; Samdal et al., 2016), that 84 % of boys and 82 % of girls are satisfied with their parents, and that 73 % of the boys and 70 % of the girls are satisfied with their school (Bakken, 2020). Results from

Ungdata 2020, which was based on data from the age group 12-19 years combined, showed that 94 % of the boys and 90 % of the girls agreed with the statement “My life is good” (quality of life), and that 79 % of the boys and 67 % of the girls reported having been happy “often or all the time” in the last week (positive affect). The apparent overlap between the proportion of adolescents who report having mental health problems and those reporting high levels of wellbeing can be explained by the fact that wellbeing is not necessarily an antithesis to poor mental health (e.g., Diener & Suh, 1999; Huppert, 2009; Huppert & Whittington, 2003; Ryan & Deci, 2001). For example, levels of depressive symptoms may be relatively independent of the level of positive affect (Huppert et al., 2009). The overlap may also be due to differences in the types of scales and cut-off-levels used.

As for loneliness, most youth studies appear to have measured this phenomenon by use of one indicator, for instance asking about the degree to which the respondents have felt lonely or been troubled by loneliness within a specific period of time (Bakken, 2020; Barstad et al., 2015). In Ungdata 2020, 8 % of boys and 16 % of girls aged 15-16 reported that they had been “very much troubled” by loneliness in the last week (Bakken, 2020). Studies from other countries, like the Czech Republic, Russia, the USA, and Finland, have reported prevalence rates of loneliness in adolescents ranging from 2.2–8.9 % among boys, and 4.1–16 % among girls (Rönkä et al., 2014; Stickley et al., 2016). Literature reviews that have examined loneliness measured by use of other instruments (e.g. self-report scales such as the UCLA), have found comparable prevalence rates of persistent feelings of loneliness, ranging from 10-20 % (Heinrich & Gullone, 2006). Much of the variability in these loneliness estimates is probably due to differences in reporting practices and instruments used (e.g., Heinrich & Gullone, 2006).

Studies that have tracked loneliness rates over time demonstrate inconsistent findings. The results from Ungdata have shown that the proportion of adolescents experiencing high levels of loneliness increased slightly in Norway from 2012 to 2019 (Bakken, 2019). A similar trend has been reported in other countries like Denmark (Madsen et al., 2019). However, this tendency is not reflected in a large study from the USA (N = 285,153), which showed that high school students’ reports of loneliness declined by an effect size of  $d = -.20$  from 1991 to 2012 (Clark et al., 2015).

#### **1.4. Prevention and Promotion in Mental Health**

Prevention of mental illness is not a new topic, and can be traced back to the mental hygiene movement in the United States in the first half of the 20th century (Bertolote, 2008). Later, in the 1980s, forums like the Ottawa Charter for Health Promotion contributed to drawing attention to promotion in public health (WHO, 1986). Since then, the field of prevention and promotion in mental health has developed progressively under strong impetus from supranational and intergovernmental entities like the European Union and the World Health Organization (Jané-Llopis & Anderson, 2006; Paternite, 2005; Weist et al., 2003). The latter has since its establishment in 1948 had strong commitment to this topic, which is reflected through numerous reports, meetings and conferences (e.g., WHO, 2001, 2002, 2005a). The focus was strengthened around the turn of the millennium, when the organization called for mental components of health to be more clearly incorporated into countries' public health frameworks (WHO, 2001, 2002).

While it is impossible to pinpoint any individual causes of the rising priority of mental health prevention and promotion in public health, it can be seen in the context of a growing research base that has documented the individual burden and societal costs of mental illness (e.g., St.meld. nr. 16, 2002; WHO, 2001, 2005a). This has brought with it a recognition that, in order to reduce the strain associated with mental illness as well as enhance health, social and economic progress, countries must pursue prevention and promotion throughout the population (Jané-Llopis & Anderson, 2006; WHO, 2004, 2005a). Correspondingly, promotion and prevention in mental health has been politically prioritized in Norway through public health reports and other strategic and governing documents since the 1990s, with an intensified attention over the last decade (e.g., Meld. St. 16, 2010; Meld. St. 19, 2014, 2018; Meld. St. 34, 2012; Norwegian Ministry of Health and Care Services, 1997, 2003, 2016, 2017, 2019; St.meld. nr. 16, 2002; St.meld. nr. 25, 1996).

In Norway, as in other countries, special consideration is given to children and young people as a target group for interventions. This can probably be attributed to a constellation of factors, including increased knowledge about the developmental courses, etiologies, and correlates of mental health in this group. For instance, adolescence has been established as a vulnerable time for the development of mental

health challenges (Kessler et al., 2005), and it is estimated that 16 % of the global disease burden in people aged 10-19 is due to mental illness (WHO, 2020). It has also been well documented that persistent mental health problems in adolescence increase the risk of subsequent episodes in adulthood (Bertha & Balázs, 2013; Fergusson et al., 2005). Large youth studies across several countries, including Norway, have moreover suggested an increasing incidence of mental health problems over the last three decades, and this trend is especially evident among girls (see, e.g., Petersen et al., 2010; Sletten & Bakken, 2016). In addition, there is compelling evidence that there are strong associations between young people's mental health and wellbeing and their academic functioning and school completion (e.g., Gustafsson et al., 2010; Samdal, 2009). Addressing adolescents' mental health is thus considered important both for individuals' prospects of living good and healthy lives, and for preventing potentially large societal costs related to school dropout and unemployment (Norwegian Ministry of Health and Care Services, 2019; WHO, 2001, 2020).

Along with the advancing focus on mental health prevention and promotion in public health, prevention science, referring to evidence-based strategies to enhance health, started to gain wide international recognition in the 1990s (Weist et al., 2003). One of the first systematic studies of primary prevention programmes for child and adolescent mental health was Durlak and Wells's meta-analysis from 1997 (Durlak & Wells, 1997). This review covered 177 controlled trials, most of which were shown to produce favourable effects on outcomes such as internalizing and externalizing problems, academic achievement, cognitive processes, and physiological measures (Durlak & Wells, 1997). Although the review was criticized for not adequately addressing elements such as the quality, design, and implementation of the included programmes (Weissberg & Bell, 1997), it did contribute to increased recognition of the scientific credibility of prevention science as well as optimism regarding the effects of prevention programmes (Sandler, 1997). Prevention and promotion programmes in schools have since become a widely used strategy for addressing youths' mental health.<sup>7</sup>

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<sup>7</sup> This will be further addressed in the literature overview in Chapter 3.

### **1.5. School Programmes in Norway – Policy and Research**

Bullying has long been a hot topic among politicians, school practitioners, and developers of school programmes in Norway, and external<sup>8</sup> anti-bullying programmes were implemented in many schools from the mid-1980s (NOU 2015: 2). In the 1990s, these were accompanied by other programmes, for instance those designed to enhance students' social competence or to prevent problems such as aggressive behaviour and school violence (Nordahl et al., 2006; Norwegian Ministry of Education, Research and Church Affairs, 2000). The Government's concern about bullying in schools was also an important backdrop for the establishment of Section 9a in the Norwegian Education Act in 2003, which addresses students' right to a secure learning environment (NOU 2015: 2). This section maintains that schools must work actively, systematically and continuously to promote good psychosocial environments where the students feel secure and experience social belonging (Education Act, 1998, §9a; Norwegian Directorate of Education and Training, 2014; Norwegian Ministry of Education and Research, 2003).

In parallel with the growing political focus on adolescents' mental health in school and public health, the use of school-based programmes increased through the 2000s. This must be seen in connection with various political strategies that were introduced to support schools' systematic work with the psychosocial environment, and in a broader sense, students' mental health. For instance, the subsidy scheme "Psykisk helse i skolen" [Mental Health in School] was introduced in 2004, with the aim to strengthen students' mental health through an emphasis on better learning environments, increased competence, wellbeing and cooperation between central agencies and services for children and youth (The Norwegian Directorate of Health, 2018). The scheme still exists today, and provides financial support for various external programmes that schools can use as part of their systematic work with mental health, among them VIP partnership (Norwegian Directorate of Education and Training, 2014). Another strategy is the subsidy scheme "Bedre læringsmiljø" [Better Learning Environments] from 2009, which offers funding to school programmes targeting the learning environment, anti-bullying and students' mental health (The Norwegian Directorate of Education, 2012, 2016).

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<sup>8</sup> External means that they are owned and managed by actors outside the school.



In 2014, it was estimated that 77 % of schools in Norway used an external school environment programme (Eriksen et al., 2014). Although school programmes for mental health have become widely used in Norway, studies that have assessed their effectiveness reveal mixed findings. In 2009, Andersson and colleagues evaluated three of the school programmes that were part of Mental Health in School (STEP, Hva er det med Monica, and Venn1). The authors found that the level of self-reported internalizing problems increased significantly among students in the test schools from the first to the second measurements. There was moreover no programme effect on students' perceptions of the psychosocial classroom environment (e.g., the students' experience of being secure and happy at school). An optimistic finding was that students who participated in the programmes reported having learned more about topics related to mental health compared to controls. Moreover, teachers and other school personnel who used the programmes reported a higher engagement for the subject mental health compared to controls. The authors concluded that there was a limited overall effect of these programmes (Andersson et al., 2009). It is worth mentioning is that this study had some methodological limitations such as not linking individual-level data across measurement points, a small number of participants in some of the measurements, and lack of randomization.

In another report, Lødding and Vibe (2010) analysed data from the national student surveys and found that the prevalence of bullying and students' experience of the quality of the learning environment were the same in schools that had used various anti-bullying and school environment programmes, and those that had not (Lødding & Vibe, 2010). Their data also suggested that the extent of bullying was explained by the schools' holistic work with the learning environment, rather than their use of specific school environment programmes. Although this study was not designed to evaluate the programme effects, it contributed to raising debate about the impact and usefulness of external school programmes in Norway (e.g., Arnesen, 2011; Svarstad, 2016).

In 2014, Eriksen and colleagues reviewed existing research on four external school programmes (Olweus, Zero, Respekt and PALS) that received support through Better Learning Environments (Eriksen et al., 2014). The researchers concluded that some of the programmes had a positive impact on the school environment. However, they also noted that many schools had a pragmatic approach to these programmes, for

instance by choosing to use only some of the programme elements and adapting the programmes to their everyday school life. The teachers' and school leaders' commitment to the programme was highlighted as a key prerequisite for good implementation. The authors remarked that both of these aspects could complicate the process of measuring the "true" impact of the school programmes, as the effects, or lack of them, could just as well be a result of the schools' overall and pragmatic work with the school environment or staff engagement (Eriksen et al., 2014).

Another source of information on the effectiveness of programmes that target the mental health of children and youth in Norway, is the electronic scientific journal *Ungsinn* (Ungsinn.no, 2021). This platform reviews existing research on school programmes and systematizes their anticipated effectiveness into five levels of evidence. The programmes may be categorized as: "well described" (level 1), "theoretically justified" (level 2), having "some documentation of effect" (level 3), "satisfactory documentation of effect" (level 4), or "strong documentation of effect" (level 5). In addition, level 0 is used for programmes that have been established as ineffective at level 4 or 5. As of 2020, *Ungsinn* had categorized 47 different programmes, 13 of which reached evidence level 4 or 5 (Martinussen et al., 2020).

## **1.6. VIP Partnership**

This section addresses the implementation and background of VIP partnership as well as the related school programmes VIP and Netverk, and previous evaluations of these. Parts of this section form the basis for some methodological considerations in Section 4.6. The background, content and implementation of VIP partnership are presented in detail in Articles II and III. Table 1 offers information about the programme that is meant to summarize and complement that provided in the articles.

## 1.6.1. Implementation, Content, and Rationale

Table 1 Practical implementation of VIP partnership

When?	What?	Duration
Prior to implementation	<p><b>Training of school personnel (recommended by programme providers, but not mandatory)</b></p> <ul style="list-style-type: none"> <li>VSP offers regional or local four-hour training seminars to members of the school staff, such as school nurse, principal, or educational-psychological services staff</li> <li>These in turn provide training to other teachers at the school<sup>1</sup></li> </ul>	<p>Approx. 4 hours</p> <p>(see Table 4)</p>
First day of school	<p><b>Practical implementation (by contact teachers)</b></p> <ul style="list-style-type: none"> <li>Students receive name tags on their desk</li> <li>Students are assigned and seated next to a partner and partner group</li> <li>Contact teacher presents VIP partnership (and VIP) to the students (e.g., duration, associated activities/exercises, and goals, examples: “we use VIP partnership to give you a good start to school and to create a good learning environment for you”; VSP, 2020b, p. 8)</li> <li>Students in the partner group exchange phone numbers</li> <li>Students receive a booklet with information about the programme as well as a description of a selection of social exercises/activities</li> <li>The partner groups write a group contract with rules that they believe can lead to good collaboration</li> <li>Use of exercise(s)</li> </ul>	<p>Approx. 45 minutes</p>
3 and 6 weeks into the school year	<ul style="list-style-type: none"> <li>Change of partnerships and partner groups</li> <li>Use of exercises<sup>a</sup></li> </ul>	<p>Approx. 30 minutes x 2</p>
1–9 weeks into the school year	<p><b>Programme content</b></p> <p>Students in the partnerships:</p> <ul style="list-style-type: none"> <li>Are seated next to each other in all common core subjects</li> <li>Greet each other when they meet and ask each other how the weekend has been</li> <li>Should be attentive to whether the partner thrives. If concerned, the partner should contact a teacher.</li> <li>Are to contact each other in the case of absence from school</li> <li>Are responsible for taking notes or passing on handed out sheets to each other in the case of absence</li> <li>Can be asked by the teacher to work together in partnerships or partner groups. Partners can also collaborate on homework.</li> </ul>	

*Note.* Modified after VSP, 2020b, 2020.<sup>a</sup> Two examples are “Meet your Partner” and “Fruit names”. The former is performed as follows: The partners sit down together and briefly interview each other in turn. Next, they ask each other three questions (e.g., Do you have siblings? What is your favorite movie? What is your dream job?), and then rapidly present their partner to the rest of the class. “Fruit names” is carried out as follows: All students sit in a circle. Students are asked to find a fruit that starts with the same letter as their name (Ex: Anna - Apple). Everyone says their name and the fruit they have chosen in turn (VSP, 2017a).

With reference to the elements described in Table 1, VSP suggests that “VIP partnership will help ensure:

- a smoother transition from a [lower] secondary to an upper secondary school
- that the students get acquainted with more of their classmates
- a more intimate and safe classroom environment at an early stage
- an increase in the students’ social competence
- good work relations that will increase the educational drive” (VSP, 2020a).

School-based programmes can be delivered at two levels. The first is person-centred programmes, which involves the provision of services directly to the target population without attempting any major environmental change (e.g., psychotherapy or cognitive behavioural therapy; CBT). The second is environment-centred programmes, which attempt to change individuals indirectly by modifying risk and protective factors in the environment in which they function, for instance the social context of the school (Durlak & Wells, 1997; Sandoval, 1993). VIP partnership can be said to involve a form of modification of the social classroom context, as students are divided into partnerships and participate in various social tasks and exercises. It may therefore be categorized as environment-centred programme.

Regarding programme rationale, VSP refers to previous research and literature to justify the components and activities used in VIP partnership (VSP, 2015, 2016, 2017b, 2017a, 2019, 2020b). They for example mention research which proposes that schools can contribute to promoting students’ health by developing friendships and social skills (Holen and Waagene, 2014, in VSP, 2019). On this basis, VSP highlights that VIP partnership targets the classroom environment and social competence and as such may have the potential to prevent the development of mental health problems and school dropout (VSP, 2019, p. 10). VSP also mentions research concerning the importance of healthy teacher-student relationship to students’ self-esteem, learning outcomes, wellbeing, and motivation (e.g., Ekornes, 2018; Krane, 2016, in VSP, 2019), and the possibility of negative teacher-student relationships contributing as a risk factor for depression and low self-esteem (Krane, 2016, in VSP, 2019, p. 10). In addition, they refer to research regarding the relationships between good classroom management and good learning environments (e.g., Ogden, 2009, in VSP, 2019, p. 7), and to literature suggesting that systematic work with classroom management from the start of the school year is important for the academic and social development in the class (NOU

2015:2, in VSP, 2019, p. 8). On this basis, VSP advocates that VIP partnership, with its clear structure from the first day of school, can be a good starting point for an inclusive classroom community (VSP, 2019, p. 8).

VSP furthermore proposes that the structure of VIP partnership and the use of classroom tasks and exercises can be seen in accordance with the Norwegian curriculum's commitment to social learning, for instance by training students' abilities to empathize and listen to others (VSP, 2019, p. 9). They also mention that establishing a classroom early on where all students experience belonging and no one feels like they do not fit in can contribute to safer students and better learning outcomes (VSP, 2021). They further maintain that a sense of school belonging can be seen as the opposite to feeling lonely at school (VSP, 2019, p. 22), and propose that VIP partnership can have the potential to counteract exclusion and promote belonging (VSP, 2020b, p. 3).

Last, they mention literature that highlights bullying and social difficulties as risk factors for mental ill-health, and a good teacher-student relationship and social coping resources as protective factors (e.g., Ekornes, 2018, in VSP, 2019). VSP accordingly proposes that VIP partnership can contribute preventively by minimizing these risk factors, and to health-promotion by providing students with potential social coping tools, as well as focusing on classroom management and the psychosocial environment (VSP, 2019, p. 10).

To summarize, VSP refers to a range of concepts and phenomena to shed light on the rationale behind VIP partnership, such as: belonging, exclusion, teacher–student relationships, friendship, social skills, inclusive classrooms, social learning, psychosocial learning environment, bullying, risk factors for mental ill-health, protective factors, and classroom management. Nonetheless, while the rationale behind VIP partnership is grounded in existing literature and empirical research, the programme is not theoretically justified. Chapter 2 of this thesis will therefore present theoretical perspectives that can help clarify the processes that VIP partnership are theoretically likely to influence.

### **1.6.2. Background – Network and VIP**

The concept of VIP partnership originates from the Danish school programme *Netverk* (VSP, 2015), which uses partnerships as one of four programme components. The stated main goal of *Netverk* is to prevent student loneliness by strengthening social cohesion

in the classroom (Ventilen Danmark, 2021). The effectiveness of Netwerk has been assessed through two studies, both of which employed a test-control group design based on stratified samples of upper secondary students in Denmark (Lasgaard et al., 2012, 2015). None of the studies detected any programme effects on students' self-reported loneliness. However, both found that a larger proportion of students who participated in the programme reported having acquired knowledge about loneliness and where to seek help, compared with controls (Lasgaard et al., 2012, 2015). The evaluation from 2012 showed no effects on students' perceptions of the social classroom environment, their prosocial behaviour, or school involvement (Lasgaard et al., 2012). The study from 2014 however suggested a significant and favourable programme effect on students' self-reported prosocial behaviour (Cohen's  $d = .17$ ), perceptions of emotional teacher support, and thoughts about leaving school, but no effects on students' perceptions of relationships to fellow students, school involvement or actual dropout rate (Lasgaard et al., 2015).

In addition to VIP partnership, VSP offers another universal school-based prevention and promotion for mental health, called the VIP Programme, or VIP (VSP, 2020a). Most of the schools that use VIP partnership also follow VIP. The main aim of VIP is to make students better able to look after their mental health by educating school personnel and students about the subject, as well as giving information on the help available (VSP, 2020a). VIP targets first-year upper secondary students as well as teachers, whose role is to provide lessons to students on self-chosen mental health topics, and health professionals, whose role is to bring professional knowledge and experience into the classroom through class visits (VSP, 2020a). While VIP partnership as mentioned is implemented at the beginning of the school year, VIP usually starts immediately after VIP partnership has finished or in the second semester of the school year (VSP, 2015).

The effectiveness of the VIP Programme has been evaluated in a PhD thesis (B. J. Andersen, 2011). This research was based on a quasi-experimental test-control group design (involving 880 and 811 students, respectively), and data were collected before, directly after, and 6, 12 and 24 months after the intervention. The findings showed significant short-term effects in favour of VIP on students' knowledge of mental health and support services and the ability to recognize symptoms. While the test group's

knowledge of mental health was maintained up to 12-month follow-up, their knowledge of the help system had largely levelled with the control group by 6- and 12-month follow-ups. Furthermore, from the immediate post-test measurement to 24-month follow-up, the students in the test group displayed a more favourable development in self-reported emotional problems (SDQ), problems with peers, and anxiety, compared to the control group (B. J. Andersen, 2011). Based on these findings, The VIP Programme has been classified by Ungsinn as “functionally effective” (evidence level set at 3 out of 5) (Ungsinn.no, 2021). It should be noted that the included sample suffered from some attrition in both the test and control groups, that was not accounted for by the researcher. This generates some ambiguity regarding the internal validity of the study results.

### **1.6.3. Previous Evaluations**

Since its inception, VIP partnership has been evaluated by VSP through annual student surveys, and the results from these have been presented in three reports (n = 206; 2,235; and 71, respectively) (VSP, 2015, 2016, 2019). In these surveys, students were asked to indicate whether they thought that participation in VIP partnership had led to various outcomes, such as: “VIP partnership has contributed to a better start of school for me than if we did not have the programme” and “VIP partnership has helped me to have someone to talk to during breaks”. Based on the results, VSP concluded that students on the whole seemed to be satisfied with the programme, and that the goals they had set for VIP partnership to a large extent seemed to have been reached (VSP, 2016, p. 19).

It is worth noting that the evaluations by VSP were cross-sectional and did not include pre-test measurements or control groups. Furthermore, the students were making self-assessments about whether they thought that the programme had an effect. This design has some limitations that make it difficult to draw valid conclusions about the impact of the programme. Taken together, there is a need to evaluate the effectiveness of VIP partnership by using pre–post-test measurements and control groups, as will be done in the current PhD thesis.

### **1.7. Structure of the Thesis**

This thesis is divided into seven chapters that contextualize and discuss the overarching topic of the influence of the psychosocial school environment on adolescents’ mental

health, wellbeing, and loneliness. Chapter 2 outlines the theoretical framework central to the research project and draws upon theories linking interpersonal relationships to mental health and wellbeing, as well as the stage–environment fit theory. Chapter 3 further positions the study by providing an overview of the state of the field of school-based mental health. Next, Chapter 4 presents the methodology and data. The three main research questions are then addressed and discussed in Chapters 5 and 6. Chapter 7 provides a discussion of study implications, contributions, limitations, and possibilities for future research, as well as concluding remarks.



## **2. Theoretical Foundation and School Transitions**

Creswell (2009) defines theory in quantitative research as “an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables (...)” (p. 51). He goes on to write that the purpose of theory is to tie together the variables used in a study and offer an overall explanation for how and why one would expect some variables to explain or predict others (Creswell, 2009). As mentioned, VIP partnership is not based on a clear programme theory. The intent of this chapter is therefore to ground the research in an established theoretical framework. This is done to clarify how and why the variables used in the three articles in the thesis are related, and thereby illuminate the rationale behind the conceptual choices.

It is well recognized that mental health outcomes result from complex interactions between individual and environmental factors. This chapter focuses on the latter component, and specifically addresses the relationship between factors involving a person’s relationships to other people (i.e., social support and belonging) and adolescents’ mental health, wellbeing, and loneliness. To shed light on the connections between the variables included in the articles, this chapter will describe theories on social support, social causation and selection processes, the buffering hypothesis, and direct effects. In addition, literature on school transitions and the stage-environment fit theory will be presented, the latter highlighting the importance of synchronizing the social environment to the needs of the developing adolescent.

### **2.1. The Need to Belong**

Belongingness theory offers a theoretical lens to investigate the potential of social relationships in forming social connectedness and subsequently enhancing health outcomes. Psychologists commonly understand belonging as an innate human need on a par with the need for food and water, involving a strong desire to form and maintain positive, and caring attachments to other people or groups of people (Baumeister & Leary, 1995; Ryan & Deci, 2017). From this perspective, the nature and extent of individuals’ sense of belonging or connectedness to family, peers, schools, and communities, deeply shapes their emotional and cognitive patterns (Baumeister & Leary, 1995). In their seminal work, Baumeister and Leary (1995) proposed that

individuals' sense of belonging, for example through feeling accepted, welcomed, or included, leads to positive emotions such as happiness, calm, and contentment. On the other hand, experiencing deficits or failure in belongingness needs in the form of rejection, exclusion or being ignored is expected to lead to unpleasant emotional states like anxiety, depression, and loneliness (Baumeister & Leary, 1995). Some premises for a sense of belonging is that the interpersonal relationships are frequent and affectively positive, and occur within a caring, stable, and long-term framework (Baumeister & Leary, 1995).

## **2.2. Social Support**

Social support is a multidimensional concept that contains a range of related, but conceptually different phenomena and processes. At a general level, social support is divided into structural and functional dimensions (S. Cohen et al., 2000). The former refers to the quantitative aspects of support, like network size and strength (House et al., 1988), and the latter to the qualitative aspects of support, like adequacy or availability (Broadhead et al., 1989; S. Cohen & Wills, 1985). *Perceived support* is the most studied functional support dimension and refers to individual's subjective understanding of the support available to them (Wills & Shinar, 2000), or their general expectation of being supported (Ditzen & Heinrichs, 2014).

Functional support can take the form of emotional (i.e., feelings of trust, caring and love), instrumental (i.e., tangible support for practical problem solving, such as material or practical help), informational (i.e., providing guidance and advice), and appraisal support (i.e., information that is useful for esteem-enhancement) (Malecki & Demaray, 2003; Wills & Shinar, 2000). Social support may also come from a range of sources, such as parents, friends, teachers, classmates, spouses, and so on.

## **2.3. Social Causation and Social Selection Processes**

The causal mechanisms between social support and individuals' mental health may be highly complex and are commonly explained through two theoretical perspectives. The first is the social causation perspective, which is founded on the idea that social support resources is the predecessor of wellbeing, and that lacking these resources aggravates mental health (Kaniasty & Norris, 2008). The other is the social selection processes perspective, which suggests that poor mental health can lead to deterioration in social

support resources. This implies that healthy individuals are chosen into social relationships, whereas people with poor mental health may experience a reduction in such resources (Kaniasty & Norris, 2008). Both perspectives are empirically substantiated (e.g., Burke et al., 2017; Kaniasty & Norris, 2008), and the association between social conditions and mental health is therefore often described as a downward spiral, where mental illness is believed to worsen social conditions, which in turn contributes to deteriorating mental health (Turner, 1981). In the current thesis, the social causation perspective forms the theoretical basis for the possible pathways from social conditions to mental health, wellbeing, and loneliness. This perspective will be further elaborated in the following sections. As will be addressed in Section 4.6.4., the choice of social causation as theoretical perspective does not rule out the possibility that the studied causal pathways may also go the other way.

#### **2.4. The Buffering Hypothesis and Direct Effects**

Based on the theory of social causation, there are two different models explaining the processes through which social support can affect mental health and wellbeing (S. Cohen & Wills, 1985). One is the buffering model, which posits that social support is important to mental health primarily when individuals' experience stress or during periods of stressful life events, by acting as a buffer for the negative effects of these stresses. The other is the direct effects model, which suggests that social conditions have a beneficial impact on peoples' mental health and wellbeing regardless of whether stress is present (S. Cohen & Wills, 1985).

The two models are often used to elucidate the influence of specific support dimensions on mental health. It has been proposed that structural support mainly operates via main effects, for instance by contributing to strengthening positive psychological states like a sense of belonging and purpose, and recognition of self-worth, which then reduces psychological despair (S. Cohen et al., 2000; Kawachi & Berkman, 2001). In addition, structural aspects such as participation in social networks increases the possibility of accessing various forms of support, which may protect against distress (S. Cohen et al., 2000). Cohen et al. (2000) however noted the possibility that social isolation, that is, lacking social ties, may cause distress and negative affect rather than social integration protecting or enhancing health.

Perceived support has been found to operate both through a stress-buffering mechanism and main effects (e.g., Rueger et al., 2016). As for the main effects model, it has been hypothesized that perceptions of having positive and supportive relationships with others can produce positive psychological states, such as self-worth, a sense of belonging, and positive affect, and reduce negative affect (e.g., S. Cohen et al., 2000). Ample research has provided an empirical basis for the theoretical proposal that adolescents who perceive that they are socially supported in various domains of their lives, including school, are better adjusted than other youth (e.g., Rueger et al., 2016). It has for instance been documented that adolescents who report higher levels of perceived emotional support from peers and parents, display lower levels of anxiety (Rueger et al., 2010) and depressive symptoms (Cheng, 1997; Luo et al., 2017; Newman et al., 2007; Rueger et al., 2010, 2016; Stewart & Suldo, 2011; Stice et al., 2004; Wang et al., 2017), and report higher levels of wellbeing, such as life satisfaction (Danielsen et al., 2009; Stewart & Suldo, 2011; Wang et al., 2017) and happiness (Wang et al., 2017). A large meta-analysis moreover showed that perceived teacher support was significantly and negatively associated with depressive symptoms ( $r = -.25$ ) (Rueger et al., 2016). Further, research that has included multiple support sources consistently shows that adolescents' perceptions of support from parents and peers demonstrate stronger statistical associations with mental health outcomes than perceived support from teachers (Rueger et al., 2010, 2016).

Next, the stress-buffering model maintains that social support is established during periods of low stress as a preparation for crisis (Cobb, 1976). The positive impacts of support are therefore not realized during ordinary everyday events, but when stressful events arise (Cobb, 1976; S. Cohen & Wills, 1985). The hypothesis proposes that perceptions of support availability (i.e., perceived support) can help reduce the appraised threat of a stressor (S. Cohen et al., 2000). This means that the more social support resources an individual perceives to have available, the more they will feel in control of stressful circumstances and the better they may process the negative situation. This may in turn contribute to limiting negative outcomes such as depression or anxiety symptoms (Kawachi & Berkman, 2001; Lakey and Cohen, 2000). A potentially stressful event in many adolescents' lives is the transition to a new school level.

## 2.5. School Transitions

Starting upper secondary school brings with it a new and unfamiliar environment, which commonly involves a larger and more heterogeneous school, new rules and expectations, a greater diversity of teachers, and shifts in social networks (e.g., Eccles et al., 1993). Students also move from being the oldest and most experienced students in lower secondary school to being the youngest in upper secondary school. Research shows that school transitions can generate mixed feelings in students (Ashton, 2008). Many look forward to a new start with excitement (Akos, 2002), and have positive expectations to learning new subjects, entering a different school environment, and especially, to meeting new peers (Eskelä-Haapanen et al., 2020). Making friends is frequently emphasized as a main objective for students prior to starting a new school level (Pratt-Adams & George, 2005; Rice et al., 2011).

However, many students also report having various social concerns before changing schools, for instance related to friendship disruptions, social status, peer acceptance, and bullying (Akos, 2006; Hanewald, 2013; Rice et al., 2011; Strand, 2019). There is moreover evidence that this move can impact adolescents' social relationships in unfavourable ways. One study of US adolescents (n = approximately 25,000) for instance found that nearly 20 % of students reported feeling alone and having difficulty in making friends following the transition to high school (L. S. Scott et al., 1995). Results from a longitudinal study in the USA (n = 1,979) moreover documented heightened levels of loneliness ( $d = .13$ ) and social anxiety ( $d = .13$ ) in students right after they started high school (Benner & Graham, 2009). When it comes to the potential impact of school transitions on mental health challenges like depression and anxiety, research shows inconsistent results. Some studies have found the transition to be disruptive to these psychological outcomes, whereas others have not (see Evans et al., 2018).

While there is general evidence that peer relationships are important to students' wellbeing during school transitions, research concerning the importance of teachers reveals mixed findings. One cross-sectional study of 7,205 students in grades 5 through 10<sup>9</sup> in Norway for instance found a general decline in perceived teacher support over the

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<sup>9</sup> Equivalent to grades 4 through 9 in the USA.

school years, but no abrupt negative change when students transitioned to a new school level. The authors concluded that there was little to suggest that the transition led to a decline in students' perceptions of teacher support (Bru et al., 2010). However, other research has found that students report a marked drop in positive interpersonal relationships with teachers after transitioning to a new school level (see for example Eccles et al., 1993).

Based on the stress-buffering hypothesis, researchers have documented that supportive relationships can protect against the potentially negative impact of school transitions. For instance, Benner et al. (2017) studied a sample of 252 low-income and ethnic minority youths in the USA, and found that students who reported stable or increasing levels of perceived friend support across the move to high school displayed lower depressive symptoms and loneliness following the transition. Moreover, Newman et al. (2007), albeit in a small sample ( $n = 60$ ), found that changes in perceived parental and peer support predicted changes in depressive symptoms during students' transition to high school. Kingery et al. (2011) examined students' ( $n = 365$ ) adjustment across the transition to middle and found that post-transition loneliness, but not depressive symptoms, was significantly predicted by pre-transition peer acceptance ( $\beta = -.20$ ), number of friends ( $\beta = -.18$ ) and friendship quality ( $\beta = -.11$ ).

Moreover, in a longitudinal study that followed a sample of students from grades 5 through 9 in the USA ( $n = 933$ ), Barber and Olsen (2004) examined whether changes in perceptions of teacher support predicted changes in adolescent functioning across two school transitions. They observed that lesser declines in teacher support were associated with higher gains in grades and social initiative with peers and teachers, and with lower increase in depression, parent-child conflict, and deviant peer association (Barber & Olsen, 2004). Taken together, these findings indicate that perceived support from teachers and peers, as well as other peer resources, can buffer against some of the negative stressors associated with starting a new school level.

## **2.6. The Stage-Environment Fit Theory**

The transition to upper secondary school often coincides with social, emotional, and physiological changes in adolescents' lives. At a time when friendships and social interaction with peers are especially important for adolescents (e.g., De Goede et al.,

2009; Furman & Buhrmester, 1992), the transition to upper secondary school interferes with established friendship networks and can leave peer relationships in a state of fluctuation (see Topping, 2011). The most theoretically elaborated explanation of the impact of school transitions on students' functioning is the "stage-environment fit" hypothesis (Eccles et al., 1993). This hypothesis proposes that some of the negative trajectories that occur during adolescence result, at least in part, from a mismatch between the needs of the developing adolescent (i.e., stage) and the opportunities offered to them in their social environments (Gutman & Eccles, 2007). While optimally fitting environments are likely to encourage growth and functioning, unsuitable environments can lead to maladaptation (Eccles et al., 1993; Gutman & Eccles, 2007).

## **2.7. Summary and Relevance – a Proposed Theory of Change**

The aim of this chapter was to provide an overview of theories that were considered relevant to elucidate "how" and "why" a school programme like VIP partnership can be expected to affect students' mental health and wellbeing.

It should first be noted that VSP does not mention support from peers or classmates as part of their programme rationale. However, VSP has referred to the importance of belonging and friendship to students' wellbeing, and pointed to psychosocial challenges such as loneliness and social exclusion as an important backdrop for the establishment of the programme (VSP, 2015, p. 5, 2016, p. 6). Against this background, and based on the content of VIP partnership (i.e., the students sitting and working together in partnerships and taking part in social tasks and exercises), it was considered relevant to present theoretical concepts and perspectives that address the connections between interpersonal relationships and mental health and wellbeing, including social support and belonging. The theoretical rationale presented in this chapter mainly forms a basis for the theoretical analyses used in the thesis, and does not necessarily correspond to how VSP has envisioned it.

School transitions involve significant peer group changes at a stage in adolescents' development when social relationships with peers are highly important and may be experienced as a challenging event for many students. From the buffering hypothesis it can be theorized that students holding more positive perceptions of social support (from peers and teachers) are provided with greater protection against the

stresses of the transition, for example in the form of increased resistance to depressive symptoms and loneliness. Further, the stage-environment fit perspective proposes that the extent to which the new school environment is designed or experienced by the students to satisfy their need for positive interpersonal connections with peers (and teachers), will affect how they cope during the transition. Theoretically, it can be assumed that students who encounter positive, caring, and stable relationships with classmates following the move to upper secondary school, are more likely to feel included, welcomed, and experience a sense of belonging to the class, which in turn can result in positive emotions. On the contrary, those who experience low quality relationships or feel excluded or rejected in their new classroom environment will be at greater risk of developing negative emotional states like anxiety, depression, and loneliness (Baumeister & Leary, 1995).

Taken together, these theoretical perspectives provide a strong rationale that efforts to maximize the fit of the school environment to adolescents' need for belongingness and positive relationships with others across the transition to a new school, will work as important stress buffers and favourably impact students' wellbeing.

A proposed theory of change relating to VIP partnership, is that interaction with fellow students through participation in partnerships and social tasks right after starting upper secondary school, can facilitate enhanced perceptions of social support and a sense of belonging in the classroom, which in turn is theorized to promote students' wellbeing and mental health. Further, as risk and promotive factors for mental health and wellbeing are frequently opposites of the same phenomenon, such efforts can also be regarded as prevention. As such, it can be hypothesized that VIP partnership can help prevent mental health problems by reducing risk factors such as social exclusion in the classroom.



### **3. School-Based Mental Health – State of the Field**

Drawing on research that has identified specific risk trajectories as well as protective and promoting mechanisms for mental health and wellbeing, an array of school-based interventions has been developed, implemented, and evaluated over the last 20 years. This chapter offers an overview of research on school-based interventions targeting students' mental health, loneliness, and wellbeing. The purpose is to examine results from other studies regarding effects of school programmes, and to situate VIP partnership as a research project within a larger context of school-based mental health (SBMH).<sup>10</sup>

SBMH is a highly extensive field, and the chapter will concentrate mainly on findings from literature reviews. Bibliographies of the included reviews were however screened to locate primary studies that had evaluated programmes similar to VIP partnership in terms of content. It was considered important to compare the results from VIP partnership with programmes using similar intervention elements. The screening resulted in the discovery of only two relevant primary studies involving one intervention (Felner et al., 1982, 1994). In addition, one study (Larsen et al., 2019) was sourced during the writing of Article III, and will be included in the overview.

The literature reviews will be organized thematically according to whether they address preventive or promoting strategies for mental health. However, prevention and promotion are sometimes used rather inconsistently in the SBMH literature. This is probably partly because promotion and prevention cannot be differentiated by the intervention itself, and both can target positive or negative determinants (Miles et al., 2010). Some authors for instance use “promotion” about strategies to enhance mental health in the form of preventing mental problems. In the following, the reviews will be categorized according to the outcome group. That is, reviews that primarily include interventions to reduce negative mental health outcomes are considered prevention, while those that primarily include interventions to enhance positive outcomes are considered as promotion. This may not match the authors' own accounts.

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<sup>10</sup> SBMH refers to promotion or prevention strategies for mental health within the school context.

### **3.1. Literature Search**

This review does not intend to consider all available research in this field, but rather to include a purposive sample of central publications (Randolph, 2009). Because the aim is to describe characteristics of the literature, it can be labelled as an overview (Grant & Booth, 2009). The health and education databases InSum, Medline, ERIC and Web of Science were searched in the summer of 2020 and winter of 2021 for relevant literature reviews. Search terms included combinations of the following keywords: five for the target population (“young people” or “young person” or adolescen\* or youth\* or teen\*), three for setting (“school-based” or “classroom-based” or school), three for intervention programming (promotion or prevention or intervention), and 13 keywords for programme content and outcome variables (“mental health” or depress\* or anxiety or internalizing or “well-being” or wellbeing or loneliness or “social isolation” or happiness or “social participation” or “SEL” or “school climate” or “social environment” or “interpersonal relationship\*”).

Inclusion criteria were as follows: English or Scandinavian language, peer-reviewed and published literature, and reports of interventions conducted in the school setting. Moreover, for pragmatic reasons and because SBMH expanded as a field around the turn of the millennium, only literature reviews published after year 2000 were included. The desired target group was early and middle adolescents (aged 12-18 years). However, most of the reviews that were localized through the literature search involved a mix of child and adolescent trials. To avoid omitting potentially important information, these were included in the present overview. Reviews focusing exclusively on child trials were not included. Neither were reviews that focused uniquely on treatment, indicated and/or selective interventions, or on interventions delivered online or in non-school settings. The reviews moreover had to report at least one outcome clearly related to internalizing aspects of mental health, wellbeing, or loneliness. Reviews that only reported outcomes such as substance abuse, externalizing problems, academic and/or physical factors (e.g., physical activity, body weight) were not included, as these differ from the desired outcomes of VIP partnership.

This relatively wide search resulted in 1881 hits. After 140 duplicates had been removed, titles and abstracts of the remaining were examined to identify studies that met the inclusion criteria. Of these, 28 reviews were selected for a full-text reading.

Reference lists of included papers were searched, and one paper (Sklad et al., 2012) was sourced via this method. In addition, two reviews discovered through literature searches during the writing of the articles in this thesis, were deemed relevant and included in the overview (O'Reilly et al., 2018; Wells et al., 2003). None of the reviews focused on school-based interventions to reduce loneliness or social isolation in adolescents.

Finally, three primary studies (Felner et al., 1982, 1994; Larsen et al., 2019) and 17 reviews were considered relevant for inclusion. Among the reviews were: Seven systematic reviews (Calear & Christensen, 2010; Dray et al., 2017; Kidger et al., 2012; Mackenzie & Williams, 2018; Neil & Christensen, 2007, 2009; Wells et al., 2003), four meta-analyses (Durlak et al., 2011; Horowitz & Garber, 2006; Sklad et al., 2012; Taylor et al., 2017), six combinations of the two (Caldwell et al., 2019; Dray et al., 2017; Feiss et al., 2019; Franklin et al., 2017; Werner-Seidler et al., 2017), and one knowledge review (O'Reilly et al., 2018). Most of the included primary studies had been conducted in the USA, the UK and Australia.

### **3.2. Overview of SBMH Interventions**

Mental health interventions in schools cover a variety of programmes, which differ considerably as to their delivery type (treatment, indicated, selective or universal), participants (e.g. children, early or middle adolescents), programme providers (e.g., teachers, researchers or health care professionals), design (e.g. RCTs or quasi-experiments), content (e.g., CBT, mindfulness, yoga, informational activities, interpersonal therapy, psychoeducation, changing school environments; Carsley et al., 2018; Šouláková et al., 2019; Werner-Seidler et al., 2017), and outcome domains (e.g., substance abuse, wellbeing, externalizing problems, and internalizing problems like stress, depression and anxiety; Feiss et al., 2019; Mackenzie & Williams, 2018; Neil & Christensen, 2007; Tanner-Smith et al., 2018; van Loon et al., 2020).

Of the 17 reviews included in this overview, 14 were categorized as addressing prevention (Caldwell et al., 2019; Calear & Christensen, 2010; Corrieri et al., 2014; Dray et al., 2017; Durlak et al., 2011; Feiss et al., 2019; Franklin et al., 2017; Horowitz & Garber, 2006; Kidger et al., 2012; Neil & Christensen, 2007, 2009; Sklad et al., 2012; Taylor et al., 2017; Werner-Seidler et al., 2017) and three as addressing promotion (Mackenzie & Williams, 2018; O'Reilly et al., 2018; Wells et al., 2003).

### 3.2.1. Prevention

In eight of the prevention reviews, interventions based on principles from cognitive behavioural therapy (CBT) accounted for at least 2/3 of all included trials (Caldwell et al., 2019; Callear & Christensen, 2010; Corrieri et al., 2014; Feiss et al., 2019; Horowitz & Garber, 2006; Neil & Christensen, 2007, 2009; Werner-Seidler et al., 2017). The review by Dray et al. (2017) included 31 CBT-based trials of 57 in total (54 %). CBT-based interventions usually involve efforts to change thinking patterns (e.g. enhancing problems solving skills) or behavioural patterns (e.g. facing fears or relaxation techniques), to make individuals' better able to cope with psychological problems or problematic emotions or behaviour (American Psychological Association, 2017). Four papers (Durlak et al., 2011; Franklin et al., 2017; Sklad et al., 2012; Taylor et al., 2017) did not report how many of the included trials were based on CBT. Last, the review by Kidger et al. (2012) only included environment-centred programmes.

Depression and/or anxiety were included as outcome measures in all the prevention reviews, either explicitly or implicitly (then often labelled as “internalizing problems” or “emotional health”). Seven reviews had depression and/or anxiety as sole and primary outcomes (Caldwell et al., 2019; Callear & Christensen, 2010; Corrieri et al., 2014; Horowitz & Garber, 2006; Neil & Christensen, 2007, 2009; Werner-Seidler et al., 2017), whereas six included effects for additional outcomes such as stress (Feiss et al., 2019), externalizing problems (Dray et al., 2017; Franklin et al., 2017), social and emotional skills, attitudes towards self and others, positive social behaviour/prosocial behavior, conduct problems, and academic performance. (Durlak et al., 2011; Sklad et al., 2012; Taylor et al., 2017). The latter three evaluated the effectiveness of social and emotional learning<sup>11</sup> (SEL) programmes. In this overview, only emotional distress/internalizing problems (i.e., internalizing mental health issues such as depression, anxiety, stress, or social withdrawal) are included as outcome category, as these are most clearly associated with mental health.

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<sup>11</sup> SEL refer to a large group of interventions designed to promote specific social-emotional competencies. These competencies are further though to enhance students' academic performance, positive social behaviors, and social relationships as well as reduce problem behaviors and psychological distress (Guerra & Bradshaw, 2008; Mahoney et al., 2018). The outcome of interest to this overview are emotional/internalizing problems, and the SEL reviews are therefore categorized as addressing prevention.

First, Horowitz and Garber (2006) conducted a meta-analysis in which they reviewed 30 interventions to prevent depression in children and adolescents. After removing two samples with college students from the analyses, the authors reported post-intervention effect sizes of selective, indicated, and universal interventions of  $d = .29$  and  $.18$ , and  $.12$ , respectively. None of these effect sizes were significantly different from each other. At follow-up, both selective ( $d = .56$ ) and indicated ( $d = .25$ ) programmes displayed a significantly higher mean effect size than universal programmes ( $d = .02$ ). Age was not found to significantly moderate the results. The authors concluded that the reviewed trials showed low to moderate effects, and moreover suggested that most of the programmes should be categorized as treatment (e.g. reducing symptom levels) rather than prevention (e.g. preventing increases in symptom levels) (Horowitz & Garber, 2006).

Next, Neil and Christensen (2007) systematically reviewed 24 trials of nine Australian interventions to reduce anxiety and depression. For indicated programmes they found that four of five trials (80 %) targeting anxiety and two of four trials (50 %) targeting depression were associated with significant symptom reduction at post-test and/or at follow-up. Corresponding ratios for universal trials were six of 10 (60 %) of those targeting anxiety and 10/17 (58 %) of those targeting depression. The authors did not find efficacy to vary as a function of design (e.g., RCT vs. CT) or programme provider (e.g., teachers vs. health care professional; Neil & Christensen, 2007). However, these assumptions were not statistically tested. The authors rated the overall study quality as poor and described the effect sizes as variable. They concluded that the findings provided strong support for mental health prevention and early intervention programmes in schools, but also pointed out a need for further evaluations (Neil & Christensen, 2007).

The same authors (Neil & Christensen, 2009) reviewed 27 RCTs of 20 prevention and early intervention programmes for anxiety. At post-test, 11 of the 16 universal trials (69 %), two of the three selective trials (67 %) and four of the eight indicated trials (50 %) displayed significant effects in favour of the test groups over controls. At longer-term follow up, this applied to three of six universal trials (50 %), 0 of one selective trial (0 %), and five of six indicated trials (83 %). The authors reported that studies with small samples tended to produce greater effects than those with larger

samples, that effects produced by CBT-based programmes seemed to be slightly larger than those of non-CBT interventions, and that trials provided by teachers appeared more successful than those involving other programme providers (Neil & Christensen, 2009). However, the researchers did not formally test whether these subgroup differences were statistically different. The overall study quality was rated by the authors as quite poor, but they linked this assessment to the trial reports rather than the trial designs. They concluded that anxiety prevention and early intervention programmes in schools were useful (Neil & Christensen, 2009).

Calear and Christensen (2010) did a systematic review in which they examined 46 RCT's of 28 programmes to prevent depression. Three of the six (50 %) selective trials, six of the 10 (60 %) indicated trials, and nine of the 23 (39 %) universal trials exhibited significant differences between the test and control groups at post-test. At follow-up, this applied to two of four selective trials (50 %), six of nine (67 %) indicated trials, and four of 16 (25 %) universal trial. Based on these findings, the authors suggested that indicated programmes inclined towards being more effective overall than universal programmes. They also observed that significant findings tended to be less likely if the programme was provided by a classroom teacher compared to external providers (e.g., professionals, graduates, or researchers; Calear & Christensen, 2010). These differences were also not statistically tested. The authors did not investigate whether the findings varied by participants' age. Overall, the authors concluded that the results were mixed, but provided some support for the implementation of depression prevention programmes in schools (Calear & Christensen, 2010).

Similarly, Corrieri et al. (2014) reviewed 28 RCT's for the prevention of depression and anxiety among youths (aged 8-16). Overall, 65 % of the depression interventions and 73 % of the anxiety interventions demonstrated effectiveness at post-intervention or longer-term follow-up. For universal programmes, mean post-intervention effects were  $d = .14$ <sup>12</sup> for depression and  $d = .10$  for anxiety, with longer-

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<sup>12</sup> Note that some researchers have reported negative values to indicate intervention effectiveness (e.g. to illustrate a reduction in symptoms in test groups compared to controls). However, in the present overview, all effects in favor of the intervention (e.g., test groups relative to controls, or development of

term mean effects decreasing to  $d = .05$  for depression and  $d = -.15$  (thus in disfavour of the intervention) for anxiety trials. Corresponding short-term effects for indicated programmes were  $d = .08$  for depression and  $d = .29$  for anxiety, rising to  $d = .13$  (depression) and  $d = .42$  (anxiety) at longer-term follow up. The authors concluded that most of the reviewed interventions were effective in reducing or preventing mental problems, but that the computed effect sizes testified to only small-scale effectiveness (Corrieri et al., 2014).

In their large meta-review involving 213 studies, Durlak et al. (2011) found that SEL programmes significantly reduced students' emotional distress, with a mean effect size of Hedge's  $g = .24$  ( $k^{13} = 49$ ) at post-test, and  $g = .15$  ( $k = 11$ ) at follow-up. Interventions delivered by teachers produced a statistically significant mean effect in this outcome category ( $g = .25$ ,  $k = 20$ ), whereas those delivered by external personnel did not ( $g = .21$ ,  $k = 14$ ) (Durlak et al., 2011). It is worth pointing out that the mean effect for these two groups (teachers vs. others) was comparable, but a smaller number of trials in the "external personnel" group may have led it to not achieving statistical significance. The authors concluded that SEL interventions enhanced students' behavioural adjustment, among other factors, in the form of reducing internalizing problems (Durlak et al., 2011).

Sklad et al. (2012) examined the effects of SEL interventions in 75 controlled trials. They reported a mean effect size on internalizing problems at post-test of  $d = .19$  ( $k = 13$ ) and at follow-up of  $d = .10$  ( $k = 11$ ). The researchers did not statistically test whether programme provider (teachers vs. external personnel) or age moderated the results for the internalizing problems outcome, but for social skills and antisocial behaviour there were no statistically significant differences in effectiveness between teachers and external personnel. Age was found to moderate the results on students' antisocial behaviour only, where primary students displayed significantly larger effects than secondary students (Sklad et al., 2012).

The review by Taylor et al. (2017) examined follow-up outcomes only (collected 6 months to 18 years postintervention) of SEL interventions in 82 trials.

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symptoms across time) are reported as positive values, meaning that negative values reflect results in disfavor of the intervention.

<sup>13</sup>  $k$  = number of primary studies.

Comparable to the two previous reviews, Taylor et al. (2017) reported a significant overall long-term effect of  $d = .16$  ( $k = 35$ ) on emotional distress. Participants' age did not significantly moderate the results (Taylor et al., 2017).

In another systematic review and meta-analysis, Werner-Seidler et al. (2017) examined the effects of 81 RCTs based on manualized psychological or psychoeducational interventions to prevent depression and anxiety. The authors conducted a meta-regression to statistically test sub-group moderation effects. At post-test, universal depression programmes attained a statistically lower mean effect size ( $g = .19$ ,  $k = 39$ ) than targeted programmes ( $g = .32$ ,  $k = 35$ ), whereas no significant difference was found between universal and targeted anxiety programmes ( $g = .19$ ,  $k = 32$  vs.  $g = .22$ ,  $k = 17$ ). These findings show the opposite tendency to the ones reported by Corrieri et al. (2014), but again, Corrieri et al. did not statistically test these subgroup differences.

Werner-Seidler et al. (2017) moreover found that effect sizes for depression and anxiety were comparable for universal and targeted programmes at longer-term follow-up.<sup>14</sup> They did not find that participants' age (childhood vs. early adolescence vs. late adolescence) or programme content (CBT vs. other) impacted the effect sizes. Finally, and consistent with the results reported by Calear and Christensen (2010), depression interventions delivered by school staff displayed significantly lower effect sizes than those delivered by external personnel at post-test and short-term follow-up. However, at longer-term follow-up, this difference was no longer statistically significant. For anxiety interventions, efficacy was not dependent of programme provider. The authors concluded that their findings suggested benefits of continued evaluation and delivery of school-based prevention programmes for anxiety and depression. They however also stated that the overall quality of the included trials was low, and that continued evaluations of large-scale trials addressing implementation efforts were needed (Werner-Seidler et al., 2017).

Dray et al. (2017) examined the effects of 57 RCT's of universally delivered resilience-focused interventions, on students' anxiety, depression, hyperactivity, conduct problems, internalizing problems, externalizing problems, and general

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<sup>14</sup> Effect sizes can be found in Appendix I, Table 5.



psychological distress. At short-term follow-up (post-test to 12-month post-intervention), significant mean effects were found for depressive (SMD<sup>15</sup> = .13, k = 22) and anxiety symptoms (SMD = .18, k = 19) only. At longer-term follow-up significant mean effects were found only for internalizing problems (SMD = .22, k = 2). When evaluating effectiveness by age, significant post-intervention effects for adolescent trials (11-18 years) were reported for internalizing symptoms only (SMD = .19, k = 3). For child trials (5-10 years), the effects were only significant for anxiety symptoms (SMD = .25, k = 11) and general psychological distress (SMD = .13, k = 4). Further subgroup analyses (which included a combination of child and adolescent trials) moreover showed that interventions based on CBT were effective in reducing psychological distress, depressive and anxiety symptoms, whereas non-CBT-interventions yielded no significant effects on these outcomes. The authors concluded that, while the results suggested promise on the short term particularly for CBT-based trials, the overall impact of resilience-based interventions could not be determined due to high variability of interventions and methodological shortcomings of the included trials (Dray et al., 2017).

Franklin et al. (2017) reviewed 24 RCT's to investigate the effectiveness of psychosocial interventions delivered by teachers. Most of the studies employed a social skill (n = 22), behavioural (n = 14) and/or cognitive-oriented (n = 16) programme content. Five papers reported internalizing outcomes (e.g., anxiety, depressive, and somatic symptoms), and 19 reported externalizing outcomes (e.g., behaviours with prominent impulsive, disruptive conduct, and substance use symptoms). The authors found a significant mean effect of .133 for internalizing outcomes, and a non-significant effect of .015 for externalizing outcomes. Moreover, Tier 1 interventions<sup>16</sup> showed a significant overall effect of Cohen's  $d = .211$ , whereas the overall effect for Tier 2 and Tier 3<sup>17</sup> interventions was not statistically significant ( $d = -.078$ ). The researchers speculated whether this could be attributed to teachers using existing professional skills in Tier 1 interventions but may having to develop new skills in Tier 2 and Tier 3 interventions when students need supplemental support. Results also suggested that, for

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<sup>15</sup> Comparable to Hedge's  $g$ .

<sup>16</sup> Comparable to universal interventions.

<sup>17</sup> Comparable to selective and indicated interventions.

internalizing problems, females benefited more from the interventions than males. Effectiveness was not found to be moderated by participants' age.

Feiss et al. (2019) based their review on 42 trials in the United States to reduce depression, anxiety and/or stress among adolescents (aged 11-18). Significant mean reductions in anxiety ( $k = 20$ ) and depression ( $k = 38$ ) from baseline to post-test were found in the intervention groups but not in the control groups, thus indicating that the interventions were effective short-term. For anxiety, the mean reduction in the test groups was  $d = -.70$ , compared to  $d = -.26$  (n/s) in the control groups. For depression, the mean reduction in the test groups was  $d = -.62$  compared to  $d = -.22$  (n/s) in the control groups. At longer-term follow-up, neither the test nor control groups produced any significant reductions in depressive or anxiety symptoms. Like Werner-Siedler (2017), Feiss et al. (2019) found that targeted programmes were more effective in reducing depressive and anxiety symptoms than universal programmes. However, the authors did not report separate effect sizes for universal and targeted programmes. Results from the meta-regression also showed that studies with smaller samples and no control group yielded significantly larger effect sizes than those with larger samples and control groups (Feiss et al., 2019). Moreover, the authors did not find that any intervention reduced stress symptoms, but this conclusion was based on a limited sample of four trials. These results may thus not inform about the overall effectiveness of programmes to reduce stress. All but two of the included studies were considered to have a high risk of bias. The authors also observed that the self-report measures used to identify stress, anxiety, and depressive symptoms were very diverse, and they suggested that future research should consider how these differences might impact the results (Feiss et al., 2019).

To address some shortcomings of the preceding meta-analyses, Caldwell et al. (2019) conducted a systematic review and network meta-analysis of 137 intervention studies to prevent anxiety and depression (108 of these were included in the network meta-analysis). The authors only found mindfulness and relaxation interventions in universal secondary settings to be effective in reducing post-test anxiety symptoms (SMD =  $-.65$ ). While CBT interventions were found to modestly reduce post-test anxiety symptoms in universal primary (ages 4-11) and secondary (ages 12-18) settings (SMD =  $.07$  and  $.15$ , respectively), these effect sizes were not statistically significant.

Moreover, the researchers did not find that any one type of intervention was effective in preventing depression in universal or targeted primary or secondary settings. Based on these results, the researchers concluded that school-based interventions focused uniquely on the prevention of depression or anxiety did not seem to be effective (Caldwell et al., 2019).

Finally, one systematic review examined the effectiveness of school environment-based interventions to improve students' emotional health (e.g. depression, emotional problems) (Kidger et al., 2012). This paper comprised five interventions in nine controlled trials (of which seven were randomized). While the two non-randomized trials displayed significant differences between the test and control groups on outcomes such as anxiety, depression, and emotional problems (SDQ), the remaining RCTs did not produce any significant effects. One of the effective interventions however suffered from methodological shortcomings. The authors suggested that programmes using only a few components seemed to be more successful than complex whole-school strategies. They concluded that the reviewed studies provided weak evidence for any effectiveness of school environment interventions (Kidger et al., 2012).

### **3.2.2. Promotion**

In an early publication, Wells and colleagues (2003) systematically reviewed 17 controlled trials of 16 universal interventions to promote mental health and prevent disease in schools. The studies varied in population, intervention content and outcome category. The authors found positive intervention effects on one or more outcomes in 10 of the 17 included trials. Moreover, five of the studies did not display any overall intervention effects but reported some positive results for subgroups. The authors concluded that universal programmes for mental health promotion could be effective, and that favourable effects were more likely for interventions that used a whole-school approach, lasted for longer periods of time, and sought to promote mental health rather than prevent mental illness. They however noted that some of the studies had methodological shortcomings like small samples, and suggested a need for further research in this area (Wells et al., 2003).

In a similar study, O'Reilly et al. (2018) reviewed 10 papers on universal interventions to promote mental health. The interventions varied in content (i.e., yoga, teaching social competencies, mental health lessons). Three employed a qualitative

design and seven a quantitative design. Eight of the studies reported some degree of impact in favour of the intervention on wellbeing outcomes such as emotional and cognitive skills, mastery, resilience, and mood. However, the authors noted that the included trials were of varying quality, and some had flaws such as lack of control group, vaguely described interventions, high attrition rates, and relying on participants' accounts of their own behaviour. The authors concluded that universal interventions demonstrated some success, and especially those that employed a whole-school approach. They however also called for more research to strengthen and broaden the evidence base in the field (O'Reilly et al., 2018).

MacKenzie and Williams (2018) reviewed 12 universal interventions within the UK, to promote mental and emotional wellbeing and resilience (8 were CBT-based). The studies were diverse in measures, design, and outcomes, and four had depression or anxiety prevention as primary outcome. Only four studies were considered by the researchers to be of "excellent" quality. The authors reported a tendency that the effect sizes produced by the interventions were small or neutral, and that effectiveness was dependent of study quality and participants' age. Specifically, lower quality studies with methodological issues such as smaller sample sizes or lack of randomization, and primary school populations (aged 9–12 years) displayed more positive effects than RCT's, studies with larger samples, and those involving secondary students. These assumptions were not statistically tested. The authors called for the need of future studies focusing on adequate fidelity reporting, the use of validated measures, and reporting of attrition and potential unfavourable effects (Mackenzie & Williams, 2018).

### **3.2.3. Primary Studies – Environment-Based Interventions**

Few studies have examined environment-programmes to facilitate positive social relationships and supportive school climates, and thereby enhance students' mental health. Exceptions are one intervention, termed the School Transitional Environment Project (STEP), which was designed to help adolescents better manage the transition to high school by reorganization of the social environment and restructuring of the teacher's role (Felner et al., 1982, 1994), and one intervention from Norway that involved the use of peer leaders and mental health support teams to create supportive social school environments (Larsen et al., 2018, 2019).

First, the STEP programme sought to increase social consistency and stability for students by reorganization of the social environment and restructuring of the teacher's role (Felner et al., 1982, 1994). This programme lasted one year and involved the formation of smaller and more consistent social learning environments by placing the students together in shared classes across subjects. The students were provided with a homeroom teacher, whose role was to act as a primary source of counselling and guidance to the students and their families, and the STEP classrooms were placed in physical proximity to each other. Students were non-randomly assigned into the STEP (n = 65) and control (n = 120) conditions. By the end of the first project year, STEP students displayed more stable self-concepts than the controls and also reported significantly higher levels of teacher support (Felner et al., 1982). Similarly, a later replication trial involving 1,965 junior high school students found positive effects of STEP on depressive symptoms and self-concept. However, one year after the project had finished the STEP students reported more negative interactions with teachers and increased perceptions of school climate harshness. The authors considered this a likely consequence of the STEP students moving out of the programme and into a more general school environment (Felner et al., 1994). These studies had some methodological shortcomings, such as lack of pre-test/baseline measures and no information on confidence intervals, standard deviations, or effect sizes for the differences between the test and control groups.

In an RCT from Norway, Larsen et al. (2019) evaluated the effects of a psychosocial school intervention in which they compared single-tier (a universal programme) and multitier (combined universal, selective and indicated prevention) intervention schools, to control schools. The universal intervention involved the training of student mentors in upper secondary school, whose main task was to help fellow students feel seen and taken care of at school (e.g., by receiving new students when they started school and carrying out activities to strengthen inclusion and belonging between students). In addition to student mentors, the multitier intervention included mental health support teams which consisted of counsellors, school nurses and follow-up services staff. This support team identified and followed up students with known risk for mental health problems or at risk of dropping out of school, and included

components such as an “open door” to increase service accessibility, and mapping and following up at-risk students (Larsen et al., 2018, 2019).

Results from this trial indicated no overall effects neither for the universal nor the multitier intervention on students’ self-reported anxiety/depression symptoms or loneliness. Girls in the multitier group were found to display a significantly lower increase in mental health problems compared to girls in the control group, but the effect size was small ( $d = .17$ ). The authors suggested that a combination of universal and targeted efforts for those in need could be most advantageous (Larsen et al., 2019).

### **3.3. Summary and Identification of Gaps in the Research Field**

SBMH promotion and prevention is a large and tremendously heterogeneous field, and this inevitably contributes to some inconclusive findings regarding programme effectiveness. Some key results may nonetheless be summarized and discussed:

*Prevention versus promotion.* Based on the results from this overview, mental health prevention seems to be studied more than mental health promotion. The general impression is that mental health interventions in school often focus on negative mental health outcomes, such as symptoms of anxiety, depression, and psychological distress, more than positive outcomes like wellbeing.

*Content and outcome.* Interventions based on principles from CBT are by far the most reported prevention strategy, and depression and/or anxiety reduction are the two most frequently reported outcomes.<sup>18</sup> Less research seems to have explored environmental models of prevention, and only one review (Kidger et al., 2012) evaluated programmes involving modification of the school environment.

Moreover, the promotion literature appears to be characterized by great variability in programme content, study design and outcome categories (e.g., Mackenzie & Williams, 2018; O’Reilly et al., 2018). The latter may possibly be because the concepts of wellbeing and positive mental health are broader and less specific than mental health problems, which are commonly operationalized as depression and/or anxiety.

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<sup>18</sup> This may be a result of the keywords used.

*Quality.* The reviews that have included quality assessments of the primary studies seem to conclude that the overall quality of these is variable or low, thus limiting the robustness of their findings (e.g., O'Reilly et al., 2018; Werner-Seidler et al., 2017). Some shortcomings that have been highlighted include: Insufficient or non-existent reporting of programme fidelity, inadequate descriptions of programme content, high attrition rates, and methodological shortcomings such as lack of control groups, small sample sizes, or relying on participants' self-appraisals of programme effects (Mackenzie & Williams, 2018; O'Reilly et al., 2018; Wells et al., 2003).

*Effectiveness.* The systematic reviews included in the present overview suggest that a good portion of the universal SBMH prevention programmes display effectiveness in preventing depressive and/or anxiety symptoms (Corrieri et al., 2014; Neil & Christensen, 2007, 2009). However, meta-analyses that have quantified this efficacy tend to show effect sizes which can be characterized as small according to Cohen's standards (J. Cohen & Steinberg, 1992), typically ranging from  $d/g = .10-.24$  (Corrieri et al., 2014; Dray et al., 2017; Franklin et al., 2017; Werner-Seidler et al., 2017). Furthermore, a large and recent network meta-analysis that addressed some of the shortcomings reported in previous reviews, found limited evidence for any overall effectiveness of SBMH programmes on depression and anxiety (Caldwell et al., 2019). The single paper that reviewed school environmental interventions also found limited evidence of effectiveness (Kidger et al., 2012).

There are some indications that intervention effects tend to decrease or disappear over time (e.g., Dray et al. 2017; Werner-Seidler et al. 2017), and effects have in many cases not been evaluated beyond the post-test measurement.

Further, it has been noted by some researchers in the field of promotion that whole-school interventions (e.g., those targeting multiple risk- or protective factors and involving cooperation between multiple agencies such as school and external personnel and the wider communities) produce more positive outcomes than single-factor interventions (O'Reilly et al., 2018; Wells et al., 2003). Kidger (2012), on the other hand, reached the opposite conclusion and suggested that whole-school prevention interventions were less effective. None of the authors formally tested these assumptions.

### 3.3.1. Moderators

Due to the heterogeneity of this field, it is essential and interesting to consider possible moderation effects:

*Programme type.* There is a tendency that universally delivered prevention interventions are less effective than targeted (i.e., selective and indicated) interventions (Calear & Christensen, 2010; Feiss et al., 2019; Horowitz & Garber, 2006; Werner-Seidler et al., 2017).

*Age.* While some have found interventions to be more effective in children compared to adolescents (Mackenzie & Williams, 2018; Sklad et al., 2012), others have not found evidence to support this conclusion (Taylor et al., 2017; Werner-Seidler et al., 2017).

*Content.* While Dray et al. (2017) found evidence suggesting that CBT-based interventions were more effective than non-CBT (even though the mean differences for CBT versus non-CBT were not statistically tested), Werner-Seidler et al. (2017) did not find that programme content moderated the effect.

*Programme provider.* Again, the results are mixed. Some have found that programme provider is not of significance (Neil & Christensen, 2007), others have found that interventions delivered by teachers tend to be less effective (Calear & Christensen, 2010), whereas a third study reported that interventions delivered by teachers were the most effective (Durlak et al., 2011). Notably, the latter review only comprised universal trials, and previous studies have suggested that teachers are more efficient deliverers of universal than targeted interventions (Franklin et al., 2017). Considering that indicated and selective interventions are more often delivered by external personnel, whereas universal interventions are more often delivered by teachers, it may be that that a combination of programme deliverer and intervention type moderate these findings.

*Study quality.* Evidence suggests that effect sizes tend to be overestimated in studies based on small samples and/or poor design (Feiss et al., 2019; Neil & Christensen, 2007).



### **3.4. Situating VIP Partnership within the SBMH Literature**

The aim of this overview was to outline the state of the field of SBMH in terms of content and outcomes, and to situate VIP partnership as a research project within it. One important finding is that few interventions seem to resemble VIP partnership in content, or programme components. Most interventions included in this overview are based on specific CBT techniques, meaning that the primary target of change is students rather than the environments in which they function. Only one of the reviews included programmes targeting the social school environment to prevent students' mental health problems (Kidger et al., 2012). It is possible that modification of the social school environment is a more common approach in anti-bullying or other school environment programmes, which were not included in the present overview. Taken together, environment-based approaches to SBMH appear to be understudied, and the evaluation of VIP partnership is a contribution to this domain.

In terms of outcomes, most of the existing research has addressed prevention in the form of reducing negative aspects of mental health. Fewer studies have focused on mental health promotion by enhancing the positive aspects of mental health and wellbeing. The current research project will add to this by including both positive (students' perceptions of the social classroom environment and self-reported happiness) and negative (depressive and social anxiety symptoms) indicators of mental health and wellbeing.

Moreover, the research has addressed features such as reporting of programme fidelity, providing thorough descriptions of the programme content, and attempted to ensure methodological robustness by using a large sample, test and control groups, and three measurement points to track the development between test and control groups across time. These have been emphasized in previous reviews as important quality elements in effectiveness assessments.



## 4. Methodology and Data

The studies that were presented in Articles I–III all intend to answer the main research question: *To what extent can a psychosocial school programme and other factors in the psychosocial environment help prevent mental problems and loneliness and promote wellbeing among upper secondary students in Norway?*

Table 2 Overview of research questions, sample, and main findings of the three articles

Article	Research questions/hypotheses	Sample, data, and analyses	Main findings
<b>Article I</b> Teacher support and the social classroom environment as predictors of student loneliness	It was hypothesized that: (1) Positive perceptions of teacher support would (a) positively predict the social classroom environment, and (b) negatively predict loneliness. (2) Positive perceptions of the social classroom environment would negatively predict loneliness.	t2 and t3 student questionnaires  SEM (lavaan in R)	(1a) Perceived emotional and instrumental teacher support positively predicted students' perceptions of the social classroom environment, and (1b) indirectly predicted student loneliness through the social classroom environment. For boys, both types of teacher support were significantly related to these variables, whereas only emotional teacher support was of significance to girls. (2) For both genders, school loneliness was strongly and negatively predicted by their perceptions of the social classroom environment.
<b>Article II</b> The VIP partnership programme in Norwegian schools: An assessment of intervention effects	Do students who participate in VIP partnership have a more positive perception of the social classroom environment a) 10 weeks (t2) and b) six months (t3) into the school year, compared to non-participating students?	t1, t2 and t3 student questionnaires and teacher questionnaire  One-way ANCOVA (SPSS)	At t2 and t3, participants in VIP partnership reported significantly higher social classroom environment scores than controls, but the effect sizes were small ( $d = .10$ and $.09$ , respectively). Further analyses showed that five of the ten test schools accounted for the increase in the outcome variable from t1–t2 ( $d = .19$ – $.51$ ). In these schools, a greater proportion of teachers had used the programme since its beginning in 2015, compared to the schools that did not report an increase.
<b>Article II</b> Promoting Positive Social Classroom Environments to Enhance Students' Mental Health? Effectiveness of a School-Based Programme in Norway	Are there differences in mean scores for happiness, internalizing problems, and loneliness associated with participation in VIP partnership and baseline level of social anxiety, as measured immediately after and 6 months after participation in the programme?	t1, t2 and t3 student questionnaires and teacher questionnaire  Two-way MANCOVA (SPSS)	Results at post-test indicated a significant main effect of participation in VIP partnership on happiness ( $d = .12$ ), and simple effects on internalizing problems among students with no ( $d = -.30$ ) or low ( $d = -.14$ ), but not high social anxiety at baseline. No significant programme effects were found for loneliness at post-test, or for either of the outcome measures at six-month follow-up.

#### **4.1. Methodology and Design**

The main purpose of the current thesis is to examine the effectiveness of VIP partnership on students' perceptions of the social classroom environment, mental health, happiness, and loneliness. As was shown in the literature overview in Chapter 3, the field of SBMH is characterized by a lack of robust evaluations that have used large samples, test and control groups and followed the participants over time. It was found that there is a shortage of studies that have included quality elements such as fidelity assessments.

The current research has addressed some of these methodological issues by using a large sample, test and control groups, and followed the participants over several measurement occasions. Data have also been collected from teachers to evaluate aspects of programme fidelity. The research is thus an important contribution to prevention science in the field of SBMH.

The current study employed a quasi-experimental test-control-group design based on convenience sampling. This study design allows data from students who participated in VIP partnership (test) to be compared with data from students who did not participate in the programme (controls). To track potential changes between these groups across time, it was essential to gather data at multiple measurement points. While it would have been desirable to collect data prior to implementation to obtain pre-scores that were unaffected by students' participation in the programme, this was not possible because VIP partnership begins on the first day of school after the summer holidays. As such, the data collections were conducted approximately one week (baseline), 10 weeks (post-test) and six months (follow-up) into the school year 2017/18. Moreover, random assignment of schools to the test and control conditions would have been preferred. However, this was not feasible in the present study as VIP partnership was already being used by several schools in the participating counties when the data collection was scheduled to commence.

Since the primary objective of this PhD thesis is to investigate the effectiveness of VIP partnership, it was considered appropriate to collect data through standardized self-reporting questionnaires. This allows the potential effects of the programme to be evaluated across large groups of students. Using a large sample and quantitative questionnaire data was also considered beneficial for examining statistical relationships

between other factors in the psychosocial environment and students' emotional health, as was done in Article I.

#### **4.2. Procedure and Participants**

The project was initiated in January 2016, when I asked the developers of VIP partnership (VSP) if they would be interested in getting the programme evaluated through the current PhD project.<sup>19</sup> VSP responded positively to this, and later that month, all county authorities in Norway were invited in writing to join the research project (see Appendix II). The invitation explained the rationale of the study and what would be required from the county authorities upon participation.

Of the then 19 counties in Norway, two responded that they wanted to take part in the research project. One of these counties (A) is located geographically close to one of Norway's largest cities, and the other (B) is a rural county characterized by a relatively large geographical spread of schools. The participating county authorities were responsible for recruiting schools to the project. Relevant schools received a letter informing what the project was about and what participation would involve for the school (see Appendix III). The schools were recruited from public upper secondary schools through convenience sampling. The test schools were recruited from schools that already used VIP partnership or planned to use it in autumn semester 2017. Control schools were recruited among the schools that did not plan to use VIP partnership. In county (A), six test schools and three control schools from the same geographical area were invited by the municipal director to participate in the project. Of these, one test school declined to participate on the grounds that they had already taken part in many surveys. The remaining eight schools agreed to participate. In County (B), only five upper secondary schools did not plan to use VIP partnership in autumn semester 2017,

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<sup>19</sup> As can be seen in the first invitation letter (Appendix II), the PhD project was originally intended as an examination of the effectiveness of VIP partnership on school dropout and absenteeism, with students' experiences of the social classroom environment, wellbeing, and mental health as secondary outcomes. This plan however changed as the project progressed. It was for instance considered challenging to determine whether potential differences in dropout rates between the relatively few test and control schools were due to this specific programme. In addition, the limit for undocumented school absence in upper secondary school was retrenched during the period in which the programme was to be evaluated. This would make it difficult to detect potential effects of VIP partnership on school absence. Finally, it was considered more sensible to first evaluate the effectiveness of the programme on outcomes that were linked to the specific aims of VIP partnership (i.e., the social classroom environment and mental health), before possibly looking into school leaving or absence rates.

and all of these were recruited as control schools. Six test schools were recruited based on them being as similar as possible to the control schools in size and geographical location.

Of the 19 schools that agreed to participate, two were removed from the study during the data collection. One of these was a test school in country (B) which, despite repeated reminders, did not complete the survey at t1. Another control school from county (A) had a very low response rate at t2 (17 %). This was considered to increase the risk of error to such an extent that it was decided to exclude the school from the study. As such, the final number of participating schools was 7 control schools and 10 test schools.

After the schools had been recruited, I was responsible for the further correspondence and planning with the individual schools. In the spring of 2017, school principals received a letter that provided further details on the school's forthcoming participation in the study (see Appendices III, IV and VI). Before the data collection started, each school appointed a contact person who would have the overall responsibility for conducting the surveys and act as a liaison between the school and NTNU.

Prior to each data collection, the contact persons received emails from me that informed about the data collection procedure (see Appendix VI). Data were collected by means of electronic self-reporting questionnaires during school hours, and each questionnaire took about 20 minutes to answer. Before responding to the first two surveys, the students were shown information films recorded by me. In these videos, I explained the purpose of the study and encouraged the students to answer the questionnaire properly.

The first survey (t1) was conducted during the first two weeks of the school year. One and a half weeks after opening, a total of 10 schools had completed the survey, while 16 classes in four test schools and seven classes in five control schools had not responded, for reasons unknown. The survey was kept open for another week and a half for these schools, and this increased the participation by three classes in two

test schools and four classes in three control schools.<sup>20</sup> At t2, a total of 18 classes in four test schools and six classes in two control schools did not participate. At t3, this applied to 16 classes in three test schools and three classes in two control schools. The bulk of non-responses were within one test school, where 10 out of 20 classes did not participate at t1-t3 (the response rate at each survey was approximately 40 % for this school). This school was nevertheless included in the final sample to increase the number of responses.

The response rates at the three surveys and some characteristics of the student sample are shown in Table 3. The responses from 28 (t1), 26 (t2), and 31 (t3) of the students were omitted from the dataset due to low quality (e.g., completed less than half of the questionnaire, or had exclusively extreme values on target items together with short response time). Of the 3,155<sup>21</sup> students who were enrolled in the 17 participating schools, 2,636 responded to the questionnaire at t1, 2,527 at t2, and 2,453 at t3 (see Table 3).

In addition to the student surveys, teachers in the test schools were invited to respond to an electronic survey in January 2018. The purpose was to collect data on programme fidelity and teachers' satisfaction with VIP partnership.

**Table 3 Participation Figures and Student Sample Characteristics by Group (Test vs. Control)**

	Test		Control	
	N	%	N	%
Number of schools	10		7	
Average school size (number of students)	562		606	
Students enrolled in first year of upper secondary	1992		1163	
Participated at baseline	582	79 %	1026	88 %
Participated at post-test (10 weeks)	529	77 %	972	84 %
Participated at follow-up (six months)	458	73 %	964	83 %
Participated at baseline + post-test	303	65 %	834	72 %
Participated at baseline + follow-up				
Participated in all surveys	1101	55 %	734	63 %
Female	669	61 %	40	60 %
Enrolled in general studies education programmes	867	78 %	531	72 %
Born in Norway	975	89 %	646	88 %
Mother's educational attainment				
Primary or upper secondary school	364	33 %	270	37 %
Higher education (College/University)	720	65 %	453	61 %

<sup>20</sup> Correction to article I: In the procedure section p. 5, I wrote that "14 schools had completed the survey. In the three remaining schools (two test and one control), a total of nine classes asked for more time to answer the questionnaire." The correct numbers should be three classes in two test schools and four classes in three control schools.

<sup>21</sup> Correction to Article I, in which I wrote that the sample comprised 3,149 students.

### 4.3. Philosophical Standpoint – Critical Realism

A well-known distinction in the philosophy of science is between the *constructivist* and *(post)positivist* paradigms,<sup>22</sup> which are often associated with qualitative and quantitative research methods, respectively. An alternative meta-theoretical perspective within which the work in the current thesis may be placed, is *critical realism* (e.g., Bhaskar, 2008). As a philosophical framework, critical realism seeks to transcend the seemingly incompatible distinction between objectivism (positivism) and subjectivism (constructivism) by separating between ontology (what is real) and epistemology (what we can know, and how).

Critical realism is committed to ontological *realism*, and the notion that there exists a reality independent of human conception. Reality is perceived to be divided into three domains, namely the real, the actual, and the empirical. The real domain comprises basic mechanisms or structures, which can act as causal forces to generate events in the actual domain. To the extent that these events are empirically observed or experienced, they become part of our knowledge in the empirical domain (Bhaskar, 2008; Hjardeaal, 2011).

Critical realists thus draw a distinction between reality as it is, which Bhaskar (2008) termed the “intransitive” dimension of science, and our changing concepts and knowledges of it, or the “transitive” dimensions of science. The aim of science, says Bhaskar, is to produce knowledge of the independently existing processes and things in the intransitive domain (Bhaskar, 2008). To explore this unknown, but knowable, intransitive structure of the world one must make use of “social products [and] antecedently established knowledges” (Bhaskar, 2008, p. 13), such as theories, paradigms, models, facts, hypotheses, and so on (Patomäki & Wight, 2000), that can function as the transitive objects of new knowledge.

Critical realists moreover maintain that the perspectives and theories we have about reality in the empirical domain are socially produced, and hence, fallible. Our knowledge is thus always open to critique and may be replaced by other relationships

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<sup>22</sup> In the current thesis, and in accordance with Sohlberg and Sohlberg (2013, p. 258), a *paradigm* is understood as a synthesis of the ontological, epistemological, and methodological position of a research tradition.



and categories. As one cannot claim that one perception of reality is the right one, critical realism can be placed within epistemological relativism (Hjardemaal, 2011).

Another belief within critical realism is that the structures and mechanisms of reality are stratified or layered. To understand complex phenomena, such as mental health and loneliness, one must seek to understand mechanisms in different strata (Bhaskar & Danermark, 2006). As mentioned in Section 1.2, previous research has demonstrated that mental health develops in a complex interplay between a range of mechanisms, including genetic mechanisms in one stratum (biology), social support networks in another (social/relational), and coping behaviour in a third (psychological). In critical realist terms, this thesis is designed to use research and theory to disclose some of the underlying mechanisms within the social/relational stratum, that can explain aspects of the phenomena of mental health, wellbeing, and loneliness. It follows from this that assumptions of causality are central to the thesis.

Uncovering causal relationships is a possibility and an ideal in critical realism. Causality, however, is not regarded as regularities between distinct causes and effects, but as something which is derived from underlying mechanisms and structures in the real domain (Gorski, 2013). Causality is about explaining *how* something has happened by uncovering tendencies in these mechanisms and structures (Danermark et al., 2002).

For instance, a precondition for VIP partnership and other school programmes, is that there exist some underlying mechanisms that have the propensity to act as causal conditions for students' wellbeing and mental health (substantiated through research and theory). The idea is that using the specific programme components in the classroom can trigger certain mechanisms in the social/relational stratum (in the domain of the real), that may generate events that can be observed and documented in the empirical domain. While these potential changes can be documented empirically (i.e., in the form of causal *descriptions*; e.g., Gustafsson, 2013), the generative mechanisms which are to substantiate how and why the changes took place (i.e., the causal *explanations*; e.g., Gustafsson, 2013) are not available for verification (Danermark et al., 2002). Explaining such observations in the empirical domain therefore requires a theoretical language that "forges contact with the reality that exists beneath the level of events" (Blom & Morén, 2011, p. 63). As such, based on existing theory and research (see Articles II and III, and

Chapter 2 of this thesis), one can substantiate that an observed change is due to, for instance, participation in VIP partnership.

Critical realists accordingly emphasize *abduction* and *retroduction* as modes of inference or theoretical explanation (e.g., Danermark et al., 2002; D. Scott & Bhaskar, 2015). Abduction implies an inference to the best explanation (Danermark et al., 2002), whereas retroduction is about locating the structures or mechanisms that are proposed to produce or be conditions for an observed phenomenon (D. Scott & Bhaskar, 2015). Thus, by using existing theory and research, one can generate a probable causal explanation for the detected phenomena.

#### **4.4. Data**

SelectSurvey was used as IT-solution for the electronic survey, as this service at the time of the data collections had a data processor agreement with NTNU. The following sections are intended to supplement the information provided in each of the three articles.

##### **4.4.1. Student Questionnaires**

To ensure validity and reliability, emphasis was placed on mainly using instruments that had been validated in previous studies. The following instruments were employed in this thesis: The social classroom environment (4/6 items) (Articles I and II), social anxiety (3 items), mother's level of education (dichotomous) (Articles II and III), happiness (4 items), internalizing problems (9 items) (Article III), instrumental and emotional teacher support (4 items each) (Article I), loneliness (5 items), student grades (3 items), and gender (dichotomous) (Articles I-III).

Of these, the social classroom environment was the only instrument created specifically for the current PhD project. This instrument was designed to capture some of the basic elements of VIP partnership, with the purpose of using it as part of an initial evaluation of the programme (as was done in Article II). The items were derived in part from a survey designed by VSP (2015, 2016), and in part designed to capture other central programme elements (see "Programme content" presented in Table 1; e.g., "I always have someone to sit with in class", and "The other students in the class greet me when we meet"). The remaining measures were derived from already tested instruments. Some of the item formulations were in some cases slightly adjusted by me,

for instance from the original “My teachers are really trying answer my academic questions”, to “My teachers try to answer my academic questions” (instrumental teacher support). All employed instruments are described in the three articles of this thesis. The instruments used, including item formulations and factor loadings are also available in Appendix IX.

#### 4.4.2. Teacher Questionnaire

In addition to the student survey, teachers who had used VIP partnership were invited to respond to an electronic questionnaire three months after the programme ended. The purpose of this survey was to collect data on programme implementation and fidelity, and to invite the teachers to share their experience with using VIP partnership. Results of the fidelity analyses are addressed in Article III. Some qualitative data from the teacher survey will be briefly presented in Section 4.6.7.

The range and average number of hours of teacher training is presented in Table 4, and shows that the average number of teacher training ranges from 1.4 to 3.6 hours.

Table 4 Hours of teacher training received at the test schools

School no.	Teacher N	Teacher training	
		Range (hours)	Mean hours (SD)
1	17	1-10	3.1 (2.2)
2	9	1-5	2.6 (1.2)
3	4	1-5	2.5 (1.7)
4	6	0-8	3.0 (3.5)
5	4	0-4	2.0 (2.0)
6	3	1-3	2.0 (1.0)
7	8	0-2	1.4 (0.4)
8	9	1-3	1.7 (0.7)
9	13	1-3	1.8 (0.8)
10	5	2-8	3.4 (2.6)
<b>Total</b>	<b>78</b>	<b>0-10</b>	<b>2.4 (1.8)</b>

#### 4.5. Analyses

Analyses were conducted in SPSS 26 and the statistical software R version 3.6.1, including the lavaan package (Rosseel, 2012). Exploratory factor analyses were performed on all the instruments included in the three articles. Factor loadings and item formulations for all the study variables can be found in Appendix IX.

Because the data had a hierarchical structure where students (level 1) were nested within classes (level 2) which were nested within schools (level 3), it was initially considered appropriate to use multilevel analyses to examine the research questions. A key assumption was that independent variables at the school and classroom

levels, such as school management and different teacher styles, could have an impact on the dependent variables at the individual level. A multilevel analysis was therefore conducted in SPSS with the social classroom environment as dependent variable. The results suggested that there was little within-classroom and -school variance in mean scores for the social classroom environment variable. Of the total variance, 3 % was at level 2 (class), 1.6 % at level 3 (school), whereas 95.4 % was at level 1 (individual). Because minimal variance was explained at levels 2 and 3, it was considered inexpedient to use multilevel modelling as a method of analysis.

In Article I of this thesis, structural equation modelling (SEM) was employed as analysis technique. SEM is a multivariate statistical method that combines factor analysis and multiple regression analysis and is used to test the extent to which a hypothesized theoretical model fits the collected data (Kline, 2011). The main advantages of SEM are that one can investigate complex relationships between latent variables and directly model the measurement error (e.g., Little, 2013). Further, the fit of the model to the data can be assessed by various fit criteria (e.g., RMSEA, CFI, TLI), where adequate goodness-of-fit supports the proposed relationships between the variables in the model. In longitudinal studies, SEM provides the opportunity to include multiple relationships between latent constructs, and connect error terms between items measuring the same phenomena (Little, 2013). More information about the SEM analysis-process is provided in Article I.

Further, ANCOVA and MANCOVA,<sup>23</sup> or “(Multivariate) Analysis of Covariance Analysis” were employed to evaluate the effectiveness of VIP partnership on students’ perceptions of the social classroom environment (Article II), internalizing problems, happiness, and school loneliness (Article III). (M)ANCOVA is commonly used to analyse data from quasi-experimental studies where the test and control groups are not randomly assigned. One of its advantages is the use of covariates that are related to the outcome variable, including pre-test scores, which can attribute some of the unexplained variance in the test to other measured variables, and accordingly reduce the

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<sup>23</sup> MANCOVA is a multivariate extension of ANCOVA, meaning that it can incorporate multiple dependent variables.

within-error variance (Field, 2018). The analysis process for the ANCOVA and the MANCOVA analyses is described in more detail in Articles II and III.

#### **4.6. Quality Assessments**

When evaluating the quality of a research study, one must consider not only the study results, but also the *rigour* of the research. That is, the extent to which the researcher has worked to improve quality of the study (Heale & Twycross, 2015). *Reliability* and *validity* are two important quality indicators in quantitative studies. Reliability refers to the accuracy, stability, and internal consistency of an instrument (Winter, 2000), whereas validity refers to the degree to which one can draw well founded conclusions from the results of a study. Quality components such as robustness, fidelity, and research ethics will also be addressed in this section.

##### **4.6.1. Reliability**

Internal consistency is the reliability component of most relevance to the current study and is commonly measured with Cronbach's alpha ( $\alpha$ ). The alpha value is calculated from the average of all correlations from all possible combinations of split-halves in a test. The coefficient is expressed as a number between 0 and 1, where values above 0.7 are considered acceptable. In the current study, all instruments (i.e., social classroom environment, depressive symptoms, social anxiety, loneliness, happiness, and instrumental and emotional teacher support), displayed good internal consistency with  $\alpha \geq 0.80$  (see Appendix IX, Tables 6-8, and Articles I-III).

Test-retest reliability refers to the stability of scores obtained by the same individuals measured with the same instruments on different occasions. This PhD study has a longitudinal design, which enables evaluations of the stability of the instrument across time. However, the test-retest coefficient cannot distinguish between real change in individuals, which can be expected from the types of latent variables included in the current study, and failing reliability of the test (Kleven et al., 2011). Moreover, the long time-lapse between the measurements may increase the chance of dissimilar random measurement errors and in turn decrease the test-retest-coefficient. As such, this reliability dimension is not appraised in the current thesis.

#### **4.6.2. Construct Validity**

Construct validity refers to the extent to which an instrument is measuring the construct it claims to be measuring, or in other words, whether an operationalization of a concept corresponds to the theoretical definition of this concept (Kleven et al., 2011). The approach to ensure construct validity in this thesis involves adopting already validated instruments and operationalizing each construct through multiple items.

During the creation of the questionnaire, I examined whether the operationalizations of the various concepts corresponded to previous research and theoretical definitions. After the data had been collected, factor analyses were employed to check whether the items were distributed as expected on the latent factors, and they did so without exception (see Appendix IX, Tables 6-8). The instruments used in the articles moreover correlated with variables that they were theoretically expected to correlate with (e.g., the three measures of mental health – happiness, internalizing and social anxiety symptoms in Article III, and emotional and instrumental teacher support in Article I). I also tested for measurement invariance across gender on the instruments included in Article I (instrumental and emotional teacher support, the social classroom environment, and school loneliness). The results suggested that the same underlying constructs, with the same meaning, were measured across these groups (Vandenberg & Lance, 2000). Furthermore, and as was shown in Section 4.6.1 of this thesis, the instruments employed in each of the Articles demonstrated high internal consistency. This suggests that the instruments are little affected by threats from random measurement errors. Taken together, the above-mentioned aspects contribute to support the assumption that the instruments used in the current research demonstrate good construct validity (e.g., Kleven et al., 2011).

#### **4.6.3. Statistical Conclusion Validity**

This validity dimension is about whether and how much a cause and effect covary and is a matter of the use of adequate statistical procedures (García-Pérez, 2012). Good statistical conclusion validity (SCV) is sought when the conclusions of a research study are based on appropriate analyses of the data (García-Pérez, 2012). One way to ensure SCV is to use a sample size which is large enough, or has sufficient *power*, to unveil a statistical difference when one really exists. In the current study I sought to gather as large a sample as possible, and the statistical testing started when all the data had been

collected. This is in accordance with the asymptotic theory that gives justification for null hypothesis significance testing and is an important aspect of SCV (García-Pérez, 2012). Three additional aspects of SCV should be considered:

First, the statistical analyses used should match the characteristics of the design of the study and be able to logically provide an answer to the research question (García-Pérez, 2012). In the current research, (M)ANCOVA was chosen as analysis method to test the effectiveness of VIP partnership, and SEM was chosen to test the longitudinal relationships between other variables in Article I. The reasons for these choices are described in Section 4.5 of this thesis. While it initially was considered relevant to use multilevel techniques to analyse the data, the results from preliminary tests suggested that little of the variance could be attributed to the classroom and school levels. The idea of using multilevel analysis was therefore abandoned.

Based on the knowledge I had when the data were to be analysed, I would argue that the chosen statistical methods matched the design of the study and provided answers to the research questions. However, I have since learned that attrition constitutes a potential source of bias to the research. As (M)ANCOVA resolves missing measurements by removing the cases from the analyses (Hox, 2010), it is not certain that the chosen analytical method provided the *least biased* answers to the research questions in Articles II and III. Hox (2010) for instance encourages the use of multilevel analyses for longitudinal data, among other things because of the advantage it has in handling missing data and observations. In retrospect, it could therefore have been relevant to use a multi-level method to analyse the data of the study.

A second aspect of SVC is that the statistical tests should be employed under conditions that do not alter the specified probability of Type-I and Type-II errors (García-Pérez, 2012). Most statistical procedures require that specific assumptions can be made about the distribution of data/parameters. In the case of (M)ANCOVA and SEM analyses, such assumptions for instance include normality of distributions, homogeneity of (co)variance, homoscedasticity, homogeneity of regression slopes, and absence of multicollinearity. In the current research I did a two-stage approach in which I first tested these assumptions, and then tested the null-hypotheses of the data (e.g., Field, 2018; Laerd Statistics, n.d.). Based on the results of the initial tests, I ran robust main analyses in Articles I and II. Specifically, maximum likelihood estimation with

robust standard errors and a Satorra-Bentler scaled test statistic (MLM) was employed in Article I, and bootstrapping and the HC3 heteroscedasticity-consistent standard error were employed in Article II.<sup>24</sup>

Third and last, statistically significant findings should be meaningful in practice, beyond being a consequence of a large sample (García-Pérez, 2012). The magnitude of the effects found in the current study have been discussed in Articles II and III and will also be addressed in Chapter 6.

#### **4.6.4. Internal Validity**

Internal validity refers to the degree to which the statistical relationships established in a study, such as cause and effect, are trustworthy (Kleven et al., 2011). Internal validity can be approached somewhat differently in research with experimental and non-experimental designs. The latter involves statistical predictions which can always be due to various causal relationships (cf. Section 4.3), and this makes it impossible to draw definite conclusions about causation (Kleven et al., 2011).

*Non-experimental research and SEM.* Article I of this thesis was based on a SEM model in which some latent variables (instrumental and emotional teacher support) were set to predict others (social classroom environment and loneliness). Bollen and Pearl (2013) emphasize that SEM models imply a distinction between model-data consistency and model-reality consistency, where the latter as mentioned is impossible to prove. While causal relations cannot be derived from a SEM model per se, the model represents and depends on the causal assumptions of the researcher (Bollen & Pearl, 2013).

In the SEM model in Article I, previous research (see Article I) and theory (see theories of social causation and direct effects in Chapter 2), as well as the longitudinal research design, formed the basis for the creation of a theoretical model which specified perceptions of teacher support as predictors of the social classroom environment and loneliness. I made some causal inferences from the results found in Article I when I

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<sup>24</sup> It should, rather paradoxically, be noted that while testing for these assumptions is important to ensure SCV, some statisticians (see García-Pérez, 2012) argue that using this two-stage process has severe effects on Type-I and Type-II error rates and consequently involves a breach of SCV. García-Pérez (2012) for instance maintains that the two-stage process will result in “more complex interactions of Type-I and Type-II error rates that do not have fixed (empirical) probabilities across the cases that end up treated one way or the other according to the outcomes of the preliminary test” (p. 4).



proposed “that a positive social classroom environment is an important safeguard against student loneliness, and that teachers can aid in preventing loneliness among students through facilitating a positive social environment in the class” (Morin, 2020, p. 1687). As such, questions of internal validity are, to some extent, relevant to the research.

The results of the SEM analysis (see Article I) suggested that there was no direct statistically significant relation between teacher support and loneliness. Loneliness was in turn strongly predicted by students’ perceptions of the social classroom environment. Nonetheless, the fact that the data fit with the theoretical model that I had specified does not rule out a central threat to internal validity, namely the possibility of reverse causation. That is, that adverse inner states such as loneliness may also influence the extent to which individuals are selected by classmates as social partners (cf. the social selection processes theory and the assumption of a mutual influence between social causation and selection processes). Therefore, I cannot conclude that there is a causal relationship between students’ perceptions of the social classroom environment and loneliness, and neither that there is *no* causal relationship from teacher support to loneliness. However, the fit of the data to the theoretical SEM-model could indicate that the proposed causal assumptions are plausible (see Bollen & Pearl, 2013).

Consistent with a critical realist view, and as mentioned in Article I, there are a multitude of potential answers to the question of what factors, or generative mechanisms, can affect students’ loneliness. The purpose of the SEM model was thus not to present the associations between the independent and dependent variables as a fixed relation that rejects other potential causal relations. Students’ perceptions of the social classroom environment may impact their experience of school loneliness, but this does not imply that it is the only variable of significance.

*Experimental research.* Essentially, causality does not become imperative until experimental designs are used (see Bollen & Pearl, 2013; Kleven et al., 2011). The purpose of VIP partnership, like other school programmes, is to create a form of change (e.g., promoting the social classroom environment and students’ mental health, and preventing mental health problems), and it is thus clearly based on an idea of causality (see also Section 4.3). Questions of internal validity are therefore highly relevant to Articles II and III of this thesis. To what extent can one for instance assume that the

favourable development among students in the test group compared to controls, which was found in Articles II and III, is due to participation in VIP partnership, and not to some other confounding variable?

*RCTs and confounding variables.* Gaining knowledge about cause and effect depends largely on study design. Randomized controlled trials (RCTs) generally constitute the “gold standard” for evaluating intervention effects in education research (e.g., Styles & Torgerson, 2018; Sullivan, 2011). One main advantage of such trials is the randomization of participants into test (intervention) and control (no intervention) conditions. This reduces the risk of confounding variables and selection bias (e.g., that individuals who agree to participate in a study differ from those who do not agree to participate), and increases the likelihood that differences in outcome between the groups can be attributed to the intervention.

Randomization was not possible in the current study, and confounding variables may constitute a potential threat to the internal validity of the results. One way I attempted to adjust for potential confounders in this thesis was to use (M)ANCOVA as an analysis method in Articles II and III, which as mentioned can remove the variance accounted for by various quantitative covariates (Field, 2018).

Another potential confounder is that 9 of the 10 test schools that participated in the current study had used the VIP programme in addition to VIP partnership at the time of the third data collection (at six-month follow-up). This means that at t3, I did not measure a «pure» effect of VIP partnership in these schools, but potentially also the effect of the VIP programme. As described in Section 1.6.3 of this thesis, the previous evaluation of VIP indicated favourable programme effects on students’ mental health problems (B. J. Andersen, 2011). Based on these results one would, if anything, perhaps expect the VIP programme to be positively confounding by contributing to overestimating the effects on students’ mental health at t3. However, the findings from Article III suggested that this was not the case, as the test and control groups scored similarly on the mental health, loneliness, and wellbeing outcomes at six-month follow-up. Importantly, however, these results do not imply that one can ascertain a potential (lack of) effect of the VIP programme.

There is furthermore a risk of selection bias being present in the current study, as the schools could choose both whether they wanted to implement VIP partnership and

whether they wished to participate in the research project. These limitations will be further addressed in Section 7.2 of this thesis.

Next, it is worth mentioning that researchers have problematized the use of randomization in educational intervention studies, and pointed out that schools are characterized by several contextual factors which may affect outcomes in ways that randomization cannot fix (Sullivan, 2011). Thus, like quasi-experimental studies, RCTs may not be able to “control for” factors that can have greater impact than baseline differences in the subjects. Such factors include methodological issues like high dropout rates, as well as variations in intervention sites (i.e., schools and classrooms), in those implementing the intervention (teachers), in intervention intensity and in the use of programme elements (i.e., programme fidelity) (Sullivan, 2011). Some of these contextual variations will be addressed in the discussion in Section 6.2.1.

*Potential confounders.* Other potential threats to internal validity, such as participant maturation/time effects and regression towards the mean, are assumed to be minimized in the current thesis due to the use of control groups. For example, students in the test and control groups are in the same age group and demonstrated similar baseline characteristics at t1 (see Table 3).

*Attrition.* Last, high attrition, or dropout rates can be a threat to internal validity if the dropout pattern is linked to either the independent or dependent study variables, and specifically if there are differences in rates of attrition among conditions (test vs. control) and if pre-test scores for dropouts differ among conditions (Barry, 2005; Hansen et al., 1985). In these instances it is difficult to determine if an observed group difference, which would indicate a causal relationship between the programme and the examined outcome, is a result of the programme or attrition (Barry, 2005). In Article III, I found that attrition characteristics were similar across the test and control groups for gender, mother’s level of education, and dependent variables at baseline (internalizing problems, happiness, loneliness, and social anxiety). While not explicitly addressed in Article II, results from additional independent samples t-test indicate that dropouts in the test and controls did not statistically differ in mean scores for the social classroom environment variable at baseline (mean difference = .11,  $p = .186$ ). Further, the percentage of loss of participants from t1–t2–t3 was comparable for test and control schools (30 % and 28 %, respectively). Moreover, the use of (M)ANCOVA as a method

of analysis can correct for some attrition flaws by statistically adjusting for differences in baseline scores and other covariates between the two conditions (Hansen 1985). Taken together, attrition should pose a limited threat to the internal validity of the study.

#### **4.6.5. External Validity**

The purpose of most social science research is to identify probable patterns of behaviour or causal relations that have some degree of relevance outside the studied setting (Polit & Beck, 2010). Polit and Beck (2010) describe *generalizability* as an “act of reasoning” that involves making broad inferences about “the unobserved based on the observed” (p. 1451). In this context, external validity is about the extent to which the results of a study can be generalized across individuals, settings, and time (Lund, 2002).

*Statistical* generalization is often emphasized as a goal of quantitative research, and depends on the degree to which the study sample mirrors, or is representative of, the population (this is however rarely achieved in practice, cf. Polit & Beck, 2010). The current research is based on convenience sampling, meaning that the results cannot be readily generalized to the broader population of 15- and 16-year-old adolescents in Norway. One way to address and assess external validity is nonetheless to clarify central characteristics of the studied sample (Polit & Beck, 2010).

In the current research, the participating schools were of varying sizes and urban and rural areas were represented. The sample should thus mirror the school situation in Norway in these aspects. There was further a predomination of students who took general studies (78 % and 72 % in the test and control schools, respectively) compared to vocational education programmes. At the time of the data collection, this distribution at the national level was approximately 60 % in general studies education programmes and 40 % in vocational education. As there is a female predominance in the general studies education programme, girls were overrepresented in the current sample by 60 %, against 40 % boys. Moreover, only two of the then 19 counties in Norway were included in the sample. There is thus a lack of representativeness of the study sample to the general population of first year upper secondary students in Norway in terms of gender, education programmes, and counties.

When it comes to generalizability from experimental studies, key questions are whether the programme effects would have been found in other populations and samples, and whether the study findings are generalizable across different subgroups in

the sample. Regarding the latter aspect, the results from Article III indicated significant programme effects on internalizing problems only among the students with no or low symptoms of social anxiety at baseline (see Article III). These results suggest that the programme effects cannot readily be generalized across subgroups in the sample. As for the former aspect, the participating school and classroom settings are likely to vary from each other and from other schools in Norway in terms of different contextual characteristics such as leadership, work climate, and provider characteristics (Durlak & DuPre, 2008; Eriksen & Lyng, 2015; Sullivan, 2011). This may limit the generalizability of the results across various school contexts (this topic will be further addressed in Section 6.2.2).

Taken together, the research finding of the current thesis cannot be universally and conclusively generalized to other schools or student populations in Norway. It is nonetheless assumed that the findings to some extent are generalizable, and thus have some relevance, to populations that share characteristics similar to the sample. However, it is difficult to determine precisely for which settings and schools the findings may apply.

Polit and Beck (2010) suggest considering generalization as a working hypothesis that should be tested again and again. Also, they state that to further assess the external validity of the results, the research should be replicated in the future. Polit and Beck (2010) furthermore suggest comparing the consistency of the results with findings from similar studies. As will be addressed in the discussion in Section 6.1.1., the findings of Article II and III are largely consistent with previous evidence from environment-based school-interventions for mental health. These aspects may contribute to strengthening the external validity of the study results.

#### **4.6.6. Robustness**

In accordance with the recommendations by Slack and Draugalis (2001), I performed sensitivity analyses in Article III, in which I included data from occasional dropouts ( $t1 + t2$  or  $t1 + t3$ ). The purpose was to examine if the results changed when missing data were taken into account (Thabane et al., 2013). Such a procedure is also an advantage because the larger sample size will increase the accuracy of the estimates and the power of the test (Hox, 2010). As was shown in Article III, the results were comparable across

the samples that included data from occasional dropouts and that which included data only from the final sample.

#### **4.6.7. Implementation Fidelity**

Fidelity refers to the extent to which the implantation and conduction of a programme corresponds to how it was originally intended (Carroll et al., 2007; Durlak & DuPre, 2008). Fidelity is considered important to the quality of an intervention because, if the gap between the intervention as it was planned based on research-based knowledge and the intervention as it was implemented at the school is too large, then the anticipated outcomes are not likely to be achieved (Carroll et al., 2007; Durlak & DuPre, 2008). As such, an intervention may be considered as ineffective, when in fact, the lack of effects could, at least in part, be due to implementation shortcomings.

Drawing on Dane and Schneider (1998) and Roberts et al. (2017), de Leeuw et al. (2020) have operationalized fidelity as consisting of 1) *fidelity promotion* (manuals, implementer training, implementation supervision), 2) *adherence* (faithfulness to intervention guidelines), 3) *exposure* (frequency and duration of intervention), 4) *quality of delivery* (how well the intervention was implemented), 5) *intervention model* (theory of change), 6) *critical components* (considered essential for intervention effectiveness), and 7) *participant responsiveness* (level of participant interest and attention, and perceived effectiveness). In the following, each of these components will be discussed in relation to the current project.

1) Various factors have been addressed to ensure fidelity promotion in the current study. For instance, to ensure a certain standardization in the use of VIP partnership, most teachers received training in in the programme (though with somewhat varying duration, see Table 4), and all teachers received manuals that provided detailed descriptions on how to conduct the programme (VSP, 2020b). Such clear and specific guidelines have been found to be more likely to be followed than indistinct ones, and are thus important to the fidelity of the current study (Carroll et al., 2007). Moreover, participating students were given manuals that informed them about the programme and described a selection of social exercises/activities (see Table 1, and Articles II and III).

2) As for adherence, this was assessed through self-reports filled out by teachers and students who participated in VIP partnership (see Article III). The contact teachers

were asked to indicate: if they had received training in VIP partnership; the extent of this training; which of the programme components they had used (e.g., divided the students into partnerships and partner groups, and changed partners every three weeks); if the students had worked together in partnerships/partner groups in their classes, and; how satisfied or dissatisfied they were with VIP partnership. In addition, students in the test schools were asked to indicate whether on the first day of school they had been assigned a partner, taken part in social exercises, and received name tags on their desks (see Article III for further details). The results of these evaluations showed that a high proportion of teachers and students reported having used these elements, and that the teachers' and students' responses matched well. This suggests that central programme elements had largely been delivered as instructed in the programme protocol (see Article III).

While implementation adherence for each programme component can be considered satisfactory based on the self-report data, it would have been desirable to collect data on adherence through "objective" indicators such as classroom observations (see de Leeuw et al., 2020). Further, seven teachers (12 %) reported that they had not used social exercises from the teacher manual. While not addressed in Articles II or III, this could suggest that *post hoc* analyses should have been performed for the test group, examining the potential impact of the (number of) exercises implemented.

3) Next, information about programme exposure is also based solely on teacher self-reports. While not included in Article III, the teacher questionnaire data showed that 81 % reported that the students had "always" or "mostly" worked together in partnerships during their classes. Further, 92 % of the teachers reported to have changed partners and partner groups every three weeks. It is however unknown whether the teachers for instance carried out the exercises from the teacher manual during the partner swops at week three and six.

4) The quality of delivery has not been explicitly examined in the current study, and it is therefore not known how intensely the teachers complied with the programme over the nine weeks that it lasted.

5) The presumed theory of change relating to VIP partnership is presented in Article III, and in more detail in Chapter 2 of this thesis.

6) Some key elements of the programme have been described in Articles II and II, and in Section 1.6. VSP (2020b) has moreover outlined some critical components of VIP partnership in the teacher manual, where it is emphasized that: VIP partnership should be implemented as soon as the students enter the classroom at day one of the school year; the partner groups are an extra social safety net if the partner should quit school or be absent; teachers should work to secure good transitions during the partner swaps in weeks three and six, by setting aside the time to do social tasks, and; that teachers ought to be consistent in their implementation for VIP partnership to work. As mentioned in point 1), the self-reporting data suggested that VIP partnership was largely implemented as intended on the first day of school, and that most teachers changed partnerships and groups after three and six weeks. However, and as addressed in point 3), the extent to which these programme components have been followed up by the teachers in practice, has not been evaluated in this thesis.

To summarize points 1 through 6, the self-reporting data from teachers and students suggested that central programme components had been carried out by the teachers, and this supports an assumption of good fidelity. As VIP partnership primarily involves rather concrete environmental components (e.g., dividing students into partnerships and organization of social tasks), the programme should be rather straightforward and easy to implement.

7) Last, participant responsiveness was not explicitly addressed in Articles II or III, mainly due to time and space constraints. However, the partaking teachers were invited to provide feedback on aspects that they found positive or negative about using VIP partnership through a teacher questionnaire (see Section 4.4.2.). These data are considered an important part of fidelity because they provide information about the teachers' perceived usefulness and value of the programme. Some of these qualitative data will be presented in the following.

Specifically, the teachers were asked to respond to the following question: "Can you write briefly about what you think has been positive and/or negative about using VIP partnership?" Of the 78 teachers who responded to the survey, 53 shared their



experience.<sup>25</sup> From these, as many as 43 teachers described their experience with VIP partnership as positive because it provided the students with various *social opportunities* (e.g., getting acquainted, creating a more socially secure start to the school year, and contributing to a better learning environment). Some example quotes (translated from Norwegian to English), are:

The students quickly got into relationship building when we started with partnership. From the first moment, they had the opportunity to get to know their partner better, and then (...) the partner groups of 4. It provided security especially for the students who knew no one/few in class and at school. Further division into new fellowships/groups extends the students' opportunity to get to know more students.

According to the students, the environment is very good, and they are more confident in each other. These are connected. As you change partners regularly, they [the students] get to know more people in the class - they like that. We have had a predominantly good environment at this school, but now it seems to be even better.

[It is] secure for students to know who to sit and work with. Positive with new partner after 3 weeks to get to know more [students] in the class. I definitely think this helps to secure the students and get a better learning environment.

Moreover, six teachers mentioned that they thought VIP partnership was positive because it had led to a *simplified organization*, for instance:

It is thus easier to start group activities, and less time is spent dividing [students] into new groups for each activity.

Easy way to organize/do group work.

On the more negative side, eight teachers expressed that the organization and/or implementation of VIP partnership involved some *extra work* or *took a lot of time*, for instance:

[VIP partnership] takes a lot of time, and the sum of this plus other organizational things that the c[ontact] teacher is responsible for, means that schoolwork/subjects come second. That's not good!

Takes a lot of my time the first few days of school, stress.

Three of the teachers moreover questioned the potential impact of VIP partnership, and two example statements are:

[I]t is not obvious that partnership prevents clicks from forming outside the classroom. Some students express that they lack belonging and experience exclusion from the "cool". Students have their own social rules and hierarchies that come before everyday school life. The influence of teachers and VIP [partnership] is quite limited.

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<sup>25</sup> The text data were organized and coded in NVivo, which is an analytical programme for qualitative data. Thematic analysis was used to identify patterns, or themes, within the data (Braun & Clarke, 2006).

[I] find that the students get to know each other well even if it is not systematized. After the process, I also see that some students withdraw a little, even though they have participated in this programme.

To briefly summarize the teacher data, a large proportion of the teachers who responded to the survey expressed that VIP partnership was positive because they thought it benefitted the school environment and the students socially. This is an important aspect of fidelity because it is conceivable that teachers who were positive to VIP partnership and believed that it profited the students and the learning environment, also exhibited higher level of adherence to the programme (Carroll et al., 2007). Some of the teacher data will be discussed further in Section 6.2.2. The qualitative data also suggested that some teachers found VIP partnership to be time-consuming and were unsure whether it benefitted the students socially. It is possible that the somewhat negative experiences of these teachers could be related to lower implementation fidelity (e.g., Carroll et al., 2007). As mentioned, however, and as a limitation, it has not been tested whether such aspects of fidelity impacted the student results.

Studies have furthermore suggested that higher levels of implementation fidelity are achieved when the deliverers are enthusiastic about a programme (Carroll et al., 2007). As such, the fact that 90 % of the contact teachers who participated in the teacher survey disclosed that they were “satisfied” or “highly satisfied” with VIP partnership and agreed that they would like to use the programme for future students, may have had a positive impact on these teachers’ implementation.

#### **4.6.8. Ethics**

According to Section 4 of the Norwegian Research Ethics Act, researchers are obliged to ensure that research takes place in compliance with recognized research ethics guidelines (Research Ethics Act, 2017). Such guidelines are provided for instance by The National Committee for Research Ethics in the Social Sciences and the Humanities [NESH], which addresses norms of good scientific practice and rules for the protection of participants and society, and research dissemination (NESH, 2019). These guidelines have served as an ethical framework through my work with this thesis.

*Personal data and informed consent.* The student surveys contained questions designed to measure wellbeing and mental health problems, which are considered

sensitive personal data within a broader definition of health. The requirement to obtain a license for processing these sensitive personal data was however exempt, since a data protection officer recommended that the research project be carried out (see Appendix VIII).

Because the research project dealt with directly (students) and indirectly (teachers) identifiable personal data, informed consent had to be obtained from the participants (NESH, 2019). Prior to the first data collection, students, parents, and teachers were informed in writing that participation was voluntary, that they could withdraw during or after the study without any disadvantage, and that completing the surveys was regarded as consent to participate (see Appendices V and VII). Moreover, the student surveys were carried out during the students' first year in upper secondary school, meaning that some participants were 15 years old at the time of the first two data collections. In accordance with the guidelines from the Norwegian Centre for Research Data and the Norwegian Data Protection Authority, parental consent was obtained from students under the age of 16 (see Appendix V).

*Confidentiality and data storage.* The aim of the study was to follow changes in the participants over time, and it was therefore necessary to connect the students' answers across the three surveys. Various solutions were considered, such as asking students to enter the last four digits of their telephone numbers at each survey. However, since colleagues reported having had bad experiences with this procedure, it was finally considered most appropriate to link the data using student names.

The use of questionnaires with student names together with sensitive personal information requires that strict and special consideration be given to protecting the participants' privacy through confidentiality and storage of data (NESH, 2019). As soon as the surveys had been completed by the students and the data file was downloaded from SelectSurvey, the students' names were replaced with an ID number. All identifiers containing ID numbers and student names were stored in a password protected area on NTNU's server, separated from the questionnaire data. All identifiers (including class-lists) were deleted as soon as the students' responses to the three surveys had been connected. All raw data were deleted from SelectSurvey after the surveys were finished. Throughout the research process, I was the only person who had access to any identifiers. The processing of personal data associated with the PhD

project was reported terminated to the Norwegian Centre for Research Data on December 11, 2020.

*Researching a programme designed by others.* While Vestre Viken and VSP have not acted as commissioner for the research project, there are some factors that should be considered as I have researched a programme that was designed by others. NESH for instance mentions that a commissioner has a right to steer the research subject and issues addressed. While all three questionnaires were designed by me, VSP employees were shown the questions and invited to give feedback on their content prior to dispatch. VSP reported back that they liked the questions, and they otherwise had no input regarding the research topics.

*Transparency and reporting of results to participants.* To ensure openness and transparency of the research and in accordance with NESH (2019) guidelines, the data collected for the study are open for examination by other researchers upon reasonable request. Finally, in keeping with the NESH guidelines maintaining that “[p]articipants in research have a right to receive something in return» (NESH, 2019, point 46), each participating school in January 2019 received a report with study results from their respective school.

## 5. Summary of the articles

This chapter will summarize the three articles included in this thesis. The summaries form the basis for the discussion of findings in Chapter 6.

### 5.1. Article I

Morin, A. H. (2020). Teacher support and the social classroom environment as predictors of student loneliness. *Social Psychology of Education*, 23(6), 1687–1707. <https://doi.org/10.1007/s11218-020-09600-z>

This article investigated the longitudinal relationships between students' perceptions of teacher support, the social classroom environment and school loneliness, and whether these associations vary by gender. The hypotheses underlying the structural equation model (SEM) were that: (1) *Positive perceptions of teacher support would (a) positively predict the social classroom environment and (b) negatively predict loneliness*, and that (2) *Positive perceptions of the social classroom environment would negatively predict loneliness*. The results showed that perceived emotional and instrumental teacher support were positively related to students' perceptions of the social classroom environment, and indirectly to student loneliness through the social classroom environment. While for boys, both types of teacher support were of significance, only emotional teacher support was of importance to girls. For both genders, the strongest contributing factor to explaining students' school loneliness was their perceptions of the social classroom environment. Based on these results, it is proposed that a positive social classroom environment can function as an important safeguard against student loneliness, and that teachers can aid in preventing loneliness among students through facilitating a positive social environment in the class. Notably, boys and girls may benefit differently from different types of teacher support.

### 5.2. Article II

Morin, A. H. (2020). The VIP partnership Programme in Norwegian Schools: An Assessment of Intervention Effects. *Scandinavian Journal of Educational Research*. <https://doi.org/10.1080/00313831.2020.1791247>

This article was a preliminary investigation of the effectiveness of VIP partnership and sought to examine if students' participation in the programme improved their

perceptions of the social classroom environment. The outcome variable comprised four items designed to capture the primary components of the programme (e.g., “I have someone to be with during breaks”). The article addressed the following research question: *Do students who participate in VIP partnership have a more positive perception of the social classroom environment a) 10 weeks (t2) and b) six months (t3) into the school year, compared to non-participating students?* Results from a one-way ANCOVA showed that participants in VIP partnership reported significantly higher social class environment scores compared to non-participants at t2 and t3, but the overall effects were small ( $d = .10$  and  $.09$ , respectively). A closer examination of the data showed that five of the ten test schools accounted for the total increase in the outcome variable from t1-t2. In these schools, a greater proportion of teachers had used the programme since it started in 2015, compared to the test schools that did not report an increase. The findings suggest that teachers’ experience in using VIP partnership is an important component in the programme’s effectiveness.

### **5.3. Article III**

Morin, A. H. (2021). Promoting positive social classroom environments to enhance students’ mental health? Effectiveness of a school-based programme in Norway. *Manuscript submitted for publication.*

The aim of this article was to investigate whether the effectiveness of VIP partnership on students’ self-reported happiness, mental health problems, and loneliness was moderated by baseline level of social anxiety (no, low, and high symptoms). The research question was as follows: *Are there differences in mean scores for happiness, internalizing problems, and loneliness associated with participation in VIP partnership and baseline level of social anxiety, as measured immediately after and 6 months after participation in the programme?* Results from a two-way MANCOVA showed that participation in VIP partnership was associated with significantly higher overall happiness scores ( $d = .12$ ), and lower internalizing problems in the subgroups with no ( $d = .30$ ) and low ( $d = .14$ ), but not high, social anxiety symptoms at baseline. No significant programme effects were found for loneliness at post-test or for either outcome measure at six-month follow-up. These results suggests that a programme targeting social participation in the classroom may not be equally effective for all

students. It is moreover argued that the study joins the ranks of evidence that single-factor, universal school-based interventions may not be sufficiently intensive to generate substantial and lasting improvements in adolescent mental health.





## 6. Discussion

To reiterate, the research question of the thesis is: *To what extent can a psychosocial school programme and other factors in the psychosocial environment help prevent mental problems and loneliness and promote wellbeing among upper secondary students in Norway?* This question has been approached in two ways: First, by exploring factors in the psychosocial classroom environment that may influence school loneliness, and second, through evaluating the effectiveness of VIP partnership on students' perceptions of the social classroom environment, happiness, internalizing problems, and loneliness. The purpose of this chapter is to summarize, resume, and supplement the findings from each of the three Articles.

- 1) *What are the longitudinal relationships between students' perceptions of emotional and instrumental teacher support, the social classroom environment and school loneliness, and to these associations vary by gender?*

One key finding from Article I was that students' self-reported school loneliness was uniquely and strongly predicted by their experience of the social classroom environment, and that perceptions of emotional or instrumental support from teachers did not significantly predict this outcome. Based on the social causation hypothesis it is theoretically justified to assume that adolescents who perceive to be socially supported from various sources, including teachers, will be better adjusted than others (see Chapter 2). Although the statistical null-impact of teacher support on school loneliness stood in contrast to this theoretical assumption, the result can be seen in the context of research consistently demonstrating that perceptions of teacher support decrease as students get older (e.g., Bru et al., 2010), whereas peer relationships become increasingly more important (e.g., Furman & Buhrmester, 1992). One explanation for the strong association between the social classroom environment and loneliness in this sample of first year upper secondary students, could be that relationships with classmates to a greater extent than to teachers, fit adolescents' developmental need for belongingness. Overall, these results indicate that the peer-setting within the school context is particularly important for adolescents' socioemotional functioning.

Another finding from Article I was that perceived emotional and instrumental teacher support significantly predicted students' experience of the social classroom environment, but somewhat differently for girls and boys. While girls seemed to rely uniquely on perceptions of the teachers as caring and friendly, both instrumental and emotional support were of importance to boys' experiences of the social classroom environment. Previous research has not provided clear answers regarding gender differences in levels of perceived instrumental and emotional support (see Article I). However, it has been suggested that girls value, seek out, and are more open to emotional support, whereas boys value, seek out, and are more open to instrumental support (see for instance Wilson et al., 1999). An explanation for why the social classroom environment was predicted only by emotional and not instrumental teacher support in girls, could be that girls primarily seek social relationships that are dyadic, intimate, and personal (see Wilson et al., 1999).

An indirect association was also found from teacher support to loneliness, via the social classroom environment. Although one cannot draw firm conclusions about causality from statistical predictions (see Section 4.6.4), these results could suggest that teachers can indirectly contribute to reducing students' school loneliness by facilitating positive social classroom environments and social participation among students (see Article I). Given that the social classroom environment instrument was designed to capture the basic components of VIP partnership, these results are optimistic regarding the programme's potential in enhancing students' perceptions of the social classroom environment, and further reduce school loneliness. The effectiveness of VIP partnership on students' perceptions of the social classroom environment was examined in Article II.

2) *Does participation in VIP partnership enhance students' perceptions of the social environment in their classes?*

The key discovery in Article II was that participation in VIP partnership was associated with more positive perceptions of the social classroom environment in five of the ten test schools in the project, and that the effect on this outcome variable seemed to depend on the number of years that the teachers had used the programme. While not discussed

in Article II, this finding could suggest that the (lack of) programme effects in half of the test schools on this outcome is related to the implementation timeframe. Researchers have maintained that evaluations conducted before a programme is adequately implemented will provide an inaccurate picture of its impact (Durlak & DuPre, 2008). Some have for instance recommended allocating at least one year to establish whether an intervention is effective (Durlak & DuPre, 2008). VIP partnership does not involve complex programme elements or coordination between several staff and agencies and can therefore be described as easy to implement. There are, however, several components that need to be organized by the teachers prior to and during the first days and weeks of the school year. It is therefore conceivable that teachers who are new to VIP partnership may need more time to get acquainted with the organization and implementation of the programme. This may in turn impact how the programme elements are carried out and experienced by the students.

Taken together, the favourable development in the five test schools with the most experienced teachers provide partial support for the findings from the SEM analysis in Article I. Specifically, these results suggest that teachers' efforts to facilitate social participation in the classroom through a programme like VIP partnership can help promote positive perceptions of the social classroom environment among students following the transition to upper secondary school. Further, the fact that students in four of the test schools at six-month follow-up still reported more positive perceptions of the classroom environment compared to controls indicates that the impact of VIP partnership on this outcome persisted even after the programme had finished. This could for instance suggest that the students in these schools have continued to sit together and be together during breaks further into the school year.

Worth noting is that the "social classroom environment" variable primarily captures quantitative aspects of social relations between students, such as perceptions of having someone to sit with, and be together with at school. Another question that was considered important to examine in this thesis was whether VIP partnership could also influence more complex psychological and emotional phenomena such as mental health and loneliness, as well as positive affect (happiness). Moreover, since VIP partnership is about facilitating social participation among students, it was considered of interest to

study whether students' baseline level of social anxiety moderated the effectiveness of the programme, as was done in Article III.

- 3) *Does participation in VIP partnership impact students' self-reported happiness, internalizing problems, and loneliness, and does the programme effectiveness vary as a function of students' baseline level of social anxiety?*

A key finding from this article was that participation in VIP partnership was associated with overall higher happiness scores, and lower levels of internalizing problems in students with low and absent social anxiety symptoms at baseline, as measured right after programme completion. As described in Chapter 2 and Article III, the stage-environment fit theory, together with the buffering hypothesis and belongingness theory, provide a theoretical rationale that school environments that provide students with opportunities to form positive relationships with classmates at the start of a new school, are more likely to satisfy students' need for belongingness (Eccles et al., 1993; Mac Iver, 1990). An increased sense of belonging is in turn hypothesized to lead to positive emotional states such as happiness and a reduction in negative emotional states like depression and loneliness (Baumeister & Leary, 1995). The results at post-test thus provided partial support for these theoretical proposals and suggest that students' participation in partnerships and activities to become better acquainted with their classmates may have acted as a short-term buffer against some of the negative social stressors associated with starting upper secondary school (see Article III). However, and as noted in Article III, the fact that the magnitude of the effect sizes was rather small ( $d = .12, -.14, \text{ and } -.30$ ) and temporary, raises questions about the practical significance and real-world impact of VIP partnership on these outcomes.

Furthermore, the lack of effects of VIP partnership on school loneliness was at first glance somewhat surprising based on what one would expect from relevant theory (see previous paragraph) and the findings from Article I. As mentioned, the results from the first article indicated a robust and inverse statistical relationship from students' perceptions of the social classroom environment to school loneliness, suggesting that these phenomena are closely and inversely linked. Loneliness is however a strong and subjective experience related to the need for belongingness (e.g., Mellor et al., 2008),

and previous studies have indicated that it can be difficult to intervene on this condition. As mentioned, other studies of environment-based school-programmes, like *Netwerk* (Lasgaard et al., 2012, 2015) and the *Dream School* (Larsen et al., 2018), have also found zero-effects on student loneliness.

A meta-analysis by Masi et al. (2011), although not limited to adolescent samples, found that loneliness interventions that addressed maladaptive social cognition displayed larger effects than those aiming to increase social support, social skills, or opportunities for social interaction (Masi et al., 2011). As remarked by these researchers, lonely individuals are characterized by, for instance, increased sensitivity to and surveillance for social threats, having more negative social expectations, and being more prone to behave in manners that affirm these negative expectations. Interventions aimed at improving maladaptive social cognition focus on the qualitative aspects of relationships and may therefore be better suited to reduce loneliness than quantitative approaches (Masi et al., 2011). Strategies to increase social support and social participation, which is the main approach in VIP partnership, may in turn address social isolation more than loneliness (Masi et al., 2011).

To conclude the findings of Article III, the fact that no significant effects were found for loneliness at post-test or for either outcome measure at six-month follow-up suggests that the overall effectiveness of VIP partnership on these outcomes is temporary and limited. As noted in Article III, it is plausible that VIP partnership has primarily functioned as a “social boost” among the participating students following the transition to upper secondary school. Having a partner to relate to through the first days and weeks in a new school environment may have made the students feel welcome and included, and further contributed to a temporary increase in happiness and a deceleration of internalizing symptoms. The latter however only applied for the students who initially experienced fewer challenges in social relationships, suggesting that VIP partnership may represent a better environmental fit to the social needs of these adolescents than to those with higher social anxiety symptoms.

### **6.1. Expected and Identified Programme Outcomes?**

Understanding the psychological and social correlates of a healthy development is undoubtedly crucial to designing an effective intervention in schools. However, such

knowledge does not ensure that an intervention will operate as one would expect based on theory and correlational research. This is reflected, for instance, in the data material in this thesis. Article I revealed strong statistical associations between the social classroom environment variable and school loneliness, and the findings from Article II showed that VIP partnership was associated with more positive perceptions of the social classroom environment in half of the test schools, with small to medium effects (J. Cohen & Steinberg, 1992). Article III however showed zero-effects of VIP partnership on loneliness, and only temporary effects on internalizing problems and happiness. A suitable way to continue the discussion of findings might be to compare the results of Article III with previous research in this field.

### **6.1.1. Previous Research**

It is important to note that the limited effectiveness of VIP partnership is consistent with a general lack of effects on mental health and loneliness found in previous evaluations of environment-based school-programmes. As it emerged from the literature review (Chapter 3) and previous research (e.g., Section 1.6), the few studies that have examined programmes using components similar to those of VIP partnership have tended to report neutral long-term effects on these outcomes (Kidger et al., 2012; Larsen et al., 2019; Lasgaard et al., 2012, 2015). One exception is the studies by Felner et al. (1982, 1994), which conveyed a positive impact of STEP, among other things on students' depressive symptoms. However, and as mentioned, this research had some methodological shortcomings that makes it difficult to assess the validity of the results. The lack of significant effects at follow-up found in the current study can overall be described as largely consistent with previous research in this field.

As was mentioned in Article III, participation in peer partnerships and social activities does not guarantee that students will engage in those interactions and activities in ways that are cognitively effective (Kochenderfer-Ladd & Ladd, 2016; see also Masi et al., 2011). Taken together, this could suggest that strategies to restructure the social school environment may have limited success in strengthening students' mental health and loneliness in the longer term.

### **6.1.2. Moderating Factors and Methodological Considerations**

Perhaps as important as explaining why a school programme *does* work, is to substantiate the mechanisms that can explain why something is *not* working as expected, or that might hinder a potential impact of a programme. Some such potential mechanisms, including methodological challenges, were addressed in the overview in Chapter 3, and will be further elaborated in the following sections. It should be noted that the points raised for discussion below are primarily related to complex phenomena such as mental health and loneliness, and not automatically to other outcomes like students' knowledge of such phenomena, externalizing problems, bullying, or academic results.

First, and as addressed in the overview in Chapter 3, literature reviews in the field of SBMH have shown that universal programmes, like VIP partnership, tend to be less effective than selective and indicated approaches (Calear & Christensen, 2010; Feiss et al., 2019; Werner-Seidler et al., 2017). One explanation for this is that the latter are delivered to students with higher symptoms or risk status, and this makes improvement over time more likely. In contrast, universal prevention involves delivering services to large numbers of students with minor needs (Horowitz & Garber, 2006), which makes an overall improvement inherently more difficult.

Second, the lack of significant effects at follow-up are largely consistent with previous research in the field of SBMH, which have shown that intervention effects have a tendency to decline or vanish over time (e.g., Dray et al. 2017; Werner-Seidler et al. 2017). In their review, Greenberg et al. (2001) for instance observed that short-term interventions tended to produce short-term effects, whereas interventions running over longer time-periods were more likely to foster lasting effects (Greenberg et al., 2001). Given that VIP partnership has a duration of nine weeks, it is perhaps not surprising that it displays only short-term effectiveness.

Third, and as remarked by Bakker et al. (2019), the magnitude of the effect size will probably depend on how easily one can influence the dependent variable. Although social relationships are recognized both theoretically and empirically as important protective factors for adolescents' mental health and loneliness, the development of these phenomena results from highly complex interplays between a range of biological and environmental influences. It is moreover presumed that each has a relatively modest

impact, and that the risk of developing problems increases with the number of risk factors that the individual is exposed to (Mykletun et al., 2009).

Because there is no single underlying mechanism that leads to the development of mental health challenges or loneliness, such problems are not likely easily remedied by addressing determinants in one stratum alone (cf. critical realism). Hence, efforts directed at changing or improving the social school climate and interpersonal relationships in the classroom may not be intensive or comprehensive enough to bring about major and lasting changes in these domains. Furthermore, the social classroom environment variable (see Articles I and II) is more about the quantitative aspects of relationships and may therefore be more easily modified through environment-based approaches.

While VIP partnership addresses a few environmental determinants (i.e., to increase social participation), whole-school programmes are aimed at modifying multiple risk and protective factors in different strata (e.g., at the individual and contextual level). In this sense, it is not surprising that such strategies generally have been shown (although not unanimously, cf. Kidger et al., 2012) to produce stronger and longer-lasting effects than single-factor programmes (e.g., Green et al., 2017; O'Reilly et al., 2018; Wells et al., 2003). Some have accordingly advocated the need for holistic and long-lasting approaches to adolescents' mental health, involving multiple arenas and stakeholders (e.g., teachers, parents, and community members), to change institutions and environments as well as individuals (Green et al., 2017; Greenberg et al., 2001). It has been noted, however, that such comprehensive whole-school strategies are unlikely to function if the teachers are overworked (O'Reilly et al., 2018).

Fourth, and as a methodological consideration, the overall small effect sizes obtained in Article III of the current study may be seen in connection with the large sample size (see, e.g., Feiss et al., 2019; Mackenzie & Williams, 2018; O'Reilly et al., 2018). Cheung and Slavin (2016) for instance found that the average effect size reported in educational interventions with sample size up to 100 was .38, whereas studies with large samples (2000+) reported an average effect size of .11. According to Cheung and Slavin (2016), this can be due to several things, like smaller studies being more closely controlled than larger studies and therefore more likely to generate larger effects. Smaller studies also have lesser power and thus require larger differences to reach



statistical significance and higher effect sizes. This may further be linked to the “file-drawer effect” (or publication bias), referring to findings that do not support a researcher’s hypotheses are more likely to end up unpublished in the researcher’s file drawers, whereas those producing larger effects are more likely to be submitted and accepted (Cheung & Slavin, 2016). As was addressed in the literature overview in Chapter 3, it is also likely that poorly designed studies (e.g., within-subject studies without control groups, and studies with small samples) may have led to an overestimation of effect sizes in some of the previous literature reviews (see, e.g., Mackenzie & Williams, 2018; O’Reilly et al., 2018; Wells et al., 2003).

To summarize this section, there are several factors that can help explain why it may be difficult to bring about major changes in students’ mental health and loneliness through universal school-programmes. Some are likely related to the complexity of the outcome variable(s), some to methodological features, and others to intervention type (universal vs. targeted) and content (e.g., environment-based). As for programme content, it would perhaps be reasonable to assume that CBT-based strategies, which are commonly designed to change individuals directly (e.g., reduce negative mindsets), should be associated with greater effects than environment-based approaches. However, as proposed by the literature overview of this thesis, CBT-approaches to SBMH are on average associated with small and often short-lived improvements in students’ mental health (see Section 3.3).

Therefore, based on these somewhat discouraging findings, should one refrain from working with students’ mental health and wellbeing within the school context? “Hardly”, is the likely answer to this question. It may, however, be worth discussing in more detail what the goal of SBMH programmes, including VIP partnership, is or should be, as well as if and how the evidence from such quantitative evaluations may benefit school-practitioners. Such themes can be discussed within a larger framework of *evidence-based practice* (EBP), as will be done in the following.

## **6.2. Evidence-Based Practice – “Does it Work?”**

EBP was established in the field of medicine in the 1990s, and reflects an idea that all practice should be based on, or informed by the best evidence from well-designed

studies, preferably from RCTs<sup>26</sup> (e.g., Kvernbekk, 2018). The evidence that is often given greatest importance in EBP is in the form of *causal descriptions*, with reference to whether something “works” or has an effect, and only secondary in the form of *causal explanations*, referring to *how* something has taken place<sup>27</sup> (see Kvernbekk, 2018). In the context of education, a core of EBP is that interventions and school programmes should be evaluated and tested through studies with strong designs, to find out how well they work before they are widely disseminated.

Perhaps not surprisingly, the idea of EBP as it is described above is highly controversial within education and other fields. The proposed hierarchy of evidence with RCTs at the top is one aspect that has been criticized, especially with respect to what this type of research can add to teachers’ practice. Another assumption within EBP which has received scepticism is the idea that “one size fits all”, pointing to that what is shown to work in one context will also automatically work in another. By its critics, EBP is therefore often understood as a contrast to topics such as practical and professional judgment, and context dependence (see, e.g., Kvernbekk, 2018).

### **6.2.1. Evidence of What?**

The main aim of this thesis has been to examine the effectiveness of VIP partnership on the four mentioned outcome variables using a quasi-experimental approach. In other words, the purpose has been to find evidence to support a conclusion as to whether VIP partnership works or not. It can be tempting to infer from the results presented in Articles II and III that VIP partnership works (or possibly, does not work as intended), universally across school settings. It is however important to re-emphasize (see also Section 4.6.5) that the results of the current study primarily contribute to supporting an assumption that VIP partnership led to enhanced perceptions of the social classroom environment and had a small and short-term impact on students’ happiness and internalizing problems *in (some of) the studied schools*. The results are thus mainly limited to the schools that participated in the study. In addition to being contextually bound, it has been proposed that such quantitative output data tell only “half the story”

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<sup>26</sup> Quasi-experimental studies typically fall just below RCTs in the hierarchy of strength of evidence for interventions, whereas descriptive or qualitative studies end up near the “bottom”.

<sup>27</sup> Notably, causal explanations are promoted as the main goal of research among critical realists (see Chapter 4.3., and Danermark et al., 2002)

of a programme's effectiveness (see Kvernbekk, 2018). What the other half of the story might be will be addressed in the last part of this thesis.

### **6.2.2. One Size Rarely Fits All**

In critical realist terms (see also Section 4.3) social science is characterized by being an *open* system (Danermark et al., 2002), in the sense that it does *not* involve “regularities between events or states of affairs of the form ‘whenever event or state of affairs *x* then event or state of affairs *y*’.” (Fleetwood, 2017, p. 1). As part of this open system, schools are recognized by many as a context in which it is difficult to conduct interventions (Danermark et al., 2002; Hjordemaal, 2011). As mentioned in Chapter 4, researchers can try to address, or perhaps reduce some of the complexity of this context through methodological procedures like randomization (e.g., Sullivan, 2011), and through pursuing high fidelity in the programme implementation process (e.g., Carroll et al., 2007; de Leeuw et al., 2020).

Despite such efforts, it can be argued that school programmes will always interact with a complex system of contextual factors that are likely to influence the implementation in one way or another (Darlington et al., 2017, 2018). As summarized by Darlington et al. (2018), some of these factors include: 1) the persons involved in the implementation (e.g., motivation, workload, leadership, perceived relevance to learning and educational goals) (Sawyer et al., 2010), 2) attributes of the setting (e.g., team management, turnover), 3) involvement by the community (e.g., policy and funding, cultural background, parent-staff relationships), and 4) the national context at macro level (e.g., policy development and organization, funding). In addition, the extent to which a programme is compatible with the school's culture and needs is likely to play a role (Darlington et al., 2018; Eriksen et al., 2014).

While many of these contextual mechanisms and structures that contribute to determining whether a programme works are hidden from the researcher, they are accessible to the practitioner (Kvernbekk, 2018). Professionals have consequently promoted it as important to supplement quantitative output data with local evidence from teachers (e.g., Kvernbekk, 2018; Pålshaugen & Borg, 2018). From this perspective, as important as measurable effects are, for example, whether teachers experience the programme as valuable or useful in their everyday work, and whether students are satisfied with participating in it.

The idea that statistical evidence does not necessarily provide a complete picture of the usefulness of a programme, is reflected in this thesis through the teacher data that were briefly presented in Section 4.6.7. Here, a majority of the teachers who responded to the survey described VIP partnership as positive because they believed that it was beneficial to the school environment, as well as provided social security to the students and laid the foundation for the students to get know each other from the start of the school year. Some also described VIP partnership as a helpful tool to organize school activities.

As such, it can be argued that the decision on whether to use a programme for mental health in school should be based on several sources of data. Quantitative and qualitative sources of evidence together have the potential to provide a fuller answer to the question: “what works under what circumstances and for whom?” (Darlington et al., 2018; Kvernbekk, 2018; see also Pålshaugen & Borg, 2018). Of course, the use of any such programme should depend upon no major adverse or undesirable programme effects being identified.

Even though VIP partnership was not associated with any major effects on the self-reported mental health, wellbeing, and loneliness of the students who participated in this study, it can still be perceived by teachers as a valuable tool in their everyday school life. Such “local evidence” (Kvernbekk, 2018) also opens a space for considering the *intrinsic value* of school programmes: Some things are done for their own part, and not for anything else.

## **7. Conclusion**

This last chapter offers a summary regarding the main contributions and implications, limitations and future research, and a brief conclusion.

### **7.1. Contributions and Implications**

The current study has employed a strong design to evaluate the effectiveness of VIP partnership, involving the use of test and control groups, three measurement occasions, and fidelity assessments. Robust evaluations of school programmes seem to have been lacking in Norway and internationally, and the present study is an important research contribution to the field of SMBH.

Further, the psychosocial school environment is promoted as being very important for students' wellbeing, mental health, and loneliness, but little research seems to have evaluated the impact of environment-centred school-programmes on these outcomes. The current study contributes with research in this imperative, but understudied area.

Next, few previous studies seem to have examined programme effects in different subgroups. The findings of this study suggest that such information may be important for understanding the potentially diverse impact of universal school programmes on different subgroups.

The findings of this study are situated and discussed within a larger context of SBMH, and address factors that can illuminate why it may be difficult to intervene universally on complex phenomena such as mental health and loneliness within schools. Information about the complexity of this field may be useful for both politicians and professionals when designing and testing future school-based programmes for mental health.

A variety of external programmes are being used in Norwegian schools. The findings from this thesis emphasize the importance of continued evaluations of school programmes through well-designed studies, and preferably by a combination of quantitative and qualitative research methods.

Finally, the findings of this thesis propose that a "reality orientation" might be needed with regard to how much influence it is realistic that a universal school-

programme can have on complex outcome phenomena, and further, what the ultimate goals of such programmes should be.

## **7.2. Limitations and Future Research**

*Internal validity threats.* The primary threats to the internal validity of the results in Articles II and III are related to selection bias, which cannot be controlled for by statistical procedures. The participating schools could choose whether they wanted to implement VIP partnership and/or participate in the research study. As was discussed in Articles II and III, one cannot say for sure whether it is the programme, or the teachers' potential commitment to topics such as the school environment and students' mental health and wellbeing (or other unknown factors) that produced the significant difference between the test and control schools in Articles II and III.

Singling out the effectiveness of VIP partnership is further complicated by the fact that schools in Norway are required by law to work systematically with the psychosocial school environment. This can make it challenging to document and distinguish the independent effects of this programme from the school's and teachers' holistic work with or commitment to the topic (Eriksen et al., 2014; Lødding & Vibe, 2010). It is also possible that some of the control schools, even if they did not participate in VIP partnership, have used other school-based programmes for mental health which may have impacted the results in one way or another. This has not been controlled for in the current study.

*Choice of outcome variables.* While VIP partnership is described as a promotion and prevention programme for mental health, VSP appears to focus mainly on outcomes related to social relationships and the classroom climate (VSP, 2020; see also Section 1.6.). They are however cautious about expressing *what* aspects of mental health that the programme is meant to prevent or promote. As such, the outcome variables related to mental health and loneliness that have been examined in this thesis are not explicitly described by VSP as goals of the programme, but have been chosen and operationalized by the researcher. Those outcomes are not necessarily described as relevant by the programme developers.

Further, it would have been relevant to examine additional outcome measures to those included. For instance, VSP mentions that VIP partnership should help increase

students' social competence and educational drive. It would also be of interest to include other relevant outcome measures in future evaluations of VIP partnership, such as perceived support from teachers and classmates.

*Fidelity.* Related to fidelity, it would have been desirable to observe how the programme was implemented in the various test schools, to address whether potential differences in implementation might have affected the effectiveness of the programme. It would also have been of interest to observe how teachers in the comparison schools worked with the social classroom environment at the start of upper secondary school, to gain a fuller picture of potential differences between the test and control schools in this matter. Moreover, as an analytical approach, it would have been appropriate to investigate whether the effectiveness of the programme was moderated by factors such as the number of years that the schools had used VIP partnership; teachers' experiences with the programme; potential differences in teacher delivery, or; potential differences in students' attitudes.

*Use of literature reviews in Chapter 3.* There are some limitations and considerations to be addressed from the overview provided in Chapter 3. First, the results of the overview should be interpreted in the light of the selected keywords, as other search strings could have led to other main findings. Second, literature reviews generally pay greater attention to *whether* or *what extent* something works rather than *why* something potentially works. The interventions included in such reviews are generally highly diverse in terms of content, and average effect sizes largely camouflage the contribution of each programme with its unique design and programme elements. Literature reviews thus provide limited information about *which* programme components that contribute to or inhibit efficiency. Such information might have been more easily obtained through primary studies.

Finally, an RCT should be conducted and supplemented with qualitative process evaluations in subsequent evaluations.

### **7.3. Conclusion**

Consistent with previous literature, the results of this thesis indicate that the psychosocial school environment, and especially students' experiences of positive social classroom environments, are important to their socioemotional health. Moreover,

participation in VIP partnership appears to have enhanced the students' perceptions of the social classroom environment, but only in the schools where teachers were more experienced in using the programme. The apparent limited impact of VIP partnership on students' mental health, wellbeing, and loneliness must be seen in the context of a range of potentially influential and moderating factors, related to intervention type, the complexity of the outcome variables, methodological features, and conditions related to the intricacy of the school context. The somewhat limited effects that were found in this thesis, do not rule out the possibility that teachers and students may consider VIP partnership as valuable to their everyday school life.



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# Appendices

## Appendix I: Literature review

Table 5 Overview of included literature reviews and some main characteristics and findings

Prevention	Type	Age range	Main outcome	Countries	n	K	Type	Results/Effective trials (%)	Mean ES at post-test	Mean ES at follow-up
Caldwell et al. (2019)	SR + NMA	Primary and secondary settings	Depression and anxiety	NR	NR	137 (108 included in NMA)	U, S + I	Only universal mindfulness and relaxation interventions in secondary setting were found effective in reducing anxiety/depression (K = 14).	Mindfulness/relaxation to reduce anxiety/depression: $g = .65$	
Calear & Christensen (2010)	SR	5–19	Depression	NR	16 – 2,664	42	U, S, I	Post-test: U: 9/23 (39 %) S: 3/6 (50%) I: 6/10 (60) Follow-up: U: 4/16 (25 %) S: 2/4 (50 %) I: 6/9 (67 %)		
Corrieri et al. (2014)	SR	8–16	Depression and anxiety	Germany, Australia, USA, Canada, New Zealand, UK, Chile.	100 >	28	U, I	Post-test and/or follow-up: Anxiety: 11/16 (73 %) Depression: 16/24 (67 %)	Anxiety: U: $d = .10$ I: $d = .29$ Depression: U: $d = .14$ I: $d = .08$	Anxiety: U: $d = -.15$ I: $d = .42$ Depression: U: $d = .05$ I: $d = .13$
Dray et al. (2017)	SR + MA	5–18	Anxiety, depression, hyperactivity, conduct problems, internalizing problems,	16 countries, mainly Australia and USA	NR	57	U		Depression: SMD = .13 Anxiety: SMD = .18	Internalizing problems: SMD = .22

Durlak et al. (2011)	MA	5-18	externalizing problems, psychological distress	NR	Total N = 270,034	213	U		Emotional distress: $g = .24$ ( $k = 49$ )	Emotional distress: $g = .15$ ( $k = 11$ )
Feiss et al. (2019)	SR + MA	11-18	Emotional distress <sup>28</sup> (SEL skills, attitudes, positive social behavior, conduct problems, academic performance*) Depression, anxiety, stress	USA	6 - 779	42	U, T		Depression: <sup>29</sup> Test schools: $d = -.70$ Anxiety: Test schools: $d = -.63$	
Franklin et al., (2017)	SR + MA		Internalizing problems, externalizing problems	NR	Total N = 32,985	24	U, S, I (Tier 1, 2 and 3) delivered by teachers only		Internalizing problems: Tier 1: $g = .211$ Tier 2+3: $g = -.078$ (ns)	
Horowitz & Garber (2006)	MA	9-18	Depressive symptoms	NR	41 - 1,500	18 <sup>30</sup>	U, S, I		Depression: U: $d = .12$ S: $d = .29$ I: $d = .18$	Depression: U: $d = .02$ <sup>31</sup> S: $d = .56$ I: $d = .31$
Kidger et al. (2012)	SR	11-18	Emotional problems (depressive)	Australia, England, USA	48 - 5,634	9	U	2/9 (22%) trials showed some positive		

<sup>28</sup> Only emotional distress was included in this overview, as this outcome category is considered most clearly related to mental health.

<sup>29</sup> Feiss et al. (2019) reported intervention effects as symptom reduction in the test and control groups separately, and not as a standardized difference

between two groups.

<sup>30</sup> The authors had reviewed 20 trials, but two of these involved college students and were not included in the results presented in this overview. The total number of studies in this review is therefore set to 18.

<sup>31</sup> The authors did not indicate whether the effect sizes were statistically significant.

Neil & Christensen (2007)	SR	NR		symptoms, mental health difficulties – SDQ)	Australia	9 – 1,628 (only reported for intervention groups)	24	U, I, T	intervention effects, but one had methodological shortcomings		
				Depression and anxiety					Post-test and/or follow-up: Anxiety: U: 6/10 (60 %) I: 4/5 (80 %) Depression: U: 10/17 (59 %) I: 2/4 (50 %)		
Neil & Christensen (2009)	SR	7–16		Anxiety	NR	12 – 1,045	27	U, S, I			
				Anxiety					Post-test: U: 11/16 (69 %) S: 2/3 (67 %) I: 4/8 (50 %) Follow-up: U: 3/6 (50 %) S: 0/1 (0 %) I: 5/6 (83 %)		
Sklad et al. (2012)	MA	Kindergarten through high school		Internalizing problems (SEL skills, attitudes, prosocial behavior, conduct problems, academic performance*)	Mostly North America (78 %), and Europe (15 %)	13 – 8,280	75	U		Internalizing problems: $d = .19$	Internalizing problems: $d = .10$
				Emotional distress (SEL skills, attitudes, positive social behavior, conduct problems, academic performance*)							Emotional distress: $d = .16$
Taylor et al. (2017)	MA	Kindergarten through high school		Emotional distress (SEL skills, attitudes, positive social behavior, conduct problems, academic performance*)	USA (54 %), and outside USA (46 %)	Total N = 97,406	82	U			
				Depression and anxiety	USA, Iceland, UK, New Zealand,	21 – 1,448	81	U, S + I		Depression: U: $g = .19$ S + I: $g = .32$ Anxiety:	Short-term: Depression: U: $g = .18$ S + I: $g = .23$
Werner-Seidler et al. (2017)	SR + MA	4–22		Depression and anxiety							







## Appendix II: Invitation Letter to County Authorities



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1 av 3

### Effektstudie av konkret tiltak mot frafall i videregående opplæring

Invitasjon til deltakelse i effektstudie av tiltaket VIP-makkerskap

Det store frafallet i videregående opplæring er med på å skape sosial ulikhet i samfunnet, og konsekvensene for den enkelte elev er store. Effektforskning på tiltak mot frafall i videregående opplæring er derfor et svært viktig satsningsområde. Vi starter nå et doktorgradsprosjekt hvor vi vil evaluere effekten av et konkret tiltak mot frafall i videregående opplæring. Hensikten med prosjektet er å studere om tiltaket VIP-makkerskap har en effekt på blant annet fravær- og frafallstall, og også på psykososiale faktorer som ensomhet, opplevd mobbing, samt elevenes psykiske helse. Vi ønsker med denne henvendelsen å invitere fylkeskommuner til å delta i prosjektet.

#### Bakgrunn

Omfattende forskning er gjort på årsaker til hvorfor elever ikke fullfører videregående opplæring, og vi vet derfor mye om faktorer som er medvirkende til at elever faller fra. Fra politisk hold etterspørres det nå effektforskning på *konkrete tiltak* mot frafall i videregående opplæring, for å finne ut mer om hva som faktisk fungerer.

#### VIP-makkerskap – bedret psykososialt miljø og mindre fravær?

VIP-makkerskap er utviklet av Vestre Viken Helseforetak ved Skoleprogrammet VIP ([vipweb.no](http://vipweb.no)), som et ledd i psykososialt arbeid ved skolestart i videregående skole. Målet med VIP-makkerskap er et mer inkluderende læringsmiljø for elever ved oppstart i første klasse. VIP-makkerskap plasserer seg i denne forbindelse også som et relevant tiltak mot frafall, i lys av nyere forskning som viser at ensomhet er en av de viktigste årsakene til at elever tenker på å slutte på skolen (Mjaavatn & Frostad, 2014).

Foreløpige evalueringer av VIP-makkerskap peker mot at både elever og lærere opplever et tryggere klasserom. Tiltaket ser også ut til å ha en positiv innvirkning på fravær, noe som er interessant i lys av forskning som viser at det er en sammenheng mellom høyt fravær og frafall fra videregående skole (Markussen & Sandberg, 2005). Det trengs imidlertid en systematisk effektstudie for å finne ut om tiltaket VIP-makkerskap har en reell effekt både på psykososiale faktorer og frafall, noe dette forskningsprosjektet har som mål å studere.

Fordeler ved VIP-makkerskap er at tiltaket er enkelt å implementere, at det er lite ressurskrevende for lærere ved at det er en integrert del av skolehverdagen, og at det krever minimalt med opplæring for å bli tatt i bruk (et dagsseminar). Tiltaket er også tydelig avgrenset, noe som er et avgjørende kriterium for å få til god effektforskning (se Lillejord et al., 2015).

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7491 Trondheim	E-post: <a href="mailto:Astrid.hoas@ntnu.no">Astrid.hoas@ntnu.no</a> <a href="http://www.ntnu.no/ped">http://www.ntnu.no/ped</a>	Paviljong C, 2.etasje NTNU Dragvoll 7049 Trondheim	+ 47 73 59 19 50 <b>Telefaks</b> + 47 73 59 18 90	Astrid Hoås Morin Tlf: +47 73 59 19 51 Mob: +47 913 10 941

### Hva innebærer deltakelse for fylkeskommunen og praktisk informasjon

For å få gjort en effektstudie av høy kvalitet trengs det skoler som kan delta i studien både som forsøksskoler og kontrollskoler. I forsøksskolene vil tiltaket VIP-makkerskap bli innført ved skolestart, mens kontrollskolene ikke vil implementere tiltaket. Det er viktig at både forsøks- og kontrollskoler deltar i studien, slik at det blir mulig å undersøke eventuelle forskjeller mellom de to skolegruppene når det gjelder for eksempel fravær, frafall, ensomhet, og psykisk helse. Fylkeskommunens ansvar blir i denne forbindelsen å bistå i rekruttering av både forsøks- og kontrollskoler.

Opplæringsseminar for lærere som arbeider i forsøksskolene vil bli gjort i regi av Vestre Viken Helseforetak, våren 2017. Det praktiske arbeidet i forbindelse med datainnsamling vil bli gjort av prosjektansvarlig. Elever ved de enkelte skolene vil måtte påregne å bruke noe tid på å besvare spørreskjema ved tre anledninger i løpet av et skoleår. Datainnsamling 1 vil foregå rett etter at tiltaket VIP-makkerskap er igangsatt, ved skolestart høsten 2017. Datainnsamling 2 vil foregå rett etter at tiltaket er fullført, ca. 9 uker etter skolestart. Datainnsamling 3 vil foregå noe tid etter at tiltaket er avsluttet. Både forsøks- og kontrollskolene vil motta spørreskjema ved alle tre datainnsamlings-tidspunktene.

For å kunne finne ut om tiltaket har en faktisk effekt på fravær og frafall vil det være ønskelig å koble selvrapporterte data fra elevene, med registerdata på for eksempel karakterer, fravær- og sluttedata. Slike registerdata er noe som fylkeskommunene vil måtte regne med å bistå med.

Fylkeskommuner som ønsker å delta i forskningsstudien vil etter prosjektslutt få en rapport med hovedfunn fra studien.

**Ta gjerne kontakt med oss dersom dere ønsker mer informasjon om prosjektet eller har spørsmål. Kontaktinformasjon finner dere under.**

Vi håper på deres bidrag, det vil være til stor nytte for prosjektet!

Vennlig hilsen

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#### Litteratur

- Lillejord, S., Halvorsrud, K., Morgan, K., Freyr, T., Fischer-Griffiths, P., Eikeland, O. J., Hauge, T. E., Homme, A. D., Manger, T., Kirkebøen, L. J., Sandsør, A. M. J. (2015). *Frafall i videregående opplæring: En systematisk kunnskapsoversikt*. Oslo: Kunnskapssenter for utdanning, [www.kunnskapssenter.no](http://www.kunnskapssenter.no)
- Markussen, E. & Sandberg, N. (2005). Stayere, sluttere og returnerte. Om 9756 ungdommer på Østlandet, deres vei gjennom, ut av, eller ut og inn av videregående opplæring, og om deres prestasjoner to år etter avsluttet grunnskole. *NIFU STEP skriftserie 6/2005*.
- Mjaavatn, P. E. & Frostad, P. (2014). Tanker om å slutte på videregående skole: er ensomhet en viktig faktor?. *Spesialpedagogikk*, 79(1), 48-55.

## Appendix III: Request to Schools for Participation

### Control Schools



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#### ELEVENES TRIVSEL OG OPPLEVELSE AV LÆRINGSMILJØET I VIDeregående skole

Deltakelse i forskningsprosjekt skoleåret 2017/18

████████ fylkeskommune har takket ja til deltakelse i forskningsprosjektet «Elevenes trivsel og opplevelse av læringsmiljøet i Videregående skole», som er et samarbeid mellom NTNU, Vestre Viken Helseforetak og █████████ fylkeskommune. **Vi inviterer [Navn på skolen] Videregående skole til å delta i forskningsstudien som kontrollskole.**

#### Bakgrunn og hensikt

Læreplanen for videregående skole sier at alle elever skal kunne oppleve at skolen er et godt sted å være, både faglig og sosialt. VIP-Makkerskap er et ledd i psykososialt arbeid for elever ved oppstart i videregående skole, med mål om et mer inkluderende klasse- og læringsmiljø (les mer på [vipweb.no](http://vipweb.no)).

Hovedformålet med denne forskningsstudien er å undersøke om VIP-makkerskap har en innvirkning på elevers opplevelse av klasse- og læringsmiljøet. For å få gjort en studie av høy kvalitet trengs det at både forsøksskoler og kontrollskoler deltar. Forsøksskolene er skoler som setter i gang med VIP-makkerskap ved skolestart 2017, mens kontrollskolene ikke vil implementere tiltaket.

[Navn på skole] inviteres til å delta i studien som kontrollskole. Spørsmålene i undersøkelsen vil handle om elevenes opplevelse av den hjelpen og støtten de får på skole, motivasjon for skolen, sosiale relasjoner på skolen, trivsel på skolen, samt noen bakgrunnsopplysninger om elevene. Vi vil også hente inn opplysninger om karakterer, skolefravær, og gjennomføring i videregående skole. Skolens deltakelse er viktig for å kunne se om det er en forskjell mellom hvordan elever ved forsøks- og kontrollskoler opplever klasse- og læringsmiljøet i videregående skole.

#### Praktisk informasjon og hva deltakelse innebærer for skolen

Skoler som deltar i studien plikter å legge til rette for at elevene ved skolen kan besvare elektroniske spørreskjema ved tre anledninger i løpet av skoleåret 2017/18. Det er nødvendig at skoler som blir med i studien oppnevner en kontaktperson som har det overordnede ansvaret for gjennomføring av spørreundersøkelsene, og som fungerer som bindeledd mellom skolen og NTNU.

Datainnsamling 1 vil foregå rett etter skolestart høsten 2017. Datainnsamling 2 vil foregå ca. 10 uker etter skolestart. Datainnsamling 3 vil foregå i løpet av vårterminen 2018. Det tar ca. 30 minutter å fylle ut skjemaet, og elevene vil trenge tilgang til PC-er.

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7491 Trondheim	E-post: <a href="mailto:kontakt@ipl.ntnu.no">kontakt@ipl.ntnu.no</a> <a href="http://www.ntnu.no/ipl">http://www.ntnu.no/ipl</a>	Paviljong A/B NTNU Dragvoll 7491 Trondheim	+ 47 73 59 19 50 <b>Telefaks</b> + 47 73 59 18 90	Astrid Hoås Morin Tlf: +47 735 91 951 Mob:+47 913 10 941

Lærere vil måtte regne med å sette av én skoletime for å få gjennomført hver av spørreundersøkelsene i sine respektive klasser. Det er svært viktig at det settes av tid i skoledagen til å besvare spørreskjema, og at dette så langt det er mulig foregår i klassen i fellesskap. Elevene deltar på frivillig basis, og de som eventuelt ikke ønsker å svare på undersøkelsen vil jobbe med individuelt opplegg på skolen i stedet.

Skoler som deltar forplikter seg videre til å distribuere et informasjonsskriv til elevene. Dette kan gjøres elektronisk (via Fronter, Blackboard, It's Learning e.l., eller e-post).

Rektor eller en annen ved skolens ledelse inviteres til å svare på et elektronisk spørreskjema (5-10 minutter) ved én anledning i løpet av høstsemesteret 2017. Spørsmålene er ment å bidra til et mer utfyllende bilde av skolens læringsmiljø, og vil handle om hvordan skolen arbeider med elevers trivsel og sosiale relasjoner.

Forskningsstudien er godkjent av Norsk Samfunnsvitenskapelig Datatjeneste (NSD). Alle data som samles inn vil bli anonymisert, og ingen skoler, ledere, lærere eller elever som deltar vil kunne identifiseres.

Ta gjerne kontakt med oss dersom dere ønsker mer informasjon om prosjektet eller har spørsmål. Kontaktinformasjon finner dere under.

Vi håper på deres bidrag!

Vennlig hilsen

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### ELEVENES TRIVSEL OG OPPLEVELSE AV LÆRINGSMILJØET I VIDEREGÅENDE SKOLE

Deltakelse i forskningsprosjekt

████████ fylkeskommune har takket ja til deltakelse i forskningsprosjektet «Elevenes trivsel og opplevelse av læringsmiljøet i Videregående skole», som er et samarbeid mellom NTNU, Vestre Viken Helseforetak og █████████ fylkeskommune. **Vi inviterer [Navn på skolen] Videregående skole til å delta i forskningsstudien.**

#### Bakgrunn og hensikt

Læreplanen for videregående skole sier at alle elever skal kunne oppleve at skolen er et godt sted å være, både faglig og sosialt. VIP-Makkerskap er et ledd i psykososialt arbeid for elever ved oppstart i videregående skole, med mål om et mer inkluderende klasse- og læringsmiljø (les mer på [vipweb.no](http://vipweb.no)).

**Hovedformålet med denne forskningsstudien er å undersøke om VIP-makkerskap har en innvirkning på elevers opplevelse av klasse- og læringsmiljøet. [navn på skole] Videregående skole inviteres til å delta i forskningsstudien fordi dere har planlagt å sette i gang med VIP-makkerskap for elever ved skolestart høsten 2017.**

Spørsmålene i undersøkelsen vil handle om elevenes opplevelse av den hjelpen og støtten de får på skole, motivasjon for skolen, sosiale relasjoner på skolen, trivsel på skolen, samt noen bakgrunnsopplysninger om elevene. Vi vil også hente inn opplysninger om karakterer, skolefravær, og gjennomføring i videregående skole.

#### Praktisk informasjon og hva deltakelse innebærer for skolen

Skoler som deltar i studien plikter å legge til rette for at elevene ved skolen kan besvare elektroniske spørreskjema ved tre anledninger i løpet av skoleåret 2017/18. Det er nødvendig at skoler som blir med i studien oppnevner en kontaktperson som har det overordnede ansvaret for gjennomføring av spørreundersøkelsene, og som fungerer som bindeledd mellom skolen og NTNU.

Datainnsamling 1 vil foregå rett etter skolestart høsten 2017. Datainnsamling 2 vil foregå ca. 10 uker etter skolestart. Datainnsamling 3 vil foregå i løpet av vårterminen 2018. Det tar ca. 30 minutter å fylle ut skjemaet, og elevene vil trenge tilgang til PC-er.

Lærere vil måtte regne med å sette av én skoletime for å få gjennomført hver av spørreundersøkelsene i sine respektive klasser. **Det er svært viktig at det settes av tid i skoledagen til å besvare spørreskjema, og at dette så langt det er mulig foregår i klassen i fellesskap.** Elevene

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7491 Trondheim	E-post: <a href="mailto:kontakt@ipl.ntnu.no">kontakt@ipl.ntnu.no</a> <a href="http://www.ntnu.no/ipl">http://www.ntnu.no/ipl</a>	Paviljong A/B NTNU Dragvoll 7491 Trondheim	+ 47 73 59 19 50 <b>Telefaks</b> + 47 73 59 18 90	Astrid Hoås Morin Tlf: +47 735 91 951 Mob:+47 913 10 941

deltar på frivillig basis, og de som eventuelt ikke ønsker å svare på undersøkelsen vil jobbe med individuelt opplegg på skolen i stedet.

Skoler som deltar forplikter seg videre til å distribuere et informasjonsskriv til elevene. Dette kan gjøres elektronisk (via Fronter, Blackboard, It's Learning e.l., eller e-post).

Lærere med ansvar for gjennomføring av VIP-makkerskap inviteres til å besvare et kortere elektronisk spørreskjema (ca. 5-10 minutter) ved to tidspunkter i løpet av høstsemesteret 2017, hvor fokus vil være hvordan de opplever å bruke VIP-makkerskap i arbeidshverdagen. Videre inviteres rektor, eller en annen ved skolens ledelse, til å svare på et elektronisk spørreskjema (5-10 minutter) ved én anledning i løpet av høstsemesteret 2017. Spørsmålene er ment å bidra til et mer utfyllende bilde av skolens læringsmiljø, og vil handle om hvordan skolen arbeider med elevers trivsel og sosiale relasjoner.

Forskningsstudien er meldt til og godkjent av Norsk Samfunnsvitenskapelig Datatjeneste (NSD). Alle data som samles inn vil bli anonymisert, og ingen skoler, ledere, lærere eller elever som deltar vil kunne identifiseres.

**Ta gjerne kontakt med oss dersom dere ønsker mer informasjon om prosjektet eller har spørsmål. Kontaktinformasjon finner dere under.**

Vi håper på deres bidrag!

Vennlig hilsen

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## Appendix IV: Information Letter to Participating Schools

### Control Schools



Fakultet for samfunnsvitenskap og teknologiledelse  
Institutt for pedagogikk og livslang læring

1 av 2

#### ELEVENES TRIVSEL OG OPLEVELSE AV LÆRINGSMILJØET I VIDEREGÅENDE SKOLE

Deltakelse i forskningsprosjekt skoleåret 2017/18

██████████ fylkeskommune har takket ja til deltakelse i forskningsprosjektet «Elevenes trivsel og opplevelse av læringsmiljøet i Videregående skole», som er et samarbeid mellom NTNU, Vestre Viken Helseforetak og ██████████ fylkeskommune. **Vi takker for at deres skole vil delta i studien som kontrollskole!**

#### Bakgrunn og hensikt

Læreplanen for videregående skole sier at alle elever skal kunne oppleve at skolen er et godt sted å være, både faglig og sosialt. VIP-Makkerskap er praktisk tiltak for elever ved oppstart i videregående skole, med mål om et mer inkluderende klasse- og læringsmiljø (les mer på [vipweb.no](http://vipweb.no)). Hovedformålet med denne forskningsstudien er å undersøke om VIP-makkerskap har en innvirkning på elevers opplevelse av klasse- og læringsmiljøet.

For å få gjort en studie av høy kvalitet trengs det at både forsøksskoler og kontrollskoler deltar. Forsøksskolene er skoler som setter i gang med VIP-makkerskap ved skolestart 2017, mens kontrollskolene ikke vil implementere tiltaket.

Deres skole deltar i studien som kontrollskole. Spørsmålene i undersøkelsen vil handle om elevenes opplevelse av den hjelpen og støtten de får på skole, motivasjon for skolen, sosiale relasjoner på skolen, trivsel på skolen, samt noen bakgrunnsopplysninger om elevene. Vi vil også hente inn opplysninger om karakterer, skolefravær, og gjennomføring i videregående skole. Skolens deltakelse er viktig for å kunne se om det er en forskjell mellom hvordan elever ved forsøks- og kontrollskoler opplever klasse- og læringsmiljøet i videregående skole. **Uavhengig av om skolen er en forsøks- eller kontrollskole, så gir studien en unik mulighet til å få kartlagt hvordan vg1-elevene ved skolen opplever oppstarten i videregående opplæring, hvordan de trives i klassen, samt hvordan de opplever læringsmiljøet og det sosiale miljøet på trinnet.**

#### Praktisk informasjon og hva deltakelse innebærer for skolen

Skoler som deltar i studien plikter å legge til rette for at elevene ved skolen kan besvare elektroniske spørreskjema ved tre anledninger i løpet av skoleåret 2017/18. Det er nødvendig at skolen, dersom det ikke allerede er gjort, oppnevner en kontaktperson som har det overordnede ansvaret for gjennomføring av spørreundersøkelsene, og som fungerer som bindeledd mellom skolen og NTNU.

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Datainnsamling 1 vil foregå rett etter skolestart høsten 2017. Datainnsamling 2 vil foregå ca. 10 uker etter skolestart. Datainnsamling 3 vil foregå i løpet av vårterminen 2018. Det tar ca. 25 minutter å fylle ut skjemaet, og elevene vil trenge tilgang til PC-er.

Lærere vil måtte regne med å sette av én skoletime for å få gjennomført hver av spørreundersøkelsene i sine respektive klasser. **Det er svært viktig at det settes av tid i skoledagen til å besvare spørreskjema, og at dette så langt det er mulig foregår i klassen i fellesskap.** Elevene deltar på frivillig basis, og de som eventuelt ikke ønsker å svare på undersøkelsen vil jobbe med individuelt opplegg på skolen i stedet.

Skoler som deltar forplikter seg videre til å distribuere et informasjonsskriv til elevene. Dette kan gjøres elektronisk (via Fronter, Blackboard, It's Learning e.l., eller e-post).

Rektor eller en annen ved skolens ledelse inviteres til å svare på et elektronisk spørreskjema (5-10 minutter) ved én anledning i løpet av høstsemesteret 2017. Spørsmålene er ment å bidra til et mer utfyllende bilde av skolens læringsmiljø, og vil handle om hvordan skolen arbeider med elevers trivsel og sosiale relasjoner.

**En tid etter datainnsamlingen er ferdig vil dere motta tall og resultater for deres skole. I tillegg vil skolen få tilsendt en sluttrapport med resultater fra studien etter prosjektslutt.**

Forskningsstudien er godkjent av Norsk Samfunnsvitenskapelig Datatjeneste (NSD). Alle data som samles inn vil bli anonymisert, og ingen skoler, ledere, lærere eller elever som deltar vil kunne identifiseres.

Ta gjerne kontakt med oss dersom dere ønsker mer informasjon om prosjektet eller har spørsmål. Kontaktinformasjon finner dere under.

Vennlig hilsen

**Astrid Hoås Morin**

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### ELEVENES TRIVSEL OG OPPLEVELSE AV LÆRINGSMILJØET I VIDEREGÅENDE SKOLE

Informasjon om deltakelse i forskningsprosjekt

**Vi takker for at deres skole vil delta i studien «Elevenes trivsel og opplevelse av læringsmiljøet i Videregående skole», som er et samarbeid mellom NTNU, Vestre Viken Helseforetak og [redacted] fylkeskommune.**

#### Bakgrunn og hensikt

Læreplanen for videregående skole sier at alle elever skal kunne oppleve at skolen er et godt sted å være, både faglig og sosialt. VIP-Makkerskap er praktisk tiltak for elever ved oppstart i videregående skole, med mål om et mer inkluderende klasse- og læringsmiljø (les mer på [vipweb.no](http://vipweb.no)). Hovedformålet med denne forskningsstudien er å undersøke om VIP-makkerskap har en innvirkning på elevers opplevelse av klasse- og læringsmiljøet.

Dere deltar i studien som forskingsskole, som vil si at VIP-makkerskap gjennomføres for vg1-elevene ved skolestart høsten 2017.

Spørsmålene i undersøkelsen vil handle om elevenes opplevelse av den hjelpen og støtten de får på skole, motivasjon for skolen, sosiale relasjoner på skolen, trivsel på skolen, samt noen bakgrunnsopplysninger om elevene. Vi vil også hente inn opplysninger om karakterer, skolefravær, og gjennomføring i videregående skole.

#### Praktisk informasjon og hva deltakelse innebærer for skolen

Skoler som deltar i studien plikter å legge til rette for at vg1-elevene ved skolen kan besvare elektroniske spørreskjema ved tre anledninger i løpet av skoleåret 2017/18. **Det er nødvendig at skoler som blir med i studien oppnevner en kontaktperson som har det overordnede ansvaret for gjennomføring av spørreundersøkelsene, og som fungerer som bindeledd mellom skolen og NTNU.**

Datainnsamling 1 vil foregå rett etter skolestart høsten 2017. Datainnsamling 2 vil foregå ca. 10 uker etter skolestart. Datainnsamling 3 vil foregå i løpet av vårterminen 2018. Det tar ca. 25 minutter å fylle ut skjemaet, og elevene vil trenge tilgang til PC-er.

Lærere vil måtte regne med å sette av én skoletime for å få gjennomført hver av spørreundersøkelsene i sine respektive klasser. **Det er svært viktig at det settes av tid i skoledagen til å besvare spørreskjema, og at dette så langt det er mulig foregår i klassen i fellesskap.** Elevene

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<b>Postadresse</b>	<b>Org.nr.</b> 974 767 880	<b>Besøksadresse</b>	<b>Telefon</b>	<b>Ph.d.-stipendiat</b>
7491 Trondheim	E-post: <a href="mailto:kontakt@ipl.ntnu.no">kontakt@ipl.ntnu.no</a>	Paviljong A/B NTNU Dragvoll 7491 Trondheim	+ 47 73 59 19 50 <b>Telefaks</b> + 47 73 59 18 90	Astrid Hoås Morin Tlf: +47 735 91 951 Mob:+47 913 10 941
	<a href="http://www.ntnu.no/ipl">http://www.ntnu.no/ipl</a>			

deltar på frivillig basis, og de som eventuelt ikke ønsker å svare på undersøkelsen vil jobbe med individuelt opplegg på skolen i stedet.

Skoler som deltar forplikter seg videre til å distribuere et informasjonsskriv til elevene. Dette kan gjøres elektronisk (via Fronter, Blackboard, It's Learning e.l., eller e-post).

Lærere med ansvar for gjennomføring av VIP-makkerskap inviteres til å besvare et kortere elektronisk spørreskjema (ca. 5-10 minutter) i starten av vårsemesteret 2018, hvor fokus vil være hvordan de opplever å bruke VIP-makkerskap i arbeidshverdagen. Videre inviteres rektor, eller en annen ved skolens ledelse, til å svare på et elektronisk spørreskjema (5-10 minutter) i løpet av vårsemesteret 2018. Spørsmålene er ment å bidra til et mer utfyllende bilde av skolens læringsmiljø, og vil handle om hvordan skolen arbeider med elevers trivsel og sosiale relasjoner.

**En tid etter datainnsamlingen er ferdig vil dere motta tall og resultater for deres skole. I tillegg vil skolen få tilsendt en rapport med resultater fra studien etter prosjektslutt.**

Forskningsstudien er godkjent av Norsk Samfunnsvitenskapelig Datatjeneste (NSD). Alle data som samles inn vil bli anonymisert, og ingen skoler, ledere, lærere eller elever som deltar vil kunne identifiseres.

Ta gjerne kontakt med oss dersom dere ønsker mer informasjon om prosjektet eller har spørsmål. Kontaktinformasjon finner dere under.

Vennlig hilsen

**Astrid Hoås Morin**

Ph.d-stipendiat  
Institutt for pedagogikk og livslang læring  
NTNU  
Telefon: 735 91 951/913 10 941  
Mail: [astrid.hoas@ntnu.no](mailto:astrid.hoas@ntnu.no)

**Espen Hansen**

Leder for skoleprogrammet VIP  
Lærings- og mestringssenteret  
Vestre Viken  
Telefon: 995 72 518  
Mail: [espen.hansen@vestreviken.no](mailto:espen.hansen@vestreviken.no)

## Appendix V: Information Letter to Students and Parents



Fakultet for samfunns- og utdanningsvitenskap  
Institutt for pedagogikk og livslang læring

1 av 3

### ELEVENS TRIVSEL OG OPLEVELSE AV LÆRINGSMILJØET I VIDeregående skole

Informasjon til Vg1-elever i [redacted] fylkeskommune og deres foresatte

#### Bakgrunn og hensikt

Læreplanen for videregående skole sier at alle elever skal kunne oppleve at skolen er et godt sted å være, både faglig og sosialt.

Skal skolen lykkes med å legge til rette for et godt læringsmiljø for alle, er den avhengig av informasjon fra elevene selv om hvordan de opplever den skolen de går på. I denne undersøkelsen ønsker vi at du gir oss denne informasjonen. Opplysningene du gir vil i neste omgang kunne føre til at skolen din kan bli et enda bedre sted å være. Dine svar er derfor et viktig bidrag i arbeidet med å gjøre skolen bedre.

Undersøkelsen er et samarbeid mellom Vestre Viken Helseforetak, NTNU og [redacted] fylkeskommune.

#### Hva innebærer deltakelse i studien?

Du vil bli invitert til å besvare et elektronisk spørreskjema i skoletida, ved tre tidspunkter. Den første spørreundersøkelsen vil bli gjennomført noen dager etter skolestart, spørreundersøkelse nummer to vil gjennomføres ca. ti uker etter skolestart, mens spørreundersøkelse tre vil gjennomføres i løpet av vårterminen 2018. Det tar ca. 25 minutter å fylle ut skjemaet, og det er helt frivillig å delta. Du kan trekke deg underveis i undersøkelsen, og om du angrer deg etter å ha svart, kan du be om at de opplysningene du ga blir slettet.

Hvis du har fylt 16 år avgjør du selv om du vil være med, men vis dette skrevet til dine foresatte slik at de også er informert om undersøkelsen. **Hvis du ikke har fylt 16 år må dine foresatte gi samtykke til at du kan være med.** Det gjør de ved å sende mail eller svarslipp til skolen, eller mail eller SMS til Astrid Hoås Morin (svarslipp og kontaktinfo finner du nederst i skrevet).

Spørsmålene i undersøkelsen vil handle om:

- Noen bakgrunnsopplysninger om deg, og dine foredres utdanningsnivå
- Din opplevelse av den hjelpen og støtten du får på skolen
- Din motivasjon for skolen
- Sosiale relasjoner på skolen
- Trivsel på skolen

Vi vil også hente inn opplysninger om dine karakterer, skolefravær, og gjennomføring i videregående skole.

<b>Postadresse</b> 7491 Trondheim	<b>Org.nr.</b> 974 767 880 E-post: <a href="mailto:kontakt@ipl.ntnu.no">kontakt@ipl.ntnu.no</a> <a href="http://www.ntnu.no/ipl">http://www.ntnu.no/ipl</a>	<b>Besøksadresse</b> Paviljong B NTNU Dragvoll 7491 Trondheim	<b>Telefon</b> + 47 735 91 950 <b>Telefaks</b> + 47 735 91 890	<b>Ph.d.-stipendiat</b> Astrid Hoås Morin Tlf: +47 735 91 951 Mob: +47 913 10 941
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### Hva skjer med informasjonen om deg?

For at vi skal kunne sammenligne svarene dere gir på første, andre og tredje spørreundersøkelse så er det nødvendig at dere skriver navn i skjemaet. Vi kommer ikke til å vise skjemaet ditt til noen og vi kommer ikke til å lagre navnet ditt sammen med det du har svart på undersøkelsen. Det vil heller ikke på noe tidspunkt være mulig for andre enn oss forskere å knytte det du sier til navnet ditt, og vi har taushetsplikt.

Prosjektet skal etter planen avsluttes 31. desember 2021. Alle personopplysninger om deg vil da bli slettet.

**Dersom du ønsker å være med på dette, gir du ditt samtykke ved å fylle ut det elektroniske spørreskjemaet når det er satt av tid i din klasse. Hvis du velger å ikke være med, eller velger å trekke deg på et senere tidspunkt, vil det ikke få noen innvirkning på ditt forhold til læreren din eller skolen din. Dersom du ikke ønsker å delta i studien vil du i stedet jobbe med individuelt opplegg på skolen, mens spørreskjemaet fylles ut av medelever.**

Har du spørsmål til undersøkelsen kan du ta kontakt med:

Ph.d.-stipendiat Astrid Hoås Morin på e-post [astrid.hoas@ntnu.no](mailto:astrid.hoas@ntnu.no) eller telefon **913 10 941**

Hilsen

*Astrid Hoås Morin*

Astrid Hoås Morin  
Ph.d.-stipendiat  
Institutt for pedagogikk og livslang læring  
NTNU

Per Frostad  
Professor  
Institutt for pedagogikk og livslang læring  
NTNU

Jeg/vi gir tillatelse til at: \_\_\_\_\_

kan delta på spørreundersøkelsen i regi av NTNU.

\_\_\_\_\_  
Navn på foresatte

**Tillatelse kan også gis ved å sende en SMS til 913 10 941, eller en mail til skolen eller til [astrid.hoas@ntnu.no](mailto:astrid.hoas@ntnu.no)**

Merk SMS eller mail med «elevens navn» og «OK».

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<b>Postadresse</b> 7491 Trondheim	<b>Org.nr.</b> 974 767 880 E-post: <a href="mailto:Kontakt@ipl.ntnu.no">Kontakt@ipl.ntnu.no</a> <a href="http://www.ntnu.no/ipl">http://www.ntnu.no/ipl</a>	<b>Besøksadresse</b> Paviljong B NTNU Dragvoll 7491 Trondheim	<b>Telefon</b> + 47 735 91 950 <b>Telefaks</b> + 47 735 91 890	<b>Ph.d.-stipendiat</b> Astrid Hoås Morin Tlf: +47 735 91 951 Mob: +47 913 10 941
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## Appendix VI: Practical Information to Participating Teachers

### Til skoler som deltar i studien «ELEVENS TRIVSEL OG OPPLEVELSE AV LÆRINGSMILJØET I VIDEREGÅENDE SKOLE» skoleåret 2017/18

Vi setter stor pris på at deres skole vil delta i denne studien, som skal undersøke om tiltaket VIP-makkerskap har en innvirkning på elevers opplevelse av klasse- og læringsmiljøet ved oppstart i videregående opplæring. Dere deltar altså i studien som forsøksskoler, som innebærer at VIP-makkerskap gjennomføres ved skolen det kommende skoleåret.

Nedenfor finner dere informasjon om den praktiske gjennomføringen av studien.

#### Praktisk informasjon

##### Dato for første datainnsamling

For at elevene ved forsøks- og kontrollskolene skal ha et så likt utgangspunkt som mulig så vil første datainnsamling gjennomføres nokså raskt etter skolestart. Aktuelle datoer er derfor [REDACTED]. Jeg ber om at dere gir meg tilbakemelding på hvilken av disse datoene som passer best for å gjennomføre datainnsamlingen ved deres skole, innen **fredag 18. august klokken 12.00**.

##### Distribuering av informasjonsskriv til elevene

Jeg sender i denne mailen med et informasjonsskriv som det er viktig at dere gjør tilgjengelig for vg1-elevene i god tid før undersøkelsen skal gjennomføres (gjernede allerede første skoledag etter sommerferien). Skrivet kan legges ut på Fronter/It's Learning e.l., og/eller sendes til elevene via e-post. Dersom skolen ønsker det kan dere også skrive ut informasjonsarket og gi det til hver enkelt elev en av de første skoledagene etter ferien.

##### Distribuering av lenke til spørreundersøkelsen til elevene

Når dato for første datainnsamling nærmer seg vil jeg sende dere en tekst med informasjon om studien og en lenke til spørreundersøkelsen, som dere må distribuere videre til elevene. Dere kan legge ut denne teksten på Fronter/It's Learning og/eller sende den via e-post til elevene, samme dag som undersøkelsen skal gjennomføres på skolen.

##### Distribuering av informasjonsfilm om undersøkelsen til elevene

Jeg kommer til å spille inn en kort film (2-3 minutter) med informasjon om studien, som elevene skal se før de setter i gang med å svare på undersøkelsen. Etter planen vil jeg legge ved en lenke til denne filmen i den samme teksten som inneholder lenken til spørreundersøkelsen. Dersom det finnes tekniske muligheter for det, er det en fordel om hver klasse kan se denne filmen i fellesskap før elevene hver for seg svarer på undersøkelsen. Alternativt må hver enkelt elev se filmen på sine respektive PC-er før de svarer på undersøkelsen. Dette vil si at lærerne i den enkelte klassen ikke vil trenge å gi noe informasjon om studien til elevene.

##### Viktig at undersøkelsen besvares i klassene i fellesskap



Elevene ved skolen vil besvare et elektronisk spørreskjema ved hver av de tre datainnsamlingene. For å sikre at flest mulig av elevene deltar er det viktig at det legges opp til at spørreskjemaet besvares i klassen i fellesskap, og at det settes av én skoletime i hver enkelt klasse til gjennomføring av studien (på én av de forslåtte datoene).

#### **Klasselister**

For at vi skal kunne koble informasjonen fra de tre spørreskjemaene sammen, blir elevene bedt om å skrive navn på spørreskjemaet. Jeg ber om at dere i starten av høstsemesteret sender meg klasselister for hver av vg1-klassene ved skolen, slik at jeg kan se hvilke elever som går i hvilke klasser. Klasselistene vil kun sees av meg, og vil ikke offentliggjøres på noe vis.

#### **Informasjonsskriv**

Jeg legger ved et informasjonsskriv som forteller mer om hva studien handler om

**Gi meg gjerne en tilbakemelding på at denne mailen er mottatt.** Ta ellers gjerne kontakt med meg på telefon eller mail dersom dere ønsker mer informasjon om prosjektet, eller dersom noe er uklart.

Takk igjen for at dere vil delta i studien, så ønsker jeg dere en riktig god sommer!

Vennlig hilsen

Astrid Hoås Morin

## Appendix VII: Information Letter to Teachers



Fakultet for samfunnsvitenskap og teknologiledelse  
Institutt for pedagogikk og livslang læring

1 av 2

### BRUK AV VIP-MAKKERSKAP I KLASSEROMMET

Til lærere som har gjennomført VIP-makkerskap for vg1-elever ved skolestart høsten 2017.

#### Bakgrunn og hensikt

Læreplanen for videregående skole sier at alle elever skal kunne oppleve at skolen er et godt sted å være, både faglig og sosialt. VIP-Makkerskap er et ledd i psykososialt arbeid for elever ved oppstart i videregående skole, med mål om et mer inkluderende klasse- og læringsmiljø.

Du inviteres til å delta i denne undersøkelsen fordi du har gjennomført VIP-makkerskap i en klasse. Vi ønsker gjerne å få vite litt om hvordan du som lærer opplever å bruke VIP-makkerskap i arbeidshverdagen. Spørsmålene i undersøkelsen vil handle om bruk og gjennomføring av VIP-makkerskap.

Undersøkelsen som du inviteres til å svare på, inngår som en del av studien «Elevenes trivsel og opplevelse av læringsmiljøet i videregående skole». Hovedformålet med denne studien er å undersøke om VIP-makkerskap har en innvirkning på elevers opplevelse av klasse- og læringsmiljøet. I den forbindelse har vg1-elever ved et utvalg videregående skoler svart på spørreundersøkelser ved to tidspunkter i løpet av høstsemesteret 2017. Den tredje og siste spørreundersøkelsen som elevene skal svare på, vil gjennomføres i løpet av vårsemesteret 2018.

#### Hva innebærer deltakelse i studien?

Du inviteres til å besvare et elektronisk spørreskjema. Det tar ca. 5-10 minutter å svare på spørsmålene, og det er frivillig å delta. Du kan trekke deg underveis i undersøkelsen, og om du angrer deg etter å ha svart, kan du be om at de opplysningene du ga blir slettet.

Undersøkelsen er et samarbeid mellom Vestre Viken Helseforetak, NTNU og [REDACTED] fylkeskommune.

<b>Postadresse</b> 7491 Trondheim	<b>Org.nr.</b> 974 767 880 E-post: <a href="mailto:kontakt@ipl.ntnu.no">kontakt@ipl.ntnu.no</a> <a href="http://www.ntnu.no/ipl">http://www.ntnu.no/ipl</a>	<b>Besøksadresse</b> Paviljong B/A NTNU Dragvoll 7491 Trondheim	<b>Telefon</b> + 47 735 91 950 <b>Telefaks</b> + 47 735 91 890	<b>Ph.d.-stipendiat</b> Astrid Hoås Morin Tlf: +47 735 91 951 Mob: +47 913 10 941
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Dersom du ønsker å være med på dette, gir du ditt samtykke ved å fylle ut det elektroniske spørreskjemaet som du har fått tilsendt lenke til per e-post.

Har du spørsmål til undersøkelsen, så kan du ta kontakt med:

Ph.d.-stipendiat Astrid Hoås Morin på e-post [astrid.hoas@ntnu.no](mailto:astrid.hoas@ntnu.no) eller telefon **913 10 941**.

Vennlig hilsen

*Astrid Hoås Morin*

**Astrid Hoås Morin**  
Ph.d.-stipendiat  
Institutt for pedagogikk og livslang læring  
NTNU

**Per Frostad**  
Professor  
Institutt for pedagogikk og livslang læring  
NTNU

## Appendix VIII: Project Approval - Norwegian Centre for Research Data (NSD)



Astrid Hoås Morin  
Institutt for pedagogikk og livslang læring NTNU

7491 TRONDHEIM

Vår dato: 20.06.2016

Vår ref: 48682 / 3 / BGH

Deres dato:

Deres ref:

### TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 18.05.2016. Meldingen gjelder prosjektet:

48682	<i>A Partnership Program for dropout prevention?</i>
<i>Behandlingsansvarlig</i>	<i>NTNU, ved institusjonens øverste leder</i>
<i>Daglig ansvarlig</i>	<i>Astrid Hoås Morin</i>

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i melde skjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 31.12.2021, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Kjersti Haugstvedt

Belinda Gloppen Helle

Kontaktperson: Belinda Gloppen Helle tlf: 55 58 28 74

Vedlegg: Prosjektvurdering

*Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.*



#### FORMÅL

I følge prosjektmeldingen er formålet med studien å studere et spesifikt program, kalt VIP-makkerskap, og hvorvidt programmet har en effekt på fravær og frafalls elever i videregående skole. Videre ønsker studien å undersøke forholdet mellom deltagelse i VIP-makkerskap og psykososiale faktorer som elevenes følelse av ensomhet, mobbing, det sosiale klassemiljøet og andre aspekter knyttet til mental helse.

#### NASJONAL SAMARBEIDSSSTUDIE

I følge informasjonsskrivet er dette en nasjonal samarbeidsstudie hvor NTNU er behandlingsansvarlig institusjon. Personvernombudet forutsetter at dere har avklart ansvaret for behandlingen av personopplysninger mellom institusjonene. Vi anbefaler at dere inngår en avtale som omfatter ansvarsfordeling, ansvarsstruktur, hvem som initierer prosjektet, bruk av data og eventuelt eierskap.

#### INFORMASJON OG SAMTYKKE

Utvalget informeres skriftlig om prosjektet og samtykker til deltakelse. Revidert informasjonsskrivet mottatt 16.06.16 er godt utformet.

Personvernombudet er enig i at 16-17 åringene kan samtykke selv i dette prosjektet. Vi har lagt vekt på at det er nødvendig for prosjektets formål å innhente opplysningene fra ungdommene selv. Videre har vi vurdert at prosjektet har kort varighet.

#### REKRUTTERING OG FØRSTEGANGSKONTAKT

I følge meldeskjemaet skal fylkeskommuner bistå forsker med rekruttering av skoler og utvalg. Førstegangskontakt opprettes ved at informasjonsskriv blir distribuert til elever og foresatte på skolens intranett.

#### UTVALG OG INNSAMLING AV PERSONOPPLYSNINGER

Utvalget består av 1500-3000 Vg1-elever. Opplysninger skal samles ved bruk av papirbasert spørreskjema og registerdata fra fylkeskommunen.

Variablene fra registerdata som skal registreres om elevene er:

- Standpunktarakter i norsk, matematikk og kroppsøving fra 10. klasse
- Antall ugyldige fraværsdager (i 10.klasse og deler av 1.klasse vgs)
- Informasjon om eventuelt bytt av linje/sluttedata i løpet av de to første årene på VGS

Utvalget samtykker til at det innhentes registerdata om dem. Registerdata utleveres av fylkeskommunen. Personvernombudet forutsetter at fylkeskommunen har tillatelse/mulighet til å levere ut disse dataene.

Dersom det blir aktuelt å registrere andre variabler enn dem nevnt over forutsetter personvernombudet at det

sendes inn en endringsmelding til personvernombudet og at utvalget blir informert og gir sitt samtykke til at de gitte variablene registreres.

#### KOBLING AV DATAMATERIALET OG INFORMASJONSSIKKERHET

I følge epost 16.06.16 skal forsker selv koble registerdata til svar fra spørreskjema. Forsker vil aidentifisere utfylte spørreskjema ved å erstatte navn med et ID-nummer, slik at spørreskjema og navn oppbevares separat. Listen med navn og ID-nummer vil deretter brukes til å matche med registerdata fra fylkeskommunen. Registerdata skal føres manuelt inn i denne listen og vil bli gjort i fylkeskommunens lokaler. Når registerdata er ført inn vil forsker fjerne navnene fra listen med registerdata, slik at det kun er ID-nummer og registerdata som oppbevares sammen. Koblingsnøkkelen med ID-nummer og navn vil oppbevares på sikker server på NTNUs intranett, adskilt både fra registerdata og øvrige spørreskjemadata.

Personvernombudet legger til grunn at dere behandler alle data og personopplysninger i tråd med NTNU sine retningslinjer for innsamling og videre behandling av forskningsdata og personopplysninger. Ettersom det skal behandles sensitive personopplysninger, er det viktig at dere krypterer opplysningene tilstrekkelig.

#### SENSITIVE PERSONOPPLYSNINGER

Det var i utgangspunktet ikke krysset av for at det skal innhentes sensitive personopplysninger. Personvernombudet vurderer at ettersom det i spørreskjemaet stilles spørsmål om trivsel, mobbing, selvværd og lignende at dette kan regnes som sensitive personopplysninger innenfor en videre definisjon av helseforhold. Vi har derfor endret dette punktet i meldeskjemaet.

#### TREDJEPERSONER

Det registreres noen personopplysninger om tredjepersoner, herunder om foreldres utdanningsnivå. Ettersom opplysningene ikke er sensitive og av mindre omfang kan forsker fritas fra plikten til å informere tredjepersoner.

#### PROSJEKTLUTT OG ANONYMISERING

I meldeskjemaet/informasjonskrivet har dere opplyst om at forventet prosjektlutt er 31.12.2021. Ifølge meldeskjemaet skal dere da anonymisere innsamlede opplysninger. Anonymisering innebærer at dere bearbeider datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjør dere ved å slette direkte personidentifiserende opplysninger og slette eller kategorisere indirekte personidentifiserende opplysninger.

## Confirmation from NSD that 15-year-olds could be included in the study sample

**Fra:** [Belinda Helle](#)  
**Til:** [Astrid Hoås Morin](#)  
**Emne:** Re: Prosjektnr: 48682. A Partnership Program for dropout prevention?  
**Dato:** fredag 24. juni 2016 09:05:55

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Hei igjen Astrid,

Takk for epost. Informasjonsskrivet er godt formulert. Jeg har registrert i prosjektet ditt at utvalget vil inkludere ungdommer på 15 år og at foresatte samtykker på deres vegne. Du kan anse denne eposten som en bekreftelse på endringsmelding.

God sommer og lykke til med prosjektet!

Vennlig hilsen,  
Belinda

--

Belinda Gloppen Helle  
Rådgiver/Adviser  
Tel: +47 55 58 28 74  
[nsd.no](http://nsd.no) | [twitter.com/NSDdata](https://twitter.com/NSDdata)

## Appendix IX: Factor Loadings and Item Specifications

Table 6 Factor analysis (Maximum Likelihood) and Cronbach's alpha's of the loneliness in 10<sup>th</sup> grade (factor 2) social classroom environment (factor 3), social anxiety (factor 4), happiness (factor 5) and internalizing symptoms (factor 1) scales collected at t1 (Oblimin rotation with Kaiser Normalization)

Item	Factor loadings for latent variables				
	1	2	3	4	5
I had no one to talk with at school	-.015	<b>.923</b>	.009	-.023	.018
I often spent the breaks all by myself	-.031	<b>.834</b>	-.013	.067	-.008
I had no one to be together with at school	-.030	<b>.934</b>	-.021	-.014	-.021
I felt an outsider in school	.118	<b>.771</b>	.027	.059	-.004
I had no friends in school	-.036	<b>.913</b>	-.007	-.042	.014
I always have someone to sit with in class	-.007	.017	<b>.811</b>	.046	.024
The other students in the class greet me when we meet	.078	.017	<b>.640</b>	-.093	-.088
I have someone to be with during breaks	-.016	-.061	<b>.796</b>	.012	.080
It feels secure to be at school	-.130	.012	<b>.582</b>	-.001	-.112
Fear of embarrassment causes me to avoid doing things or speaking to people	.155	.079	-.097	<b>.569</b>	-.008
I avoid activities in which I am the centre of attention	-.041	.014	-.026	<b>.741</b>	.090
Being embarrassed or looking stupid are among my worst fears	.069	.025	.020	<b>.731</b>	.023
Felt like life is great	-.041	.000	.009	-.048	<b>-.781</b>
Felt happy	-.085	-.035	-.020	-.013	<b>-.805</b>
Been in a good mood	-.104	-.028	.032	.035	<b>-.678</b>
Felt eager and enthusiastic	.077	.019	.059	-.075	<b>-.742</b>
Felt nervous	<b>.584</b>	-.024	-.023	.253	-.034
Felt anxious	<b>.758</b>	-.005	-.047	.136	-.042
Felt tense	<b>.685</b>	-.026	-.007	.087	-.008
Worried a lot	<b>.783</b>	-.017	-.033	.094	-.050
Felt like everything is a struggle	<b>.604</b>	-.007	-.016	-.009	.209
Felt blue or depressed	<b>.793</b>	.043	-.028	-.042	.086
Felt unhappy	<b>.711</b>	.056	-.081	-.087	.150
Cried easily	<b>.818</b>	.028	.040	-.067	-.048
Felt like giving up everything	<b>.622</b>	.056	-.036	-.036	.188
Eigenvalue	7.78	3.34	1.71	1.39	1.08
% of variance	39.4	13.6	7.9	5.8	4.5
Cronbach's alpha	.92	.93	.81	.80	.87

Note. Bold denotes factor loadings greater than or equal to 0.5



Table 7 Factor analysis (Maximum Likelihood) and Cronbach's alpha's of the happiness (factor 4), internalizing symptoms (factor 1), social anxiety (factor 5), social classroom environment (factor 7), loneliness (factor 3), emotional teacher support (factor 2) and instrumental teacher support (factor 6) scales collected at t2 (Oblimin rotation with Kaiser Normalization)

Item	Factor loadings for latent variables						
	1	2	3	4	5	6	7
Felt like life is great	.041	.023	.000	<b>.792</b>	.042	-.008	.002
Felt happy	.049	.004	.034	<b>.824</b>	.005	.012	-.007
Been in a good mood	.040	-.020	.014	<b>.728</b>	-.008	.022	.058
Felt eager and enthusiastic	-.030	.040	-.038	<b>.765</b>	.064	-.001	.045
Felt nervous	<b>-.757</b>	-.028	.064	.110	-.118	.035	-.034
Felt anxious	<b>-.798</b>	-.023	-.029	.026	-.073	-.008	-.023
Felt tense	<b>-.781</b>	.021	.034	.063	-.018	-.034	-.013
Worried a lot	<b>-.647</b>	-.029	.004	-.132	-.005	-.048	.011
Felt like everything is a struggle	<b>-.712</b>	-.008	-.058	-.161	.038	-.001	-.027
Felt blue or depressed	<b>-.796</b>	-.012	.024	.031	-.043	.008	-.037
Felt unhappy	<b>-.594</b>	-.057	-.096	-.237	.023	.000	-.005
Cried easily	<b>-.738</b>	.004	-.048	-.029	.065	.012	.013
Felt like giving up everything	<b>-.599</b>	-.013	-.074	-.185	-.013	-.079	.047
Fear of embarrassment causes me to avoid doing things or speaking to people	-.141	.006	-.100	-.004	<b>-.592</b>	.021	-.052
I avoid activities in which I am the centre of attention	.085	-.012	-.012	-.067	<b>-.837</b>	-.030	.015
Being embarrassed or looking stupid are among my worst fears	-.070	.005	.022	.007	<b>-.743</b>	-.002	.004
I always have someone to sit with in class	.038	-.017	.020	-.029	-.046	.017	<b>.825</b>
I always have someone to work with during group assignments	.029	-.001	-.039	.026	-.020	.053	<b>.787</b>
The other students in the class greet me when we meet	-.052	.067	-.029	.075	.091	.007	<b>.603</b>
I have someone to be with during breaks	-.004	-.056	.202	-.024	.027	-.004	<b>.687</b>
It feels secure to be at school	.108	.117	-.046	.049	.056	.063	<b>.545</b>
I have made new friends in class	-.026	.011	.111	.043	-.006	-.022	<b>.695</b>
I have no one to talk with at school	-.016	-.026	<b>-.761</b>	-.001	-.018	-.041	.001
I often spend the breaks all by myself	.006	.025	<b>-.560</b>	.028	-.084	.070	-.213
I have no one to be together with at school	-.002	-.024	<b>-.868</b>	.032	-.004	-.012	.028
I feel an outsider in school	-.107	.024	<b>-.551</b>	-.080	-.065	-.010	-.151
I have no friends in school	.024	-.029	<b>-.811</b>	-.026	.019	-.018	.021
My teachers care about me	-.034	<b>.913</b>	.009	-.013	.008	-.009	-.007
My teachers appreciate me	.019	<b>.861</b>	.023	.007	.007	-.015	-.007
My teachers believe in me	.017	<b>.847</b>	.010	-.009	-.031	.007	.036
I can trust my teachers	.008	<b>.769</b>	-.004	.009	.006	.049	-.006
My teachers try to answer my academic questions	-.041	.030	.004	-.018	-.017	<b>.665</b>	.102
My teachers explain to me what I don't understand	-.005	-.041	.060	.001	.021	<b>.803</b>	-.062
My teachers keep explaining until I understand	.015	-.015	-.036	-.004	.007	<b>.803</b>	.017
If I need extra help with the subjects, my teachers will give it to me	.048	.101	-.021	.015	.000	<b>.581</b>	.002
Eigenvalue	11.7	3.7	3.6	1.6	1.4	1.2	1.1
% of variance	33.2	11.7	9.6	4.6	4.4	3.7	3.7
Cronbach's alpha	.93	.91	.87	.89	.81	.82	.89

Note. Bold denotes factor loadings greater than or equal to 0.5.

Table 8 Factor analysis (Maximum Likelihood) of the happiness (factor 3), internalizing symptoms (factor 1), social anxiety (factor 4), social classroom environment (factor 5), and loneliness (factor 2) scales collected at t3 (Oblimin rotation with Kaiser Normalization)

Item	Factor loadings for latent variables				
	1	2	3	4	5
Felt like life is great	-.059	-.014	<b>.838</b>	.009	-.022
Felt happy	-.040	-.009	<b>.870</b>	.009	-.006
Been in a good mood	-.039	.054	<b>.751</b>	.007	.037
Felt eager and enthusiastic	.026	.000	<b>.791</b>	.050	.021
Felt nervous	<b>.728</b>	.039	.081	-.140	.010
Felt anxious	<b>.821</b>	-.041	.041	-.056	.006
Felt tense	<b>.791</b>	.028	.042	-.015	.019
Worried a lot	<b>.687</b>	.012	-.133	.020	-.004
Felt like everything is a struggle	<b>.748</b>	-.025	-.117	.008	-.041
Felt blue or depressed	<b>.830</b>	.017	.029	-.019	.020
Felt unhappy	<b>.698</b>	-.064	-.163	.050	-.040
Cried easily	<b>.725</b>	.005	.029	.029	-.014
Felt like giving up everything	<b>.661</b>	-.057	-.124	.036	-.040
Fear of embarrassment causes me to avoid doing things or speaking to people	.125	-.112	.050	<b>-.655</b>	-.028
I avoid activities in which I am the centre of attention	-.069	.010	-.110	<b>-.786</b>	-.029
Being embarrassed or looking stupid are among my worst fears	.044	.012	.010	<b>-.800</b>	.014
I always have someone to sit with in class	-.012	.027	-.034	-.031	<b>.817</b>
I always have someone to work with during group assignments	-.036	-.085	-.038	-.013	<b>.857</b>
The other students in the class greet me when we meet	.056	-.043	.080	.115	<b>.631</b>
I have someone to be with during breaks	-.009	.280	-.028	-.028	<b>.602</b>
It feels secure to be at school	-.108	.010	.075	.031	<b>.558</b>
I have made new friends in class	.052	.146	.007	-.018	<b>.687</b>
I have no one to talk with at school	-.010	<b>-.850</b>	-.062	-.008	.034
I often spend the breaks all by myself	.018	<b>-.661</b>	.032	-.056	-.119
I have no one to be together with at school	-.028	<b>-.922</b>	.009	-.011	.056
I feel an outsider in school	.125	<b>-.564</b>	-.050	-.063	-.139
I have no friends in school	-.005	<b>-.798</b>	.016	.016	-.020
Eigenvalue	10.1	4.2	1.7	1.4	1.3
% of variance	37.4	15.5	6.4	5.3	4.8
Cronbach's alpha	.93	.88	.91	.82	.91

Note. Bold denotes factor loadings greater than or equal to 0.5.

## Part II: The Articles

### Article I

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## Teacher support and the social classroom environment as predictors of student loneliness

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### Abstract

This study examined the relationships between students' perceptions of teacher support, the social classroom environment, school loneliness, and possible gender differences among 2099 first year upper secondary school students in Norway. Data were collected in the fall (t1) and spring (t2) of the school year. Results from structural equation modelling (SEM) analyses showed that perceived emotional and instrumental teacher support were directly related to students' perceptions of the social classroom environment, and indirectly to student loneliness through the social classroom environment. While for boys, both types of teacher support were significantly related to these variables, only emotional teacher support was of significance to girls. The strongest contributing factor to students' school loneliness was their perceptions of the social classroom environment. Some implications of this study are that a positive social classroom environment is an important safeguard against student loneliness, and that teachers can aid in preventing loneliness among students through facilitating a positive social environment in the class.

**Keywords** School loneliness · Perceived teacher support · Social classroom environment · Gender differences · Upper secondary school · SEM

### 1 Introduction

Experiencing positive interpersonal relationships is crucial to individual's development and wellbeing as it contributes to a sense of belonging. Conversely, experiencing a lack of such relationships can lead to a sense of deprivation, which can manifest itself in feelings of loneliness (Baumeister and Leary 1995; Heinrich and Gullone 2006). Adolescents are in a developmental period characterized by biological and social transitions and may therefore be particularly prone to feeling lonely (Goosby et al. 2013; Heinrich and Gullone 2006). Adolescence is also a time when

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relationships with peers relative to parents become increasingly more important (e.g. Hafen et al. 2012). Research has consistently demonstrated that the quality of students' relationships with peers is closely linked with their experiences of loneliness at school (e.g. Heinrich and Gullone 2006). All the same it is unclear in what ways other classroom factors, such as teacher support and the social environment in the classroom, influence on students' feelings of school loneliness, and moreover whether these associations are dependent of gender. This study thus sought to investigate the relations between students' perceptions of social support from teachers, their experiences of the social classroom environment, and loneliness among a sample of first year upper secondary school students in Norway. A clarification of these relationships can help identify protective factors within the school context, which can be of considerable utility for teachers and others who work with adolescents in the school setting.

### 1.1 Loneliness

Loneliness can be regarded as a negative emotion arising out of the incongruity between a person's desired and actual social relationships (Perlman and Peplau 1981). This adverse experience is generally considered to stem from a lack of sense of social connectedness with others rather than a lack of actual social contact. It thus refers to the quality rather than the quantity of social relationships (Heinrich and Gullone 2006; Perlman and Peplau 1981, 1982). Although most people occasionally feel lonely, some experience more persistent and severe feelings of loneliness. The adverse impact that loneliness can have on adolescents' wellbeing has been widely documented in the literature. Studies have for instance linked loneliness during adolescence and early adulthood with poorer general health (Harris et al. 2013; Mahon et al. 1993), reduced sleep quality (Cacioppo et al. 2002), eating problems (Rotenberg and Flood 1999), and higher mortality rates (see Cacioppo and Cacioppo 2012).

The causes of loneliness are complex, and may include environmental, societal, relational as well as individual factors (e.g. Heinrich and Gullone 2006; Krause-Parello, 2008). Moreover, it can be problematic to distinguish the causes and consequences of loneliness apart, as the path of causality between loneliness and the factors commonly associated with it is often bidirectional (Heinrich and Gullone 2006). Some of the recognized predictive conditions nonetheless include characterological traits like shyness (Woodhouse et al. 2012), introversion (Hawkins-Elderet et al. 2018), neuroticism (Vanhalst et al. 2012), poor social skills (Segrin and Flora 2000), and related behaviours such as social withdrawal and avoidance (London et al. 2007; Watson and Nesdale 2012). Loneliness has also been reciprocally and adversely associated with self-esteem (e.g. Vanhalst et al. 2013) and mental health problems such as social anxiety (Lasgaard et al. 2011a, b; Maes et al. 2019) and depression (Ladd and Ettekal 2013; Lasgaard et al. 2011a, b; Vanhalst et al. 2012).

Previous research has established that loneliness can occur within different contexts, such as the family, romantic relationships, and in school (Chipuer 2001; Dittmanson and Spinner 1997; Lasgaard, Goossens, Bramsen, et al. 2011a, b). The focus



of the present article is adolescent loneliness in the school context. This topic has been extensively studied to date, and school loneliness has been linked with factors such as lower academic achievement (Levitt et al. 1994), impaired academic progress and exit exam success (Benner 2011), and intentions to leave upper secondary school early (Frostad et al. 2015; Haugan et al. 2019).

### 1.1.1 Perceived teacher support and student loneliness

Although teacher support is a broad term encompassing various dimensions, researchers have commonly distinguished between emotional and instrumental support (e.g. Federici and Skaalvik 2014; Semmer et al. 2008). Perceived emotional support refers to students' perceptions of their teachers as caring, friendly, empathetic and trustworthy, whereas perceived instrumental support points to students' perceptions of receiving academic help and support from their teachers.

A number of studies have documented the significant role of perceived teacher support to student's well-being and academic adjustment (Katz et al. 2009; Malnecki and Demaray 2003; Natvig et al. 2003; Patrick et al. 2007; Suldo et al. 2009; Wentzel et al. 2010). The role of the teacher in adolescent's loneliness has however received little empirical attention. Moreover, the few studies examining these associations have mainly focused on children (e.g. Birch and Ladd 1997). As noted by Parkhurst and Hopmeyer (1999), there will likely be differences in the causes and correlates of loneliness between children and adolescents, due to changes in cognitive development and in the significance of social relationships as children move into adolescence. Although researchers have emphasized the teacher's important role in contributing to reducing student loneliness (e.g. Galanaki and Vassilopoulou 2007; Rokach 2016), only two studies were found that provide empirical data on this association. Frostad et al. (2015) found that emotional teacher support was significantly and negatively correlated with school loneliness in a sample of Norwegian adolescents ( $r = -0.13$ ). Results from an earlier study by Dobson, Campbell, and Dobson (1987) moreover showed that students' perceptions of the quality of the classroom environment created by the teacher was inversely related to their feelings of loneliness ( $r = -0.20$ ) (Dobson et al. 1987). Otherwise, this relation remains largely unexplored.

### 1.1.2 Social classroom environment and student loneliness

Previous research has described the social classroom environment in various ways. While some have related it to social relationships between students, and students and teachers (e.g. Patrick et al. 2007), others have linked it to the social atmosphere or climate in the classroom (e.g. Cava et al. 2010; Cava et al. 2007). With regard to loneliness, researchers have particularly devoted their attention to the peer group in school. Not surprisingly, important risk factors for school loneliness include social difficulties such as peer victimization (Lester et al. 2013; Woodhouse et al., 2012), bullying (Segrin et al. 2012) and negative peer acceptance status (Sletta et al. 1996; Woodhouse et al., 2012). Sociometric classroom studies have moreover demonstrated that lonely adolescents tend to have fewer friends in class (Lodder et al.

2017), and to report lower quality in the friendships they do have (Parker and Asher 1993; Vanhalst et al. 2014). Notably, students' perceptions of having supportive and caring peers have been found to moderate the relationship between victimization and loneliness (Storch et al. 2003).

Little empirical attention has however been given to the associations between loneliness and social factors within the school environment that go beyond the direct relationships between peers. Results from the handful of studies that have investigated this indicate that adolescents' perceptions of a positive classroom environment and their sense of connectedness to school are negatively related to global loneliness ( $\beta = -0.15 - -0.28$ ) (Cava et al. 2010, 2007; Pretty et al. 1994). None of these studies have however focused their attention on how the social classroom environment relates specifically to school loneliness. Given the importance of a positive social school environment for students' wellbeing and learning (e.g. Jamal et al. 2013), this is regarded as an important area to investigate further.

### 1.1.3 Gender differences in perceptions of the social classroom environment, teacher support and loneliness

Considering the general lack of research on the association between students' perceptions of teacher support, the social classroom environment and loneliness, few relevant studies were found on how gender might moderate these relationships. One exception was a study that found the relationship between the classroom environment and loneliness to be stronger for adolescent boys than girls ( $\beta = -0.28$  for boys and  $-0.16$  for girls) (Cava et al. 2010). The following section will thus review some of the literature on gender differences in levels of loneliness and teacher support.

Regarding gender differences in levels of teacher support, some studies have shown that girls tend to report higher emotional support (Låftman and Modin 2012) and a greater degree of closeness with their teachers (Drevets 1996; Wyrick 2011), whereas boys tend to report higher levels of instrumental teacher support (Låftman and Modin 2012). Results from an earlier meta-study by Kelly (1988) moreover suggested that boys tend to have more tangible and instructional contact with teachers than girls. Other empirical work has however found no gender differences in perceived teacher support (Danielsen et al. 2009).

Research on gender differences in adolescent loneliness has led to contrasting results. To the extent that gender differences have been reported among adolescents, boys have tended to display higher loneliness rates than girls (e.g. Koenig and Abrams 1999; Koenig et al. 1994). Conversely, results from the Norwegian Ungdata surveys have shown a female predominance in self-reported loneliness (Bakken 2017, 2018, 2019). Ungdata are nationally representative surveys conducted every three years among school students in Norway (from grade 5 to 13). The study covers thematic areas such as parents, friends, school, the local environment, leisure activities, health and well-being (Ungdatasenteret 2020).

In an earlier meta-study, Borys and Perlman (1985) noted that while girls were more apt to label themselves as lonely (self-labelling), boys tended to display higher loneliness scores in self-report studies. In Ungdata, loneliness was measured by use of one question asking about the degree to which the students had experienced



loneliness in the last week, and this may be viewed as a form of self-labelling. These opposing findings concerning loneliness and gender may therefore, at least in part, be explained by method of assessment (Heinrich and Gullone 2006).

## 1.2 Purpose of the study and theoretical model

Taken together, there appears to be a gap in the literature on the associations between student's perceptions of teacher support, the social climate in the classroom and loneliness, and on how these relations may vary by gender. There also seems to be a lack of longitudinal studies on school loneliness. The present study thus sought to extend on the previous research by investigating these variables across two time points. Findings from previous work that has emphasized the importance of positive social relationships and a positive social classroom environment for students' loneliness, led to the formulation of two main hypotheses. Specifically, it was hypothesised that:

- (1) Positive perceptions of teacher support would (a) positively predict the social classroom environment and (b) negatively predict loneliness.
- (2) Positive perceptions of the social classroom environment would negatively predict loneliness.

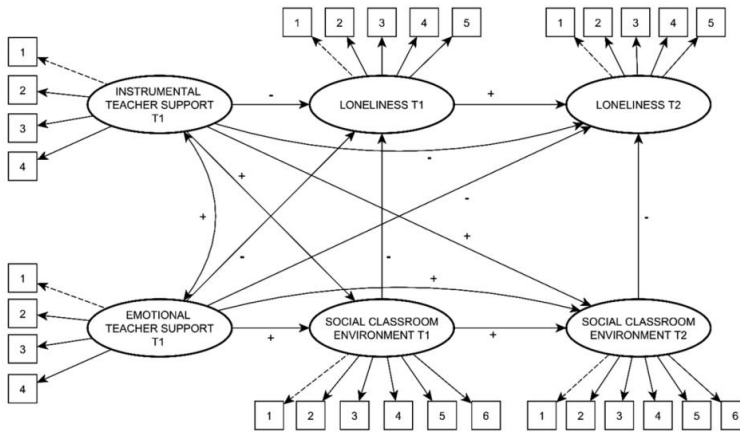
Due to the mentioned lack of, and somewhat inconsistent results presented in previous research, no gender-specific hypotheses were formulated regarding the relationships between teacher support, the social classroom environment and loneliness. Rather, these investigations are exploratory in their nature. The theoretical model is displayed in Fig. 1.

## 2 Method

### 2.1 Participants and procedure

The sample comprised 3149 first year upper secondary school students (aged 15 and 16) from 17 upper secondary schools in Norway. Data were collected twice in the school year 2017/18 by means of electronic self-reporting questionnaires administered in school classes. The first survey was conducted approximately ten weeks into the school year in 2017 (t1), and the second survey was carried out in March/April 2018 (t2). Some classes did, for unknown reasons, not respond to the survey within the allotted time. At t1 there were 24 classes in six schools that did not participate, while at t2, this applied to 19 classes in five schools. These classes constituted the bulk of non-responses. Finally, the number of participating students were 2,501 at t1, and 2,422 at t2.

The data were examined for differences in respondent characteristics between the students who participated only at t1 ( $n=402$ ) or t2 ( $n=323$ ), and those who had responded to both surveys. Chi-square tests and t-tests showed that there were no



**Fig. 1** Path diagram showing specified hypothesized structural relationships and measurement specification

significant differences in variables such as mother’s education level, gender, mean grades, or field of study (general or vocational education) between these groups. The 725 students who had responded to only one of the two surveys were omitted from the main analyses. This yielded a final sample of 2099 students and a response rate of 67%. Of these, 1240 (59%) were female.

All schools appointed a contact person who was responsible for providing the necessary information and assistance to teachers and students. Students, teachers and parents received an information sheet, which informed that students had a right to withdraw from participation at any time, and that they were considered to have given their consent to participate by responding to the questionnaire. Prior to responding to the survey, students in each class were shown an information video recorded by the author. The video explained the rationale of the study and encouraged the students to answer the questionnaire properly. Parental consent was attained from students under the age of 16, and the project was approved by the Norwegian Centre for Research Data (NSD).

**2.2 Measures**

All items were designed and administered in Norwegian. The response categories for all statements except gender were on a 6-point scale, ranging from 1 = *strongly disagree* through 6 = *strongly agree*. All items were averaged for a scale score.

**2.2.1 Exogenous variables**

*Perceived teacher support* Instrumental and emotional teacher support were measured by four items each. The scale for instrumental support was modified from an

instrument developed by Frostad et al. (2015) and later slightly adapted by Tvedt (2017). Example items are: 'My teachers try to answer my academic questions' and 'My teachers explain to me what I don't understand'. Emotional support was modified from a widely used scale developed by the Norwegian Centre for Learning Environment and Behavioral Research in Education (e.g. Bru et al. 1998; Tvedt et al. 2019). This scale comprises statements such as: "My teachers care about me" and 'I can trust my teachers'.

### 2.2.2 Endogenous variables

*Social classroom environment* This measure encompasses the social climate in the classroom, and more specifically students' perceptions of having supportive relations to their peers and their sense of belonging to the class. Three of the items were adapted from questions created by the VIP School Programme (2015, 2016), and example statements are: 'I always have someone to be with during breaks', and 'I have made new friends in class'. The three remaining statements were made for the present study and include items such as: 'I always have someone to sit together with in class'. Higher scores indicate more positive perceptions of the social classroom environment.

*Loneliness* Loneliness was measured by using a Norwegian version of the Loneliness and Social Dissatisfaction Questionnaire (Asher and Wheeler 1985; Valås 1999). This scale has a clear school focus and has been used in several studies to measure school loneliness (e.g. Frostad et al. 2015; Galanaki and Vassilopoulou 2007). Example items are 'I have no one to be together with at school' and 'I feel lonely at school'. High scores indicate higher levels of school loneliness.

*Gender* A dichotomous variable indicated whether the adolescent is female (1) or male (2).

## 3 Analyses

Preliminary analyses were conducted in SPSS 26, whereas confirmatory factor analysis (CFA) and structural equation modelling (SEM) were conducted using the lavaan package in R. Because initial tests indicated that the residuals were non-normal, robust estimators were calculated using MLM (Maydeu-Olivares 2017; Savalei 2018). These tests require complete data, and prior to conducting the SEM-analyses, missing data estimates were computed through regression imputation with maximum likelihood (Allison 2002). Data were assumed to be missing at random (MAR), as separate variance *t*-tests showed that none of the items significantly affected whether data were missing in any of the other items. All items had missing values < 2.7% of the total sample. All models were based on the complete data set.

First, three measurement models were tested by using CFA. Next, the relationships between the latent variables were examined by means of SEM. SEM is a recommended analytical tool to examine relationships among latent constructs in longitudinal studies (Lei and Wu 2007). The goal of SEM is to estimate the relationships among hypothesized latent constructs, and to test whether the hypothesized

theoretical model corresponds with the collected data. Due to the large sample size,  $\chi^2$  was not used to evaluate model fit (Hair et al. 2014). Rather, the assessment of goodness of fit was guided by fit criteria of CFI and TLI > 0.95, RMSEA < 0.07, and SRMR < 0.08 (Hooper et al. 2008; Kline 2011).

## 4 Results

### 4.1 Correlations and descriptive statistics

Table 1 shows correlations between the variables, statistical means, standard deviations, Cronbach's alphas and effect sizes for the mean differences between gender. All latent variables were significantly correlated with one another. All correlations were below 0.68, which implies that multicollinearity is not a concern. Boys reported higher levels of both instrumental and emotional teacher support compared to girls. Moreover, boys had significantly higher loneliness scores than girls at t2, but the effect size was small/insignificant (Cohen and Steinberg 1992). All variables demonstrated high reliability.

### 4.2 Measurement models

The factor structure of the latent variables was assessed by testing three measurement models using CFA. Fit statistics were compared across these models in a stepwise procedure (Hair et al. 2014). The first model included the two exogenous variables (instrumental and emotional teacher support), while the second model included the three intermediate variables (social classroom environment at t1 and t2 and loneliness at t1). Finally, the third model included all six variables. Because the data are longitudinal, the residuals for the items measuring the same phenomenon at t1 and t2 were allowed to correlate (Little 2013). Table 2 shows that the complete model had good fit with the data, and this indicates that the items constitute six distinct constructs.

### 4.3 Structural models

The relations between the variables were further explored by means of SEM. First, a model was constructed based on the hypothesized model shown in Fig. 1. The model (referred to as Model 1) specified emotional and instrumental teacher support as exogenous variables. These were expected to be positively related to the social classroom environment at t1 and t2, and negatively related to loneliness at t1 and t2. Moreover, the social classroom environment at t1 was expected to be negatively related to loneliness at t1 and positively related to the social classroom environment at t2. Next, loneliness at t1 was expected to be positively related to loneliness at t2, whereas the social classroom environment at t2 was expected to be negatively related to loneliness at t2. The residuals among corresponding parallel indicators at t1 and t2 were allowed to correlate. Model 1 showed good fit

**Table 1** Bivariate correlations and descriptive statistics of the study variables

	$\alpha$	1	2	3	4	5	6
1	0.82	–					
2	0.91	–0.60***	–				
3	0.86	–0.16***	–0.18***	–			
4	0.88	0.31***	0.35***	–0.63***	–		
5	0.89	–0.16***	–0.17***	0.55***	0.50***	–	
6	0.88	0.29***	0.32***	–0.49***	0.67***	–0.63***	–
7	–	0.09**	0.13**	0.01	0.02	0.05*	0.03
<i>M</i> girls (SD)	–	4.32 (1.03)	4.38 (1.01)	1.50 (0.82)	5.07 (0.95)	1.50 (0.83)	5.01 (0.99)
<i>M</i> boys (SD)	–	4.50 (1.02)	4.63 (.94)	1.51 (0.86)	5.10 (0.89)	1.59 (1.00)	5.07 (0.88)
Effect size (Cohen's <i>d</i> )	–	0.18**	0.26**	0.01	0.03	0.10*	0.06

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Girls = 1, boys = 2

**Table 2** Measurement models (CFA) with fit indices and standardized factor loadings

Measurement model	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i> [90% CI]	<i>SRMR</i>	Standardized factor loadings
Independent (instrumental and emotional teacher support at t1)	0.996	0.994	0.032 [0.023–0.042]	0.017	0.70–0.86
Intermediate (social classroom environment at t1 and t2 and loneliness at t1) <sup>a</sup>	0.963	0.954	0.057 [0.054–0.061]	0.038	0.62–0.81
Complete (all variables) <sup>a</sup>	0.961	0.956	0.043 [0.041–0.045]	0.043	0.64–0.87

<sup>a</sup> Models with residual correlations between corresponding parallel indicators at t1 and t2



with the data, with robust RMSEA = 0.041 (90% CI: 0.038–0.043), CFI = 0.965, TLI = 0.961 and SRMR = 0.045.

Figure 2 shows estimates of standardized regression weights for all variables and squared multiple correlations. First, instrumental and emotional teacher support were positively and moderately related to the social classroom environment at t1. While neither instrumental nor emotional teacher support were directly related to loneliness at t1, both were indirectly related to loneliness at t1 through the social classroom environment at t1 ( $\beta = -0.129, p < 0.001$  for emotional support and  $-0.191, p < 0.001$  for instrumental support). The social classroom environment at t1 was strongly and negatively related to loneliness at t1. Loneliness at t2 was strongly and negatively related to social classroom environment at t2 and positively related to loneliness at t1. The social classroom environment at t1 was moreover indirectly related to loneliness at t2 through both loneliness at t1 ( $\beta = -0.217, p < 0.001$ ) and the social classroom environment at t2 ( $\beta = -0.431, p < 0.001$ ). Before conducting the further analyses, nonsignificant paths and covariances were removed from Model 1. Table 3 shows that the trimmed model, referred to as Model 2, had good fit to the data.

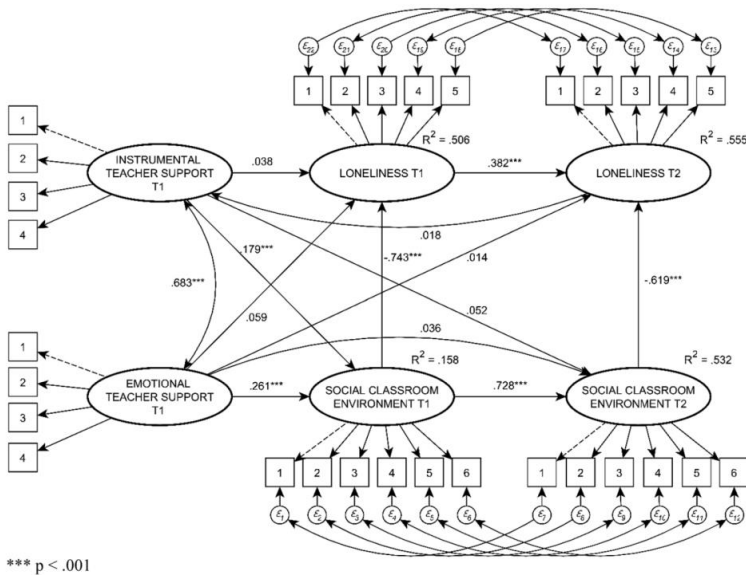


Fig. 2 Structural model of relations between the latent constructs and squared multiple correlations (Model 1)

**Table 3** Model comparison of invariance levels, fit indexes and model fit change

Model	$\chi^2$	<i>df</i>	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>	<i>SRMR</i>	$\Delta$ <i>CFI</i>	$\Delta$ <i>RMSEA</i>
Model 2	1320.02***	392	0.963	0.959	0.041	0.048		
Configural	1689.02***	784	0.964	0.960	0.041	0.048	0.001	0.000
Metric invariance	1785.22***	814	0.961	0.959	0.042	0.054	-0.003	0.001
Scalar invariance	1913.28***	838	0.958	0.956	0.043	0.055	-0.005	0.002
Strict invariance	1951.52***	868	0.954	0.954	0.044	0.057	-0.009	0.003

\*\*\* $p < .001$ . All fit indexes are robust (MLM)

#### 4.4 Measurement invariance across gender

Prior to conducting separate analyses for gender, Model 2 was checked for measurement invariance. Changes in  $CFI \leq -0.010$  and  $RMSEA \leq 0.015$  from the baseline model were used as limit values (Chen 2007). Table 3 shows that the changes in the  $CFI$  and  $RMSEA$  values across the models were acceptable, and this implies that the data meet requirements of configural, metric, scalar and strict invariance (Wu et al. 2007). As such, cross-gender comparisons of the relationships between the latent factors could be conducted.

#### 4.5 Final model with different paths for gender

Finally, a model (referred to as Model 3) was constructed that specified different paths for gender. Model 3 showed good fit to the data for both genders, with robust  $RMSEA = 0.044$  (90% CI: 0.040–0.047),  $CFI = 0.961$ ,  $TLI = 0.956$  and  $SRMR = 0.048$  for girls, and  $RMSEA = 0.037$  (90% CI: 0.032–0.041),  $CFI = 0.969$ ,  $TLI = 0.966$  and  $SRMR = 0.049$  for boys. First, Fig. 3 shows a strong and positive correlation between emotional and instrumental teacher support. Moreover, emotional teacher support at t1 was positively related to the social classroom environment at t1 for both genders, but this path was stronger for girls than boys. Instrumental teacher support was significantly and moderately related to the social classroom environment only among boys. The  $R^2$  values show that the two types of teacher support account for a greater proportion of the variance in the social classroom environment variable among boys compared to girls.

The social classroom environment at t1 was furthermore strongly and negatively related to loneliness at t1, and this association was stronger for girls than boys. There was moreover an indirect and significant relation between instrumental teacher support and loneliness at t1 for boys ( $\beta = -0.186$ ,  $p < 0.001$ ), but not for girls. The indirect relations between emotional teacher support and loneliness were significant for both genders, and stronger for girls ( $\beta = -0.224$ ,  $p < 0.001$ ) than boys ( $\beta = -0.119$ ,  $p < 0.01$ ). The relations between teacher support and loneliness at t1 were mediated by the social classroom environment at t1. Figure 3 shows that a higher proportion of the variance in the loneliness variable at t1 was explained among girls compared to boys. Results moreover indicated a significant and strong relation between the



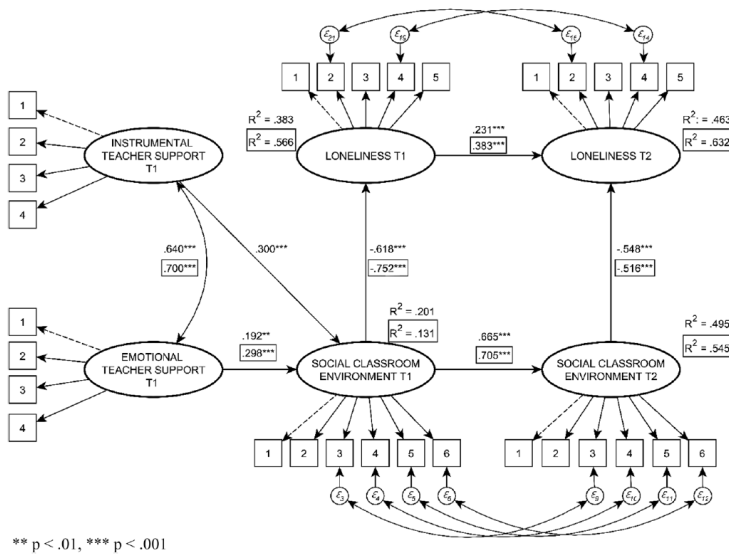


Fig. 3 Structural model of relations between the latent constructs and squared multiple correlations in Model 3, for girls (significant paths and R2 values with box) and boys (significant paths and R2 values without box)

social classroom environment at t1 and t2, and this path was somewhat stronger for girls than boys. The proportion of explained variance in the social classroom environment variable at t2 was also higher for girls than boys. There was furthermore a significant relation between loneliness at t1 and t2 for both genders, and this path was stronger for girls than boys. In addition, the results showed that the social classroom environment at t1 was indirectly linked to loneliness at t2 through both loneliness at t1 ( $\beta = -0.288, p < 0.001$  for girls and  $-0.143, p < 0.001$  for boys) and the social classroom environment at t1 ( $\beta = -0.364, p < 0.001$  for both genders). The social classroom environment at t2 was moreover significantly and negatively related to loneliness at t2, and this path was somewhat stronger for boys than girls. Also, a greater proportion of the variance in the loneliness variable at t2 was accounted for among girls compared to boys. Finally, there were no significant direct or indirect relations between teacher support at t1 and loneliness at t2.

### 5 Discussion

This study has investigated the associations between first year upper secondary school students' perceptions of teacher support, the social classroom environment and school loneliness, and how gender might moderate these relationships. First,

and in accordance with hypothesis 1a), there was a positive relation between both instrumental and emotional teacher support and the social classroom environment measured at t1. By contrast, the paths from emotional and instrumental teacher support to the social classroom environment at t2 were not significant. Thus, teacher support seems to be of importance to students' experiences of the social environment in the class, but this applies only to variables measured at the same time point. A possible explanation for the lack of significant relations between these variables across time, could be that students' perceptions of teacher support and the social classroom environment are transient and situational experiences. Thus, the teacher support that the students experience "here and now" seems to be of greatest importance to their instant perceptions of the social classroom environment.

Girls moreover reported significantly lower levels of emotional and instrumental teacher support compared to boys, and the SEM model suggested that the two types of support had different importance to girls' and boys' perceptions of the social classroom environment. While for boys, instrumental teacher support was moderately related to the social classroom environment at t1, this path was not significant for girls. The relation between emotional teacher support and the social classroom environment was in turn significant for both genders, but the path was somewhat stronger for girls than boys. These results suggest that the two types of teacher support contribute differently to girls' and boys' experiences of the social classroom environment. While girls in this study seem to rely mainly on their perceptions of the teachers as warm and friendly, boys seem to rely more strongly on the perceived practical and formal support provided by their teachers, in addition to emotional support. Of note is also that teacher support explained a greater proportion of the variance in the social classroom environment variable among boys compared to girls. These results suggest that factors that have not been included in this study, and other than teacher support, explain the variation in girls' scores on this variable. Future research should explore reasons for these gender differences in the relations between teacher support and the social classroom environment.

Second, and contrary to hypothesis 1b, instrumental and emotional teacher support were not directly associated with student loneliness, neither at t1 or t2. As mentioned, loneliness is a subjective and internal experience, and not the same as social isolation which might perhaps be more easily observed (e.g. Perlman and Peplau 1981, 1982). Teachers may therefore find it difficult to recognize loneliness in their students. This can in turn make it challenging for them to take concrete actions against it, for instance through providing increased social support. This lack of direct relations between teacher support and loneliness is therefore not that surprising. Although teacher support was not directly associated with student loneliness, the results showed that instrumental support was indirectly and inversely related to loneliness through the social classroom environment. These indirect associations suggest that although the teacher may not directly influence students' feelings of loneliness at school, they can contribute to reducing it by facilitating a positive social environment in the classroom.

As could be expected, the results furthermore showed that the two types of teacher support were of different indirect importance to girls' and boys' loneliness experiences. First, the indirect path from instrumental teacher support to

loneliness through the social classroom environment was only significant for boys. Moreover, while emotional support was indirectly and negatively associated with loneliness through the social classroom environment for both genders, this path was stronger for girls than boys. Specifically, these results indicate that both instrumental and emotional teacher support might contribute to improving boys' perceptions of the social classroom environment, which in turn might help reduce their feelings of loneliness. For the female students, however, only emotional teacher support seems to be of importance to their perceptions of the social classroom environment, and further to their loneliness experiences. This lack of significance from instrumental support to girls' experiences of the social classroom environment and loneliness is an interesting finding that should be explored further in upcoming studies.

Next, although teacher support was significantly and indirectly related to students' perceptions of loneliness through the social classroom environment, the strongest contributing factor to explaining students' school loneliness was their perceptions of the social environment in the class. These findings are in keeping with hypothesis 2 and show a clear tendency that the students who have the most positive perceptions of the social classroom environment to a lesser extent experience loneliness at school. Although the importance of peer relationships to student loneliness has been widely documented in the previous literature, the results from the present study extend earlier research by showing that not only the direct relations between peers, but also the general social environment in the class seems to contribute strongly to students' feelings of school loneliness.

The current study moreover found stronger path coefficients between the social classroom environment and loneliness than those reported in earlier studies (Cava et al. 2010, 2007; Pretty et al. 1994). One explanation for this may be differences in the operationalization of the class environment variables. Another reasonable assumption could be that the previous studies had measured students' sense of global loneliness, whereas this study has explored loneliness specifically within the school context. It is not unexpected to find stronger relationships between variables that measure phenomena within the same context (school), as was done in the present study. The strong associations between students' perceptions of the social classroom environment and their sense of loneliness at school moreover indicate that these are inverse, but substantially closely related phenomena.

Next, while the path between the social classroom environment and loneliness was stronger for girls at t1, the path between these variables at t2 was somewhat stronger for boys. Of note is that the indirect effects from the social classroom environment at t1 to loneliness at t2 through loneliness at t1 was stronger for girls. These results may therefore indicate that girls' previous loneliness experiences are more important to their continued feelings of loneliness, than is the case for boys. Moreover, a larger proportion of the variance in the loneliness variables was accounted for among girls compared to boys. These findings suggest that the variation in boys' loneliness experiences to a greater extent is explained by factors others than those included in the present study.



## 5.1 Limitations and Future Research

This study has some limitations. First, it has measured students' perceptions of teacher support, and this does not necessarily reflect the degree of the objective or "true" support provided by the teachers. Next, although the SEM model was based on a theoretical model that specified one-directional paths between the constructs, this does not imply that causal conclusions can be drawn. Moreover, future research should include additional classroom factors that might contribute to explaining further the variation in boys' loneliness experiences. Finally, more research is needed to explore these relationships at other grade levels.

## 6 Conclusion

Youth spend a great amount of time with peers and teachers in the school context, and the results from this study strongly indicate that a secure social environment is favourable to students' psychosocial functioning. One practical implication of the research findings is that teachers ought to focus their attention on classroom practices that can facilitate a positive social environment in the class. In Norway, various state-funded school programmes aimed at improving the social climate in the school have been implemented at the upper secondary school level in recent years, such as VIP-Makkerskap [VIP Partnership]. This testifies to a growing recognition of the significance that a healthy social environment can have for students' academic and socioemotional functioning. The findings from the present study support this assumption and highlight the importance of creating and maintaining positive social relationships and a healthy social environment in school. Importantly, the study results also imply that boys and girls may benefit differently from different types of teacher support. If the assumption holds true, this is something that teachers need to become aware of in order to provide targeted social support to their students.

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### Compliance with ethical standards

**Conflict of interest** The author declares to have no conflicts of interest.

**Ethical approval** The study was approved by The Norwegian Centre for Research Data.

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## **Article II**

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## The VIP Partnership Programme in Norwegian Schools: An Assessment of Intervention Effects

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### ABSTRACT

This study used a quasi-experimental design to evaluate the efficacy of the universal, school-based VIP-Makkerskap [VIP Partnership] programme. 1101 students in a test group and 734 students in a control group completed questionnaires one week (t1), ten weeks (t2), and six months (t3) after programme implementation. A one-way ANCOVA showed that at t2 and t3, students in the test group reported significantly higher social classroom environment scores than the control group, but the effect sizes were small ( $d = .10$  and  $.09$ , respectively). Further analyses showed that five of the ten test schools accounted for the increase in the outcome variable from t1-t2. In these schools, a greater proportion of teachers had used the programme since its beginning in 2015, compared to the schools that did not report an increase. The results suggest that teachers' experience in using VIP Partnership is a key component of the programme's effectiveness.

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VIP Partnership; intervention; social classroom environment; school transitions; mental health promotion

### Introduction

Mental health promotion and preventive work directed at children and youth has been the subject of increasing attention among educators, researchers and politicians in Norway and other countries. School has been highlighted as important in this regard because it is an arena where most young people spend a considerable amount of time. This makes it an ideal setting for reaching youth with efforts and initiatives. Researchers have emphasized the importance of a good psychosocial classroom environment for students' mental health, wellbeing and learning (e.g., Afari, 2013; Danielson et al., 2009; Gådin & Hammarström, 2003; Larsen et al., 2019). This has contributed to the foundation and implementation of a variety of school-based programmes, strategies and interventions targeting the psychosocial dimension of the school environment.

The psychosocial classroom environment refers to the interpersonal conditions at school, the social environment and students and teachers' experiences of these (Norwegian Ministry of Education and Research, 2003). Students' relationships with peers are central part of the psychosocial environment in school, and there is general agreement among researchers that positive peer relationships are vital to adolescents' academic and non-academic functioning. For instance, acceptance by peers has been found to reinforce adolescents' wellbeing (Berndt & Keefe, 1995; Keefe & Berndt, 1996), learning and achievement (Cook et al., 2007; Liem & Martin, 2011). Peer rejection has on the other hand been linked with lower grades (Wentzel, 1991; Wentzel & Caldwell, 1997), truancy,

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school dropout (Kupersmidt et al., 1990; Parker & Asher, 1987), reduced social functioning (La Greca & Lopez, 1998), depressive symptoms, and feelings of anxiety (La Greca & Harrison, 2005; Platt et al., 2013).

The importance of a good psychosocial classroom environment has also been emphasized in the transition from lower to upper secondary school (Strand, 2019). For most students in Norway, this transition involves changing schools, where they encounter a new social environment. Previous studies have indicated that the move from one school level to another can interfere with established peer relations (Parker et al., 2015), and that some students after such a transition find it difficult to integrate socially in the class (Scott et al., 1995).

One school-based, health-promoting and preventive programme targeting the psychosocial environment in school, is VIP [Guidance and Information on Mental Health in School] Partnership. VIP Partnership was designed to result in an inclusive classroom in which fewer students feel left out when starting upper secondary school (VIP School Programme [VSP], 2017b). Principally, the programme is about how schools and teachers facilitate social relationships between students by assigning them into partnerships and partner groups from the first day of upper secondary school. VIP Partnership was developed by the VIP School Programme (VSP), a unit owned by Vestre Viken Hospital Trust, and it is financed by the Norwegian Directorate of Health as part of the subsidy scheme "Mental Health in School" (Norwegian Directorate of Health, 2018). Because VIP Partnership is publicly financed, participation is free of charge for schools.

Since VIP Partnership started in 2015 and until the school year 2018/2019, 116 schools have used the programme on a national basis. This number accounts for over one fourth of Norway's 415 upper secondary schools and encompasses approximately 19,000 students. The extent of the programme highlights the importance of examining whether it has an effect. The present study therefore sought to examine if participation in VIP Partnership could improve students' perceptions of the social environment at school. Specifically, the following research question is addressed in this article: *Do students who participate in VIP Partnership have a more positive perception of the social classroom environment a) 10 weeks (t2) and b) six months (t3) into the school year, compared to non-participating students?*

### Categories of Health-Preventive Initiatives

The literature on mental health-preventive work commonly distinguishes between three types of initiatives. These are indicated, selective and universal prevention (Major et al., 2011). The first two are directed toward individuals (indicated) or groups (selective) with known and increased risk of developing health problems. Examples may be providing follow-up of children who have parents with severe mental disorders (indicated) or implementing bullying programmes in schools with a high incidence of bullying (selective). Universal programmes are in turn aimed at entire population groups without an elevated risk for developing problems (Major et al., 2011). For instance, if bullying programmes are implemented in schools regardless of whether bullying is identified as a problem, the initiative will be defined as universal.

### VIP Partnership – Background and Implementation

VIP Partnership falls into the category of universal prevention, as it targets entire groups (schools and classes) of first year upper secondary school students in Norway. The programme was initiated by a group of VSP employees affiliated with mental health work in school. The establishment of the programme is described by VSP (2015, 2016) as a response to schools' reports of psychosocial challenges, such as social exclusion, loneliness, and students' social vulnerability in the transition from lower to upper secondary school. VSP (2015, 2016) emphasizes that the programme's methodological approach corresponds with factors that previous research has indicated may influence the school learning environment.



First, they draw attention to research concerning the associations between a good classroom management and a good learning environment (e.g., Ogden, 2009; Olsen & Traavik, 2010). Next, they refer to literature addressing the importance of a planned and organized school start that goes beyond a purely academic focus (e.g., Ogden, 2009). Finally, they point to research emphasizing that students who have their social needs satisfied will be better able to focus on school learning activities (e.g., Bru et al., 2016).

VIP Partnership is initiated on the students' first day of upper secondary school. Prior to implementation, VSP staff provide a four-hour training seminar for one or more members of the participating school staff (e.g., school nurse, principal, or educational-psychological services staff). The latter are then responsible for training other teachers at the school in how to implement and use the programme. As part of this training, all contact teachers receive an information guide containing various tasks and exercises that they can use in the class, with the purpose of building a positive class environment and forming good student partnerships (VSP, 2017a).

Implementation of the programme is done by the contact teachers, who from the first day of school divide the class into two or three-person partnerships. These in turn constitute a four or five-person partner group. The teacher information guide emphasizes that the partnerships should primarily be assembled randomly, but that the partners should preferably not come from the same lower secondary school. The teachers also prepare name tags on the students' desks indicating where they should sit. Students furthermore receive a three-page booklet containing information about the programme and a partner group phone list (VSP, 2017c).

The partnerships and groups form the basis for academic and social-pedagogical work in the class, and students in the partnerships have specific responsibilities in relation to each other. These include sitting next to one another in all common core subjects, working together in class, greeting one another, paying attention to whether the partner thrives, letting each other know if they are sick or absent from class, and taking notes for the partner if they are not present in class. Students in the partner groups also write a group contract with points that they believe are important to achieve good collaboration in the group. In addition, all students in the class conduct and take part in various tasks and "ice-breaker" exercises, related to being a good classmate (VSP, 2016, 2017b). The programme runs over a period of nine weeks, with a change of partnerships and groups every third week. VSP (2017b) emphasizes that VIP Partnership is not about forcing on friendships among the students, but about forming collegial communities.

Through the elements described above, VSP (2017b) promotes that "the programme will help ensure: a smoother transition from a secondary to an upper secondary school, that the students get acquainted with more of their classmates, a more intimate and [secure] classroom environment at an early stage, an increase in the students' social competence", and "good work relations that will increase the educational drive" (VSP, 2017b). Taken together, the rationale behind VIP Partnership is that specific efforts directed at classroom management, including clear rules and structure, will help promote social participation among students, and in the longer run prevent mental health problems and promote a good mental health (VSP, 2015, 2016, 2017b). However, before examining whether participation in VIP Partnership can contribute to improved mental health, it is vital to investigate if it can help increase social participation in the class and improve the social classroom environment. That is the topic of the present study.

### **Research on School Interventions and Programmes**

In Norway and internationally, there is a corpus of literature on school-based interventions and programmes directed at improving the psychosocial environment. These interventions vary greatly in terms of participants' age, target groups, intervention types, and duration. Many seem to be designed to reduce the prevalence of bullying and victimization (e.g., Farrington & Ttofi, 2009; Smith et al., 2004), or to reduce problem behaviours (e.g., Sørli & Ogden, 2015) or mental health problems among children and adolescents (e.g., La Greca et al., 2016; Neil & Christensen, 2009; Skotheim

et al., 2014). Several studies have also investigated the effectiveness of school-based universal social and emotional (SEL) programmes. In these, the effects for the most part seem to be measured as enhancement of students' attitudes, skills, behaviours, emotional distress, self-image, or academic performances (e.g., Durlak et al., 2011; Sklad et al., 2012). Although the research findings are not unanimous, the literature seems to report a predominantly positive effect from the majority of these interventions and programmes. Common to many interventions that have proven to be effective, is that the teachers, through their support, dedication and commitment, are promoted as primary resources for successful implementation (e.g., Han & Weiss, 2005; Kam et al., 2003). There is however sparse research on how efforts aimed directly at social relations in the classroom may influence on students' perceptions of the classroom environment. This will be further investigated in the present study.

More specifically, the purpose was to address whether participation in VIP Partnership could contribute to forming a more inclusive classroom environment. The study has investigated students' perceptions of various aspects of the social classroom environment that are explicitly related to the goals of VIP Partnership. Changes in and between participating and non-participating students' perceptions of the social classroom environment were examined over three data collection points, and that made it possible to follow the development and change over time.

## Method

### *Design and Participants*

This research is a collaborative venture between the Norwegian University of Science and Technology (NTNU), Vestre Viken Hospital Trust, and two Norwegian county authorities. The research employed a quasi-experimental design with two groups: schools that had used VIP Partnership (test) and schools that had not used the programme (control). While a fully randomized experiment incorporating random assignment of schools to the two conditions would have been preferred, this was not possible for practical reasons. Test and control schools were recruited through convenience sampling by contact persons in the two collaborative county authorities. The test schools were recruited among public schools in the two counties that had already implemented or planned to implement VIP Partnership in the fall of 2017. The control schools were recruited from schools in the two counties that did not use VIP Partnership, and on the basis that they should be as similar as possible to the test schools regarding size and geographical location. Table 1 displays some characteristics of the sample. The test and control schools match well by school size, gender, mother's level of education and participants born in Norway. The proportion of participating students attending general studies education programmes is higher than the national average of 61%. The gender imbalance is mainly due to the female predominance in general studies education programmes (Statistics Norway, 2018).

**Table 1.** Sample characteristics.

	Test	Control
Number of schools <i>N</i>	10	7
Average school size (number of students)	562	606
Students enrolled in first year of upper secondary <i>N</i>	1992	1163
Participated in all three surveys <i>N</i>	1101	734
Response rate %	55	63
Female %	61	60
Enrolled in general studies education programmes %	78	72
Born in Norway %	89	88
Mother's level of education %		
Primary or upper secondary school	33	37
Higher education (College/University)	65	61



## Procedure

Data was collected twice during the fall 2017 and once in the spring 2018, by means of electronic self-reporting questionnaires administered in school classes. The VIP Partnership programme was implemented on the first day of school after the summer vacation, and this made it impossible to perform a pre-test before the schools started the programme. The first data collection (t1) was therefore initiated during the students' second school week. One and a half week after initiation, 14 schools had completed the survey. In the three remaining schools (two test and one control), a total of nine classes asked for more time to answer the questionnaire. In order to increase the response rate, the survey was therefore kept open for an additional one and a half week for these schools. Some classes would thus have used VIP Partnership longer than others at the time of the first data collection. This constitutes a possible source of error in the data material and will therefore be examined prior to the main data analyses (ANCOVA). The second data collection (t2) was initiated approximately ten weeks after the first, and immediately after the VIP Partnership programme was scheduled to be completed. All schools had responded to the survey two and a half weeks after opening. The third data collection was initiated approximately six months into the school year and was open for two weeks.

All schools identified one employee who was responsible for providing the necessary information and assistance to teachers and students. Students, teachers and parents were also given an information sheet, which informed that students had a right to withdraw from participation at any time, and that they were considered to have given their consent to participate by filling in the questionnaire. An information video recorded by the author was shown to the students in each individual class before they started responding to the survey. The video explained the rationale of the study and encouraged the students to answer the questionnaire properly. In accordance with the instructions of the Norwegian Centre for Research Data (NSD), parental consent was obtained from students under the age of 16. The project was approved by the NSD.

## Measures

### *Dependent Variables*

#### *Social Classroom Environment*

The dependent variables in this article are students' social classroom environment scores at t2 and t3. As mentioned, VIP Partnership is about how schools facilitate social relationships between students. Despite literature searches in Google Scholar, and the ERIC and JSTOR databases, no self-report measures concerning students' experiences of the schools' social practice were found. Four items were therefore formulated to capture the primary objectives of VIP Partnership. Two of these items were based on questions used in a survey created by VSP (2015, 2016), and reformulated for the present study: "It feels secure to be at school" and "I always have someone to be with during breaks". The two remaining statements were made for the present study: "I always have someone to sit with in class", and "The other students in the class greet me when we meet". The response categories for all statements were on a 6-point scale, ranging from 1 = *strongly disagree* through 6 = *strongly agree*. Items were averaged for a scale score. Internal consistency for this scale was  $\alpha = .82$  at t2 and  $\alpha = .81$  at t3.

### *Independent Variable and Covariates*

The key independent variable is participation in VIP Partnership. It was expected that participation in VIP Partnership should promote the students' experiences of a positive social classroom environment. In addition to participation in VIP Partnership, there are several factors that may be of significance for the students' experiences of the social environment in their classes. Therefore, a set of covariates were included in the analyses. These were social anxiety, loneliness in 10th grade, academic achievement, gender, mother's education level, and students' social classroom environment scores at t1.

### **Social Anxiety**

Social anxiety has been defined as a “marked, or intense, fear or anxiety of social situations in which the individual may be scrutinized by others” (American Psychiatric Association, 2016, p. 18). Studies have found that adolescents with high levels of social anxiety both experience less acceptance and support (La Greca & Lopez, 1998; Levpuscek & Berce, 2012), and tend to be rejected and excluded by their peers (e.g., Greco & Morris, 2005; Levpuscek & Berce, 2012; Siegel et al., 2009). In the present study, social anxiety was measured using the Mini-Social Phobia Inventory (mini- SPIN), a three-item scale derived from the Social Phobia Inventory (Connor et al., 2000). The scale has been evaluated in several studies as a reliable and valid instrument for measuring social anxiety (e.g., Connor et al., 2001; Garcia-Lopez & Moore, 2015; Wiltink et al., 2017). The items were rated using a 5-point scale, where 1 = not at all, 2 = a little bit, 3 = somewhat, 4 = very much, and 5 = extremely, and then averaged for a scale score.

### **Loneliness**

Loneliness can be described as the incongruity between a person’s desired and actual social relationships (Masi et al., 2011), and it can have severe consequences for the individual. In addition to being associated with a range of mental and physical health problems (e.g., Heinrich & Gullone, 2006), adolescent loneliness has been linked with social difficulties such as peer rejection, neglect and victimization (Woodhouse et al., 2012), lower friendship quality (Parker & Asher, 1993), lower social competence (Horowitz & de Sales French, 1979; Junntila, 2010; Segrin & Flora, 2000), and less positive perceptions of social support (Riggio et al., 1993).

In the present study loneliness was measured by using a Norwegian version of the Loneliness and Social Dissatisfaction Questionnaire (Asher & Wheeler, 1985; Valås, 1999). As the first survey was conducted only a week into the schoolyear, it was considered as little meaningful to measure the students’ perceptions of loneliness at school. The items were therefore adjusted in order to measure loneliness retrospectively as students’ perceptions of loneliness in 10th grade (their last year of lower secondary school). The response categories for all statements were on a 6-point scale, ranging from 1 = *strongly disagree* through 6 = *strongly agree*. Items were averaged for a scale score, and high values indicate a greater degree of loneliness.

### **Academic achievement**

Studies tend to show that school performance levels are distinctively related to social acceptance. Overall, research findings suggest that students characterized by higher school achievement tend to be better liked by and experience more acceptance from their peers (Bakker & Bosman, 2003; Frenzt et al., 1991). Conversely, students characterized by lower school achievement tend to experience less peer acceptance and be less positively evaluated by their peers (Bakker & Bosman, 2003; Valås, 1999). In the present study, academic achievement was measured using a mean score based on students’ self-reported overall achievement marks in Norwegian, mathematics and English from 10th grade. This measure ranged from 1 (lowest) through 6 (highest).

### **Gender**

Some studies have found gender differences in students’ experiences of relationships and wellbeing in school. For instance, results from a Norwegian, nationally representative survey (Andersen & Dæhlen, 2017) showed that among students who reported having problems with relations at school, girls were overrepresented by 68% versus 32%. In the present study, a dichotomous variable indicated whether the adolescent is female (1) or male (2).

### **Mother’s Education Level**

Research indicates that parental education level is related to students’ social functioning. For example, Andersen and Dæhlen (2017) found that students who reported a greater degree of problems in school and friendship relations, to a lesser extent had parents with higher education. In

the present study, social background was measured as mother's level of education on a four-level scale (OECD, 2009). Lowest level (1) is primary and lower secondary school while highest level (4) is tertiary education exceeding three years. This measure was converted into a dichotomous variable where 1 = education up to upper secondary level, and 2 = higher education at college or university level.

### Analyses

Analysis of covariance (ANCOVA) is a recommended analytical method to examine intervention effects, given that the correlation between pre and post-test is not too high ( $r < 0.8$ ) (O'Connell et al., 2017; Vickers & Altman, 2001), and that there are no systematic differences in the groups' pre-scores (Miller & Chapman, 2001). The latter applies particularly to the present study where test and control schools were not randomly assigned. T-tests and chi-square tests showed that the test and control schools did not significantly differ on any of the covariates. Unlike analytical methods that examine change scores between pre and post-measurements, ANCOVA takes into account the participants' baseline score by using it as a control variable (Vickers & Altman, 2001). In the context of the present study, this makes it possible to compare the test and control schools' social classroom environment scores at t2 and t3, using the score at t1 as a covariate. Because tests indicated normality and homoscedasticity violations, bootstrapping and the HC3 heteroscedasticity-consistent standard error were applied in the ANCOVA analyses. All analyses were conducted using SPSS 26.

The dependent variables were students' social classroom environment scores at t2 and t3, and participation in VIP Partnership was added as factor. Students' social classroom environment scores at t1 was added as a covariate, in addition to social anxiety, loneliness in 10th grade, gender, mother's education level (dichotomous), and mean grades. As a further assessment of the strength of the impact of VIP Partnership, effect sizes (Cohen's *d*) were calculated for all significant findings. Cohen's *d* was calculated based on adjusted mean differences between the test and control schools, divided by unadjusted standard deviation scores.

Before running the ANCOVA's, an exploratory factor analysis was performed on all items in the "social classroom environment", "loneliness in 10th grade" and "social anxiety" scales. Next, a correlation analysis was conducted to ensure that the intercorrelations between the pre and post-tests were not too high. Collinearity tests moreover showed that multicollinearity was not a concern, with tolerance levels between .78 and .94, and VIF's between 1.06 and 1.29 for all variables. Finally, a comparison was done between test and control schools and class environment scores at t1, t2 and t3, prior to inclusion of the covariates.

### Results

First, as mentioned in the procedure section, some classes were given additional time to respond to the survey at the first data collection. Results from t-tests showed that there were no systematic differences in the responses given by students in these classes and the remaining classes in the associated schools. The classes that had responded later to the survey were therefore included in the analyses. As shown in Table 2, the three scales seem to cover three different phenomena, and each have appropriate reliability values.

Inter-correlations among the covariates, dependent variables and school type (test or control) are presented in Table 3. All covariates except for gender are significantly correlated with the dependent variables, and all correlations are below .8. This indicates that the covariates are well suited for ANCOVA. The significant correlations between the two dependent variables and school type furthermore indicate that students' participation in VIP Partnership is positively related to the social classroom environment scores at t2 and t3.

**Table 2.** Factor analysis (Maximum Likelihood) of the social classroom environment, loneliness in 10th grade and social anxiety scales at T1 (Oblimin rotation with Kaiser. Normalization).

Item	Factor loadings for latent variables		
	1	2	3
I had no one to talk with at school	<b>.929</b>	.021	-.023
I often spent the breaks all by myself	<b>.825</b>	-.020	.048
I had no one to be together with at school	<b>.941</b>	-.006	-.049
I felt an outsider in school	<b>.766</b>	-.009	.102
I had no friends in school	<b>.903</b>	.009	-.048
I always have someone to sit with in class	.014	<b>.820</b>	.070
The other students in the class greet me when we meet	.028	<b>.631</b>	-.065
I have someone to be with during breaks	.063	<b>.761</b>	.051
It feels secure to be at school	.015	<b>.652</b>	-.083
Fear of embarrassment causes me to avoid doing things or speaking to people	.084	-.086	<b>.640</b>
I avoid activities in which I am the centre of attention	-.034	-.006	<b>.803</b>
Being embarrassed or looking stupid are among my worst fears	-.004	.042	<b>.793</b>
Eigenvalue	4.98	2.41	1.41
% of variance	41.45	20.10	11.77
Cronbach's alpha	.93	.80	.80

Table 4 shows that there is no significant difference between test and control schools on the social classroom environment measure at t1. At t2 and t3, the test group has significantly higher social classroom environment scores relative to the control group.

Table 5 shows a comparison of social classroom environment scores at t2 and t3 between test and control schools, using ANCOVA and Cohen's *d*. First, one can see that the differences between the unadjusted mean scores displayed in Table 4 and the adjusted mean scores displayed in Table 5 are small. The results from Table 5 moreover show that students who had participated in VIP Partnership have significantly higher social classroom environment scores for adjusted means at t2 and t3, relative to the control group. These results suggest that after having adjusted for the covariates, participation in VIP Partnership has significantly enhanced students' perceptions of the social classroom environment. However, the calculated effect sizes of 0.1 (t2) and 0.09 (t3) indicate that the adjusted differences between the test and control schools are small (Cohen & Steinberg, 1992).

**Table 3.** Correlations between dependent variables, covariates and school type.

	1.	2.	3.	4.	5.	6.	7.	8.
1. Social classroom environment t1 (C)	–							
2. Social classroom environment t2 (DV)	.55**	–						
3. Social classroom environment t3 (DV)	.44**	.62**	–					
4. Social anxiety t1 (C)	-.39**	-.32**	-.28**	–				
5. Loneliness 10th grade t1 (C)	-.28**	-.34**	-.30**	.29**	–			
6. Academic achievement t1 (C)	.11**	.12**	.14**	.04	-.08**	–		
7. Gender (C)	.03	.02	.02	-.20**	-.09**	-.15**	–	
8. Mother's education level (C)	.09**	.06*	.10**	-.01	-.06*	.30**	-.03	–
9. School type <sup>a</sup>	.01	-.06**	-.05*	.00	.04	-.03	.01	-.04

\*  $p < .05$ , \*\*  $p < .01$ . C = Covariate, DV = Dependent Variable. <sup>a</sup>Test schools = 1, control schools = 2.

**Table 4.** Comparison of test and control schools and unadjusted social classroom environment scores at t1, t2 and t3.

	Unadjusted mean (SD)		Mean difference
	Test (n = 1045)	Control (n = 709)	
Social classroom environment t1	4.96 (.91)	4.97 (.93)	-.01
Social classroom environment t2	5.11 (.90)	4.99 (.96)	.12**
Social classroom environment t3	5.05 (.93)	4.94 (.99)	.11*

\*  $p < .05$ , \*\*  $p < .01$ .



**Table 5.** Comparison of test and control schools, and adjusted social classroom environment scores at t2 and t3, using ANCOVA and Cohen's *d*.

	ANCOVA adjusted mean		Mean difference	Cohen's <i>d</i>
	Test ( <i>n</i> = 1045)	Control ( <i>n</i> = 709)		
Social classroom environment t2	5.12	5.02	.10**	.10
Social classroom environment t3	5.05	4.96	.09*	.09

\*  $p < .05$ , \*\*  $p < .01$ . Bootstrap results are based on 1000 bootstrap samples. Covariates are evaluated at the following values: Social classroom environment t1 = 4.99, social anxiety t1 = 2.03, loneliness 10th grade t1 = 1.42, academic achievement t1 = 4.36, gender = 1.39, mother's education level = 1.66.

Adjusted mean scores at t2 and t3 by using social classroom environment scores at t1, social anxiety, loneliness in 10th grade, academic achievement, gender and mother's education level as covariates.

### Further Examination of the Data

Given the small group differences presented in Table 5, the data material was further examined to see if any of the test schools stood out more favourably than others regarding possible effects of the programme. Change scores for the social classroom environment variable from t1–t2 and t1–t3 were therefore calculated for each school. The control schools were included to highlight potential differences between test and control schools in the development across time. Given that the results from Tables 4 and 5 indicated small differences between the unadjusted and adjusted mean scores, and due to a low *n* in some schools, the change scores were calculated by using the unadjusted rather than the adjusted mean scores. Effect sizes were calculated by dividing the change scores by the pooled standard deviation for each school.

As shown in Table 6, five test schools (1, 6, 7, 8 and 10) display a statistically significant increase on the social classroom environment variable from t1–t2, and effect sizes range from  $d = .19$ –.51. In contrast, the five remaining test schools and all the control schools display no statistically significant increase on this variable from t1–t2. Four test schools (1, 6, 7 and 10) moreover report a statistically significant increase on the social classroom environment variable from t1–t3, and effect sizes range from  $d = .16$ –.54. Conversely, control school 15 reports a statistically significant decrease on this measure from t1–t2 and t1–t3.

Given that five test schools displayed a statistically significant increase on the outcome variable from t1–t2, while the five remaining test schools did not, the data were examined for factors that

**Table 6.** Change scores (based on unadjusted means) and Cohen's *d* for all schools on the social classroom environment measure from t1–t2 and t1–t3.

School	<i>n</i>	t1–t2		t1–t3	
		Change score	Cohen's <i>d</i>	Change score	Cohen's <i>d</i>
1	136	<b>.25***</b>	<b>.31</b>	<b>.17*</b>	<b>.18</b>
2	86	.01	.01	–.05	–.05
3	45	.06	.07	–.13	–.13
4	65	–.05	–.06	–.16	–.16
5	117	.01	.01	–.06	–.06
6	170	<b>.18*</b>	<b>.19</b>	<b>.16*</b>	<b>.16</b>
7	87	<b>.40***</b>	<b>.51</b>	<b>.49***</b>	<b>.54</b>
8	97	<b>.25***</b>	<b>.28</b>	.10	.09
9	196	.03	.03	.01	.01
10	70	<b>.33**</b>	<b>.37</b>	<b>.28*</b>	<b>.28</b>
11	58	–.09	–.10	–.21	–.21
12	205	.06	.07	.02	.02
13	74	–.16	–.18	–.19	–.21
14	47	.19	.19	.09	.09
15	31	<b>–.30*</b>	<b>–.43</b>	<b>–.45**</b>	<b>–.67</b>
16	177	.12	.14	–.01	–.01
17	125	–.04	–.05	.02	.02

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . Schools 1–10 are test schools and schools 11–17 are control schools. Statistically significant change scores and associated effect sizes are highlighted.

could contribute to explaining this difference. The only area where these groups differed was on the number of years that teachers had used the programme, which was indicated by data from a teacher questionnaire. In the five schools that displayed an increase, 13 out of 42 (31%) teachers reported that they had used VIP Partnership since its beginning in 2015. The corresponding number was one teacher out of 36 (3%) in the schools that did not display any increase. Otherwise, no factors were found that could explain the difference in development from t1–t2 in these two groups, neither in terms of mother's education level, field of study (general or vocational education), grades, school size, or teachers' attitudes toward the VIP Partnership programme.

## Discussion

This study investigated whether participation in the VIP Partnership programme could improve students' perceptions of the social environment in school. On the one hand, results showed that students who had participated in the programme reported a more positive perception of the social classroom environment at t2 and t3, compared to non-participating students. These findings indicate that VIP Partnership has had some effect. On the other hand, the calculated effect sizes of  $d = .10$  (t2) and  $.09$  (t3) must be characterized as small (Cohen & Steinberg, 1992), and one should therefore be cautious when discussing how substantial the effect of the programme is. It is worth noting that the students in both test and control schools on average reported high scores on the social classroom environment measure at all time points. The limited effect might therefore be due to the fact that the social environment could not be greatly improved. Nonetheless, considering that the dependent variable in the study was based on questions designed to capture the basic components of VIP Partnership, one would perhaps expect finding larger differences between the test and control schools on the measure.

There may be several underlying causes as to why the effect of VIP Partnership appears to be limited. For instance, meta-analyses have indicated that universal preventive interventions tend to be less intensive than selective or indicated interventions, and therefore may exhibit lower effect sizes (Horowitz & Garber, 2006; Teubert & Pinquart, 2011). Effect sizes also tend to be smaller in interventions involving older students (e.g., January et al., 2011; Smith et al., 2004), as was the case in the present study. When comparing the effect sizes found in the current study with those reported in previous research, the results do not differ greatly from one another. For instance, meta-analyses evaluating the effectiveness of various universal social school-programmes have found average post-intervention effects of  $d = .15$  on students' social behaviours (January et al., 2011),  $d = .22$  on students' social and emotional development (Goldberg et al., 2019), and  $d = -.02$ – $.12$  on bullying and victimization (Smith et al., 2004).

Next, one can discuss whether the elements in VIP Partnership are something that many teachers already do, regardless of whether they have participated in the programme. Kraft (2018) argues that in education studies where the control group has access to resources similar to the intervention, one will expect smaller effects. In the present study, although the students in the control group did not participate in partnerships, they did have access to classmates and teachers in the same way that did the students in the test group. It is also probable that the control schools, even though they did not participate in the programme, have had some focus on student well-being and social relationships, which in turn may have influenced the students' perceptions of the social classroom environment. Other explanations for the small group-differences may also be found in variables that lie beyond the materials collected for this study.

Although VIP Partnership had a small effect at group level, a further investigation of the data indicated variations between schools regarding effects of the programme. First, there were five test schools compared to no control schools that reported a statistically significant increase on the social classroom environment variable from t1–t2. For four of these test schools, the increase remained statistically significant up to t3. This indicates that VIP Partnership has had some effect among certain schools. Effect sizes for the increase among these schools ranged from  $.19$  to  $.51$  (t1 to t2), and

.16 to .54 ( $t_1$ – $t_3$ ). While Cohen has referred to effect sizes of .2 and .5 as small and medium respectively (Cohen & Steinberg, 1992), other theorists have argued that in educational intervention studies with strong designs, effect sizes of .2 can be of magnitude (e.g., Cheung & Slavin, 2016; Durlak et al., 2011; Hill et al., 2008; Kraft, 2018). The positive development over time among half of the test schools should therefore not be depreciated based on the seemingly low effects.

Following this, the results showed that the only characteristic separating the five test schools that reported an increase on the outcome variable, from the remaining test schools, was a higher proportion of teachers that had used the programme since it started in 2015. The effectiveness of VIP Partnership may thus be related to the number of years that the teachers have used the programme. If this assumption holds true, these results indicate that being in classrooms with teachers who are experienced in using VIP Partnership can have a positive impact on the students' perceptions of the social classroom environment. This is consistent with previous research that has emphasized the importance of the teacher for successful school interventions (Han & Weiss, 2005; Kam et al., 2003). These findings also suggest that the individual teacher's implementation of VIP Partnership is a key component of the programme's effectiveness and highlight the importance of conducting a thorough training for participating teachers.

Finally, although the overall effect appears to be limited, programmes such as VIP Partnership can contribute to raising awareness about the importance of a focus on social relationships and student wellbeing in school.

### Limitations and Further Directions

There are some study limitations which must be considered when evaluating the study results. First, the study was not a randomized controlled trial, and group differences might have occurred for reasons other than the intervention effect. These limitations are however somewhat reduced by the way that the sample was recruited, and the large sample size. Second, although the VIP Partnership programme is not difficult to implement, it does require some preparation and follow-up from teachers in order to work. Future research should therefore have a clearer focus on teacher training and take into consideration the individual teachers' attitudes towards and practical implementation of the programme. Moreover, many of the participants in the present study had scores near the upper limit of the social classroom environment measure (ceiling effect). Future studies should therefore investigate whether some groups of students, such as those who start out at the lower end of the distribution range, may benefit more than others from participation in the programme. Forthcoming studies should also examine whether VIP Partnership can have a more comprehensive longer-term impact, such as reduced loneliness and improved mental health.

### Disclosure Statement

No potential conflict of interest was reported by the author(s).

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