VIVE VELFÆRD

DET NATIONALE FORSKNINGS- OG ANALYSECENTER FOR VELFÆRD

Pupils' Experience with Transitioning to Integrated Pedagogies and the Strategies Used for Facilitating the Transition – A Review

Else Ladekjær, Rasmus Henriksen Klokker and Lærke Vang Tams

Pupils' Experience with Transitioning to Integrated Pedagogies and the Strategies Used for Facilitating the Transition – A Review

e-ISBN: 978-87-7119-950-5

2nd Edition

Cover photo: Danilo Andjus/iStock/VIVE

Project: 301898

Financed by: The LEGO Foundation

VIVE – Viden til Velfærd
The Danish Center for Social Science Research
Herluf Trolles Gade 11, DK-1052 København K, Denmark
www.vive.dk

Preface

Billund Municipality, in partnership with the LEGO Foundation, is implementing playful learning in the public municipality schools. Experience from the first year of implementation showed a need for variety in scaffolding techniques to encompass pupils' different needs. In order to obtain a thorough overview of existing knowledge on the subject, the LEGO Foundation asked VIVE to conduct a review of the subject. The purpose is to contribute knowledge to support the continuous implementation of play-based integrated pedagogies in Billund Municipality and point to important areas for future research on the subject.

Based upon a review, VIVE have identified central elements concerning pupils' experience with transitioning to integrated pedagogies and perspectives towards scaffolding during this process.

We hope that the review will contribute to the future development of the joint focus of The LEGO Foundation and Billund Municipality upon integrated pedagogies, as well as upon a further development of the field in a broader sense.

The review has been followed by a representative for The LEGO Foundation. The LEGO Foundation has had the opportunity to comment on a draft of the report.

The review was completed by researcher Else Ladekjær, analyst Rasmus Henriksen Klokker and university intern Lærke Vang Tams. The search for studies was conducted by librarian Kirsten Birkefoss. Senior researcher Jens Dietrichson contributed by being a sparring partner and completed the internal review of the report. The report has also been subject to external review. Research assistants Michella Ida Mikuta, Frida Dalgaard and Kathrine Tang Plougsgaard assisted with the work behind the report. The report has also been subject to external review by project director Benjamin Mardell, Project Zero at Harvard Graduate School of Education and associate professor Lars Bang Jensen, Department of Culture and Learning Aalborg University.

This review was financed by The LEGO Foundation.

Pleasant reading!

Carsten Strømbæk Pedersen
Head of Research for VIVE Children & Education
May, 2021

Table of Contents

Summary

The aim of this report is to map pupils' experiences with transitioning to integrated pedagogies and strategies for facilitating the process through a review of existing literature.

Purpose

Focusing on alternatives to the classical teacher-directed instruction that is still in place in much of the Danish primary school system may help children to fulfil their potential and reduce inequality in educational attainment between pupils. In this respect, the LEGO Foundation has conducted work on the implementation of such alternative pedagogical approaches, e.g. through the partnership between the LEGO Foundation and Billund Municipality. One result of the partnership is implementation of playful learning in all public schools in Billund Municipality.

To inform the LEGO Foundation's future work in general and its aim of building a future where learning through play empowers children to become creative and engaged lifelong learners along with the LEGO Foundation's collaboration with Billund Municipality specifically, VIVE conducted a literature review that focuses upon pupils' experiences with adapting to playful learning practices (integrated pedagogies) and how to scaffold the pupil's transition to ensure thriving and learning.

Integrated pedagogies, active learning, problem based learning, movement integration etc. are alternatives to teacher-directed instruction and what is sometimes labelled traditional classroom teaching. Earlier research shows potential in applying alternative didactic methods in relation to pupils learning, well-being and motivation (Bok, 2006). For instance, research on integrated pedagogies[1] with learning through play characteristics points to increased wellbeing and motivation for pupils (Parker and Thomsen, 2019).

The purpose of the literature review is to generate insights into:

1. The changes that pupils go through when they are introduced to new ways of learning
2. The variation in their needs for scaffolding during transition
3. Evidence-based practices and tools to scaffold pupils in the process of transitioning to ensure thriving and learning.

Besides this, the overview can serve as a knowledge base for a potential future research study on the subject. The literature review is based upon the pupils' perspective, which means that this prominent in the selected literature. A consequence of the pupils' perspective is a focus upon studies applying qualitative methods.

The research questions that guide the literature review are:

- How do pupils experience the change from teacher-directed pedagogies to learning through play pedagogies/integrated pedagogies?
- Which support structures and scaffolding strategies/practices are described and investigated in the scholarly literature?
- What support structures and scaffolding do pupils request and value?

[1] Readers are referred to Appendix 1 for the working definition of "integrated pedagogies" applied in this review.

- How does the experience of different support structures and scaffolding strategies/practices differ across different groups of pupils, e.g. pupils from different socioeconomic or ethnic backgrounds?
- What are the gaps in the existing knowledge on transition to integrated pedagogies that future research should seek to address?

While we include studies that apply both quantitative, qualitative and mixed methodologies for the descriptive analysis, we opted to conduct a synthesis of studies using qualitative methods, e.g. in-depth interviews, focus group interviews, observation, content analysis etc. In order to secure a broad foundation for the synthesis, we include qualitative elements from mixed methods studies. We argue that studies using qualitative methods are likely to be better suited to investigate the pupils' perspectives on transition to integrated pedagogies than studies applying quantitative methods. Qualitative methods are generally best suited when the field of study is relatively new and not mapped out. This is also the case if the field of interest targets categorisations, habits, attitudes, culture etc. This is the case for the present literature review where the most important categories of the study are unknown or not set in advance but are developed as a function of the study itself (Bearman and Dawson, 2013).

The methodological pathway can be seen in Section 2 in the report, the databases searched are described in Section 2.2, and a descriptive analysis is set out in Section 3 of the report.

Literature Search

The literature search identified a total of 2,714 records. The screening process resulted in an inclusion of a total of 62 studies, upon which the synthesis is based. Figure 3.1 in Section 3 shows the screening process in detail. A list of the included studies can be seen in Appendix 3.

Studies were mainly excluded for not including the pupil perspective, not being concerned with the transition to integrated pedagogies or for lacking a focus on the transition to integrated pedagogies.

Most of the pupils in the included studies attended grades 5-8, with the average grade attended being grade 7 (when rounded).

Main results

Table 1 presents an overview of the five central themes generated from the inductive coding process. The table can also be seen in the synthesis section, Section 4. In Section 4, the themes are elaborated and nuanced through examples from the included studies.

Table 1 Analytical themes

Theme	General result	Dissenting views/Heterogeneity
Pupils' experiences	The pupils' experiences with integrated pedagogies were mainly positive. Working practically and being able to influence what and how they learn motivated pupils.	There were both positive and negative experiences with outdoor instruction, and too much choice, which made some pupil's feel uncertain and insecure.
Teacher scaffolding	Teacher scaffolding was conducted through guidance, intervention, planning and support and was important for the success of integrated pedagogies. It was also often valued by pupils.	Some pupils expressed that they got too much support, and that teacher scaffolding without enough pupil involvement in decision-making sometimes resulted in unwanted conformity.
Peer support	The pupils' experience with peer support was mainly positive. Working in groups provided an extra opportunity for pupils to lean on and learn from each other during school work. Peer support provided extra opportunities for guidance, thereby supplementing teacher scaffolding.	There were a few critical perspectives on working in groups if the group members are unsure of the expectations to their work, or if the communication between group members does not function.
Transition tools	Generally, pupils had a positive attitude towards specific IT programs or devices that were applied as transition/scaffolding tools to guide pupils' working process.	General challenges mentioned by pupils were access, instability and teachers' lack of knowledge about the system/device.
Conditions having an impact	Having longer periods of implementation and higher levels of academic proficiency of pupils were both conditions that positively impacted the transition to integrated pedagogies.	No studies reported situations where longer periods of implementation negatively impacted pupils or certain groups of pupils.

In the following, we will seek to answer the research questions guiding the review. For further elaborations of perspectives relating to the research questions see Section 5 of the report.

How do pupils experience the change from teacher-directed pedagogies to learning through play pedagogies/integrated pedagogies?

Included studies generally report that pupils have positive experiences during the transition to integrated pedagogies. These positive experiences seem to be strongly associated with practical elements of learning. Having the freedom of choice seems to be an important condition for motivating pupils. While most pupils expressed positive experiences towards learning outdoors, some emphasised a preference for learning inside traditional classrooms. While the majority of studies reported that pupils had positive experiences during the transition to integrated pedagogies, studies reported instances when pupils had difficulties navigating learning environments that were characterised by high levels of autonomy.

Which support structures and scaffolding strategies/practices are described and investigated in the scholarly literature? What support structures and scaffolding do pupils request and value?

Table 2 below provides an overview of the support structures and practices identified through the review. The first column identifies three overall themes related to scaffolding and support structures. The second column identifies different types of support structures and scaffolding within the three themes. The third column introduces pupils' perspectives in an overall manner towards the themes and types of support structures and scaffolding strategies.

Table 2 Support structures and scaffolding strategies

Theme	Type of support structures/scaffolding strategies	Detailed perspectives
Teacher scaffolding	Instruction Guiding, intervening and providing support Individual assessment of level of instruction/support Teacher scaffolding oriented towards transitioning tools	In general, pupils are dependent upon their teacher both during the transition phases and in connection to integrated pedagogies in general. Teacher scaffolding is needed throughout a project from the planning phase to the finishing phase and to provide support during the phases in between. There is no "one size fits all" when it comes to teacher scaffolding. Instead, the studies show that adapted scaffolding to specific situations seems to work.
Peer support	Group work Collaboration Learning from peers	Perspectives such as enjoyment, personal and social development and learning from peers are evident in the review. The composition of groups is important in order to consider learning and development for different types of pupils. Likewise, it is important to be able to communicate and work together in order to benefit from peer support.
Transition tool	A variety of IT systems IT devices	A common perspective is that IT systems/devices often aid pupils in structuring their work, helping to clarify and function as a joint memory. On the other hand, pupils' schools are dependent on the functioning of IT systems/devises and are vulnerable towards breakdowns.

How does the experience of different support structures and scaffolding strategies/practices differ across different groups of pupils, e.g. pupils from different socio-economic or ethnic backgrounds?

Contrary to our expectations, we did not encounter any results concerning how pupils' experiences of transitioning to integrated pedagogies differ across different groups of pupils that qualified for synthesis. However, several studies did report results describing how high achieving and low achieving pupils differ in their experience when transitioning to integrated pedagogies. As these results do not derive from the child perspective and thus do not qualify for inclusion in the synthesis, we present a general overview of these results. In this review, we have encountered three "aspects" of findings that relate to how different groups of pupils experience the transition to integrated pedagogies in different ways. The first of these aspects refers to the more general difference between experiences of different groups of children. This especially pertains to the differences between low achieving and high achieving pupils. In general, studies reported that low achieving pupils experienced a high degree of positive experiences during the transition. In addition, these positive experiences seemed to be associated with approaches to learning that were practical in nature, such as cooking or approaches to integrated pedagogies that contained elements with relatively high degrees of structure and guidance. Only one study investigated general differences between experiences related to the gender of pupils. However findings suggest that girls gained more interest in STEM[2] subjects following a transition to integrated pedagogies.

[2] STEM stands for Science, Technology, Engineering and Mathematics.

What are the gaps in the existing knowledge on transitioning to integrated pedagogies that future research should seek to address?

The final research question for the review is to address the gaps in existing knowledge on pupils' experiences with transitioning to integrated pedagogies in order to set a possible direction for future studies and focus points when initiating the implementation of integrated pedagogies and playful learning in school settings. Based upon the synthesis and the discussion, we identified three main themes, which can be relevant to address in future research. We identified gaps in the literature concerning:

- Pupils' perspectives in the transition process from one type of pedagogy to another
- The effective mechanisms of teacher scaffolding in particular, but also peer support
- Different responses to integrated pedagogy from different types of pupils
- Transition tools – e.g. technology and pedagogical tools
- Playful learning in relation to specific school subjects and across subjects.

Research directly associated with how pupils experience a transition from a traditional type of pedagogical teaching in school to integrated pedagogy could add important perspectives to the existing body of knowledge.

Likewise, knowledge investigating specific effective mechanisms regarding teacher scaffolding and peer support could contribute to the development of approaches to integrated pedagogies. In these cases, it might be relevant to add a focus on technology.

No less important is research focusing on different types/groups of pupils, which could be important in the future. While the studies included in the review contain results concerning how high achieving and low achieving pupils experience the transition to integrated pedagogies differently, these results do not derive from the child's perspective. The review shows very few examples of studies investigating the significance of gender, ethnicity and SES[3] status among pupils in relation to integrated pedagogies.

Besides, this research focuses specifically on different types of transition tools related to the transition process and experiences related to specific school subjects.

[3] SES stands for Socioeconomic Status.

Danish Summary

Formålet med rapporten er at kortlægge elevers erfaringer med overgange til legende læring/integrerede pædagogikker og strategier til at facilitere processen gennem et review af eksisterende litteratur.

Formål

Baggrunden for undersøgelsen er et fokus på, hvordan alternativer til klassisk lærerstyret instruktion, der stadig fylder meget i den danske folkeskole, kan hjælpe børn med at udnytte deres potentialer og mindske uligheden i uddannelsesniveau mellem elever. LEGO Fonden arbejder med at implementere sådanne alternative tilgange, fx gennem partnerskabet mellem LEGO Fonden og Billund Kommune. Et resultat af partnerskabet er implementering af legende læring i alle offentlige skoler i Billund Kommune.

For at informere LEGO Fondens fremtidige arbejde generelt og dets mål om at opbygge en fremtid, hvor læring gennem leg giver børn mulighed for at blive kreative og engagerede elever – og specifikt LEGO Fondens samarbejde med Billund Kommune – gennemførte VIVE et litteraturreview, der fokuserer på elevernes erfaringer med tilpasning til legende læringspraksis (integrerede pædagogikker), og hvordan man støtter elevernes overgang hertil for at sikre trivsel og læring.

Legende læring, integreret pædagogik, aktiv læring, problembaseret læring, integreret bevægelse osv. er alternativer til lærerstyret integration og det, der undertiden betegnes som lærerstyret instruktion. Tidligere forskning viser potentialer i anvendelsen af alternative didaktiske metoder i forhold til elevers læring, trivsel og motivation (Bok, 2006). For eksempel peger forskning på, at legende læring/integreret pædagogik (se Appendix 1 for definition af legende læring) øger trivsel og motivation for elever. (Parker and Thomsen, 2019).

Formålet med rapporten er at skabe nye indsigter i:

- Forandringerne, som eleverne oplever, når de introduceres for nye former for læring
- Elevernes behov for forskellige former for støtte i overgangsperioden
- Evidensbaserede praksisser og redskaber til at støtte eleverne i overgangen for at sikre trivsel og læring.

Ud over dette kan reviewet fungere som et vidensgrundlag for potentielle fremtidige undersøgelser på området. Reviewet tager udgangspunkt i et elevperspektiv, hvilket betyder, at elevperspektivet er fremtrædende i den valgte litteratur. En konsekvens af fokus på elevperspektivet er, at der er fokus på kvalitative studier i reviewet.

De forskningsspørgsmål, der guider reviewet, er:

- Hvordan oplever eleverne skiftet fra lærerstyret pædagogik til legende læring/integreret pædagogik?
- Hvilke støttestrukturer/praksisser er beskrevet og undersøgt i den videnskabelige litteratur?
- Hvilke støttestrukturer/praksisser har eleverne fokus på og sætter pris på?
- Hvordan adskiller oplevelsen af forskellige støttestrukturer/praksisser sig i forskellige grupper af elever, fx elever med forskellig socioøkonomisk eller etnisk baggrund?

- Hvad er manglerne i den eksisterende viden om overgang til legende læring/integrerede pædagogikker, som fremtidig forskning bør fokusere på?

Vi inkluderer studier, der anvender både kvantitative, kvalitative og mixed methods-metoder i den deskriptive analyse, men der gennemføres en syntese af studier baseret på kvalitative metoder, fx dybdegående interviews, fokusgruppeinterviews, observation, indholdsanalyse osv. For at fundere syntesen på flest mulige studier inkluderes kvalitative elementer fra studier med mixed methods ligeledes. Studier med kvalitative metoder vil sandsynligvis være bedre egnet til at undersøge elevperspektiver på overgange til integrerede pædagogikker end studier, der anvender kvantitative metoder. Kvalitative metoder er generelt bedst egnede, når et forskningsfelt er relativt nyt og endnu ikke kortlagt. Dette er også tilfældet, hvis interessen er rettet mod kategoriseringer, vaner, holdninger, kultur osv. Dette er tilfældet for det nærværende litteraturreview, hvor de vigtigste kategorier i undersøgelsen på forhånd er ukendte og udvikles som en funktion af selve undersøgelsen (Bearman og Dawson, 2013).

Den metodiske vej kan ses i kapitel 2 i rapporten, de søgte databaser er beskrevet i afsnit 2.2, og en beskrivende analyse findes i kapitel 3.

Resultater af litteratursøgning

Litteratursøgningen identificerede 2.714 studier. Efter screeningsprocessen blev 62 studier inkluderet, og det er disse 62 studier, som syntesen er baseret på. Figur 3.1 i kapitel 3 viser en detaljeret oversigt over screeningsprocessen, og en samlet liste over inkluderede studier kan ses i Appendix 3.

Studier blev hovedsageligt ekskluderet, fordi de ikke indeholdt elevperspektiv eller ikke havde fokus på overgangen til legende læring/integrerede pædagogikker.

Hovedparten af eleverne i de inkluderede studier går i 5.-8. klasse, og gennemsnittet er, at eleverne går i 7. klasse (afrundet).

Hovedfund

Tabel 1 viser en oversigt over de fem centrale temaer genereret fra en induktiv kodningsproces. Tabellen kan også ses i syntesesektionen i rapportens kapitel 4. I syntesesektionen i kapitel 4 er temaerne uddybet og nuanceret gennem eksempler fra de inkluderede studier.

Tabel 1 Analytiske temaer

Tema	Beskrivelse	Nuancering/heterogenitet
Elevers perspektiver	Elevernes erfaringer med integreret pædagogik/legende læring var hovedsagelig positiv. Frihed til at påvirke, hvad og hvordan læring sker, samt mere praktisk orienteret skolearbejde motiverede eleverne.	Der var både positive og negative oplevelser med udendørs instruktion, og for meget frihed fik nogle elever til at føle sig usikre.
Lærerstøtte	Lærerstøtte blev foretaget gennem vejledning, intervention, planlægning og støtte, lærerstøtte var vigtig for succes med integrerede pædagogikker og blev ofte værdsat af elever.	Nogle elever gav udtryk for, at de fik for meget støtte fra lærerne. Lærerstøtte uden tilstrækkelig elevinddragelse i beslutningsprocessen resulterede undertiden i uønsket konformitet.
Peer-støtte	Elevernes erfaring med peer-støtte var hovedsagelig positiv. Arbejde i grupper giver eleverne en ekstra mulighed for at læne sig op ad og lære af hinanden under skolearbejdet. Peer-støtte giver ekstra muligheder for vejledning, der kan supplere støtte og vejledning fra lærere.	Der var et par kritiske perspektiver på at arbejde i grupper, hvis gruppemedlemmerne er usikre omkring forventningerne til deres arbejde, eller hvis kommunikationen mellem gruppemedlemmerne ikke fungerer.
Overgangs-"værktøjer"	Generelt var elever positive over for specifikke it-programmer eller enheder, der blev anvendt som overgangs-/støtteværktøjer til at støtte elevernes arbejdsproces.	De generelle udfordringer, som eleverne nævnte, var adgang, ustabilitet og lærernes manglende viden om systemet/enheden.
Betingelser, der påvirker overgangen	Længere perioder med implementering havde en positiv indflydelse på overgangen til integreret pædagogik.	Ingen undersøgelser rapporterede situationer, hvor længere perioder med implementering påvirkede elever eller visse grupper af elever negativt.

I det følgende søger vi at besvare de forskningsspørgsmål, der guider reviewet. For yderligere uddybning af perspektiver vedrørende forskningsspørgsmål, se kapitel 5 i rapporten.

Hvordan oplever eleverne skiftet fra lærerstyret pædagogik til legende læring/integreret pædagogik?

De inkluderede undersøgelser rapporterer generelt, at elever har positive oplevelser under overgangen til integreret pædagogik. Disse positive oplevelser synes at være stærkt forbundet med praktiske elementer i undervisningen. Valgfrihed synes desuden at være en vigtig betingelse for at motivere elever. Mens de fleste elever gav udtryk for positive erfaringer med at lære udendørs, understreger nogle elever en præference for læring i traditionelle klasseværelser. Mens størstedelen af undersøgelserne rapporterede, at elever havde positive oplevelser under overgangen til integreret pædagogik, rapporterede undersøgelser tilfælde, hvor elever havde vanskeligheder med at navigere i indlæringsmiljøer, der var karakteriseret ved høje niveauer af autonomi.

Hvilke støttestrukturer/praksisser er beskrevet og undersøgt i den videnskabelige litteratur?/Hvilke støttestrukturer/praksisser har eleverne fokus på og sætter pris på?

Tabel 2 nedenfor giver en oversigt over støttestrukturer og praksis identificeret i reviewet. Den første kolonne identificerer tre overordnede temaer relateret til støttestrukturer. Den anden kolonne identificerer forskellige typer støttestrukturer inden for de tre temaer. Den tredje kolonne introducerer elevernes perspektiver på en overordnet måde over for temaerne og typerne af støttestrukturer.

Tabel 2 Støttestrukturer

Tema	Typer at støtte	Detaljerede perspektiver
Lærerstøtte	Instruktion Vejledning og støtte Individuel vurdering af niveau for instruktion/støtte Lærerstøtte relateret til overgangsværktøjer	Generelt er eleverne afhængige af deres lærer, både i overgangsfaserne og i forbindelse med integrerede pædagogikker generelt. Lærerstøtte er nødvendig hele vejen gennem et projekt, fra planlægningsfasen til slutfasen og for at yde støtte i faser derimellem. Der er ikke en "one size fits all", når det gælder lærerstøtte. I stedet viser undersøgelserne, at tilpassede støttestrukturer målrettet specifikke situationer lader til at fungere.
Peer-støtte	Gruppearbejde Samarbejde Lære af peers	Perspektiver som glæde, personlig social udvikling og læring fra jævnaldrende er tydelige i gennemgangen. Sammensætningen af grupper er vigtig i forhold til læring og udvikling for forskellige typer af elever. Ligeledes er det vigtigt at være i stand til at kommunikere og arbejde sammen for at drage fordel af peer-støtte.
Overgangsværktøj	Forskellige it-systemer It-redskaber	Et udbredt perspektiv er, at it-systemer/værktøjer ofte hjælper elever med at strukturere deres arbejde, hjælper til forklaring og fungerer som en fælles hukommelse. Derudover er eleverne afhængige af, at it-systemerne/-redskaberne fungerer, og tekniske problemer kan forstyrre deres arbejdsproces.

Hvordan adskiller oplevelsen af forskellige støttestrukturer/praksis sig i forskellige grupper af elever, fx elever med forskellig socioøkonomisk eller etnisk baggrund?

Mod vores forventning fandt vi ikke nogen resultater med hensyn til, hvordan elevernes erfaringer med overgangen til integreret pædagogik adskiller sig i forskellige grupper af elever, der kvalificerede sig til syntese.

Imidlertid rapporterede flere undersøgelser resultater, der beskriver, hvordan elever med høj og lav præstation adskiller sig i deres erfaring, når de skifter til integrerede pædagogikker. Da disse resultater ikke stammer fra elevperspektivet og derfor ikke er kvalificerede til optagelse i syntesen, præsenterer vi en generel oversigt over disse resultater. I denne gennemgang er vi stødt på tre "aspekter" af fund, der relaterer til, hvordan forskellige grupper af elever oplever overgangen til integrerede pædagogikker på forskellige måder. Den første af disse aspekter henviser til den mere generelle forskel mellem oplevelser fra forskellige grupper af børn. Dette vedrører især forskellene mellem elever med lav og høj præstation. Generelt rapporterede undersøgelser, at elever med lav præstation oplevede en høj grad af positive oplevelser under overgangen. Derudover syntes disse positive oplevelser at være forbundet med tilgange til læring, der var af praktisk art, såsom madlavning, eller tilgange til integrerede pædagogikker,

der indeholdt elementer med relativt høje grader af struktur og vejledning. Kun én undersøgelse undersøgte generelle forskelle mellem oplevelser relateret til køn blandt elever. Resultaterne antyder imidlertid, at piger fik mere interesse for STEM-emner efter en overgang til integrerede pædagogikker.

Hvad er manglerne i den eksisterende viden om overgang til legende læring/integrerede pædagogikker, som fremtidig forskning bør fokusere på?

Det sidste forskningsspørgsmål adresserer mangler og videnshuller i den eksisterende viden om elevernes erfaringer med overgangen til integrerede pædagogikker for at sætte en mulig retning for fremtidige studier og fokuspunkter, når man initierer implementering af integrerede pædagogikker og legende læring i skolemiljøer. Baseret på syntesen og diskussionen identificerede vi fem hovedtemaer, som kan være relevante at behandle i fremtidig forskning. Vi identificerede huller i litteraturen vedrørende:

- Elevernes perspektiver på overgangsprocessen fra én type pædagogik til en anden
- Effektive støttemekanismer, især fra lærere, men ligeledes via peer-støtte
- Forskellige perspektiver på integreret pædagogik/legende læring fra forskellige elevgrupper
- Overgangsværktøjer – fx teknologi og pædagogiske værktøjer
- Legende læring i forhold til bestemte skolefag og på tværs af skolefag.

Forskning, der er direkte forbundet med, hvordan elever oplever en overgang fra en traditionel type pædagogisk undervisning i skolen til integreret pædagogik, kunne tilføje vigtige perspektiver til den eksisterende viden.

Ligeledes kunne viden, der undersøger specifikke effektive mekanismer med hensyn til lærerstøtte og peer support, bidrage til udviklingen af tilgange til integrerede pædagogikker. I disse tilfælde kan fokus på teknologi være relevant at tilføje.

Ikke mindre vigtigt kan forskning, der fokuserer på forskellige typer/grupper af elever, være vigtig i fremtiden. Mens undersøgelserne, der er inkluderet i gennemgangen, inkluderer resultater vedrørende, hvordan elever med høj og lav præstation oplever overgangen til integreret pædagogik forskelligt, stammer disse resultater ikke fra børns perspektiv. Gennemgangen viser meget få eksempler på undersøgelser, der undersøger betydningen af køn, etnicitet og SES-status blandt elever i forhold til integrerede pædagogikker.

Derudover kan det være relevant at undersøge elevers og andres perspektiver på overgange, evt. i sammenhæng med støtte og værktøjer relateret til specifikke skolefag og eventuelle forskelle mellem skolefag.

1 Introduction

The educational setting attracts a lot of political attention on both a local and national level. This is evidenced by, among others, several large reforms of the Danish primary school system[4] that have been implemented in recent decades. The latest of these reforms was decided upon in 2013 and implemented from the summer of 2014 onwards. The intention of the reform was to enable all children to reach their full potential and to reduce socio-economic differences in the outcome of the pupil's primary and secondary education (Børne- og Undervisningsministeriet, 2013). Unfortunately, VIVE's latest evaluation on the 2014 reform shows that it has not been thoroughly implemented and that the reform has not had the desired effect (Jensen et al., 2020; Nielsen et al., 2020). Therefore, it is necessary to continuously look closely at our school system and approaches to learning, well-being and motivation of pupils[5] and explore promising approaches to pupils' learning and well-being in schools.

Focusing on alternatives to the classical teacher-directed instruction that is still in place in most of the Danish primary school system may help children fulfil their potential and reduce inequality in educational attainment between pupils. In this respect, the LEGO Foundation has conducted work on the implementation of such alternative pedagogical approaches, e.g. through the partnership between the LEGO Foundation and Billund Municipality. A particular result of the partnership has been the implementation of playful learning in all public schools in Billund Municipality.

To inform the future work of the LEGO Foundation in general and its aim of building a future where learning through play empowers children to become creative and engaged lifelong learners (specifically, relating to the LEGO Foundation's collaboration with Billund Municipality), VIVE conducted a literature review that focuses upon pupils' experiences with adaptation to playful learning practices or integrated pedagogies and how to scaffold the pupil's transition to ensure thriving and learning.

Playful learning, integrated pedagogies, active learning, problem-based learning, movement integration etc. are alternatives to teacher-directed instruction and what is sometimes labelled traditional classroom teaching. Research show potentials in applying alternative didactic methods in relation to pupils learning, well-being and motivation (Bok, 2006). For instance, research on integrated pedagogies[6] with learning-through-play characteristics points to increased well-being and motivation for pupils (Parker and Thomsen, 2019). Table 1.1 below lists 5 characteristics of learning through play identified by Parker & Thomsen.

[4] In Denmark, municipal primary and lower secondary schools or "Folkeskolen" cover the 0th to the 9th grade. The Danish "folkeskole" is a central part of the Danish Welfare State, and the schools are funded through taxes, and thus free to attend. Approximately 78% of Danish children attend the Danish "Folkeskole" (Børne- og Undervisningsministeriet, 2021).

[5] Throughout the report, we apply the term pupil(s), the exception being in quotations from studies, which apply the term student(s).

[6] Readers are referred to Appendix 1 for the working definition of "integrated pedagogies" applied in this review.

Table 1.1 Five characteristics of learning through play at school, from Parker & Thomsen, 2019

	Characteristics	Description
1.	**Meaningful**	When learners' experiences and knowledge from home and school are integrated. This gives a voice to learners' experiences and backgrounds and makes learning meaningful and culturally relevant to them. They are meaningful when they are designed to include relevant and engaging tasks, inquiry questions, problems or projects; that is, those that are self-sustaining and provocative, compelling learners to find out more.
2.	**Socially interactive**	When learners work together in groups, using strategies that have been designed to maximise the benefit of cooperative learning. When learning occurs in new and different settings and contexts, for example, outdoors, on a field trip or in a group around an activity or experiment, it can expand social networks and dissolve social dynamics established in traditional classroom settings, developing interpersonal, communication and social skills.
3.	**Actively engaging**	When learners have choices – large or small – to make about the content or processes involved in their learning. Active engagement occurs when learners can rely on and support other learners and receive guidance, rather than explication from their teachers to formulate understanding and develop new skills.
4.	**Iterative**	When learners have the opportunity to explore and investigate new concepts; to try, fail and try again. When learners share their ideas with each other and revise and recalibrate their thinking based on the inputs of the group, learners' abilities are extended and transformed. Teachers encourage iteration through guiding learners with targeted, encouraging questions, hints and modelling.
5.	**Joyful**	When learners have positive peer and teacher interactions and positive learning experiences. This is characterised by having and making choices, experiencing learning in a range of settings, personally relating to the content of their learning and feeling able and confident about their learning.

Another study concerning active learning shows significance for STEM disciplines among pupils (Freeman et al., 2014). Movement integration and outdoor schooling have also shown indications towards increased well-being and motivation for pupils with regard to learning (Ladekjær et al., 2019; Jensen et al., 2020). Reviews on inquiry-based and discovery-based learning show that pupils require clear guidance and support to manage new learning environments (Alfieri et al., 2011; Lazonder and Harmsen, 2016).

However, how do we need to manage this guidance and support pupils during the transition towards playful learning? More systematic knowledge on the subject is needed and thus a present review can be a first step towards gaining an overview over the research in order to develop approaches to playful learning.

Therefore, the purpose of the literature review is therefore to inform and strengthen the implementation of playful learning in Billund municipality, as well as similar projects in the future.

1.1 Purpose

The more specific purpose of the literature review is to generate:

1) Insights into the changes that pupils go through when they are introduced to new ways of learning,

2) The variation in their needs for scaffolding during transition,

3) Evidence-based practices and tools to scaffold pupils in the process of transition to ensure thriving and learning. Besides this, the overview can serve as a knowledge base for a potential future research study on the subject.

The literature review is based upon a pupil perspective, which means that this perspective is prominent in the selected literature.

The research questions that guide the literature review are:

- How do pupils experience the change from teacher-directed pedagogies to learning through play pedagogies/integrated pedagogies?
- Which support structures and scaffolding strategies/practices are described and investigated in the scholarly literature?
- What support structures and scaffolding do pupils request and value?
- How does the experience of different support structures and scaffolding strategies/practices differ across different groups of pupils, e.g., pupils from different socioeconomic or ethnic backgrounds?
- What are the gaps in the existing knowledge on transition to integrated pedagogies that future research should seek to address?

The review will cover a systematic and documented effort to retrieve relevant literature concerning how pupils adapt to playful learning or integrated pedagogies. The primary focus will be on qualitative literature and qualitative elements from mixed method studies. Following a broad search in electronic databases, titles and abstracts of the included studies will be screened for relevance. After this, the full texts of the studies will be retrieved and will subsequently be screened for relevance. Studies that are deemed relevant will move on to data extraction and will undergo critical appraisal using a standardised tool to assess the risk of bias. Finally, the findings of the relevant studies will be synthesised according to state-of-the-art methods in research synthesis (Thomas and Harden, 2008).

While we include studies that apply both quantitative, qualitative and mixed methodologies for the descriptive analysis, we opted to conduct a synthesis of studies using qualitative methods, e.g. in-depth interviews, focus group interviews, observation, content analysis etc. In order to secure a broad foundation for the synthesis, we include qualitative elements from mixed methods studies. We argue that studies using qualitative methods are likely to be better suited to investigate the pupils' perspectives on transition to integrated pedagogies than studies applying quantitative methods. Qualitative methods are generally best suited when the field of study is relatively new and not mapped out. This is also the case if the field of interest targets categorisations, habits, attitudes, culture etc. This is the case for the present literature review where the most important categories of the study are unknown or not set in advance but are developed as a function of the study itself (Bearman and Dawson, 2013). While studies applying quantitative methods such as survey designs can apply scale instruments and similar techniques to measure how children experience adapting to integrated pedagogies, we argue that studies using qualitative methods will provide richer descriptions of the children's experiences. Had the focus of this review been the effect of integrated pedagogies on, for instance, academic achievement, studies applying quantitative and experimental designs, such as controlled trials, would have been a better choice. In the case in hand, such studies may not be the best choice for answering our research questions.

After an introduction to the pupil perspective guiding the review, the methodological approach to the review is presented. This method section is followed by a descriptive analysis. Hereafter the synthesis of results is presented and the report concludes with a discussion section.

1.2 Pupils' perspective

The pupil perspective is evident in the research questions that are part of the review and thus form part of the basis for the review. Therefore, it is necessary to introduce the delimitation of the concept and how we apply this to follow the choices throughout the review.

We apply the concept of the pupil perspective, which is a context-specific variation of the broader and more commonly applied concept of the child perspective. The concept was introduced as "the childhood paradigm" in sociology in the 1990's by James, Jenks and Prout (Prout and James, 1990; James, Jenks and Prout, 1998). In short, the background for the work of the British sociologists was an approach to children dominated by a developmental psychological perspective. Instead, James, Jenks and Prout advocate for an approach to children and childhood recognising children as agents in their own lives and childhood as a life stage juxtaposed with adulthood (James, Jenks and Prout, 1998). The childhood paradigm today permeate social sciences and researchers across research fields work with many different methods and approaches in order to give children a voice in research regarding circumstances affecting their own as well as other children's lives (Christensen and James, 2017).[7] The child perspective forms the basis for the assessment of which qualitative studies to include in the review.

In this review, we apply a pupil perspective instead of a child perspective. The pupil perspective refers to the schooling context that we focus on in this particular review.

[7] The sociological childhood paradigm can be seen as related to the UN convention on the Rights of the Child from 1989. The convention states that children both have the right for protection and the right to make choices for their own life (OHCHR, 1989). Thus the convention implicates a double perspective towards children and childhood, which means that we as resasearchers both have the obligation to protect children and at the same time acknowledge them as individuals, and this have significance for research involving children.

2 Methods

In the following section, we present the methodology applied in this review. Here, we will cover the search strategy applied in this review, the criteria for selecting studies (i.e. PICO criteria as well as inclusion/exclusion criteria applied during the screening of studies), data extraction, methods for quality appraisal and methods for evidence synthesis.

In the following sections, we introduce the methodological steps in the review in order to present features that make this review a systematic mapping.

2.1 Inclusion and exclusion criteria

In this review, the PICo criteria guided the formulation of our search strategy and the inclusion/exclusion criteria that we used to assess studies for relevance. Regarding the search strategy, the PICo criteria guided the selection of the search terms that were included in the search strings used to retrieve relevant literature from electronic databases and other sources. While the PICo criteria are themselves criteria for selecting studies for this review, the inclusion/exclusion criteria represent a more specific and concrete version of these criteria. The PICO criteria can be seen in Box 2.1 below.

2.1 PICo criteria

For this review, the Population (P), phenomenon of Interest (I) and Context (Co) (together referred to as PICo) (Stern, Jordan and McArthur, 2014) criteria were the following:

Population: Children in elementary school, pupils in similar grades to the Danish Folkeskole (children age 6-14).

Phenomenon of Interest: Facilitation of the transition to integrated pedagogies

Context: Classroom settings in elementary schools

In this review, we excluded studies based on the criteria listed in Box 2.2:

2.2 Inclusion and exclusion criteria

•Not about integrated pedagogies: Studies that do not focus on integrated pedagogies will not be included in this review

• Does not include the child perspective: Studies that do not cover the pupil perspective on integrated pedagogies will not be included. This would exclude, for instance, studies that had only investigated teachers' perceptions of the implementation of integrated pedagogies.

• The study does not cover the transition to integrated pedagogies: Studies that do not investigate the transition to integrated pedagogies will not be included.

• Not an empirical study: Studies that are purely concerned with theoretical perspectives on integrated pedagogies will not be included.

• Participants are not part of the population: Studies that do not include pupils in the age range of Danish elementary schools were not included in this review. We opted for a criteria based on age, given that the age of pupils in grades or the duration of elementary school do not necessarily align across OECD countries. For instance, while the typical age range of pupils in the 9th grade in the US is 14-15, 9th grade pupils in Denmark typically range between 15 and 16 years of age. Secondly, the term "elementary school" may not cover the same age range in other countries. Thus, in reference to the International Standard Classification of Education (ISCED) 2011, our definition of "elementary school" roughly covers ISCED level 1, "primary education" to the beginning of ISCED level 3, "upper secondary education" (UNESCO, 2012).

• The study is published before 2010 for the studies conducted outside the Nordic countries and 2000 for the studies conducted within the Nordic countries

• The study is a literature review

In addition, the review team members agreed to add the following exclusion criteria during the screening of full text publications:

• A lack of focus on transition: Some studies only investigated the transition to integrated pedagogies in a superficial manner, e.g. reflections on the transition to integrated pedagogies was only mentioned in the discussion or concluding sections of studies. In such studies the transition to integrated pedagogies was not central to the findings and these studies were excluded.

• The duration of study is shorter than 6 weeks: In this review, we were generally interested in findings that would generalise a context in which one or several schools made a long-term commitment to transition from classical teacher-directed pedagogies to integrated pedagogies. As such, studies that reported on, for example, an intervention involving problem-based learning lasting a week would not be likely to generalise such a context. Therefore, we chose to exclude studies where the implementation of integrated pedagogies lasted less than 6 weeks. It is important to note that the period of study was allowed to be shorter than 6 weeks, as long as the implementation of integrated pedagogies lasted at least 6 weeks. For instance, a study might have investigated the first 2 weeks of a transition to integrated pedagogy that was scheduled to last the remainder of the school year. Such a study would not have been excluded due to its length of duration.

• Not core curriculum subjects: Studies that investigate the implementation of integrated pedagogies in subjects that fall outside the core curriculum subjects such as drama classes, arts and crafts etc., were not included. Our definition of "core curriculum subjects" follows the definition in OECD, 2014.

2.2 Search strategy

In this review, we searched both published and unpublished scholarly literature for publications, in total, searching 15 electronic databases and 10 alternative sources, e.g. governmental organisation and research organisation websites. We searched electronic databases commonly used in literature reviews in the field of education. Therefore, we did not search databases such as pubMED or Medline, as these primarily concern literature within the medical and bio-medical sciences. We limited the search in the following ways:

1. To only include publications that were not published before 2000 in the Nordic countries[8] and not before 2010 for studies conducted outside of Nordic countries.
2. To only include studies conducted within the OECD member countries.

In this review, we were particularly interested in publications with results that could generalise within the context of the Nordic welfare states. However, restricting the search to only include studies conducted in the Nordic countries may result in very few or no relevant studies. Therefore, we decided to also include state-of-the art results from studies conducted in other high income countries as these countries are most likely to feature educational systems that resemble those found in Nordic countries.

We conducted pilot searches to assess and refine our search strategy. Due to the results of our pilot searches, we decided not to include the search terms "project-based learning" and "cooperative learning" as the inclusion of these search terms resulted in the inclusion of a large amount of publications, with many irrelevant publications among them. In general, including these search terms resulted in large amounts of studies that did not concern integrated pedagogies, but rather "classical" teacher-directed pedagogies where project-based learning and cooperative learning were only small components of the pedagogical approach. Due to the large amounts of irrelevant publications and time constraints, we therefore excluded these terms from the final search strings.

An overview of the sources that were searched can be found in Table 2.1

[8] Sweden, Denmark, Norway, Finland and Iceland.

Table 2.1 Sources

Databases	Hits	Date of search
Netpunkt/DanBib (danske biblioteksbaser)	117	15.02.2021
Den Danske Forskningsbase	116	15.02.2021
ORIA/BibSys (norske biblioteksbaser)	151	16.02.2021
NORA (Norwegian Open Research Archives)	22	16.02.2021
LIBRIS (svenske biblioteksbaser)	180	16.02.2021
SWEPUB (svenske forskningsdatabase)	166	16.02.2021
Juulii (finske forskningdatabase)	19	16.02.2021
ERIC (international)	1195	17.02.2021
Teacher Reference Centre (International)	108	17.02.2021
PsycINFO	137	17.02.2021
SocIndex	17	17.02.2021
Academic Search Premium (international)	304	17.02.2021
EconLit	42	17.02.2021
ProQuest Dissertation & Thesis	116	17.02.2021
Web of Science (international) – Social Science Citation Index	187	17.02.2021
Campbell Collaboration (International): https://www.campbellcollaboration.org/library.html	2	18.02.2021
NIFU (Nordisk) https://www.nifu.no/publikasjoner/	5	18.02.2021
EVA: https://www.eva.dk/	0	18.02.2021
Dansk ClearingHouse for uddannelsesforskning https://dpu.au.dk/forskning/danskclearinghouseforuddannelsesforskning/ (lukket 2019)	0	18.02.2021
Evalueringsportalen (Norge): https://evalueringsportalen.no/	1	19.02.2021
Skolverket (Sverige): https://www.skolverket.se/om-oss/publikationer-och-nyhetsbrev/sok-publikationer	0	19.02.2021
Utdanningsdirektoratet (Norge): https://www.udir.no	1	19.02.2021
European Educational Research Association (http://www.eera-ecer.de/)	0	19.02.2021
Education Endownment Foundation https://educationendowmentfoundation.org.uk/projects-and-evaluation/reports/	14	19.02.2021
What Works Clearinghouse – U.S. Department of Education (whatworks.ed.gov)	8	19.02.2021

Table note: The search strings used for each database and website are reported in Appendix 4.

2.3 Screening studies for relevance

In this review, we assessed publications for relevance by screening the titles and abstracts of publications found by searching electronic databases and other sources. We then screened the full text of publications that were deemed relevant after assessing their titles and abstracts. Publications that were deemed relevant after having been assessed according to their full publication were included for data extraction, quality appraisal and evidence synthesis.

Prior to screening the titles and abstract, the research librarian conducted an initial screening of publications to exclude publications concerned with tertiary/higher education, as well as studies published earlier than 2010 that were conducted outside the Nordic countries.

Six of the review team members (three research assistants and three authors) conducted the screening procedure. We randomly sampled 100 publications which were assessed for relevance by all review team members. We then compared assessments and reconciled differences in assessments for these studies. In addition, we also held periodic status meetings where the review team members discussed the process of screening. These meetings also served to further the agreement between review team members regarding how and when the different inclusion/exclusion criteria should be applied.

2.4 Data extraction

We extracted data from the included studies according to several descriptive characteristics. Review team members extracted data on the studies that they had included when screening the full publications. We extracted data study characteristics such as whether studies were published in a peer-reviewed journal, whether studies applied a qualitative/quantitative/mixed methods methodology, participant characteristics etc. The full list of extracted characteristics can be found in Appendix 2.

2.5 Quality appraisal

We chose to assess the quality of the studies included in the evidence synthesis of this review, which means that we limited quality appraisal to studies that applied a qualitative methodology. Due to time constraints, we only conducted quality appraisal for a sample consisting of 11 of the included studies. To assess the quality of these studies, we applied the *JBI Critical Appraisal Checklist for Qualitative Research* (JBI checklist). While the JBI checklist originally requires researchers to include or exclude studies based on their quality assessment, we will not exclude any studies at this stage of the review. The quality assessments of the studies will rather be used to inform the evidence synthesis, e.g. by providing information on the overall quality of the studies included in the synthesis. In this sense, the quality appraisal will guide the interpretation of the results in this review by providing an indication of the overall validity of the results of included studies, which the synthesis in this review is based on. While we did not conduct quality appraisals for all included studies, we argue that the results of the quality appraisal on the sample of studies provides an indication of the overall quality of the studies included in this review.

2.6 Evidence synthesis

We conducted a thematic synthesis following the procedures presented in Thomas and Harden (2008). The thematic synthesis contains three stages, which, to some extent, overlap. In the first stage, research findings of individual studies were subjected to free inductive line-by-line coding, informed by the usual guidelines for thematic analysis in primary qualitative research. In this process, sentences are applied with one or more codes. With each new study, reviewers can draw on already existing codes or add new ones, leading to the production of a “code bank” and the beginning of a translation of concepts between studies (Thomas and Harden, 2008). The inductive coding will be performed by the line-by-line coding functionality in EPPI-Reviewer 4. In this review, we developed an initial set of codes to apply when coding studies inductively. When additional codes were added by review team members, the team member responsible for adding the code would notify the remaining team members who would then concur with or

object to the additional code. Any conflicts regarding the addition of codes were resolved among review team members, leading to the final decision on whether or not to include the code.

In stage two of the thematic synthesis, we grouped the inductive codes into related areas in order to construct descriptive themes. All review team members were jointly involved in developing the analytic themes. We followed the same procedure in the final stage where the descriptive themes are translated into higher-order analytical themes that go beyond the primary data, allowing for the generation of new understandings and hypotheses (Thomas and Harden, 2008).

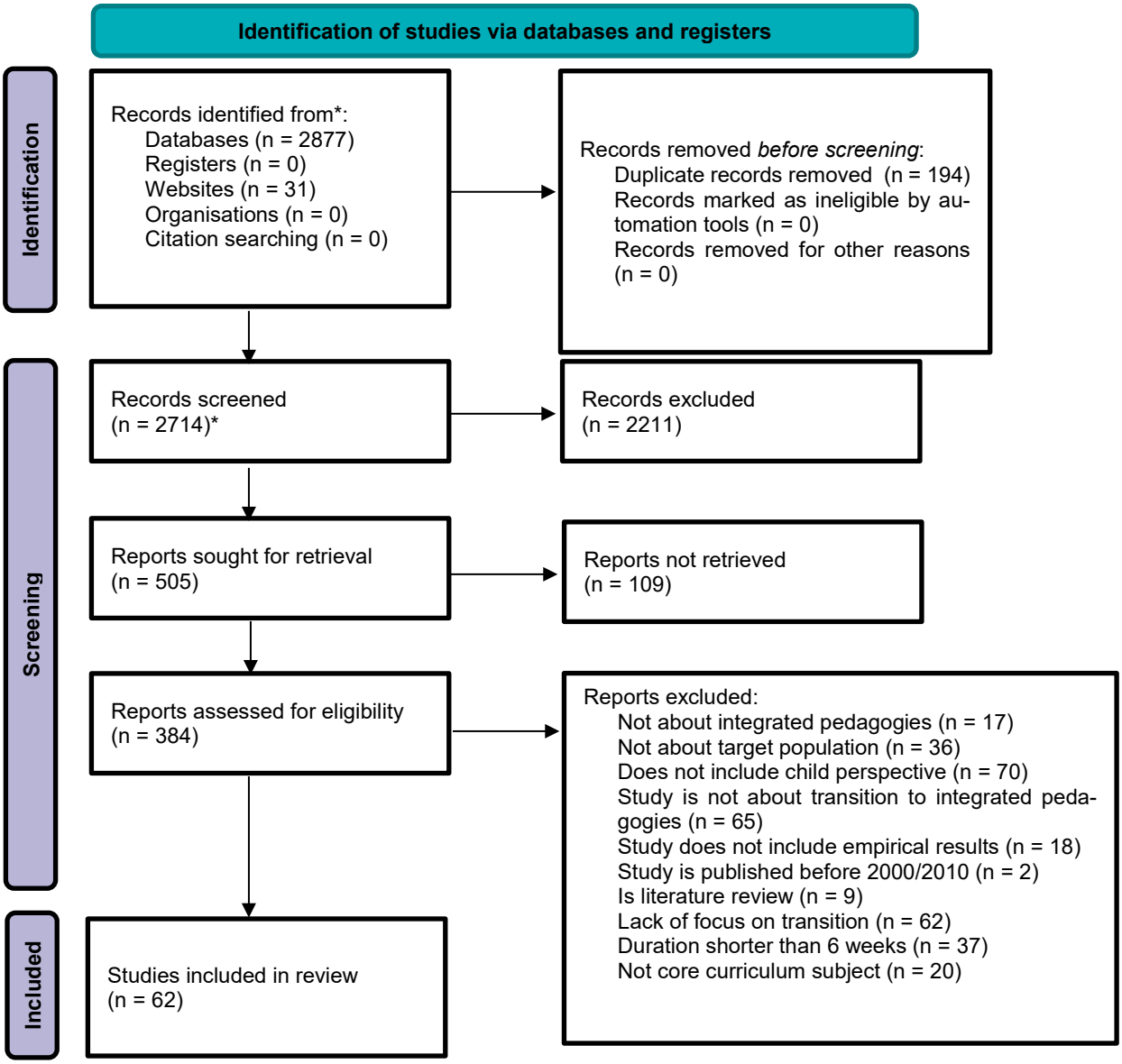
When referring to a pupil perspective in this report, we primarily refer to statements made by pupils or direct quotations from pupils. Secondly, we also include observations made by researchers, e.g., focusing on pupils' work processes in school, reporting conversations between pupils in school and conversation between observers and pupils during observations. When referring to observations, we refer to participant observation made by qualitative researchers such as trained anthropologists or sociologists (Christensen and James, 2017). Thirdly, we include researcher's comments and conclusions drawn transversely on the empirical examples. We do not include parent or teacher perspectives directly in the review. Teacher and parent perspectives may be a part of a researcher's comments and conclusions if a study comprises both pupils, teachers and/or parent perspectives.

3 Descriptive Analysis

In this section, we will present the descriptive characteristics of the included studies. We start by presenting the results of our literature search.

3.1 Results from the literature research

Figure 3.1 Screening process



*883 studies involving tertiary education and studies outside the nordic context published before 2010 were screened and excluded by the research librarian

Source: Page et al., 2021

As can be seen in Figure 3.1, studies were mainly excluded due to not including the child perspective, not being concerned with the transition to integrated pedagogies or lacking a focus

on the transition to integrated pedagogies. Together, studies excluded for these reasons comprise around 60% of excluded studies.

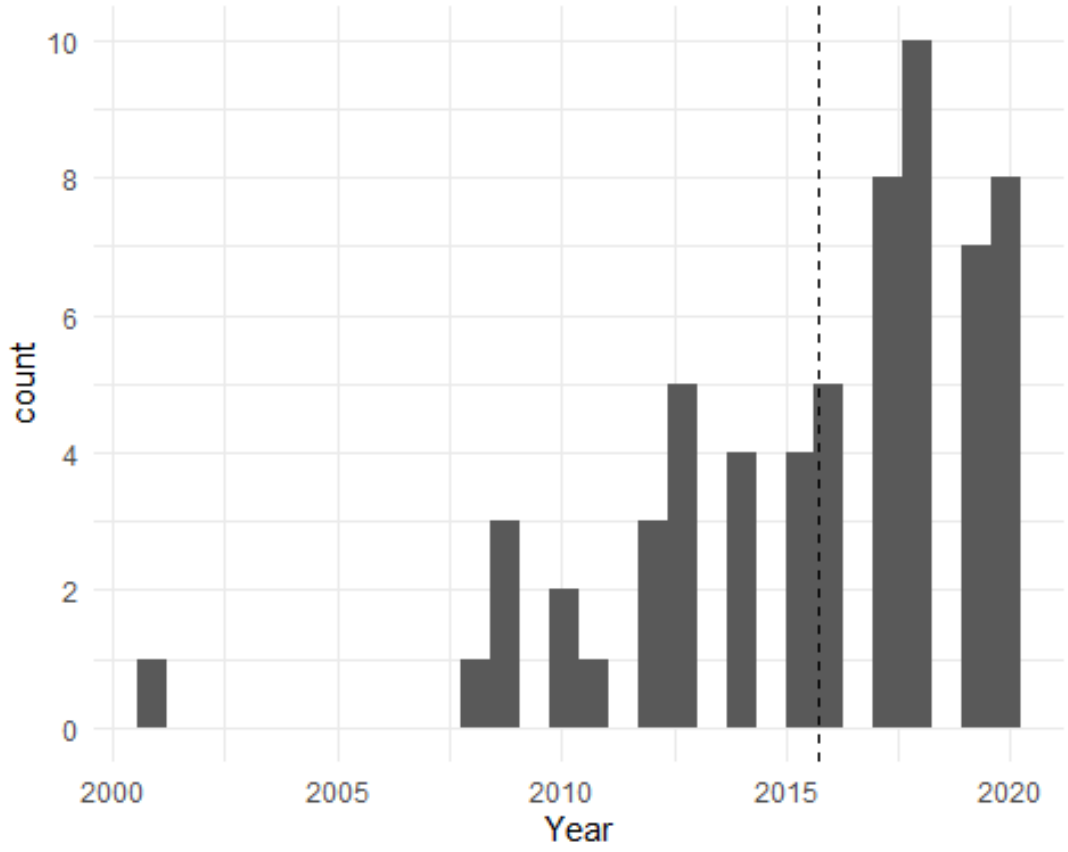
While we conducted a focused effort to retrieve all relevant publications that could not be retrieved via institutional access or in a digital format, we could not retrieve 109 publications. The effort to retrieve these publications is described in more detail in Section 6.1

Appendix 3 shows a full list of the 62 studies included.

3.1.1 Year of publication of included studies

As can be seen in Figure 3.2, most of the studies included in this review were published rather recently. As such the average year of publication is around 2015 (which is marked by the dashed vertical line in Figure 3.2).

Figure 3.2 Distribution of publication year



Next, we will present the proportions of included studies that were not published in a peer-reviewed journal, i.e., the amount of grey literature

3.1.2 Proportion of grey literature

In this review, 84% of the included studies were published in peer-reviewed journals. Thus, only a minority of the included studies could be considered grey literature.

3.1.3 Distribution of countries where included studies were conducted

Here, we will present the distribution of countries where the included studies were conducted. As shown in Table 3.1, most studies were conducted in the US, which is not uncommon when conducting systematic reviews. However, we also see that around 17% of studies were conducted in the Nordic countries, i.e. Sweden, Norway, Denmark, Finland and Iceland.

Table 3.1 Distribution of countries

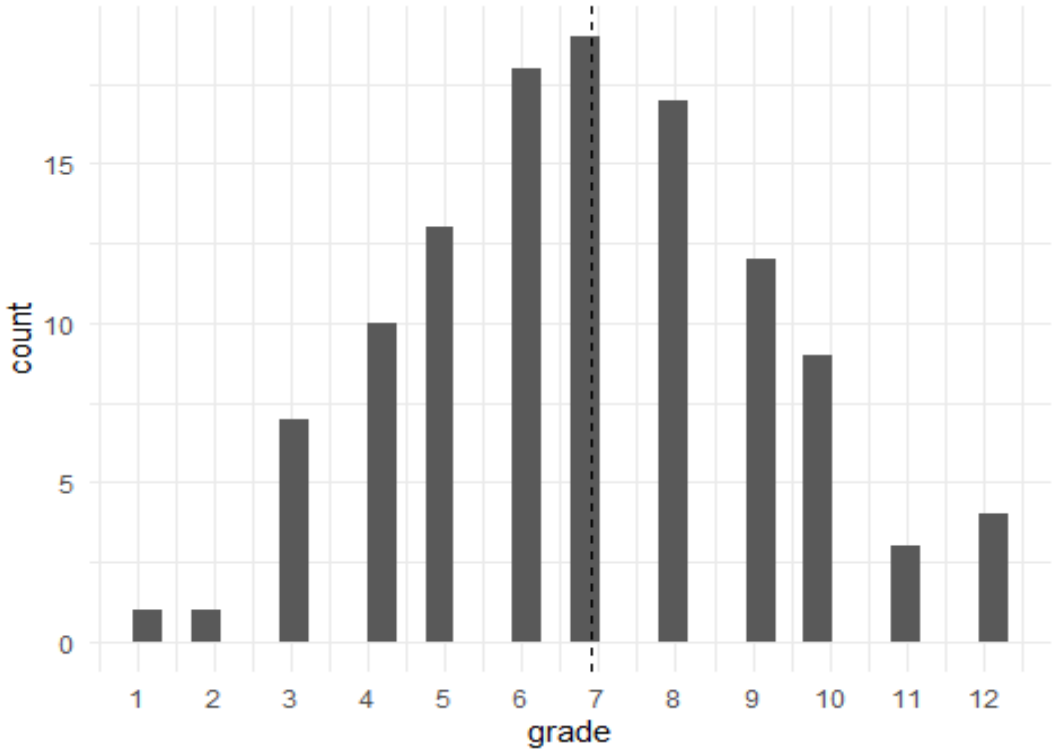
Country	Proportion of studies
USA	0.47
Australia	0.08
Sweden	0.07
Denmark	0.05
The Netherlands	0.05
UK	0.05
Israel	0.03
New Zealand	0.03
Norway	0.03
Turkey	0.03
Canada	0.02
Estonia	0.02
Finland	0.02
Greece	0.02
Spain	0.02

3.1.4 Distribution of grades attended by students in included studies

In this section, we will present the distribution of grades attained by students in the included studies. While we originally extracted data on the age of students by years of age, many studies did not report the age of participants. As such, we opted to report the grades of students instead as most studies reported this information. Information on the grade attained by students may be an imprecise indicator of the age of students due to differences between countries with regards to the age when children start attending primary or secondary school, tracking students within the school system etc. Despite these issues with precision, the distribution of grades attained by students is still a useful indicator of the age of students in the included studies.

As shown in Figure 3.3, most students in the included studies attained grades 5-8, with the average grade being grade 7 (when rounded).

Figure 3.3 Distribution of grades



3.1.5 Distribution of the types of integrated pedagogy applied by included studies

Here, we present the distribution of the types of integrated pedagogy as applied in the included studies. We have renamed the names reported by the included studies to be in line with the names of the types of integrated pedagogy by Parker and Thomsen (2019), and added additional categories as stated in the introduction . As such, while studies applied several different types of inquiry-based learning, e.g. “guided inquiry-based learning” or “open inquiry-based learning”, such types of integrated pedagogy were all categorised as “inquiry-based learning”. Thus, Table 3.2 contains a rough overview of the types of integrated pedagogy that were applied in the included studies.

As Table 3.2 shows, a large proportion of studies applied inquiry-based learning. However, other popular types of integrated pedagogy were also frequently applied, such as project-based learning and collaborative learning.

Table 3.2 Distribution of type of integrated pedagogy

Type of integrated pedagogy	Proportion of studies
Inquiry-based learning	0.28
Problem-based learning	0.14
Project-based learning	0.10
Collaborative learning	0.09
Game-based learning	0.06
Flipped classroom	0.04
Unclear	0.04
Active learning	0.03
Blended learning	0.03
Experiental learning	0.03
Outdoor schooling	0.03
Green city – lego nxt	0.01
Innovative learning intervention	0.01
Model-based teaching and learning	0.01
Play-based learning	0.01
Recursive pedagogy	0.01
Scaffolding to support multi agent-based computational models (MABMs)	0.01
Science talk-writing heuristic (STWH)	0.01
Structured cooking and gardening program	0.01
Use of robotics	0.01

3.1.6 Distribution of methodology applied by included studies

In Table 3.3 we present the distribution of the methodology applied by the included studies. As can be seen, the majority of the studies applied a mixed methods methodology. In doing so, they combined quantitative and qualitative methods of data collection and analysis, followed by studies applying a qualitative methodology while studies applying a quantitative methodology comprised the minority of the included studies.

Table 3.3 Distribution of methodology

Type of methodology	Proportion of studies
Mixed methods	0.52
Qualitative	0.34
Quantitative	0.13

3.2 Results from the quality appraisal of a sample of studies

Below we present the results of the quality appraisal that we conducted for a sample of the included studies. Table 3.4 shows the proportion of either “yes”, “no” or “unclear” answers given in each domain of the quality appraisal tool. As shown in Table 3.4, the studies in the sample mainly exhibited a lack in quality with regards to clearly stating the position of the researcher, the possible influence of the researcher on the research process and clearly stating whether the study complied with current ethical guidelines or had attained ethical approval by an appropriate authority. The studies in the sample showed adequate quality regarding the choice of theoretical framework, research questions and methods for data collection and analysis. While

we think that these results are indicative of the overall quality of the studies included in this review, it is also likely that the distribution of quality would be different from that shown in Table 3.4 had we conducted quality appraisal for all included studies. For instance, for several of the domains, all studies in the sample received a “yes” response, indicating adequate quality for all studies in this domain. It seems unlikely that not a single study among the included studies would fail to show adequate quality on either of these domains.

Table 3.4 Quality appraisal

Domain	No	Yes	Unclear
Is there congruity between the stated philosophical perspective and the research methodology?	0.27	0.73	0.00
Is there congruity between the research methodology and the research question or objectives?	0.00	1.00	0.00
Is there congruity between the research methodology and the methods used to collect data?	0.00	0.91	0.09
Is there congruity between the research methodology and the representation and analysis of data?	0.00	1.00	0.00
Is there congruity between the research methodology and the interpretation of results?	0.00	1.00	0.00
Is there a statement locating the researcher culturally or theoretically?	0.73	0.00	0.27
Is the influence of the researcher on the research addressed (and vice-versa)?	0.64	0.36	0.00
Are participants and their voices adequately represented?	0.18	0.82	0.00
Is the research ethical according to current criteria or for recent studies and is there evidence of ethical approval by an appropriate body?	0.55	0.45	0.00
Do the conclusions drawn from the research report flow from the analysis, or interpretation, of the data?	0.00	1.00	0.00

3.3 Summary

To summarise, the descriptive characteristics of the included studies show that the majority of studies are published quite recently. This may indicate that the restriction on the year of publication applied in the search strategy has not excluded many relevant studies by default. The majority of studies were published in peer-reviewed journals. While the studies appearing in peer-reviewed journals are usually considered to be of higher quality than studies that are not published in peer-reviewed journals, there is also evidence that studies published in peer-reviewed journals are more extreme than one would expect, i.e., what is known as a “publication bias”. There can be many reasons for this bias but a typical concern is that peer-reviewed journals are biased towards results that are “noteworthy”, which typically means that studies with less strong conclusions are published to a lesser degree (Sutton, 2009).

A majority of studies were conducted in the US. This may impact the external validity of the results in this review as the educational system of the US differs from the educational systems of other countries, particularly the Nordic countries in several different aspects.

The included studies generally concerned students in grades 5-8. This suggests that this review will be able to provide less evidence on the transition to integrated pedagogies for pupils in the first or final years of primary school. However, while this will not be able to provide large amounts of evidence for the youngest and oldest pupils in primary school, we note that the included studies in this review cover the entire span of grades in primary school.

Inquiry-based learning is the most frequently applied type of integrated pedagogy in the included studies. Thus, it is important to note that many of the results presented in this review may be specific to inquiry-based learning. However, the studies included in this review span a wide range of different types of integrated pedagogies. Furthermore, integrated pedagogies share many common elements (Parker and Thomsen, 2019), increasing the likelihood that findings pertaining to one type of integrated pedagogy might be generalised to match other types of integrated pedagogy. As such, findings shared between many of the studies included in this review may be an indication of elements in the transition to integrated pedagogies that generalise across types of integrated pedagogies.

As expected, only a minority of studies applied a strictly quantitative methodology. As a consequence, the majority of included studies in this review are suited to a qualitative synthesis, given that we will also include results from mixed method studies that pertain to data collected and analysed using qualitative methods.

Lastly, the quality appraisal indicated that included studies failed to reach adequate levels of quality for the domains concerning the position and influence of the researcher, as well domains concerning the declaration of compliance with ethical standards. While this indicates that the included studies do have deficiencies with regards to quality, the explanation for these deficiencies may extend beyond the authors of the studies. Given that the majority of the included studies are published in peer-reviewed journals, therefore, it is also expected that the majority of studies would have had to comply with the standards of the journals in which they are published. Such standards could include both limitations on the length of the publication, as well as authors not being expected to give thorough expositions of ethical standards or the researcher's position.

4 Synthesis of results

Section 4 presents the synthesis of results. The transition process between traditional pedagogies to integrated pedagogies and playful learning was generally not a central focus in the literature. A few of the included studies comment briefly on the transition process, but the studies are primarily concerned with the new pedagogical reality. As a consequence of the scarce amount of literature, we included studies that did not focus explicitly at the transition process but upon pupils' experiences with integrated pedagogies and playful learning in order to be able to provide add questions to the research.

While conducting the inductive coding in this review, five analytic themes emerged. The included themes are: 1) Pupil experiences, 2) Teacher scaffolding, 3) Peer support, 4) Transitional tools and 5) Conditions having an impact. The themes, general result and dissenting views can be seen in Table 4.1 below.

Table 4.1 Central themes

Theme	General result	Dissenting views/Heterogeneity
Pupils' experiences	The pupils' experiences with integrated pedagogies were mainly positive. Working practically and being able to influence what and how they learn motivated pupils.	There were both positive and negative experiences with outdoor instruction and too much choice made some pupils feel uncertain and insecure.
Teacher scaffolding	Teacher scaffolding was conducted through guidance, intervention, planning and support and was important for the success of integrated pedagogies. It was also often valued by pupils.	Some pupils expressed that they got too much support, and that teacher scaffolding without enough pupil involvement in decision-making sometimes resulted in unwanted conformity.
Peer support	The pupils' experience with peer support was mainly positive. Working in groups provided an extra opportunity for pupils to lean on and learn from each other during school work. Peer support provided extra opportunities for guidance, thereby supplementing teacher scaffolding.	There were a few critical perspectives on working in groups if the group members are unsure of the expectations to their work, or if the communication between group members does not function.
Transition tools	Generally, pupils had a positive attitude towards specific IT programs or devices that were applied as transition/scaffolding tools to guide pupils' working process.	General challenges mentioned by pupils were access, instability and teachers' lack of knowledge about the system/device.
Conditions having an impact	Having longer periods of implementation and higher levels of academic proficiency of pupils were both conditions that positively impacted the transition to integrated pedagogies.	No studies reported situations where longer periods of implementation or having higher prior academic proficiency negatively impacted pupils or certain groups of pupils.

The aim of Table 4.1 is to present a simple overview for the reader (Healy, 2017). In the following sections, the themes will be developed and several nuances added to the picture. We present the 5 themes of the synthesis in the sequence from Table 4.1. In order to be included in the synthesis, the inductive codes should be coded in a minimum of two studies. For each theme, we include 2-3 exemplary quotations from relevant studies in order to draw a connection between the studies and the synthesis in hand. Some studies are written in a Nordic language and quotations in this language are included in the synthesis. The original language appears

in the text and a translation is added as a footnote. When abbreviations are used in an excerpt from a study, the full description is likewise mentioned in a footnote.

Besides Table 4.1, summaries will not be included in the synthesis of results. In the discussion in chapter 5, we look transversely at the themes in the synthesis to answer the research questions. As a means of avoiding repetitions, the synthesis does not include a summary.

4.1 Pupil experiences

In this section of the synthesis, pupils' experiences with integrated pedagogies and transitioning hereto will be presented. Most of the experiences presented in the included studies are positive, but what some pupils experience as positive is seen as negative by others and vice versa. Throughout the following sections, these fluctuations between the character of pupils' experiences will be a central theme when it is relevant on the basis of the included studies. A transverse theme in the studies are pupils' indications that they find new ways of learning fun and enjoy experiences that are new and different from their normal classroom experience (Andersen et al., 2020; Conklin, 2014; Block et al., 2012; Ciftci & Baykan, 2013; Bolley, 2013). For example, Block et al., 2012 pass on pupils' responses to the question about what they liked about it and typical replies were: "*We love it!," "Fun!," "Awesome!," "Exciting!," "School's not boring," "Brilliant!," "Educational," and "You don't want to be away!"* (Block et al., 2012:5).

Similarly, Clark, 2013, also reported how new approaches to learning engaged pupils actively:

> *Several of the student participants commented how the flipped model of instruction encouraged active engagement and increased their participation in the Algebra I classrooms. In fact, all of the participants in the focus group session mentioned how they experienced an increase in classroom participation when compared to class time prior to the flipped model of instruction intervention. In particular, the student participants acknowledged their passive interactions during class lectures and limited communication between their teacher and other peers prior to the flipped model of instruction intervention* (Clark, 2013:13).

Studies also report that pupils link these different experiences to learning new things (Bolley, 2013). In the excerpt below, a group of pupils explain why they need to be prepared before a visit to an experimenting museum to be able to connect the visit with their school projects:

> *Student 1: I think it seems pretty cool (…) Much better than feeling confused and not knowing what to do.*
>
> *Student 2: It's like you were guided along.*
>
> *Student 3: It was good preparation to go in and know what to do.* (Andersen et al., 2020:6).

In another study, pupils stress review games, Jeopardy and other types of "hands-on" games and activities connected to leaning as fun and motivating learning activities (Conklin, 2014:15).

Studies report positive pupil perspectives towards practical elements as an integrated part of learning activities. Studies accentuate a connection between practical involvements with materials, working on physical models (maybe in connection with technological programmes) and learning outcomes. Arvidsson (2015) describes how pupils internalise their experiences when working with practical elements and not only on a theoretical level. By incorporating practical elements, some pupils are capable of working independently and do not need teacher scaffolding to the same degree, while others need teacher scaffolding (Arvidsson, 2015:24). Another study shows how practical tasks, experimenting and pupil-centred activities create higher motivation compared to more theoretical teaching activities (Barak, 2012:2). The perspectives from a third study further elaborate this connection between practical engagement, motivation and skill. The study shows how pupils are very interested in the instrumentation used in a weather station and *"how those things can do what they can do"*. Several pupils mentioned being able to read the thermometer and rain gauge and being able to convert temperatures from degrees Fahrenheit to Celsius as motivating (Clark et al., 2015). As one pupil puts it:

> *I love going out to check the weather and use the instruments.* (Clark et al., 2015:112)

Similarly, another study emphasises the almost universal popularity of activities in the school kitchen among pupils, where, e.g., learning to use real chefs' knives became a symbol of competence and achievement, and thus increased their confidence in school (Block et al., 2012).

As described in studies, the investigative mode of working is new to pupils and thus demanding, but the practical nature of conducting experiments presents another way of thinking and working in school (Arvidsson, 2015; Alemdar et al., 2018; Andersen et al., 2020). One pupil explains:

> *The scientific method is kind of like the same thing [as engineering]. You have to find out what the problem is, then you have to brainstorm ideas, and then after you brainstorm, you have to make up different concepts and if those don't work, … no, you have to make a hypothesis before that. You have to make a hypothesis, you have to figure out what you think will work better, like we did in the engineering class, like the circle base or the square* (Alemdar et al., 2018:14).

In the same study, pupils discuss how their critical thinking skills help to solve problems *(*Alemdar, 2018:14). Another study shows how pupils found out how to ask questions, articulate their uncertainty and compare their ideas to those of others (Chen, 2020).

It also mentions how competencies can be transferred from one arena to another:

> *Students' reflections on their experiences in the engineering course highlight the connections between their engineering courses and their core science and mathematics courses, making it clear that students were able to transfer knowledge and skills between the engineering and science and mathematics courses." "Another student discussed how learning engineering skills helps his/her understanding of science and mathematics more and how he/she transfers knowledge between two classes: In my math class, I'm learning this stuff so I can take it back to engineering, and the stuff I learn in engineering, I get a bender. Whenever we're learning in class, I'm just like, Okay, I don't understand that. "I go to engineering, and using the things*

makes me better understand it, so I can go back to math class and ace the tests." (Alemdar et al., 2018: 375).

While the above excerpts show that the reporting of pupils' positive experiences during the transition to integrated pedagogies is pervasive across studies, some themes of positive experiences were especially prevalent across the included studies. In the following sections, we will present these themes and the findings that pertain to them.

4.1.1 Being outdoors

Studies refer to a general division among pupils when it comes to being outdoors, where some of the pupils are fond of being outdoors but others prefer to stay indoors.

In Fägerstam and Grothérus (2018) a focus on both the positive and critical elements is underlined:

> *The outdoor lessons during the intervention year were not always successful as the quote from Eva illustrates. Her conclusion was that the structure of different subjects was more or less suitable for outdoor learning. In year seven we occasionally had it [outdoor lessons] in social science, but it turned out to be chaotic so we had to go inside instead/…/social science is a huge subject and perhaps is difficult to teach outdoors. It may be difficult to explain certain things. So, there were some misunderstandings. Eva, grade 8" "You need fresh air for thinking. You need to be able to focus on what you are doing and not just "let your mind fly away". It is easier to become more tired indoors and then you quit thinking and just kind of feel, "Uhh why are they forcing us to do this"? Out door makes you, kind of happier, if it doesn't rain of course. But outdoors often makes you a bit more alert and focused. Eva, grade 8" "The variation of learning environment was appreciated and facilitated on-task orientation for some students. On the other hand, when questioned about the disadvantages of out- door learning, one fairly common answer was that outdoor lessons generally decreased on- task orientation. The quote below illustrates the multifaceted picture. Interviewer: Do the outdoor lessons add something that you couldn't do in the classroom? Robert, grade 8: Well, you could probably do it indoors as well but I think it is good to go outdoors sometimes, to vary the lessons* (Fägerstam and Grothérus, 2018:384).

A study partly on gardening showed a division between positive and critical attitudes towards moving school outdoors. The study describes that while the outdoor element for some children were the best part of the programme, others were not keen on this element. The pupils who appreciated gardening highlight their sense of ownership and connection to the school, as well as their sense of achievement from their hard work in the garden. At the opposite end of the spectrum, some of the reported reasons were that gardening was boring, unpleasant when too hot or too cold and that some children did not like getting dirty. As one pupil explained: "If you get dirty, you've got no clothes to change into and parents yell at you!" (Block et al., 2012:423).

Another study showed how outdoor re-enactments e.g. of historical battles were accentuated as learning for pupils. One pupil explained: *''Because when we went outside and threw paper balls at each other, it was easier to understand what happened.''* (Conklin, 2014:1241).

The studies indicate that being outdoors once in a while or for some part of the school day may help to create variation during this time, but some pupils prefer being indoors.

4.1.2 Freedom of choice

Several studies report that providing pupils with control over their own learning, for instance, by letting them choose the subject of a presentation to their classmates, is positively associated with motivation and engagement for pupils. For instance, Doss (2018) reported the following findings:

> *One student described how she felt her level of engagement during class time was directly linked to ownership over the topic. Selena shared: When you are researching a topic that you are interested in and have the amount of freedom we did, it is extremely easy to get in the flow and enter a state of being completely consumed in the topic and experience. It was up to us what we did, so it felt like everything we did had a purpose. Pretty much every class period, I enjoyed what I did, and got in the flow. I felt educated enough/prepared enough to just go off and do my own thing* (Doss, 2018:117).

Clark (2013:14) reports how the pupils enjoy learning at their own pace:

> *The focus group session revealed many of the students felt the greatest advantage to the flipped classroom was having the ability to replay the videos when they did not have a complete, thorough understanding of the problem solving process. This was certainly an advantage the students did not experience in the traditional classroom environment* (Clark, 2013:104).

Similar findings are reported by Scogin et al. (2017):

> *In this study, students in the experiential programme were given control over much of their time and project direction. In most cases, students responded positively. "You have a lot more freedom, and I like that aspect"; "I like that they [teachers] kind of let you go off and do your own thing for most of the time . . . they don't control everything you do." The freedom empowered students to let their creativity come to the forefront: "There are certain things you can take further than others when you have the freedom. . . . Like the art project, I think there was a lot more freedom because there were so many different art ties* (Scogin et al., 2017:50).

While these studies report that freedom of choice had a general and positive association with pupil motivation, other studies reported more specific benefits concerning the freedom of choice of pupils. For instance, Fielding-Wells et al. (2017) reports that the increased autonomy of pupils prompted them to solve problems in new ways and thereby experience new ways of learning:

> *The result of this discussion was a class decision by the students to include the sum of angles in the evidence for each triangle. In instances where the lengths of two sides were exceptionally close, if the sum of angles was off, for example 178 degrees, then the students decided the triangle was not accurate enough to serve as valid evidence. This excerpt illustrate that students perceived a sense of control over their learning: they did not expect or ask the teacher to set these criteria for them but rather saw it under their control, recognising the need for the class to come to agreement on the criteria* (Fielding-Wells, O'Brien and Makar, 2017:248).

Similarly, Scogin et al. (2017) reports how increased responsibility of pupils was positively associated with their growth and learning, particularly the development of new skills:

> *Students acknowledged how they grew as a direct result of more responsibility being placed on them. […] The responsibilities that we have in [the experiential programme] have really pushed me to be more responsible than I am. Like taking my work to a deeper level. Understanding that even if that means re-doing, putting extra time to research . . . asking more questions . . . Although the experimental design of this study prevented researchers from making causal claims, students did not hesitate to explicitly attribute their noncognitive growth to the programme* (Scogin et al., 2017:53).

Likewise, Bartle (2012) shows a tendency towards increased independence among pupils:

> *After the first week of researching, students had already began to move away from "needing" the teacher.* (Bartle, 2012:70).

While studies generally reported freedom of choice as a condition for a positive transition to integrated pedagogies, some studies also reported that freedom of choice may have adverse consequences in some contexts. For instance, DeMink-Carthew & Olofson (2020) reports that;

> *"The project was kind of confusing. Sometimes I didn't know what I was doing or why." One of these students suggested that the project would be clearer if there was not "so much stuff to submit in the process," again alluding to the planning tools as somewhat confusing* (DeMink-Carthew and Olofson, 2020:12).

In one study, pupils also reported a sense of uncertainty connected to freedom:

> *We had difficulties in some points because we did not know how to prepare a presentation.* (Çiftçi and Baykan, 2013:87).

And

> *I was very nervous and thought about the realization of the project*. (Çiftçi and Baykan, 2013:87).

Another study reported a problem solving fatigue among pupils:

> *The emergence of problem solving fatigue developed when both study groups reported a decline in engagement when entering into the final phase of the quantitative study suggesting that too many complex, ill-structured problems in rapid succession may negatively impact student engagement* (Baele, 2017: 4).

Studies also report on a process where pupils are initially critical towards the new ways of learning, but along the way, their attitude changed to a more positive note, for example:

> *The following observations were recorded: It's interesting how they can transition too. Like Pia was really reluctant at first. She wasn't enjoying it and wanted to do worksheet or bookwork. Then later in the week she said: "I'm really loving this now. I've got my 100m stuff. It's what I'm interested in. I've got all my data now—I've done my research—I'm really learning this now. It's going really well. Today she said: I've made sense of my questions—I've answered them and I'm moving into something else."* (Calder, 2013:77).

While most of the studies reported that low-achieving pupils had positive experiences during the transition to integrated pedagogies, Scogin et al. (2017) report that pupils with discipline problems may not experience disengagement during the transition to integrated pedagogies.

> *In the experiential programme, students were allowed to self-manage a large portion of their time. Some students readily admitted they took advantage of the freedom, physical size of the classroom, and the number of students in the classroom: "Sometimes I goof off a little bit more because you feel like you can get away with more stuff because it's a bigger space and they're not watching you as much."* (Scogin et al., 2017: 48).

In summary, findings across studies generally show that when pupils are free to choose what they want to learn and, to some extent, how they want to learn, pupils experience motivation and engagement during the transition to integrated pedagogies. Thus, freedom of choice seems to be an important condition for motivating pupils throughout the transition to integrated pedagogies, but can also be challenging to manage for pupils.

4.2 Teacher scaffolding

In this section, we will present the different types of teacher scaffolding highlighted in the included studies. In general, the included studies focus upon teacher scaffolding and not specifically related to the transition process. Overall, teacher scaffolding is the way in which the teacher provides support to the pupils during the transition to integrated pedagogies. The literature shows that the interplay between the pupils and teacher(s) is important when providing support. In the included literature, the pupils express their positive and negative experiences with teacher scaffolding and the lack of it.

The categorisation of teacher scaffolding in this section of the synthesis categories is an analytical division based upon the inductive coding process. The aim of the categories is to illustrate several aspects of teacher scaffolding and provide an overview. The categories are not mutually excluding, but instead, coherent and overlapping.

This inductive code denotes findings that allude to whether scaffolding provided by teachers was a condition that influenced the transition to integrated pedagogies rather than how the scaffolding was performed. Three studies report that scaffolding pupils during the transition phase was a necessary condition to succeed in the transition. For instance, Chen (2020) reports that;

> *[…] indicates that elementary students are able to engage in managing uncertainty, but they need support from the teacher to know how to do this.* (Chen, 2020:361).

Similarly, Crujeiras-Pérez & Jiménez-Aleixandre (2017) reports that;

> *It needs to be noted that all groups required help from the teacher during the planning phase, as represented in Fig. 3 by dashed lines. The three groups required scaffolding to select the appropriate materials and equipment and U/U0 for proposing some steps of the procedure, as well.* (Crujeiras-Pérez & Jiménez-Aleixandre, 2017:9).

While the findings of Chen (2020) are more general, the findings Crujeiras-Pérez & Jiménez-Aleixandre (2017) suggest that teacher scaffolding is especially important during the initial phases of the transition.

4.2.1 The teacher guides, intervenes and provides support

This kind of teacher scaffolding is about the way the teacher guides, intervenes and provides support when needed, but without giving the answers directly to the pupils. The teacher needs to know how and when to intervene and guide the pupils. In this case, it is important to have a good dialogue between the teacher and the pupils. Chen (2020) finds that;

> *He thus provided them with opportunities to voice their ideas, and he made it clear that they needed to take responsibility for those ideas. Therefore, Mr. J acted as a "catalyst in discussions, prompting students to expand and clarify their thinking without providing direct information* (Chen, 2020:352).

Similarly, Andersen et al. (2020) finds that the teacher's involvement in the projects is important:

> *The post phase though made clear the importance of the teacher role in regards to troubleshooting, investigating and clarifying the results that the students had achieved* (Andersen et al., 2020:205).

Furthermore, Fielding-Wells, O' Brien and Makar (2017) reports that:

> *The students seek help, and the teacher responds by having students identify the specific problem they are having (line 25, 27, 29), and then uses questioning (line 33) to assist the students to think of their own way forward (line 34–35). In instances where students still experienced difficulty, the teacher would call the class together to collectively contribute ideas* (Fielding-Wells, O'Brien and Makar, 2017:250).

This kind of teacher scaffolding covers the pupils' need for help from teachers to either solve difficult tasks or when planning a specific project. The teacher only intervenes when the pupils are having trouble with a task and reach out for help. Arvidsson (2015) reports that:

> *"men när eleverna hade svårt att lösa en uppgift fick de hjälp av läraren. De fick förklara vad problemet var och tillsammans med lärare sökte de efter en lösning* (Arvidsson, 2015:26)"[9].

Furthermore, Crujeiras-Perez and Jiménez-Aleixandre (2017) reports that:

> *This group is the only one to consider fair testing criteria, regarding the type and size of shells. They also provide reproducibility criteria, proposing to run each test twice for each type of shell. However, they need teacher's help to select the type of shells to use, as they do not identify the three types of samples* (Crujeiras-Pérez and Jiménez-Aleixandre, 2017:9).

Nevertheless, help from the teacher did not always end up with good results. Crujeiras-Perez and Jiménez-Aleixandre (2017) also finds that:

[9] "However, when the students had difficulty solving a task, they received help from the teacher. They had to explain what the problem was and together with teachers, they looked for a solution."

> *However, teacher's help in planning did not guarantee good results, as experimental errors that lead students to obtain anomalous results made them draw inadequate conclusions for instance in tasks 1 and 3 for groups […]* (Crujeiras-Pérez and Jiménez-Aleixandre, 2017:12).

Also, some pupils think that they receive too much support and would rather focus on the specific project on their own. DeMink-Carthew and Olofson (2020) finds that:

> *One of these students was also the student who indicated that there was "too much support," which we infer may have been connected to the student's displeasure with the planning tools* (DeMink-Carthew and Olofson, 2020:12).

4.2.2 Including pupils in decision making

Another important part of teacher scaffolding is to include pupils in making decisions regarding the learning process. The pupils want to contribute and have an active role and this is related to the perspectives on freedom of choice described earlier in the synthesis. It is important that the teacher is able to listen to the pupils and give them opportunities to make their own choices. DeMink-Carthew and Olofson (2020) reports that:

> *This reveals a problematic assumption: while personalization called for significant choice in what students chose to research and create, it did not call for similar personalization of the learning process. This ultimately resulted in students feeling compelled to complete the project in a relatively uniform manner. The student feedback, however, provided a striking reminder for teachers to not overlook the importance of opportunities for learners to take an active role in making decisions concerning the "how" of their learning* (DeMink-Carthew and Olofson, 2020:13).

Similarly, Barak and Asad (2012) finds that:

> *An important conclusion from the current experience was, however, that teachers' explanations should also include examples from the students' world, rather than adopting the conservative view of teaching the formal theory before engaging the learners in authentic assignments and projects* (Barak and Asad, 2012:101).

4.2.3 The lack of teacher scaffolding

In some of the included studies, the pupils mention that a lack of teacher scaffolding can be a problem. The lack of teacher scaffolding affects the pupils' engagement and understanding. Bradley (2018) finds that:

> *Overall the students were engaged in the development of the projects in makerspace. However, several noted that the projects did not include timely feedback from the instructor and this lessened their engagement* (Bradley, 2018:87).

Furthermore, Lamey Sr. (2017) reports that the teachers are not involved in the integrated pedagogy:

> *Students interviewed for this study spoke volumes about the lack of teacher interaction. Statements like, "Some teachers don't have much involvement in teaching"*

and "The deadlines are hard because the teachers don't teach anymore," are indicative of one of the biggest issues this model: teachers not being able to teach anymore. One student suggested, "We should make the teachers teach so that they can help us understand because that's why most of us are behind." Another student, when asked what would they do different replied: "Really have the teachers get more involved…" Yet another said, "The only thing I don't like is that you're teaching yourself (Lamey Sr., 2017:82)."

In summary, the pupils need teacher scaffolding both during the transition period and in general, when it comes to playful learning.

4.3 Peer support

In this section, we will present the different kinds of peer support identified in the studies. Peer support is an analytical theme focusing on collaboration, help and social relations between pupils. In the following, we will describe the positive and negative experiences and effects of peer support mentioned in the included literature.

4.3.1 Collaboration between pupils

This kind of peer support is one of the most highlighted codes in the included literature. Studies describe how group work results in both better results and better processes, for example Scogien et al. (2017):

First, students realized collaboration helped them efficiently meet deadlines for their deliverable products. "You can normally get it done quicker instead of having to do it by yourself. You do it one step at a time. Like one person can do a step, the other person can do a step. And then if you just work together, you'll get it done quicker and more efficiently". Second, students began to appreciate how other learners brought different skills, knowledge, and/or perspectives to a project that made the project better. […] One student summarized as follows, "In a group, I feel like everyone has their point of view and their perspective in what they want in the project, and they combine them all together to make a bigger project (Scogin et al., 2017:50)."

The pupils collaborate and help each other often instead of asking the teacher. In the following, the positive experiences with collaboration between peers will be described. Fielding-Wells et al. (2017) reports that:

When students got stuck or encountered problems, they had multiple ways to seek help that was non- judgemental. Their collaborative group was the most immediate resource for help, and the source students used initially. (Fielding-Wells et al., 2017:250).

Furthermore, Bradley (2018) finds that the pupils use each other for help instead of the teacher:

Collaboration with peers for building understanding by consulting with a capable peer was mentioned in three interviews. One student said, I often need help a lot

> *because… It's not that… I'm not like a fast learner it's just I need help* (Bradley, 2018:89).

And

> *Students mentioned asking peers to explain content or directions for assignments when they did not understand the teacher's instruction. Students expressed a desire to be able to talk to their classmates both for understanding directions and for socialization* (Bradley, 2018:93).

Several studies add nuance to how peer support can be a successful scaffolding strategy. For example, in Fägerstam and Grothérus (2018) a pupil states that everybody needs to participate in group work to succeed with the task:

> *But there is more cooperation outdoors because everybody knows that everyone has to work to the best of their ability, help the group you know. You cannot be a "diva" because then you destroy for the entire group* (Fägerstam and Grothérus, 2018:384).

Furthermore, in Duncan (2020) the pupils mention that collaborating with their friends is nice:

> *The theme of teamwork and collaboration occurred the most through the dialog with the engaged students. The students made references to working together with their teammates 19 times. One female student responded to the question, "What did you like the most about BOEDU*[10] *strategies?" by stating, "My team. They might have fought a lot or argued, but in the end, we're all just calming down, and even if we don't break out, we're still happy that we got to do breakout, that we got the play breakouts." Another male student responded to the same question with, "teamwork plus our mind." Another female responded, "I loved doing it with my friends."* (Duncan, 2020:517).

Similarly, Ellwood and Abrams (2018) reports that:

> *Student comments within their reflection journals clearly revealed greater enjoyment from collaborative, rather than individual, efforts to complete the assignment* (Ellwood and Abrams, 2018:409).

While Neokleous (2019) finds that the shyer pupils participated more when collaborating with their peers:

> *Four of the young learners who defined themselves as "very shy" deemed the dynamic interaction opportunities that these lessons offered "helpful". Being asked by their teachers to cooperate in groups, as the four interviewees explained, made them actively participate while normally they would "sit back and just observe"* (Neokleous, 2019:121).

In some of the included studies, pupils express critical perspectives and experiences regarding group work and collaboration with peers. Sometimes, problems occur when working with other

[10] BOEDU stands for Breakout EDU, which is a platform for learning games

pupils. Belland et al. (2011) finds that a lack of communication between peers can be a problem:

> *'Erin perceived that communication in the group was difficult. During several incidents during the unit, Robert appeared to either ignore or misunderstand a question from Erin.* (Belland et al., 2011:680).

As described in the above section, the benefits of working in groups and peer support are diverse among pupils in the included studies, and some pupils gain more than others from working closely with their peers.

4.3.2 Development of different skills

When pupils are working in groups or pairs, they develop a wide range of skills. Some of these skills are argumentation abilities, confidence, academic performance and understanding of content. When collaborating with each other, the pupils are influenced by their peers. Collaborating with peers may have positive effects on the pupils' achievement. Clark (2013) finds that:

> *One student remarked how the shared support and collaboration by other peers in the classroom helped him build his confidence and improve his understanding of the mathematics content* (Clark, 2013:106).

Similarly Jakobsson (2001) reports that:

> *En elev vars förhållningssätt är meningsskapande vill gärna skapa mening tillsammans med andra. Samarbete, diskussioner och resonemang med andra elever blir därför en drivkraft och ett viktigt inslag i meningsskaparens lärprocess* (Jakobsson, 2001:192)[11].

The pupils are influenced by each other and their different perspectives on the subject make them understand and work in new and different ways. Ellwood and Abrams (2018) states:

> *I enjoyed doing the 'Meet a Scientist' page better with a group. By working in a group, I understood other people's perspectives, and I was able to think more in depth about my own answers… reading and discussing the 'Meet a Scientist' pages helped me to understand more about how the scientific process works* (Ellwood and Abrams, 2018:409).

Pupils are not always at the same level while working in groups and collaborating to solve a task. In some studies, pupils are divided as high achievers and others as low achievers. Belland, Glazewski and Richardson (2011) finds that:

> *Alejandra (Lower-Achieving Group) appeared to be able to stay involved with her group due to her groupmates' articulation of their thoughts. Alejandra noted having trouble understanding what her group members said, but she could understand what they wrote. Language learners often feel comfortable reading and writing before they feel comfortable speaking and listening in the new language* (Belland, Glazewski and Richardson, 2011:687).

[11] *A student whose attitude is meaningful wants to create meaning together with others. Collaboration, discussions and reasoning with other students therefore become a driving force and an important element in the meaning-maker's learning process.*

Nouri et al. (2013) also found that low achieving students benefitted from interactions with high achieving pupils, a finding that is corroborated by Belland, Glazewski and Richardson (2011). However, Belland, Glazewski and Richardson (2011) find that both low achieving and high achieving pupils experience a mutual benefit when collaborating.

> *Articulation of research results and opinions appeared to play an important role in the experiences of students in the Lower-Achieving and Higher-Achieving Groups. Members of both groups appeared to benefit from being able to read and debate what each other wrote in the Connection Log so that they could (a) compare ideas, (b) communicate, and (c) organize." "Compare ideas Erin noted that articulation allowed her thoughts to become more coherent both to her groupmates and to herself. This in turn allowed the group to weigh the merit of Erin's ideas* (Belland, Glazewski and Richardson, 2011:687).

4.4 Transition tools

In this section, we will present different tools used in the transition to integrated pedagogies and the significance of these tools. Technology is the kind of tool that is most commonly mentioned across the studies. With the use of technology, different advantages, as well as difficulties can occur. Both will be described in the following.

4.4.1 Technology, devices, programs and strategies as tools and scaffolding

When transitioning to integrated pedagogies, teachers can use different tools. Technologies, devices, programs and strategies work as either transition tools and/or scaffolding. The use of tools is a way of guiding the pupils within the specific integrated pedagogy.

> *They were using nQuire*[12] *to guide them through the process of planning this aspect of their methodology. This excerpt illustrates how the students used nQuire to guide them towards the activities they needed to carry out: they discussed what needs to be done now and next (e.g. Lines 1–7) and used the activities in the nQuire navigation panel to guide them. Also, nQuire helped the students to recognise when the activities were complete and they were 'done'* (Kerawalla et al., 2013:507).

In this case, the nQuire platform guides the pupils through the activities they need to perform. The nQuire platform works as a tool to make the transition to integrated pedagogy work even better. The pupils know what to do on their own with help and guidance from nQuire.

According to Clark (2013) pupils increase their engagement and motivation through the use of technology:

> *The interview participants shared story after story of how the use of technology promoted an increase in their level of engagement. One student verbalized his preference of using technology which caused an increase in his motivation to learn and succeed* (Clark, 2013:105).

[12] nQuire is a software application used to guide and provide support in inquiry-based learning

The technology works as a tool to improve the pupils' motivation to learn through the integrated pedagogy. There is a variety of different tools, which the pupils' need to learn to use. Barak and Asad (2012) finds that:

> *They used a variety of aids and software tools on their own initiative, for example, a calculator, Paint and Word software (part of MS Office) and the ColorPix software they learned earlier. The students moved flexibly from tool to the other in order to accomplish the task* (Barak and Asad, 2012:92).

And

> *The group members appeared to come to see and use the Connection Log*[13] *as a tool that could help their communication." "To think of ideas. Robert said that he would use the Connection Log for a similar unit in the future because "it really helped me think of ideas… what we were supposed to look for."* (Belland, Glazewski and Richardson, 2011:681).

The use of different technologies and programs helps pupils' to work on their own and become more organised. Bradley (2018) states:

> *Most of the students stated that their teachers posted assignments in Google Classroom and that it helped them to be organized by having everything contained in the programme.* (Bradley, 2018:87).

And Vinesh and Fisher (2009) finds that:

> *Web-based learning environment was convenient, gave them autonomy and enabled them to work at their own pace. This was supported by qualitative data involving students explaining their liking for such an approach by giving reasons such as: Year 10 science student: You can go over the work again as many times as you like. Having the Internet sheets from class lessons helps you revise and study. I can go over and over the parts I do not really understand until I do. It is easy to read and understand* (Vinesh and Fisher, 2009:39).

The tools guide and help the pupils' and they improve their problem-solving skills in new and different ways. Arvidsson (2015) finds that:

> *Arbetets resultat visar på konkreta exempel hur användning av LEGO-teknik och NXT programmering*[14] *kan påverka elevers utveckling av ämnesspecifika förmågor relaterade till den praktiska aktiviteten. Genom att aktivt skaffa sig kunskaper, utveckla en fysisk modell och ett program, lära sig i sammanhang, lära sig att lösa problem på olika sätt, utvärdera sin egen aktivitet, utvecklas elevernas förmåga att ta isär och sätta ihop konstruktionsdelar, hantera olika redskap och verktyg, identifiera och analysera sina tekniska lösningar för att klara en uppgift och dessutom*

[13] Connection Log is a computer-based argumentation scaffold system.
[14] NXT is a computer programing language designed to program LEGO robotics kit

utvecklas förmågan att angripa och lösa problem som uppstår under arbetes gång. (Arvidsson, 2015:1).[15]

In summary, the transition tools guide and help the pupils in the transition to integrated pedagogies in different ways. The tools consist of different devices, programs and technologies that pupils use in class.

4.4.2 Technical problems/difficulties with tools

The use of technology as a tool is not always easy. There are examples of technical problems or difficulties with the use of technology in class. Technical problems include situations when the technology is not working as it is supposed to.

> *Robert chose to address the question ''What does the Bone Marrow do??'' However, when he found information and entered it into the Connection Log, technical difficulties prevented it from being written into the database* (Belland, Glazewski and Richardson, 2011:682).

In some cases, the studies report that technology becomes more of a challenge than a helpful tool. Bolley (2013) states that:

> *Students reported that they only worked on Catchup Math*[16] *at school and did not work on it at home because it was not connected to the day's lesson and appeared to be extra work* (Bolley, 2013:89).

And:

> *Students agreed that the CAI would be helpful if they were to give it more time. However, during the study they did not feel as if it helped them to increase their math skills because it was not directly related to the current lesson being taught* (Bolley, 2013:80).

The teacher also needs to be prepared for and capable of using the different transition tools correctly. If this is not the case, pupils get frustrated about the new integrated pedagogy. Neokleous (2019) reports that:

> *For this reason, in their interviews, the students cautioned that technology-integrated lessons should fulfil specific purposes while they also stressed the importance of adequate teacher preparation before their implementation in class* (Neokleous, 2019:124).

And

> *Not only do teachers not possess the required technical skills to carry out a task with certain forms of technology, Student 11 continued, "they sometimes do not pick*

[15] *The results of the work show concrete examples of how the use of LEGO technology and NXT programing can affect students' development of subject-specific abilities related to practical activities. By actively acquiring knowledge, developing a physical model and a program, learning in context, learning to solve problems in different ways and evaluating their own activity, the students' ability to disassemble and assemble construction parts, handle different tools and implements, identify and analyse their technical solutions to cope with a task and also develop the ability to attack and solve problems that arise during work*.

[16] CatchUp Math is a platform where pupils learn math trough different games, activities, videos etc.

it up fast, time is lost, and we don't even use technology in action (Neokleous, 2019:125).

4.5 Conditions impacting the transition to integrated pedagogy

One of the analytical themes that emerged while conducting the inductive coding in this review was a theme concerning the conditions surrounding the implementation of integrated pedagogies that impacted how successful the transition was perceived to be by the pupils. Some of these cover conditions that are, in many cases, integral to the integrated pedagogies such as the freedom of pupils to choose their own project. Other conditions concern factors that were more external to the integrated pedagogies such as the academic proficiency of pupils prior to the implementation of integrated pedagogies, the influence of the pupils' families, school facilities or specific characteristics concerning some of the tools used to aid the transition such as computer software or other electronic devices.

In the following, we will present the theme according to the inductive codes that occurred within this theme.

4.5.1 Length of transition

While the length/duration of the transition to integrated pedagogies was rarely a central finding in any of the included studies, the association between the length of the transition and success of the implementation of integrated pedagogies was a part of the findings across different studies. For instance, Scogin et al. (2017) report benefits of a lengthy transition as pupils began to mature with respect to how they approached learning within an integrated pedagogy and how they interacted with classmates.

> *As students worked together over the course of the year, many began to express more mature ideas about what it meant to collaborate and what role they personally played in positive collaborative experiences. "It's good to get to know people. And then it's good to work together with people": "I became a little more open to being in groups, because I've started talking to a lot more people besides my little friend group." For some students, the first step to better collaboration was realizing their contributions to a given project were only pieces of a larger puzzle. "I guess toward the end [of the project], it started to seem like I might not have been the best partner . . . my part was probably just part of the idea"* (Scogin et al., 2017:50).

In summary, the studies that reported on how the length of the transition influenced its success either reported that a longer duration would have been beneficial or that a lengthy transition was beneficial.

5 Discussion of findings

The discussion section is structured around the 5 research questions listed Section 1.1, with a subsection for each research question. Research questions 2 and 3 are closely linked and thus discussed together. At least some of the research questions for the review cut across the analytical themes presented in Section 4, and thus the aim of the structure is to elucidate the research questions transversely across the analytical themes.

Besides discussing the 5 research questions, chapter 5 also contains a section on limitations of the review, as well as concluding remarks.

5.1 How do pupils experience the change from teacher-directed pedagogies to learning through play pedagogies/integrated pedagogies?

In this review, the included studies generally report that pupils have positive experiences during the transition to integrated pedagogies. These positive experiences seem to be strongly associated with the practical elements of learning that pupils are introduced to during the transition to integrated pedagogies, e.g. gardening, working with kitchen tools, physical models of natural phenomena etc.

Teaching outdoors was a prevalent theme among the included studies. While studies reported that many pupils had positive experiences with outdoors teaching, studies also reported that this experience was not shared by all pupils. Specifically, some pupils emphasised a preference for learning inside traditional classrooms.

Findings across studies generally show that when pupils have the freedom to choose what they want to learn and, to some extent, how they want to learn, pupils experience motivation and engagement during the transition to integrated pedagogies. Therefore, freedom of choice seems to be an important condition for motivating pupils throughout the transition to integrated pedagogies. Freedom of choice can be related to a specific theme or method in a specific project. However, studies also reported instances when pupils had difficulties navigating learning environments that were characterised by high levels of autonomy and the freedom of choice to engage in off-task behaviours.

While studies generally report positive experiences by pupils, not all pupils experience the transition to integrated pedagogies as positive. We discuss how different groups of pupils experience the transition to integrated pedagogies in Section 5.3 of the discussion.

5.2 Which support structures and scaffolding strategies/practices are described and investigated in the scholarly literature? What support structures and scaffolding do pupils request and value?

Research questions 2 and 3 are closely linked to each other and therefore, we treat them jointly in the discussion. The answer to the second and third research question are primarily based upon the synthesis Sections 4.2, 4.3 and 4.4. In order to summarise the support structures and

scaffolding strategies described and investigated in the included studies, Table 5.2 below provides an assembled overview of the structures and strategies.

Tabel 5.1 Support structures and scaffolding strategies

Theme	Type of support structures/scaffolding strategies	Detailed perspectives
Teacher scaffolding	Instruction Guiding, intervening and providing support Individual assessment of level of instruction/support Teacher scaffolding oriented towards transitioning tools	In general, pupils are dependent upon their teacher both during the transition phases and in connection to integrated pedagogies in general. Teacher scaffolding is needed throughout a project from the planning phase to the finishing phase and to provide support during the phases in between. There is no “one size fits all” when it comes to teacher scaffolding. Instead, the studies show that adapted scaffolding to specific situations seems to work.
Peer support	Group work Collaboration Learning from peers	Perspectives such as enjoyment, personal and social development and learning from peers are evident in the review. The composition of groups is important in order to consider learning and development for different types of pupils. Likewise, it is important to be able to communicate and work together in order to benefit from peer support.
Transition tool	A variety of IT systems IT devices	A common perspective is that IT systems/devices often aid pupils in structuring their work, helping to clarify and function as a joint memory. On the other hand, pupils’ schools are dependent on the functioning of IT systems/devises and are vulnerable towards breakdowns.

Besides creating an overview and thus answering research question 2, Table 5.2 also provides the foundation for answering research question 3.

Concerning teacher scaffolding, the synthesis indicates that this theme is the most important when it comes to supporting pupils both during the transitioning process and in general, when it comes to integrated pedagogies and playful learning. This is not surprising, but a general factor when it comes to learning in schools. The included studies show that pupils accentuate the necessity of leaning towards their teachers in all phases of their work. While pupils underline the significance of freedom related to integrated pedagogies, they also stress the need for support from their teachers across the included literature, as one study shows pupils are able to manage uncertainty, but need teacher support on how to do this (Chen, 2020). Studies report that teacher support or scaffolding needs to be adapted to the specific situation and process, e.g., during the planning phase to help ask questions, select materials and/or plan the process (Crujeiras-Pérez & Jiménez-Aleixandre, 2017; D'addato & Miller 2016). This can be connected to studies that point to the teacher as an enabler of pupils voices and ideas (Fielding-Wells et al., 2017; Chen, 2020). Section 4.2 of the synthesis shows that pupils require teacher scaffolding both during the transition period and in general in relation to integrated pedagogies and playful learning. It can be hard to strike the right balance between insufficient, sufficient and overbearing scaffolding and this might depend on the composition of pupils and the specific project or type of integrated pedagogies in hand. In Section 5.3, we return to the question of the needs of different groups of pupils.

In general, peer support is a collaboration between pupils where they help each other by solving different tasks. Peer support is often used in relation to inclusive teaching, where pupils

with special needs are included in the general classroom. In this case, pupils refer to collaboration, help and social relations among themselves as important and helpful when working with integrated pedagogies or playful learning. According to pupils, it can be easier to ask one of their peers than their teachers both as a consequence of access and non-judgmental assistance when they do not understand the teachers' directions (Bradley, 2018; Johnson & Cuevas, 2016; Fielding-Wells et al., 2017). Neokleous (2019) reports on how pupils that define themselves as very shy enjoy the different types of interactions in school as provided for them by group work (Neokleous, 2019).

Across studies, pupils experience that using technology as a transition tool is helpful yet connected to difficulties. As an example, a technology tool can serve as a guide to pupils (Kerawalla et al., 2013) and technology can also improve pupil motivation and engagement concerning a specific task (Clark, 2013). Pupils in the included studies also point to challenges related to applying technology due to technical problems. The studies describe the use of a variety of different technological tools. Collectively, the studies point to how technology can support the working process among pupils, e.g., as a planning tool, a communication tool, a journal to document the process, a communication tool to support conversation and broaden pupils' understanding of each other.

It is interesting to note that technology is a mediating tool for scaffolding in the literature and the fact that specific pedagogical tools are not directly mentioned in the review might be related to the pupils' perspective that these are the starting point. Pupils may not be aware of specific pedagogical tools implemented by their teachers.

The studies included in the review often focus upon findings that allude to whether teacher scaffolding, peer support and transition tools were conditions that influenced the transition to integrated pedagogies rather than how the scaffolding was performed. Therefore, this limits the understanding of support structures and scaffolding strategies, as well as points to important areas for further research. In Section 5.4, we return to the issue of gaps in the existing literature.

5.3 How does the experience of different support structures and scaffolding strategies/practices differ across different groups of pupils, e.g. pupils from different socioeconomic or ethnic backgrounds?

Contrary to our expectations, the studies included in this review contained very few and sporadic results concerning pupil perspectives relating to how different groups of pupils experience the transition to integrated pedagogies. However, several of the studies do include results that pertain to how different groups of pupils experience the transition to integrated pedagogies in different ways, particularly how experiences differ between high achieving and low achieving pupils. These results mainly derive from general observations made by the researchers, pieced together from different data sources, such as observations, interviews with both pupils and teachers, surveys etc. Therefore, we present an overview of these results in this section, however, the presentation of these is not as rigorous as those found in the synthesis of this review as these results do not qualify for inclusion in the synthesis.

In this review, we have encountered three "aspects" of findings that relate to how different groups of pupils experience the transition to integrated pedagogies in different ways. The first of these aspects refers to the more general difference between experiences of different groups

of children. This pertains especially to the differences between low achieving and high achieving pupils. In general, studies reported that low achieving pupils experienced a high degree of positive experiences during the transition. In addition, these positive experiences seemed to be associated with approaches to learning that were practical in nature such as cooking or approaches to integrated pedagogies that contained elements with relatively high degrees of structure and guidance. Only one study investigated general differences between experiences related to the gender of pupils. However, the findings suggest that girls gained more interest in STEM subjects following a transition to integrated pedagogies.

Another aspect of the findings related to how different groups of pupils experience the transition to integrated pedagogies concerning their experience of peer support and peer collaboration during this transition. In this regard, low achieving pupils had very positive experiences of transitions to integrated pedagogies when they had the opportunity to collaborate with their high achieving peers. However, studies also found that both low achieving and high achieving pupils experienced a mutual benefit. This is most clearly exemplified in Jakobsson (2001) where "asymmetric collaborations", i.e. collaborations between low achieving and high achieving pupils are central to the study.

In an example from Jakobsson (2001) a low achieving girl, Illahija, and high achieving girl, Laura, collaborate on a problem and both improve their understanding of the problem, although in different ways and for different reasons.

> *Det är mycket tydligt att samarbetet med Laura har en positiv påverkan på Illahijas kun- skapsutveckling. Efter det femte arbetspasset talar Illahija inte mer om växthuseffekten som nedbrytning av ozonskiktet. När hon i fortsätt- ningen diskuterar växthuseffekten gör hon det utifrån föreställningen att det är gaser i atmosfären som hindrar värmen från att stråla ut,….,Illahija har alltså under detta arbetspass utvecklat sina kunskaper om från utvecklingskategori II till utvecklingskategori III. Under samarbetet blir Laura vid flera tillfällen tvungen att med egna ord försöka förklara för Illahija hur växthuseffekten egentli- gen fungerar och vad som menas med växthusgaser,…., Genom att Laura på detta sätt vid flera tillfällen måste omformulera sina argument måste hon samtidigt också omstrukturera och reorganisera sina egna kunskaper så att hon kan övertyga Illahija. Detta innebär att hon trans- formerar relativt abstrakta begrepp till en för Illahija begriplig språknivå,….,Detta har i sin tur också en positiv påverkan på de egna kunskapsstrukturerna eftersom det innebär att hon samtidigt förtydligar begreppen och teorierna för sig själv. Hon måste med andra ord själv avgöra vilken kunskap som är själva kärnan för att Illahija skall förstå de grundläggande principerna vilket återigen gör att hon förtydligar begreppen för sig själv. Hon har alltså under detta arbetspass utvecklat sina kunskaper om och förståelse av problemställningen från utvecklingskategori IV till utvecklingskategori V.* (Jakobsson, 2001:217)[17].

[17] *It is very clear that the collaboration with Laura has a positive impact on Illahija's development of knowledge. After the fifth shift, Illahija no longer talks about the greenhouse effect as a depletion of the ozone layer. When she further discusses the greenhouse effect, she does so on the basis of the notion that it is gases in the atmosphere that prevent the heat from radiating,,., therefore, during this work session Illahija has developed her knowledge from development category II to development category III. During the collaboration, on several occasions, Laura had to try to explain to Illahija in her own words how the greenhouse effect actually works and what is meant by greenhouse gases,…. and reorganise her own knowledge so that she can convince Illahija. This means that she transforms relatively abstract concepts into a language level that is comprehensible to Illahija,…. This, in turn, also has a positive effect on her own knowledge structures because it means that she simultaneously clarifies the concepts and theories for herself . In other words, she must decide for herself which knowledge is key to Illahija understanding the basic principles, which, in turn, makes her clarify the concepts for herself. During this work session, she has thus developed her knowledge and understanding of the problem from development category IV to development category V.*

Thus, in the above example, a low achieving pupil improved through peer-to-peer teaching by a high achieving classmate. However, the high achieving pupil also improved through the peer-to-peer teaching. Given that the high achieving pupil had to reformulate and convey knowledge to the low achieving pupil, the high achieving pupil needed to master the knowledge that was being conveyed. Therefore, in order to effectively convey knowledge, the high achieving pupil had to move up to the next level of knowledge and thereby also experienced a benefit in terms of knowledge.

The last aspect of these findings concerns the prior academic proficiency that pupils have when beginning the transition to integrated pedagogies. While only a few studies included findings on this aspect, these were quite consistent. Therefore the findings all suggested that pupils with higher levels of prior academic proficiency generally experienced less challenges during the transition to integrated pedagogies. While the studies are less consistent regarding why prior academic proficiency may ease the transition, one may contrast this finding with those from other studies that point to low achieving pupils benefiting from structured activities. While low achieving pupils benefit from structured activities, one may imagine that pupils with higher levels of prior academic proficiency can more naturally navigate in learning environments that demand more pupil autonomy. Another possible explanation is that pupils with high prior levels of academic proficiency may enter the transition to integrated pedagogies with some subject matter knowledge. For example, in projects concerning aquatic animals, pupils with higher levels of prior academic proficiency may already have some rudimentary knowledge on aquatic animals. If this is the case, during the transition to integrated pedagogies, these pupils would be able to focus more on adjusting to integrated pedagogies than pupils without such prior subject matter knowledge.

It is important to note that these results concern the child's perspective. As such, one should be careful to interpret the results presented above as representative of how high achieving and low achieving pupils experience the transition to integrated pedagogies differently as these results do not derive from the pupils' own perspective. However, these results may be indicative of the challenges and opportunities that arise when implementing integrated pedagogies in contexts that include pupils with different levels of academic achievement. Furthermore, these results may inform further research regarding how different groups of pupils experience the transition to integrated pedagogies differently.

5.4 What are the gaps in the existing knowledge on the transition to integrated pedagogies that future research should seek to address?

The final research question for the review addresses the gaps in existing knowledge on pupils' experiences with transitioning to integrated pedagogies in order to set a possible direction for future studies and to inform implementation of integrated pedagogies and playful learning in school settings. Based upon the synthesis and the discussion, we identified five main themes, that are relevant to address in future research. We identified gaps in the literature concerning:

- Pupils' perspectives on the transition process from one type of pedagogy to another
- The effective mechanisms of especially teacher scaffolding but also peer support
- Different responses to integrated pedagogy from different types of pupils
- Transition tools – e.g. technology and pedagogical tools
- Playful learning in relation to specific school subjects and across subjects.

First of all, studies are scarce when it comes to focusing on the transition process, particularly from a pupil perspective. Only a minority of the included studies in the review directly mention the transition process and/or ask pupils about their experiences with transitioning from one pedagogy to another. A direct focus on pupils' experiences during the transition process would therefore be a relevant addition to the knowledge on pupils' perspectives concerning integrated pedagogies and playful learning. A possible angle could be a focus upon (possibly) differentiated experiences and perspectives among different age groups of pupils. This could be an important addition to the literature, as studies in a Danish context show differences in experiences e.g., concerning outdoor schooling and movement in schools among pupils (Grøn and Ladekjær, 2017; Ladekjær et al., 2019).

Secondly, the review identified a relatively large amount of knowledge on the significance of teacher scaffolding and peer support alike, but the knowledge was not directly related to the transition process. The review clearly points to the significance of teacher scaffolding in particular. Specifically, how to plan and implement teacher scaffolding in relation to pupils' experiences is not evident in the included literature. Therefore, knowledge on the effective mechanisms could be an important addition to the knowledge on integrated pedagogies. Similarly, for peer support, the knowledge presented in the review is not a central focus point for the included studies. Again, more specific knowledge, for example, about different types of peer support in connection with playful learning could be an interesting addition.

Thirdly, while several studies included sections on how high achieving and low achieving pupils experienced the transition to integrated pedagogies differently, these results all pertained to general observations made by researchers or perspectives of teachers. As such, we did not identify any studies that addressed how high achieving and low achieving pupils experience the transition to integrated pedagogies from the pupil's perspective. Furthermore, contrary to our expectations there were very few examples of studies investigating how factors such as gender, ethnicity or SES status impacted the transition to integrated pedagogies. As such, there is a lack of studies from a pupil perspective in scholarly literature that address how different groups of pupils experience the transition to integrated pedagogies. Therefore, while the studies in this review indicate that high achieving and low achieving students experience the transition to integrated pedagogies differently, we do not know if these differences in experience would follow similar patterns in studies that approach this question from a child perspective. As such, further research investigating how high achieving and low achieving pupils experience the transition to integrated pedagogies differently could use the findings presented in this review to guide further studies. In addition, future studies may investigate whether results derived from the child perspective corroborate the results presented here, which mainly derive from a researcher and teacher perspective.

Fourthly, we also want to comment on conditions affecting the transition and technology as a transition tool in this section. Both could also be areas relevant for future attention. However conditions impacting the transition may be elaborated to a greater extent in literature offering an implementation perspective on integrated pedagogies and the same goes for technology as

a transition tool. Therefore, while both of these themes may be profoundly described in other strands of scholarly literature, this review suggests that they also play a substantial role in how pupils experience the transition to integrated pedagogies. As a result, future research may benefit from combining perspectives from other strands of literature on conditions for successful implementation and technological support with the perspectives on pupils experiences with transitions to integrated pedagogies that are found in the scholarly literature described in this review. Besides this it could be interesting to investigate different types of tools affecting the transition process such as different pedagogical tools.

Furthermore, the various subjects and the possibility of playful learning pedagogy in these do not appear as a research question in the review. Teachers often think practically concerning the various subjects and subject areas and this could also be a relevant area of knowledge for further research across the above-mentioned gaps in the included literature.

Moving on, it could be a relevant and important addition to the literature and as a next step after this review to combine an in-depth anthropological study among pupils at selected schools with experience in playful learning and in schools on the verge of implementing playful learning. Besides an anthropological perspective that provides in-depth descriptions and an understanding of specific experiences and processes among pupils, a survey based upon the results from the anthropological study, for the oldest half of the pupils, could supplement the anthropological study. In a Danish context, another relevant angle to include could be to compare test results among pupils in the 9th grade between comparable schools, where half apply playful learning and the other half do not; here, test scores from the national test for academic results and general thriving could be relevant. A third angle is to take a closer look at the implementation process both on a strategic level, as well as among teachers and pedagogues working with playful learning. In this context, it is important to stress that the review has not focused on this aspect and therefore cannot say where the central gaps are.

5.5 Limitations

In this review, we did not apply “double screening” when assessing the relevance of publications, i.e., we did not allocate the same set of publications to a pair of screeners, who then independently screened the set of publications. While “double screening” is considered best practice when conducting systematic reviews (Lefebvre et al., 2021), we did not apply this strategy due to resource constraints. In the absence of “double screening”, we conducted a pilot screening of titles and abstracts to ensure that members of the review team were in agreement as to when to apply the different inclusion/exclusion criteria.

We followed a similar process during the quality appraisal and descriptive coding so that each study was assessed by one of the review team members instead of being assessed independently by two review team members.

Having review members screen and code the same studies independently, while costly, is routinely applied in high-quality systematic reviews, such as those published within the Cochrane organisation to increase the validity and reproducibility, as well as to safeguard against errors, e.g., studies that are included or excluded in error (Lefebvre et al., 2021). Therefore, by not following such a procedure, the validity and reproducibility of this review may not be as high as it could have been. It is difficult, however, to assess how following the standard procedure would have affected the results of this review, if at all.

Similarly, inductive codes were not applied to the same study by two or more of the review team members. While “best practice” routines are less established for qualitative synthesis, this is a deviation from the procedure outlined by Thomas and Harden (2008) where each study was coded by multiple independent reviewers.

We only conducted quality appraisal on a sample of the included studies. Therefore, the quality appraisal conducted in this review may only serve as an indication of the overall quality of the included studies. However, it is difficult to assess how much the distribution of quality would deviate from that reported in this review had we conducted a quality appraisal on all included studies. Furthermore, the quality appraisal conducted in this review resulted but and failed to be of adequate quality in another group of domains. Therefore, we argue that the studies that were not included in the sample would have to be quite different from those included in the sample in several aspects for this overall pattern to change.

The restriction on the year of publication that was applied during the literature research may seem overly restrictive. However, the distribution of years of publication for the included studies suggests that the majority of studies that were relevant for this review have been published within the last decade. This may be due to the restriction of studies conducted outside of the Nordic countries published from 2010 onwards. Therefore, had we allowed studies from the other OECD countries to have been published between 2000-2009, the distribution of years of publication may have been more even. When conducting the preliminary searches for this review, we also investigated the distribution of publication years. This distribution suggested that the majority of studies had been published in the last 15 years. Therefore, we argue that, while the restriction on the years of publication may seem narrow, it is likely that we have not missed many relevant studies by applying this.

For many search strategies, a common additional source of publications is a “snowball search”, i.e., including studies that are part of previous reviews or studies that are cited by several of the studies deemed relevant in this review. Here, we have not conducted such a search, primarily due to time constraints. As a consequence, we may have omitted relevant studies.

As mentioned in Section 2.2, we excluded the terms “project-based learning” and “cooperative learning” from the search strings due large amounts of irrelevant studies and time constraints. The librarian and analyst from the research team drew a random sample of studies returned from the search on the terms “project-based learning” and “cooperative learning”. Based upon screening of title and abstract, these studies were appraised as not relevant. Therefore, we argue that the search strings were quite comprehensive and note that “project-based learning” was one of the most prevalent types of integrated pedagogy applied by the studies included in this review. Therefore, although we excluded certain search terms, this does not seem to have resulted in the complete omission of studies applying certain types of integrated pedagogies, such as “project-based learning”. However, it is still likely that some relevant studies were omitted by excluding these search terms from the search strings.

A total of 109 studies could not be obtained in their full text. Initially, we made a focused effort to obtain the studies that we deemed the most relevant. As such, 20 of the studies that were initially unobtainable, were deemed to be highly relevant and were prioritised for retrieval. Of those 20 studies, 13 could be retrieved with to the assistance of a research librarian. The remaining 109 studies could not be obtained due to time constraints. The remaining studies were not immediately available through institutional access, which meant that assistance of a research librarian and, in many cases, ordering physical copies of publications was required to obtain the remaining. Unfortunately, we could not secure the assistance of a research librarian

for all the unobtainable publications, which is why we chose to prioritise the publications we should retrieve. Furthermore, due to time constraints, we could not afford to wait for the arrival of physical copies of publications. While we may have omitted relevant studies by not retrieving all that were initially unobtainable, we argue that we have minimised the risk of omitting relevant studies by prioritising the retrieval of studies that were deemed to be the most relevant.

In this review, we have limited the synthesis to studies applying a qualitative methodology or to results from mixed methods studies that were collected and analysed using a qualitative methodology. While we initially included studies applying a quantitative methodology and extracted descriptive characteristics from these, they were omitted from the synthesis in this study. While we argue that the research questions in this review call for a qualitative synthesis, expanding the synthesis to also include studies applying a quantitative methodology could have given a more complete picture of the available evidence on transitions to integrated pedagogies. Therefore, some important findings that may only be contained in a quantitative methodology are not included in this review. However, the synthesis of quantitative studies would have been a separate synthesis in itself and the results of such a synthesis would then have to be integrated with the results of the qualitative synthesis. This would have broadened the scope of this review considerably and we therefore opted not to include a synthesis of quantitative studies, primarily due to resource constraints.

5.6 Concluding remarks

Even though a relatively small proportion of the included literature in the review directly focuses upon the transition process from 'traditional' teaching strategies to integrated pedagogies or playful learning, this review assembles pupils' perspectives and experiences of integrated pedagogies and playful learning strategies in general. Therefore, it provides a step towards further understanding what is at stake from a pupil perspective.

The discussion of findings shows that pupils generally have a positive attitude towards integrated pedagogies and playful learning. As reported in the included studies pupils enjoy experiencing alternative teaching strategies and learning in new and different ways. This is especially the case when pupils' feel they are being supported in the process. Furthermore, as identified through the review, the support and scaffolding that pupils' primarily rely on comes from their teachers. In addition to teacher scaffolding, peer support and technology provide valuable support strategies according to the literature.

The identified gaps in the existing literature reflect the synthesis and discussion of identified themes in these sources. The review points to five main areas, which could be relevant for future research:

- Pupils' perspectives on the transition process from one type of pedagogy to another
- The effective mechanisms of especially teacher scaffolding in particular, but also peer support
- Different responses to integrated pedagogy from different types of pupils
- Transition tools – e.g. technological and pedagogical tools
- Playful learning in relation to specific school subjects and across subjects.

Through the discussion of the themes identified in the synthesis through the lens of the research questions, we hope to provide the LEGO Foundation and Billund Municipality with knowledge they can incorporate and apply through joint force to implement playful learning in all public schools in Billund municipality.

References

Alemdar, M. et al. (2018) 'The impact of a middle school engineering course on students' academic achievement and non-cognitive skills', *International Journal of Education in Mathematics, Science and Technology*, 6(4), pp. 363–380.

Alfieri, L. et al. (2011) 'Does discovery-based instruction enhance learning?', *Journal of Educational Psychology*, 103(1), pp. 1–18.

Andersen, M. F. et al. (2020) 'Building bridges between school and a science center using a flipped learning framework', *Journal of Museum Education*, 45(2), pp. 200–209.

Arvidsson, T. (2015) *LEGO och NXT-programmering i teknikundervisningen*. Malmö: Malmö högskola.

Baele, L. C. (2017) *Middle school engineering problem solving using traditional vs. E-PBL module instruction*. Aurora, IL: Aurora University.

Barak, M. and Asad, K. (2012) 'Teaching image-processing concepts in junior high school: Boys' and girls' achievements and attitudes towards technology', *Research in Science & Technological Education*, 30(1), pp. 81–105.

Bartle, C. (2012) *Authentic inquiry pedagogy implemented in middle school social studies: Student and teacher perspectives*. Seattle, WA: University of Washington.

Bearman, M. and Dawson, P. (2013) 'Qualitative synthesis and systematic review in health professions education', *Medical Education*, 47(3), pp. 252–260.

Belland, B. R., Glazewski, K. D. and Richardson, J. C. (2011) 'Problem-based learning and argumentation: Testing a scaffolding framework to support middle school students' creation of evidence-based arguments', *Instructional Science*, 39(5), pp. 667–694.

Block, K. et al. (2012) 'Growing community: The impact of the Stephanie Alexander Kitchen Garden Program on the social and learning environment in primary schools', *Health Education & Behavior*, 39(4), pp. 419–432.

Bok, D. (2006) *Our underachieving colleges: A candid look at how much students learn and why they should be learning more*. Princeton: Princeton University Press.

Bolley, S. (2013) *Examining the effects of blended learning for ninth grade students who struggle with math*. Tempe, AZ: Arizona State University.

Børne- og Undervisningsministeriet (2013) *Aftale mellem regeringen (Socialdemokraterne, Radikale Venstre og Socialistisk Folkeparti), Venstre og Dansk Folkeparti om et fagligt løft af folkeskolen*. København: Børne- og Undervisningsministeriet.

Børne- og Undervisningsministeriet (2021) *Elevtal i grundskolen: Statistik om antallet af elever i grundskolen*. Available at: https://www.uvm.dk/statistik/grundskolen/elever/elevtal-i-grundskolen (Accessed: 25 May 2021).

Bradley, T. A. (2018) *Middle school students' experiences in an online problem-based learning environment*. Columbia, MD: Walden University.

Calder, N. (2013) 'Mathematics in student--centred inquiry learning: Student engagement', *Teachers and Curriculum*, 13, pp. 75–82.

Chen, Y.-C. (2020) 'Dialogic pathways to manage uncertainty for productive engagement in scientific argumentation: A longitudinal case study grounded in an ethnographic perspective', *Science & Education*, 29(2), pp. 331–375.

Christensen, P. and James, A. (eds) (2017) *Research with children: Perspectives and practices*. London: Routledge.

Çiftçi, S. and Baykan, A. A. (2013) 'Project based learning in multi-grade class', *Educational Research and Reviews*, 8(3), pp. 84–92.

Clark, K. R. (2013) *Examining the effects of the flipped model of instruction on student engagement and performance in the secondary mathematics classroom: An action research study*. Minneapolis, MN: Capella University.

Clark, L. et al. (2015) 'Creating an atmosphere for STEM literacy in the rural South through student-collected weather data', *Journal of Geoscience Education*, 63(2), pp. 105–115.

Conklin, H. G. (2014) 'Toward more joyful learning: Integrating play into frameworks of middle grades teaching', *American Educational Research Journal*, 51(6), pp. 1227–1255.

Crujeiras-Pérez, B. and Jiménez-Aleixandre, M. P. (2017) 'High school students' engagement in planning investigations: Findings from a longitudinal study in Spain', *Chemistry Education Research and Practice*, 18(1), pp. 99–112.

D'addato, T. and Miller, L. R. (2016) 'An inquiry into flipped learning in fourth grade math instruction', *Canadian Journal of Action Research*, 17(2), pp. 33–55.

DeMink-Carthew, J. and Olofson, M. W. (2020) 'Hands-joined learning as a framework for personalizing project-based learning in a middle grades classroom: An exploratory study', *RMLE Online*, 43(2), pp. 1–17.

Department of Education and Training (2016) *Victorian Early Years Learning and Development Framework (VEYLDF): For all children from birth to eight years*. Melbourne: Department of Education and Training.

Doss, K. K. (2018) 'Providing opportunities for "flow" experiences and creative problem-solving through inquiry-based instruction', *Global Education Review*, 5(1), pp. 108–122.

Duncan, K. J. (2020) 'Examining the effects of immersive game-based learning on student engagement and the development of collaboration, communication, creativity and critical thinking', *TechTrends: Linking Research & Practice to Improve Learning*, 64(3), pp. 514–524.

Ellwood, R. and Abrams, E. (2018) 'Student's social interaction in inquiry-based science education: How experiences of flow can increase motivation and achievement', *Cultural Studies of Science Education*, 13(2), pp. 395–427.

Fägerstam, E. and Grothérus, A. (2018) 'Secondary school students' experience of outdoor learning: A Swedish case study', *Education*, 138(4), pp. 378–392.

Fielding-Wells, J., O'Brien, M. and Makar, K. (2017) 'Using expectancy-value theory to explore aspects of motivation and engagement in inquiry-based learning in primary mathematics', *Mathematics Education Research Journal*, 29(2), pp. 237–254.

Freeman, S. et al. (2014) 'Active learning increases student performance in science, engineering, and mathematics', *Proceedings of the National Academy of Sciences*, 111(23), pp. 8410–8415.

Grøn, L. and Ladekjær, E. (2017) 'The Institutional Aging Process. Ethnographic Explorations of Aging Processes and Dimensions in Danish Schools and Eldercare Institutions', *Anthropology & Aging*, 38(1), pp. 1–16.

Healy, K. (2017) 'Fuck nuance', *Sociological Theory*, 35(2), pp. 118–127.

Jakobsson, A. (2001) *Elevers interaktiva lärande vid problemlösning i grupp: En processtudie*. Malmö: Institutionen för pedagogik, Lärarutbildningen.

James, A., Jenks, C. and Prout, A. (1998) *Theorizing childhood*. London: Polity Press.

Jensen, V. M. et al. (2020) *Den længere og mere varierede skoledag: En analyse af reformens elementer*. København: VIVE - Det Nationale Forsknings- og Analysecenter for Velfærd.

Johnson, S. A. and Cuevas, J. (2016) 'The effects of inquiry project-based learning on student reading motivation and student perceptions of inquiry learning processes', *Georgia Educational Researcher*, 13(1), pp. 51–85.

Kerawalla, L. et al. (2013) 'Personal inquiry learning trajectories in geography: Technological support across contexts', *Interactive Learning Environments*, 21(6), pp. 497–515.

Ladekjær, E. et al. (2019) *Ekstern evaluering af Projekt Udvikling af Udeskole*. København: VIVE - Det Nationale Forsknings- og Analysecenter for Velfærd.

Lamey Sr., J. H. (2017) *New horizons in a next generation school: A case study of rural Alabama middle school students in a transformational initiative*. Lynchburg, VA: Liberty University.

Lazonder, A. W. and Harmsen, R. (2016) 'Meta-analysis of inquiry-based learning: Effects of guidance', *Review of Educational Research*, 86(3), pp. 681–718.

Lefebvre, C. et al. (2021) 'Chapter 4: Searching for and selecting studies', in Higgins, J. et al. (eds) *Cochrane Handbook for Systematic Reviews of Interventions*. London: The Cochrane Collaboration.

Marbina, L., Church, A. and Tayler, C. (2011) *Victorian early years learning and development framework: Evidence paper. Practice principle 6: Integrated teaching and learning approaches*. Victoria: Melbourne Graduate School of Education.

Neokleous, G. (2019) 'Interpreting technologically fluent classrooms: Digital natives' attitudes towards the use of technology in primary schools in Norway', in Giannikas, C. N., Constantinou, E. K., and Papadima-Sophocleous, S. (eds) *Professional Development in CALL: A Selection of Papers*, pp. 117–129.

Nielsen, C. P. et al. (2020) *Elevernes læring, trivsel og oplevelser af undervisningen i folkeskolen: En evaluering af reformårene 2014-2018*. København: VIVE - Det Nationale Forsknings- og Analysecenter for Velfærd.

Nouri, J., Cerratto-Pargman, T. and Zetali, K. (2013) *Mobile inquiry-based learning*. Las Vegas, NV: International Conference on Human-Computer Interaction.

OHCHR (1989) *Convention on the rights of the child*. New York, NY: OHCHR.

Page, M. J. et al. (2021) 'The PRISMA 2020 statement: An updated guideline for reporting systematic reviews', *BMJ*, 372(71), pp. 1–9.

Parker, R. and Thomsen, B. S. (2019) 'Learning through play at school', *Literacy Research and Instruction*, 57(1), pp. 100–116.

Prout, A. and James, A. (1990) 'A new paradigm for the sociology of childhood', in James, A. and Prout, A. (eds) *Constructing and Reconstructing Childhood: Contemporary Issues in the Sociological Study of Childhood*. London: Falmer Press, pp. 7–32.

Scogin, S. C. et al. (2017) 'Learning by experience in a standardized testing culture: Investigation of a middle school experiential learning program', *Journal of Experiential Education*, 40(1), pp. 39–57.

Stern, C., Jordan, Z. and McArthur, A. (2014) 'Developing the review question and inclusion criteria', *AJN The American Journal of Nursing*, 114(4), pp. 53–56.

Sutton, A. J. (2009) ‘Publication bias’, in Cooper, H., Ledges, L. V, and Valentine, J. C. (eds) *The Handbook of Research Synthesis and Meta-Analysis*. New York, NY: Russell Sage Foundation, pp. 435–452.

Thomas, J. and Harden, A. (2008) ‘Methods for the thematic synthesis of qualitative research in systematic reviews’, *BMC Medical Research Methodology*, 8(1), pp. 1–10.

UNESCO (2012) *International standard classification of education: ISCED 2011*. Paris: UNESCO.

Vinesh, C. and Fisher, D. L. (2009) ‘Students’ perceptions of a blended web-based learning environment’, *Learning Environments Research*, 12(1), pp. 31–44.

Appendix 1 Central Concepts

Below is an explanation of the central concepts that guide the review and search strategy.

Pupil perspective: We apply the concept of the pupil perspective, which is a context-specific variation of the broader and more commonly applied concept of the child perspective. The concept was introduced as "the childhood paradigm" in sociology in the 1990's by James, Jenks and Prout (Prout and James, 1990; James, Jenks and Prout, 1998). In short, the background for the work of the British sociologists was an approach to children dominated by a developmental psychological perspective. Instead, James, Jenks and Prout advocate for an approach to children and childhood recognising children as agents in their own lives and childhood as a life stage juxtaposed with adulthood (James, Jenks and Prout, 1998). The childhood paradigm today permeate social sciences and researchers across research fields work with many different methods and approaches in order to give children a voice in research regarding circumstances affecting their own as well as other children's lives (Christensen and James, 2017).[18] The child perspective forms the basis for the assessment of which qualitative studies to include in the review. In this review, we apply a pupil perspective instead of a child perspective. The pupil perspective refers to the schooling context that we focus on in this particular review.

Integrated pedagogies: In this project, we use the definition provided in Parker and Thomsen (2019): *Integrated approaches are those that combine child-directed learning, teacher-guided learning, and teacher-directed learning, a balance which results in the best learning outcomes for children* (Marbina, Church and Tayler, 2011). *'Integrated teaching and learning' is also used to describe a focus on fostering a breadth of skills and knowledge including children's intellectual, physical, social, and creative abilities'* (Department of Education and Training, 2016:14).

In this project we will not limit our operationalisation of *integrated pedagogies* to the eight types integrated pedagogies described in Parker and Thomsen (2019). However, we have used those eight types of integrated pedagogies to guide our search strategy. Therefore, we expect these types of integrated pedagogies to be the most frequently featured types used in this review. If relevant studies apply a type of pedagogy that can be considered an integrated pedagogy, but not one of the eight types, these studies will be included in the review.

Classical/teacher directed pedagogies: This refers to types of pedagogy that involve situations of learning/teaching that are heavily or fully teacher-directed, e.g., typical teaching situations where the teacher conducts lessons using a blackboard and students are seated.

Transitions from classical pedagogies to integrated pedagogies: This concept covers the use of an explicit strategy for transitioning from classical pedagogies to integrated pedagogies, e.g. "phasing in" the use of integrated pedagogies by steadily increasing the number of lessons that are taught using integrated pedagogies per week until all lessons are taught by these means.

Scaffolding: Closely related to the concept of *(strategies for facilitating) transition from classical pedagogies to integrated pedagogies*, however the concept of scaffolding is related to the

[18] The sociological childhood paradigm can be seen as related to the UN convention on the Rights of the Child from 1989. The convention states that children both have the right for protection and the right to make choices for their own life (OHCHR, 1989). Thus the convention implicates a double perspective towards children and childhood, which means that we as resasearchers both have the obligation to protect children and at the same time acknowledge them as individuals, and this have significance for research involving children.

degree to which a specific transition strategy attempts to cater for the specific needs of individual students during the transition phase. For instance, the “phasing in” strategy mentioned above does not take account of the needs of individual students. Therefore, it has a low degree of scaffolding.

Thriving/Well-being: Describes the situation where students are happy and content about being in the current context of teaching/learning. In other words, in this project, we are primarily concerned with how well students thrive in the classroom rather than in other contexts, e.g., in the home and in particular, how well the student thrives in learning/teaching situations.

Learning: Describes the act by which students acquire a new skill or improve upon previously acquired skills.

Differential response to transition/facilitation strategies: This concept describes the degree to which individual students experience the transition from classical pedagogies to integrated pedagogies. While students may generally experience the transition from classical pedagogies to integrated pedagogies as positive, some students may experience the transition as more positive than the majority. Conversely, some students may experience the transition as directly negative, which may have adverse consequences for their subsequent learning and thriving.

Furthermore, while it is important to explain why the experiences of individual pupil transitioning may deviate from the general experience, we argue that it is more practical and informative to focus on systematic patterns in a differential response to transition strategies, i.e. focusing on how different groups of students (for example, students from disadvantaged social backgrounds) experience the transition from classical pedagogies to integrated pedagogies. As such, in this review, we will focus on how the experience of groups of students with certain characteristics transitioning, i.e., students from disadvantaged backgrounds, gifted students, ethnic minority students etc. differs from the general experience of transition.

Appendix 2 List of study characteristics that were extracted

- Year published
- Country
- Outlet (published/unpublished): An indicator of whether the publication was published in a peer-reviewed journal or if the publication had been published via an alternative outlet
- Name of journal or NGO, Government org. or other If unpublished
- Did the study apply a Qualitative, quantitative or mixed methods methodology?
- Method of data collection: The means by which data was collected, e.g. semi-structured interviews, video observation, survey questionnaire, administrative data etc.
- Methods of analysis: The method(s) used to analyse the collected data, e.g. constant-comparative method, thematic analysis, linear regression, ANOVA etc.
- Outcome: The main outcome of the publication, if applicable, e.g. students' perception of learning or growth after implementation of integrated pedagogies
- Subject: The school subject in which the implementation of integrated pedagogies took place, e.g. mathematics, social studies, primary language classes etc.
- Measurement of outcome: How the outcome was measured, if applicable, e.g. via standardised survey instruments or via instruments designed by the researcher
- Summary of findings: A brief summary of the main findings in the study
- Positive/negative/inconclusive finding: Whether or not the transition strategy applied in the study generally had positive or negative influence of students, or if results in the study did not warrant any such conclusion
- Group differences: A short description of how the impact of the transition strategy was different across different groups of students, e.g., students from different socio-economic backgrounds, if applicable.
- Name of integrated pedagogy: The name/type of integrated pedagogy being implemented in the study
- Name of transition-strategy: The name/type of transition strategy being investigated in the study
- Short description of transition strategy
- Context: A short description of the context of the participants, e.g. whether the study was conducted across several schools, a school district or a single classroom.
- Duration of study: The duration of the period in which the transition to integrated pedagogies was studied.

Appendix 3 Description of included studies

Title	Author(s)	Year	Methodology	Grade	Type of integrated pedagogy
Interactive Videoconferencing for Collaborative Learning at a Distance in the School of 21st Century: A Case Study in Elementary Schools in Greece	Anastasiades Panagiotes S; Filippousis George ; Karvunis Labros ; Siakas Spiros ; Tomazinakis Arsitokritos ; Giza Panagiota ; Mastoraki Hellen ;	2009	Mixed methods	6	Collaborative learning
Building Bridges between School and a Science Center Using a Flipped Learning Framework	Andersen Mette Fredslund; Levinsen Henrik ; Møller Hasse Harold; Thomsen Anders Vestergaard;	2020	Qualitative	7	Flipped classroom
Problem-based learning in the fifth, sixth, and seventh grades: Assessment of students' perceptions	Azer Samy A;	2009	Quantitative	5;6;7	Problem-based learnng
Dialogic Pathways to Manage Uncertainty for Productive Engagement in Scientific Argumentation A Longitudinal Case Study Grounded in an Ethnographic Perspective	Chen Ying-Chih ;	2020	Qualitative	4;5;6	Science Talk-Writing Heuristic (STWH)
Providing Opportunities for "Flow" Experiences and Creative Problem-Solving through Inquiry-Based Instruction	Doss Kristy Kowalske;	2018	Qualitative	8	Unclear
Secondary school students' experience of outdoor learning : A Swedish case study	Fägerstam Emilia ; Grothérus Annika ;	2018	Qualitative	7;8;9	Unclear
Inquiry-based science education: scaffolding pupils' self-directed learning in open inquiry	van Uum Martina S. J; Verhoeff Roald P; Peeters Marieke ;	2017	Qualitative	Unclear	Inquiry-based learning
Problem Solving Markov Models and Recursive Pedagogy	Abu Deeb, Fatima A	2018	Unclear	Unclear	Recursive pedagogy
Middle School Engineering Problem Solving Using Traditional vs. E-PBL Module Instruction	Baele Loren C;	2017	Mixed methods	Unclear	Unclear
A Scaffolding Framework to Support Learning of Emergent Phenomena Using Multi-Agent-Based Simulation Environments	Basu Satabdi ; Sengupta Pratim ; Biswas Gautam ;	2015	Qualitative	8	Scaffolding to support multi-agent-based computational models (MABMs)
Exploring Epistemological Approaches and Beliefs of Middle School Students in Problem-Based Learning	Belland Brian R; Gu Jiangyue ; Kim Nam Ju; Turner David Jaden; Weiss David Mark	2019	Mixed methods	7	Problem-based learning
Growing Community: The Impact of the Stephanie Alexander Kitchen Garden Program on the Social and Learning Environment in Primary Schools	Block Karen ; Gibbs Lisa ; Staiger Petra K; Gold Lisa ; Johnson Britt ; Macfarlane Susie ; Long Caroline ; Townsend Mardie	2012	Mixed methods	3;4;5;6	Structured cooking and gardening program

Title	Author(s)	Year	Methodology	Grade	Type of integrated pedagogy
Model-based teaching and learning about inheritance in third-grade science	Cisterna Dante ; Forbes Cory T; Roy Ranu	2019	Qualitative	3	Model-based teaching and learning
The Effects of Integrating LEGO Robotics Into a Mathematics Curriculum to Promote the Development of Proportional Reasoning	Casler-Failing, Shelli L.	2018	Mixed methods	7	Use of robotics
Learning outdoors or with a computer: the contribution of the learning setting to learning and to environmental perceptions	Aflalo, Ester; Revital Montin and Ayala Raviv	2019	Quantitative	3;4	Outdoor schooling; game based learning
Achieving Elusive Teacher Change through Challenging Myths about Learning: A Blended Approach	Keturah, Anderson Robin; Jo, Boaler; A, Dieckmann Jack	2018	Quantitative	5	Project-based learning
The Impact of Inquiry-Based Learning on Academic Achievement in Eight-Grade Social Studies	Bailey, Lindsay A.	2018	Mixed methods	6;7;8	Inquiry-based learning
Got Health? Action Researching a Student-led Health Promotion Program.	Stephen, Berg; Brent, Bradford; B, Robinson Daniel; Mark, Wells	2018	Qualitative	7;8;9;10;11;12	Inquiry-based learning
Mathematics in Student-Centred Inquiry Learning: Student Engagement	Calder, Nigel	2013	Qualitative	10	Inquiry-based learning
The Impact of Project-Based Learning and Direct Instruction on the Motivation and Engagement of Middle School Students	Carrabba, Colette and Aarek Farmer	2018	Quantitative	6;7;8	Project-based learning
Students' perceptions of a blended web-based learning environment	Chandra, Vinesh and Darrell L. Fisher	2009	Mixed methods	10;11;12	Blended learning
"Games are made for fun": Lessons on the effects of concept maps in the classroom use of computer games	Charsky, Dennis and William Ressler	2010	Mixed methods	9	Game-Based learning
Project based learning in multi-grade class	Çiftçi, Sabahattin	2013	Qualitative	4;5	Project-based learning
Creating an Atmosphere for STEM Literacy in the Rural South Through Student-Collected Weather Data	Clark, Lynn et al.	2018	Mixed methods	7;8	Experiental learning
Toward More Joyful Learning: Integrating Play Into Frameworks of Middle Grades Teaching	Conklin, Hilary G.	2014	Mixed methods	6;7;8	Inquiry-Based learning
Using expectancy-value theory to explore aspects of motivation and engagement in inquiry-based learning in primary mathematics	Fielding-Wells, Jill; Mia O'Brien and Katie Makar	2017	Qualitative	4;5	Inquiry-based learning
Responsive play: Creating transformative classroom	Flint, Tori K.	2020	Qualitative	1	Play-based learning

Title	Author(s)	Year	Methodology	Grade	Type of integrated pedagogy
spaces through play as a reader response					
The use of Computer-Based and Inquiry-Based Learning Activities to Differentiate Instruction for High School Chemistry	Good, R. Brian	2016	Mixed methods	8;12	Inquiry-based learning
The Effects of Inquiry Project-Based Learning on Student Reading Motivation and Student Perceptions of Inquiry Learning Processes	Johnson, Sarah A. and Josh Cuevas	2016	Quantitative	6	Inquiry-based learning
Personal inquiry learning trajectories in geography: technological support across contexts	Kerawalla, Lucinda; Littleton, Karen; Scanlon, Eileen; Jones, Ann; Gaved, Mark; Collins, Trevor; Mulholland, Paul; Blake, Canan; Clough, Gill; Conole, Gráinne; Petrou, Marilena	2011	Mixed methods	Unclear	Inquiry-based learning
Resistance and the Development of Scientific Practice: Designing the Mangle into Science Instruction	Manz, Eve	2015	Qualitative	3	Active learning
Video interaction guidance in collaborative group work: impact on primary schol pupils' self-esteem and behaviours	Musset, Matthew and Keith Topping	2017	Mixed methods	2;3;4;5;6	Problem-based learning; collaborative learning
Interpreting technologically fluent classrooms: digital natives' attitudes towards the use of technology in primary schools in Norway	Neokleous, Georgios	2019	Qualitative	10	Active learning; collaborative learning
Science in Action: How Middle School Students Are Changing Their World Through STEM Service-Learning Projects	Newman, Jane L. et al.	2014	Mixed methods	6;7;8	Problem-based learning; collaborative learning
Mobile Inquiry-Based Learning. A Study of Collaborative Scaffolding and Performance	Nouri, Jalal et al.	2013	Mixed methods	5	Inquiry-based learning
Personal Inquiry: Orchestrating Science Investigations Within and Beyond the Classroom	Sharples, Mike et al.	2014	Mixed methods	8	Inquiry-based learning
Design thinking for digital fabrication in education	Smith, Rachel Charlotte, Ole Sejer Iversen and Mikkel Hjort	2015	Qualitative	5;6;7;8;9	Project-based learning
Maker-centered Problem-Based Learning in Inclusive Classes: Supporting Students' Active Participation with Teacher-Directed Reflective Discussions	Sormunen, Kati et al.	2019	Qualitative	6	Project-based learning
High School students' engagement in planning investigations: findings from a longitudal study in Spain	Crujeiras-Pérez, B; Jiménez-Aleixandre, M. P.	2016	Qualitative	9;10	Inquiry-based learning

Title	Author(s)	Year	Methodology	Grade	Type of integrated pedagogy
Elevers interaktiva lärande vid problemlösning i grupp	Jakobsson, Anders	2001	Qualitative	8	Problem-based learning; collaborative learning
The Effect of Technology-Supported Inquiry-Based Learning in Science Education: Action Research	Unlu, Zeynep K.; Dokme, Ilbilge	2020	Mixed methods	7	Inquiry-based learning
Learning by Experience in a Standardized Testing Culture: Investigation of a Middle School Experiential Learning Program	Scogin, Stephen C. et al.	2017	Mixed methods	7	Experiental learning; problem based learning; collaborative learning
Examining the hard, peer, and teacher scaffolding framework in inquiry-based technology-enhanced learning environments: impact on academic achievement and group performance	Shin, Suhkyung et al.	2020	Mixed methods	9	Inquiry-based learning
The Impact of a Middle School Engineering Course on Students' Academic Achievement and Non-Cognitive Skills	Alemdar, Meltem et al.	2017	Mixed methods	6;7;8	Problem-based learning
Problembasert læring, matematikk og IKT: Gjør det noen forskjell om elevene lager fysiske eller virtuelle modelleiligheter?	Bock, Helge	2008	Mixed methods	5;6;7	Problem-based learning
New Horizon in a Next Generation School: A Case Study of Rural Alabama Middle School Students in Transformational Initiative	Lamey Sr., Jack Harley	2017	Qualitative	8	Blended learning
Teacher and student reflections on ICT-rich science inquiry	Williams, P. John; Otrell-Cass, Kathrin	2016	Qualitative	9;10	Inquiry-based learning
LEGO och NXT-programmering i teknikundervisningen	Arvidsson Tatiana	2015	Mixed methods	9	Green City – LEGO NXT
Teaching Image-Processing Concepts in Junior High School: Boys' and Girls' Achievements and Attitudes towards Technology	Barak Moshe ; Asad Khaled	2012	Mixed methods	9	Project based learning
Authentic Inquiry Pedagogy Implemented in Middle School Social Studies: Student and Teacher Perspectives	Bartle Corey	2012	Mixed methods	7	Inquiry-based learning
Problem-based learning and argumentation: testing a scaffolding framework to support middle school students' creation of evidence-based arguments	Belland Brian R; Glazewski Krista D; Richardson Jennifer C;	2010	Mixed methods	7	Problem based learning
Examining the effects of blended learning for ninth grade students who struggle with math	Bolley Staci	2013	Mixed methods	9;10;11;12	Innovative learning intervention

Title	Author(s)	Year	Methodology	Grade	Type of integrated pedagogy
Middle School Students' Experiences in an Online Problem-Based Learning Environment	Bradley, Teri A	2018	Qualitative	6;8	Problem-based learning
Association of Education Outside the Classroom and Pupils' Psychosocial Well-Being: Results From a School Year Implementation	Bølling Mads ; Niclasen Janni ; Bentsen Peter ; Nielsen Glen ;	2019	Quantitative	3;4;5;6	Outdoor schooling
Examining the Effects of the Flipped Model of Instruction on Student Engagement and Performance in the Secondary Mathematics Classroom: An Action Research Study	Clark Kevin R	2013	Mixed methods	9;10	Flipped classroom
An inquiry into flipped learning in fourth grade math instruction	D'addato Teresa ; Miller Libbi R;	2016	Mixed methods	4	Flipped classroom
Hands-Joined Learning as a Framework for Personalizing Project-Based Learning in a Middle Grades Classroom: An Exploratory Study	DeMink-Carthew Jessica ; Olofson Mark W;	2020	Mixed methods	7;8	Project based learning
Examining the Effects of Immersive Game-Based Learning on Student Engagement and the Development of Collaboration, Communication, Creativity and Critical Thinking	Duncan Keri J	2020	Mixed methods	3	Game based learning
Promoting lower secondary students' critical thinking by Socio-Scientific Inquiry-Based Learning in chemistry education	Mei S	2019	Mixed methods	9;10	Inquiry-based learning
Commercially available Digital Game Technology in the Classroom: Improving Automaticity in Mental-maths in Primary-aged Students	O'Rourke John ; Main Susan ; Hill Susan M	2017	Mixed methods	4;5	Game-based learning
Design principles for support in developing students' transformative inquiry skills in Webbased learning environments	Pedaste Margus ; Sarapuu Tago	2014	Quantitative	6	Inquiry-based learning
Effects of an inquiry-focused school improvement program on the development of pupils' attitudes towards curiosity, their implicit ability and effort beliefs, and goal orientations	Post Tim ; van der Molen Juliette H. Walma	2020	Quantitative	4;5;6	Inquiry-based learning

Appendix 4 Search documentation

Data bases searched	Interface	Find	Date of search
Netpunkt/DanBib (Danish library data bases)	Internet	117	15.02.2021
Den Danske Forskningsbase	Internet	116	15.02.2021
ORIA/BibSys (Norwegian library data bases)	Internet	151	16.02.2021
NORA (Norwegian Open Research Archives)	Internet	22	16.02.2021
LIBRIS (Swedish library data bases)	Internet	180	16.02.2021
SWEPUB (Swedish research data base)	Internet	166	16.02.2021
Juulii (Finish research data base)	Internet	19	16.02.2021
ERIC (international)	EBSCO	1195	17.02.2021
Teacher Reference Center (International)	EBSCO	108	17.02.2021
PsycINFO	EBSCO	137	17.02.2021
SocIndex	EBSCO	17	17.02.2021
Academic Search Premium (international)	EBSCO	304	17.02.2021
EconLit	EBSCO	42	17.02.2021
ProQuest Dissertation & Thesis	ProQuest	116	17.02.2021
Web of Science (international) – Social Science Citation Index	Clarivyte	187	17.02.2021
Web pages:			
Campbell Collaboration (International): https://www.campbellcollaboration.org/library.html	Education	2	18.02.2021
NIFU (Nordisk) https://www.nifu.no/publikasjoner/	Menupunkt Grunnopplæring	5	18.02.2021
EVA: https://www.eva.dk/	Browsed through publications	0	18.02.2021
Dansk ClearingHouse for uddannelsesforskning https://dpu.au.dk/forskning/danskclearinghouseforuddannelsesforskning/ (lukket 2019)	Browsed through publications	0	18.02.2021
Evalueringsportalen (Norge): https://evalueringsportalen.no/	"Læring" i menupunktet Utdan-ning og Forskning	1	19.02.2021
Skolverket (Sverige): https://www.skolverket.se/om-oss/publikationer-och-nyhetsbrev/sok-publikationer	Lärande OG menupunkt "grundskoleutbilning"	0	19.02.2021
Utdanningsdirektoratet (Norge): https://www.udir.no	Brødkrummespor: Lærning og trivsel – Tilpasset opplæring	1	19.02.2021
European Educational Research Association (http://www.eera-ecer.de/)	Publications	0	19.02.2021
Education Endowment Foundation https://educationendowmentfoundation.org.uk/projects-and-evaluation/reports/	Gennemgået liste med projekter	14	19.02.2021
What Works Clearinghouse – U.S. Department of Education (whatworks.ed.gov)	Menupunkt: K-12 Inkl. evidens WWC	8	19.02.2021

Netpunkt

Search Strand 1:

("Aktiv læring" OR "aktiv indlæring" OR ("fysisk aktivitet" AND (integreret OR integration OR indbygge*)) OR "læring gennem leg" OR "indlæring gennem leg" OR legelab* OR legepædagogik* OR "legende indlæring" OR "legende læring" OR (leg AND (integreret OR integration OR indbygge*)) OR (bevægelse* AND (integreret OR integration OR indbygge*)) OR anskuelighedsundervisning OR undersøgelsespædagogik* OR "undersøgelsesbaseret læring" OR "undersøgelsesbaseret indlæring" OR (discovery AND (læring OR indlæring OR undervis* OR integreret OR integration OR indbygge* OR pædagogik*)) OR "læring gennem undersøgelse" OR "problembaseret læring" OR "problembaseret pædagogik" OR "problembaseret indlæring" OR montessori* OR elevledet OR elevstyret OR "integreret pædagogik" OR "integrerede pædagogikker" OR lego) AND (børn* OR skole* OR folkeskole* OR grundskole* OR privatskole* OR skoleklasse* OR børnehaveklasse* OR nærskole* OR lilleskole* OR klasse* OR elev* OR skoleelev* OR skolebarn* OR skolebørn*) AND facet.level="fagligt niveau" AND (facet.type="bog" OR facet.type="tidsskriftsartikel" OR facet.type="ebog") AND (facet.language="dansk" OR facet.language="engelsk") AND (facet.date="2015" OR facet.date="2014" OR facet.date="2013" OR facet.date="2019" OR facet.date="2017" OR facet.date="2020" OR facet.date="2010" OR facet.date="2016" OR facet.date="2001" OR facet.date="2011" OR facet.date="2012" OR facet.date="2018" OR facet.date="2009" OR facet.date="2008" OR facet.date="2002" OR facet.date="2007" OR facet.date="2005" OR facet.date="2003" OR facet.date="2000" OR facet.date="2021")

Search Strand 2:

(("Active learning" OR "blended learning" OR (learning AND "physical activity") OR "physical activity integration" OR Learning-through-PLAY OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)) AND ((school* OR preschool OR pre-school OR pupil* OR "school child" OR "school children" OR student* OR classroom* OR "kindergarten class" OR "kindergarten classes" OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10")) AND facet.type="bog" AND (facet.language="engelsk" OR facet.language="dansk" OR facet.language="norsk" OR facet.language="svensk") AND (facet.date="2020" OR facet.date="2019" OR facet.date="2018" OR facet.date="2015" OR facet.date="2014" OR facet.date="2017" OR facet.date="2021" OR facet.date="2016" OR facet.date="2012" OR facet.date="2011" OR facet.date="2013" OR facet.date="2010" OR facet.date="2009" OR facet.date="2008" OR facet.date="2007" OR facet.date="2006" OR facet.date="2005" OR facet.date="2004" OR facet.date="2003" OR

facet.date="2002" OR facet.date="2001" OR facet.date="2022" OR facet.date="2000") AND facet.level="fagligt niveau"

Forskningsdatabasen (Danish Research Database)

Search Strand 1:

("Aktiv læring" OR "aktiv indlæring" OR ("fysisk aktivitet" AND (integreret OR integration OR indbygge*)) OR "læring gennem leg" OR "indlæring gennem leg" OR legelab* OR legepædagogik* OR "legende indlæring" OR "legende læring" OR "legebaseret læring" OR (leg AND (integreret OR integration OR indbygge*)) OR (bevægelse* AND (integreret OR integration OR indbygge*)) OR anskuelighedsundervisning OR undersøgelsespædagogik* OR "undersøgelsesbaseret læring" OR "undersøgelsesbaseret indlæring" OR (discovery AND (læring OR indlæring OR undervis* OR integreret OR integration OR indbygge* OR pædagogik*)) OR "læring gennem undersøgelse" OR "problembaseret læring" OR "problembaseret pædagogik" OR "problembaseret indlæring" OR montessori* OR elevledet OR elevstyret OR "integreret pædagogik" OR "integrerede pædagogikker" OR lego) AND (børn* OR skole* OR folkeskole* OR grundskole* OR privatskole* OR skoleklasse* OR børnehaveklasse* OR nærskole* OR lilleskole* OR klasse* OR elev* OR skoleelev* OR skolebarn* OR skolebørn*)

Search Strand 2:

("Active learning" OR "blended learning" OR (learning AND "physical activity") OR "physical activity integration" OR Learning-through-PLAY OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) AND (school* OR preschool OR pre-school OR pupil* OR "school child" OR "school children" OR student* OR classroom* OR "kindergarten class" OR "kindergarten classes" OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10")

Limitation: Publications; 2000-2021

Libris

Search Strand 1:

(("aktiv lärande" OR "aktiverande inlärning" OR "aktiverande lärning" OR "aktiv inlärning" OR "aktiverande lärande" OR "lekande lärning" OR "lekande inlärning" OR "lekande lärande" OR ("fysisk aktivitet" AND (integrerad* OR integration OR inbyggd*)) OR (lek AND lärande) OR "inlärning genom lek" OR "lärning genom lek" OR leklab* OR "lekpedagogik*" OR "integrerad lek" OR "lek integrerad" OR "integrerad rörelse" OR "rörelse integrerad" OR "undersöknings-baserad lärande" OR "undersökningsbaserad inlärning" OR undersökningspedagogik* (discovery AND (lärning OR inlärning OR lärande OR undervis* OR integrerad* OR integration OR inbyggd*)) OR "problembaserad lärande" OR "problembaserad inlärning" OR "problembaserad pedagogik" OR montessori* OR "elevstyrt" OR "integrerad pedagogik" OR "integrerade pedagogikker" OR lego)) AND (skol* OR grundskol* OR förskoleklass* OR privatskol* OR närskol* OR skoleklass* OR klass* OR elev* OR skolelev* OR skolbarn* OR skolpöjk* OR skolflick* OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10") AND (ÅR:2000 OR ÅR:2001 OR ÅR:2002 OR ÅR:2003 OR ÅR:2004 OR ÅR:2005 OR ÅR:2006 OR ÅR:2007 OR ÅR:2008 OR ÅR:2009 OR ÅR:2010 OR ÅR:2011 OR ÅR:2012 OR ÅR:2013 OR ÅR:2014 OR ÅR:2015 OR ÅR:2016 OR ÅR:2017 OR ÅR:2018 OR ÅR:2019 OR ÅR:2020 OR ÅR:2021)

Search Strand 2:

(("Active learning" OR "blended learning" OR (learning AND "physical activity") OR "physical activity integration" OR Learning-through-PLAY OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) AND (school* OR preschool OR pre-school OR pupil* OR "school child" OR "school children" OR student* OR classroom* OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10") AND (ÅR:2000 OR ÅR:2001 OR ÅR:2002 OR ÅR:2003 OR ÅR:2004 OR ÅR:2005 OR ÅR:2006 OR ÅR:2007 OR ÅR:2008 OR ÅR:2009 OR ÅR:2010 OR ÅR:2011 OR ÅR:2012 OR ÅR:2013 OR ÅR:2014 OR ÅR:2015 OR ÅR:2016 OR ÅR:2017 OR ÅR:2018 OR ÅR:2019 OR ÅR:2020 OR ÅR:2021)) NOT (universit* OR college* OR "higher education" OR "medical education" OR "engineering education")

SwePub

Search Strand 1:

(("aktiv lärande" OR "aktiverande inlärning" OR "aktiverande lärning" OR "aktiv inlärning" OR "aktiverande lärande" OR "lekande lärning" OR "lekande inlärning" OR "lekande lärande" OR

("fysisk aktivitet" AND (integrerad* OR integration OR inbyggd*)) OR (lek AND lärande) OR "inlärning genom lek" OR "lärning genom lek" OR leklab* OR "lekpedagogik*" OR "integrerad lek" OR "lek integrerad" OR "integrerad rörelse" OR "rörelse integrerad" OR "undersöknings-baserad lärande" OR "undersökningsbaserad inlärning" OR undersökningspedagogik* (discovery AND (lärning OR inlärning OR lärande OR undervis* OR integrerad* OR integration OR inbyggd*)) OR "problembaserad lärande" OR "problembaserad inlärning" OR "problembaserad pedagogik" OR montessori* OR "elevstyrt" OR "integrerad pedagogik" OR "integrerade pedagogikker" OR lego)) AND (skol* OR grundskol* OR förskoleklass* OR privatskol* OR närskol* OR skoleklass* OR klass* OR elev* OR skolelev* OR skolbarn* OR skolpöjk* OR skolflick* OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10") AND (ÅR:2000 OR ÅR:2001 OR ÅR:2002 OR ÅR:2003 OR ÅR:2004 OR ÅR:2005 OR ÅR:2006 OR ÅR:2007 OR ÅR:2008 OR ÅR:2009 OR ÅR:2010 OR ÅR:2011 OR ÅR:2012 OR ÅR:2013 OR ÅR:2014 OR ÅR:2015 OR ÅR:2016 OR ÅR:2017 OR ÅR:2018 OR ÅR:2019 OR ÅR:2020 OR ÅR:2021)

Search Strand 2:

("Active learning" OR "blended learning" OR (learning AND "physical activity") OR "physical activity integration" OR Learning-through-PLAY OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) AND (school* OR preschool OR pre-school OR pupil* OR "school child" OR "school children" OR student* OR classroom* OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10") AND (ÅR:2000 OR ÅR:2001 OR ÅR:2002 OR ÅR:2003 OR ÅR:2004 OR ÅR:2005 OR ÅR:2006 OR ÅR:2007 OR ÅR:2008 OR ÅR:2009 OR ÅR:2010 OR ÅR:2011 OR ÅR:2012 OR ÅR:2013 OR ÅR:2014 OR ÅR:2015 OR ÅR:2016 OR ÅR:2017 OR ÅR:2018 OR ÅR:2019 OR ÅR:2020 OR ÅR:2021) NOT (universit* OR college* OR "higher education" OR "medical education" OR "engineering education")

ORIA

Search Strand 1

TITLE CONTAINS:

"Aktiv læring" OR "integreret fysisk aktivitet" OR "læring gjennom lek" OR lekelab* OR lekepedagogik OR "ingreret lek" OR "lekende indlæring" OR "lekende læring" OR "lekbaseret læring" OR "integreret bevegelse" OR "undersøkelsesbaseret læring" OR undersøkelsespedagogik

OR anskuelighetsundervisning OR "discovery læring" OR "discovery baseret læring" OR "problembaseret læring" OR "problembaseret pædagogik" OR montessori OR "elevledet" OR elevstyret OR "integreret pædagogik" OR "integrerede pædagogikker" OR lego

ALLE FELTER KAN INDEHOLDE:

skole* OR grunnskole* OR grundskule* OR folkeskole* OR privatskole* OR nærskolen OR førskole* OR klasse OR klassetrin OR elev OR elever OR elevers OR skoleelev OR skoleelever OR skoleelevers

Search Strand 2

("Active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-PLAY OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) AND (school* OR preschool OR pre-school OR pupil* OR "school child" OR "school children" OR student* OR classroom* OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10")

Limitation: 2000-2021

NORA

Search Strand 1

(("Aktiv læring" OR "aktiv innlæring" OR ("fysisk aktivitet" AND (integreret OR integrasjon OR innebygd*)) OR "læring gjennom lek" OR "innlæring gjennom lek" OR lekelab* OR lekepedagogik* OR (lek AND (integreret OR integrasjon OR innebygd*)) OR "lekende indlæring" OR "lekende læring" OR "lekbaseret læring" OR (bevegelse AND (integreret OR integrasjon OR innebygd*)) OR "undersøkelsesbaseret læring" OR "undersøkelsesbaseret innlæring" OR undersøkelsespedagogik* OR anskuelighetsundervisning OR (discovery AND (læring OR innlæring OR undervis* OR integreret OR integrasjon OR innebygd*)) OR "læring gjennom undersøkelse" OR "problembaseret læring" OR "problembaseret pædagogik" OR "problembaseret indlæring" OR montessori* OR "elevledet" OR elevstyret OR "integreret pædagogik" OR "integrerede pædagogikker" OR lego)) AND (skole* OR grunnskole* OR grundskule* OR folkeskole* OR privatskole* OR nærskole* OR førskole* OR skoleklasse* OR klasse* OR elev* OR skoleelev* OR skolebarn* OR skolegutt*)

Search Strand 2

("Active learning" OR "blended learning" OR (learning AND "physical activity") OR "physical activity integration" OR Learning-through-PLAY OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) AND (school* OR preschool OR pre-school OR pupil* OR "school child" OR "school children" OR student* OR classroom* OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10")

Linimation: 2000-2021

ERIC

#	Query	Limiters/Expanders	Results
S13	S11 NOT S12	Limiters - Date Published: 20000101-20210231; Publication Type: Books, Collected Works - General, Collected Works - Serials, Dissertations/Theses - Doctoral Dissertations, Dissertations/Theses - Masters Theses, Journal Articles, Multilingual/Bilingual Materials, Reports (All); Language: Danish, English, Swedish	1,195
S12	(((((((ZG "afghanistan") or (ZG "africa") or (ZG "albania") or (ZG "algeria") or (ZG "american samoa") or (ZG "angola") or (ZG "anguilla")) or ((ZG "armenia") or (ZG "aruba") or (ZG "asia") or (ZG "azerbaijan") or (ZG "bahamas") or (ZG "bahrain") or (ZG "bangladesh") or (ZG "barbados") or (ZG "belarus"))) or ((ZG "belize") or (ZG "benin") or (ZG "bermuda") or (ZG "bolivia") or (ZG "bosnia and herzegovina") or (ZG "bosnia and herzegovina (sarajevo)") or (ZG "botswana") or (ZG "brazil") or (ZG "brunei") or (ZG "bulgaria") or (ZG "burkina faso") or (ZG "burma") or (ZG "burundi"))) or ((ZG "cambodia") or (ZG "cameroon") or (ZG "chile") or (ZG "chile (santiago)"))) or ((ZG "chile (santiago)") or (ZG "china") or (ZG "china (guangzhou)") or (ZG "china (shanghai)") or (ZG "colombia") or (ZG "colombia (bogota)") or (ZG "congo") or (ZG "costa rica"))) or ((ZG "costa rica") or (ZG "cote d'ivoire") or (ZG "cuba") or (ZG "dominica") or (ZG "dominican republic") or (ZG "egypt") or (ZG "el salvador") or (ZG "ethiopia"))) or ((ZG "ethiopia"))) or ((ZG "gambia") or (ZG "ghana") or (ZG "guam") or (ZG "guatemala") or (ZG "guyana") or (ZG "haiti"))) or ((ZG "haiti") or (ZG "honduras") or (ZG "hong kong") or (ZG "india") or (ZG "indonesia"))) or ((ZG "indonesia") or (ZG "indonesia (jakarta)") or (ZG "iran") or (ZG "iran (tehran)") or (ZG "iraq") or (ZG "jamaica") or (ZG "japan"))) or ((ZG "jordan") or (ZG "kazakhstan") or (ZG "kenya") or (ZG "kenya (nairobi)") or (ZG "kosovo") or (ZG "kuwait") or (ZG "kyrgyzstan") or (ZG "laos"))) or ((ZG "lebanon") or (ZG "lesotho") or (ZG "liberia") or (ZG "libya") or (ZG "macedonia") or (ZG "madagascar") or (ZG "malawi") or (ZG "malaysia") or (ZG "malaysia (kuala lumpur)") or (ZG "maldives"))) or ((ZG "mali") or (ZG "mauritania") or (ZG "mauritius") or (ZG "mexico") or (ZG "mexico (mexico city)"))) or ((ZG "mongolia") or (ZG "montenegro") or (ZG "morocco") or (ZG "mozambique") or (ZG "namibia") or (ZG "nepal"))) or ((ZG "nicaragua") or (ZG "nigeria") or (ZG "nigeria (lagos)"))) or ((ZG "oman") or (ZG "pakistan") or (ZG "pakistan (karachi)") or (ZG "palestine") or (ZG "papua new guinea") or (ZG "paraguay"))) or ((ZG "peru") or (ZG "philippines") or (ZG "philippines (manila)") or (ZG "poland") or (ZG "puerto rico") or (ZG "qatar") or (ZG "rhodesia") or (ZG "romania") or (ZG "rwanda"))) or ((ZG "saint lucia") or (ZG "saint vincent and the grenadines") or (ZG "samoa") or (ZG "saudi arabia") or (ZG "senegal") or (ZG "serbia") or (ZG "sierra leone") or (ZG "slovenia") or (ZG "solomon islands") or (ZG "somalia") or (ZG "south america"))) or ((ZG "south america") or (ZG "south korea") or (ZG "south korea (seoul)") or (ZG "sri lanka") or (ZG "sudan") or (ZG "swaziland") or (ZG "syria") or (ZG "taiwan"))) or ((ZG "taiwan") or (ZG "taiwan (taipei)") or (ZG "tajikistan") or (ZG "tanzania"))) or ((ZG "thailand") or (ZG "thailand (bangkok)") or (ZG "timor-leste") or (ZG "togo") or (ZG "tonga") or (ZG "trinidad and tobago") or (ZG "tunisia") or (ZG "turkmenistan") or (ZG "uganda") or (ZG "united arab emirates") or (ZG "united arab emirates (abu dhabi)"))) or ((ZG "uruguay") or (ZG "ussr") or (ZG "uzbekistan") or (ZG "vanuatu") or (ZG "venezuela") or (ZG "vietnam") or (ZG "virgin islands"))) or ((ZG "yemen") or (ZG "zambia") or (ZG "zimbabwe"))		105,222

#	Query	Limiters/Expanders	Results
S11	S9 AND S10		1,482
S10	(DE "Organizational Change" OR DE "Educational Change" OR DE "Change Strategies" OR DE "Program Development" OR DE "Innovation" OR DE "Program Implementation" OR DE "Program Effectiveness" OR DE "Program Evaluation" OR DE "Transitional Programs" OR DE "Academic Support Services" OR DE "Individualized Transition Plans" OR DE "scaffolding (teaching technique)") OR (TI (change* OR shift* OR development OR Innovation*)) OR (transition* OR implement* OR initiation OR start-up OR starting-up OR adapt* OR scaffold* OR facilitat* OR framework* OR structural change* OR structural development OR transform* OR reform* OR balanc*)		630,500
S9	S7 AND S8		2,734
S8	EL (elementary school* OR elementary level* OR elementary education OR primary school* OR preschool* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10") OR DE "Elementary School Students" OR DE "Middle School Students"		176,439
S7	S3 AND S6		19,455
S6	S4 OR S5		420,606
S5	((child* OR pupil* OR schoolchild* OR school child* OR student* OR participant* OR learning OR project*) N3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR wellbeing OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*))		417,131
S4	DE "Student Satisfaction" OR DE "Learner engagement" OR DE "Student motivation" OR DE "Student attitudes" OR DE "Student reaction" OR "Student Experience" OR DE "Student surveys" OR DE "Student Empowerment" OR DE "Learning motivation"		159,602
S3	S1 OR S2		39,521
S2	TI ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) OR SU ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)		39,521

#	Query	Limiters/Expanders	Results
S1	DE "Active learning" OR DE "Discovery Education" OR DE "Experiential Learning" OR DE "Educational Games"		26,393

Teacher Reference Center

#	Query	Limiters/Expanders	Results
S13	S11 NOT S12	Limiters - Published Date: 20000101-20210231	108
S12	(((((((ZG "afghanistan") or (ZG "africa") or (ZG "albania") or (ZG "algeria") or (ZG "american samoa") or (ZG "angola") or (ZG "anguilla")) or ((ZG "armenia") or (ZG "aruba") or (ZG "asia") or (ZG "azerbaijan") or (ZG "bahamas") or (ZG "bahrain") or (ZG "bangladesh") or (ZG "barbados") or (ZG "belarus"))) or ((ZG "belize") or (ZG "benin") or (ZG "bermuda") or (ZG "bolivia") or (ZG "bosnia and herzegovina") or (ZG "bosnia and herzegovina (sarajevo)") or (ZG "botswana") or (ZG "brazil") or (ZG "brunei") or (ZG "bulgaria") or (ZG "burkina faso") or (ZG "burma") or (ZG "burundi"))) or ((ZG "cambodia") or (ZG "cameroon") or (ZG "chile") or (ZG "chile (santiago)"))) or ((ZG "chile (santiago)") or (ZG "china") or (ZG "china (guangzhou)") or (ZG "china (shanghai)") or (ZG "colombia") or (ZG "colombia (bogota)") or (ZG "congo") or (ZG "costa rica"))) or ((ZG "costa rica") or (ZG "cote d'ivoire") or (ZG "cuba") or (ZG "dominica") or (ZG "dominican republic") or (ZG "egypt") or (ZG "el salvador") or (ZG "ethiopia"))) or ((ZG "ethiopia"))) or ((ZG "gambia") or (ZG "ghana") or (ZG "guam") or (ZG "guatemala") or (ZG "guyana") or (ZG "haiti"))) or ((ZG "haiti") or (ZG "honduras") or (ZG "hong kong") or (ZG "india") or (ZG "indonesia"))) or ((ZG "indonesia") or (ZG "indonesia (jakarta)") or (ZG "iran") or (ZG "iran (tehran)") or (ZG "iraq") or (ZG "jamaica") or (ZG "japan"))) or ((ZG "jordan") or (ZG "kazakhstan") or (ZG "kenya") or (ZG "kenya (nairobi)") or (ZG "kosovo") or (ZG "kuwait") or (ZG "kyrgyzstan") or (ZG "laos"))) or ((ZG "lebanon") or (ZG "lesotho") or (ZG "liberia") or (ZG "libya") or (ZG "macedonia") or (ZG "madagascar") or (ZG "malawi") or (ZG "malaysia") or (ZG "malaysia (kuala lumpur)") or (ZG "maldives"))) or ((ZG "mali") or (ZG "mauritania") or (ZG "mauritius") or (ZG "mexico") or (ZG "mexico (mexico city)"))) or ((ZG "mongolia") or (ZG "montenegro") or (ZG "morocco") or (ZG "mozambique") or (ZG "namibia") or (ZG "nepal"))) or ((ZG "nicaragua") or (ZG "nigeria") or (ZG "nigeria (lagos)"))) or ((ZG "oman") or (ZG "pakistan") or (ZG "pakistan (karachi)") or (ZG "palestine") or (ZG "papua new guinea") or (ZG "paraguay"))) or ((ZG "peru") or (ZG "philippines") or (ZG "philippines (manila)") or (ZG "poland") or (ZG "puerto rico") or (ZG "qatar") or (ZG "rhodesia") or (ZG "romania") or (ZG "rwanda"))) or ((ZG "saint lucia") or (ZG "saint vincent and the grenadines") or (ZG "samoa") or (ZG "saudi arabia") or (ZG "senegal") or (ZG "serbia") or (ZG "sierra leone") or (ZG "slovenia") or (ZG "solomon islands") or (ZG "somalia") or (ZG "south america"))) or ((ZG "south america") or (ZG "south korea") or (ZG "south korea (seoul)") or (ZG "sri lanka") or (ZG "sudan") or (ZG "swaziland") or (ZG "syria") or (ZG "taiwan"))) or ((ZG "taiwan") or (ZG "taiwan (taipei)") or (ZG "tajikistan") or (ZG "tanzania"))) or ((ZG "thailand") or (ZG "thailand (bangkok)") or (ZG "timor-leste") or (ZG "togo") or (ZG "tonga") or (ZG "trinidad and tobago") or (ZG "tunisia") or (ZG "turkmenistan") or (ZG "uganda") or (ZG "united arab emirates") or (ZG "united arab emirates (abu dhabi)"))) or ((ZG "uruguay") or (ZG "ussr") or (ZG "uzbekistan") or (ZG "vanuatu") or (ZG "venezuela") or (ZG "vietnam") or (ZG "virgin islands"))) or ((ZG "yemen") or (ZG "zambia") or (ZG "zimbabwe"))		19,547
S11	S9 AND S10		114
S10	(DE "Organizational Change" OR DE "Educational Change" OR DE "Change Strategies" OR DE "Program Development" OR DE "Innovation" OR DE "Program Implementation" OR DE "Program Effectiveness" OR DE "Program Evaluation" OR DE "Transitional Programs" OR DE "Academic Support Services" OR DE "Individualized Transition Plans" OR DE "scaffolding (teaching technique)") OR (TI (change* OR shift* OR development OR Innovation*)) OR (transition* OR implement* OR initiation OR start-up OR starting-up OR adapt* OR scaffold* OR		99,280

#	Query	Limiters/Expanders	Results
	facilitat* OR framework* OR structural change* OR structural development OR transform* OR reform* OR balanc*)		
S9	S7 AND S8		351
S8	SU "School Children" OR elementary school* OR elementary level* OR elementary education OR primary school* OR pre-school* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade*" OR "2nd grade*" OR "3rd grade*" OR "4th grade*" OR "5th grade*" OR "6th grade*" OR "7th grade*" OR "8th grade*" OR "9th grade*" OR "10th grade*"		125,074
S7	S3 AND S6		2,859
S6	S4 OR S5		82,256
S5	((child* OR pupil* OR schoolchild* OR school child* OR student* OR participant* OR learning OR project*) N3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR wellbeing OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*))		82,256
S4	SU "Student Satisfaction" OR SU "Student Engagement" OR SU "Learner engagement" OR SU "Student motivation" OR SU "Student attitudes" OR SU "Student reaction" OR "Student Experience" OR SU "Student surveys" OR SU "Student Empowerment" OR SU "Learning motivation"		8,546
S3	S1 OR S2		6,069
S2	TI ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) OR SU ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)		5,967
S1	SU "Active learning" OR SU "Discovery Education" OR SU "Experiential Learning" OR SU "Blended Learning" OR SU "Problem-based Learning" OR SU "Educational Games"		4,688

PsycINFO

#	Query	Limiters/Expanders	Results
S12	S10 AND S11	Limiters - Publication Year: 2000-2021; Language: Danish, English, Norwegian, Swedish; Document Type: Chapter, Dissertation, Erratum/Correction, Journal Article	137
S11	(ZY "Scandinavian and nordic countries") OR (ZY "Europe") OR (ZY "Western Europe") OR (ZY "Denmark") OR (ZY "Norway") OR (ZY "Sweden") OR (ZY "Iceland") OR (ZY "Finland") OR (ZY "France") OR (ZY "Belgium") OR (ZY "Spain") OR (ZY "Austria") OR (ZY "Germany+") OR (ZY "Iceland") OR (ZY "Ireland") OR (ZY "Luxembourg") OR (ZY "Malta") OR (ZY "Netherlands") OR (ZY "Portugal") OR (ZY "Switzerland") OR (ZY "United Kingdom") OR (ZY "England") OR (ZY "Scotland") OR (ZY "Wales") OR (ZY "US") OR (ZY "Canada") OR (ZY "North America") OR (ZY "Australia") OR (ZY "New Zealand") OR (ZY "Northern Ireland") OR (SU "Scandinavian and nordic countries") OR (SU "Europe") OR (SU "Western Europe") OR (SU "Denmark") OR (SU "Norway") OR (SU "Sweden") OR (SU "Iceland") OR (SU "Finland") OR (SU "France") OR (SU "Belgium") OR (SU "Spain") OR (SU "Austria") OR (SU "Germany+") OR (SU "Iceland") OR (SU "Ireland") OR (SU "Luxembourg") OR (SU "Malta") OR (SU "Netherlands") OR (SU "Portugal") OR (SU "Switzerland") OR (SU "United Kingdom") OR (SU "England") OR (SU "Scotland") OR (SU "Wales") OR (SU "US") OR (SU "Canada") OR (SU "North America") OR (SU "Australia") OR (SU "New Zealand") OR (ZY "Northern Ireland")		1,158,182
S10	S8 AND S9		483
S9	(SU "Organizational Change" OR SU "Social Change" OR SU "Change Strategies" OR SU "Readiness to Change" OR SU "Educational Program Evaluation" OR SU "Program Development" OR SU "Educational Program Planning" OR SU "Educational Reform" OR SU "Innovation" OR SU "Program Implementation" OR SU "Program Effectiveness" OR SU "Program Evaluation" OR SU "Transition Planning" OR SU "Scaffolding") OR (TI (change* OR shift* OR development OR Innovation*)) OR (transition* OR implement* OR initiation OR start-up OR starting-up OR adapt* OR scaffold* OR facilitat* OR framework* OR structural change* OR structural development OR transform* OR reform* OR balanc*)		1,103,503
S8	S3 AND S6 AND S7		996
S7	(DE "School learning" OR elementary school* OR elementary level* OR elementary education OR primary school* OR preschool* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade*" OR "2nd grade*" OR "3rd grade*" OR "4th grade*" OR "5th grade*" OR "6th grade*" OR "7th grade*" OR "8th grade*" OR "9th grade*" OR "10th grade*")		276,334
S6	S4 OR S5		1,753,056
S5	((child* OR pupil* OR schoolchild* OR school child* OR student* OR participant* OR learning OR project*) N3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR wellbeing OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire*		1,753,054

#	Query	Limiters/Expanders	Results
	OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*))		
S4	SU "Student Satisfaction" OR SU "Learner engagement" OR SU "Student motivation" OR SU "Student attitudes" OR SU "Student reaction" OR "Student Experience" OR SU "Student surveys" OR SU "Student Empowerment" OR SU "Learning motivation"		46,058
S3	S1 OR S2		8,136
S2	TI ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) OR SU ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)		8,132
S1	SU "Active learning" OR SU "Discovery Education" OR SU "Experiential Learning" OR SU "Blended Learning" OR SU "Problem-based Learning" OR SU "Educational Games"		6,352

Academic Search

#	Query	Limiters/Expanders	Results
S12	S10 NOT S11	Limiters - Published Date: 20000101-20210231; Language: English, Norwegian	304
S11	(((((((ZG "afghanistan") or (ZG "africa") or (ZG "albania") or (ZG "algeria") or (ZG "american samoa") or (ZG "angola") or (ZG "anguilla")) or ((ZG "armenia") or (ZG "aruba") or (ZG "asia") or (ZG "azerbaijan") or (ZG "bahamas") or (ZG "bahrain") or (ZG "bangladesh") or (ZG "barbados") or (ZG "belarus"))) or ((ZG "belize") or (ZG "benin") or (ZG "bermuda") or (ZG "bolivia") or (ZG "bosnia and herzegovina") or (ZG "bosnia and herzegovina (sarajevo)") or (ZG "botswana") or (ZG "brazil") or (ZG "brunei") or (ZG "bulgaria") or (ZG "burkina faso") or (ZG "burma") or (ZG "burundi"))) or ((ZG "cambodia") or (ZG "cameroon") or (ZG "chile") or (ZG "chile (santiago)"))) or ((ZG "chile (santiago)") or (ZG "china") or (ZG "china (guangzhou)") or (ZG "china (shanghai)") or (ZG "colombia") or (ZG "colombia (bogota)") or (ZG "congo") or (ZG "costa rica"))) or ((ZG "costa rica") or (ZG "cote d'ivoire") or (ZG "cuba") or (ZG "dominica") or (ZG "dominican republic") or (ZG "egypt") or (ZG "el salvador") or (ZG "ethiopia"))) or ((ZG "ethiopia"))) or ((ZG "gambia") or (ZG "ghana") or (ZG "guam") or (ZG "guatemala") or (ZG "guyana") or (ZG "haiti"))) or ((ZG "haiti") or (ZG "honduras") or (ZG "hong kong") or (ZG "india") or (ZG "indonesia"))) or ((ZG "indonesia") or (ZG "indonesia (jakarta)") or (ZG "iran") or (ZG "iran (tehran)") or (ZG "iraq") or (ZG "jamaica") or (ZG "japan"))) or ((ZG "jordan") or (ZG "kazakhstan") or (ZG "kenya") or (ZG "kenya (nairobi)") or (ZG "kosovo") or (ZG "kuwait") or (ZG "kyrgyzstan") or (ZG "laos"))) or ((ZG "lebanon") or (ZG "lesotho") or (ZG "liberia") or (ZG "libya") or (ZG "macedonia") or (ZG "madagascar") or (ZG "malawi") or (ZG "malaysia") or (ZG "malaysia (kuala lumpur)") or (ZG "maldives"))) or ((ZG "mali") or (ZG "mauritania") or (ZG "mauritius") or (ZG "mexico") or (ZG "mexico (mexico city)"))) or ((ZG "mongolia") or (ZG "montenegro") or (ZG "morocco") or (ZG "mozambique") or (ZG "namibia") or (ZG "nepal"))) or ((ZG "nicaragua") or (ZG "nigeria") or (ZG "nigeria (lagos)"))) or ((ZG "oman") or (ZG "pakistan") or (ZG "pakistan (karachi)") or (ZG "palestine") or (ZG "papua new guinea") or (ZG "paraguay"))) or ((ZG "peru") or (ZG "philippines") or (ZG "philippines (manila)") or (ZG "poland") or (ZG "puerto rico") or (ZG "qatar") or (ZG "rhodesia") or (ZG "romania") or (ZG "rwanda"))) or ((ZG "saint lucia") or (ZG "saint vincent and the grenadines") or (ZG "samoa") or (ZG "saudi arabia") or (ZG "senegal") or (ZG "serbia") or (ZG "sierra leone") or (ZG "slovenia") or (ZG "solomon islands") or (ZG "somalia") or (ZG "south america"))) or ((ZG "south america") or (ZG "south korea") or (ZG "south korea (seoul)") or (ZG "sri lanka") or (ZG "sudan") or (ZG "swaziland") or (ZG "syria") or (ZG "taiwan"))) or ((ZG "taiwan") or (ZG "taiwan (taipei)") or (ZG "tajikistan") or (ZG "tanzania"))) or ((ZG "thailand") or (ZG "thailand (bangkok)") or (ZG "timor-leste") or (ZG "togo") or (ZG "tonga") or (ZG "trinidad and tobago") or (ZG "tunisia") or (ZG "turkmenistan") or (ZG "uganda") or (ZG "united arab emirates") or (ZG "united arab emirates (abu dhabi)"))) or ((ZG "uruguay") or (ZG "ussr") or (ZG "uzbekistan") or (ZG "vanuatu") or (ZG "venezuela") or (ZG "vietnam") or (ZG "virgin islands"))) or ((ZG "yemen") or (ZG "zambia") or (ZG "zimbabwe"))		1,340,869
S10	S8 AND S9	Limiters - Published Date: 20000101-20210231	338
S9	(SU "Organizational Change" OR SU "Social Change" OR SU "Change Strategies" OR SU "Readiness to Change" OR SU "Educational Program Evaluation" OR SU "Program Development" OR SU "Educational Program Planning" OR SU "Edu-		4,322,173

#	Query	Limiters/Expanders	Results
	cational Reform" OR SU "Innovation" OR SU "Program Implementation" OR SU "Program Effectiveness" OR SU "Program Evaluation" OR SU "Transition Planning" OR SU "Scaffolding") OR (TI (change* OR shift* OR development OR Innovation*)) OR (transition* OR implement* OR initiation OR start-up OR starting-up OR adapt* OR scaffold* OR facilitat* OR framework* OR structural change* OR structural development OR transform* OR reform* OR balanc*)		
S8	S3 AND S6 AND S7		1,441
S7	(DE "School children" OR elementary school* OR elementary level* OR elementary education OR primary school* OR preschool* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade*" OR "2nd grade*" OR "3rd grade*" OR "4th grade*" OR "5th grade*" OR "6th grade*" OR "7th grade*" OR "8th grade*" OR "9th grade*" OR "10th grade*")		369,296
S6	S4 OR S5		2,332,551
S5	((child* OR pupil* OR schoolchild* OR school child* OR student* OR participant* OR learning OR project*) N3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR well-being OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*))		2,332,551
S4	SU "Student Satisfaction" OR SU "Student engagement" OR SU "Learner engagement" OR SU "Student motivation" OR SU "Student attitudes" OR SU "Student reaction" OR "Student Experience" OR SU "Student surveys" OR SU "Student Empowerment" OR SU "Learning motivation"		28,569
S3	S1 OR S2		23,766
S2	TI ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) OR SU ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)		23,639
S1	SU "Active learning" OR SU "Discovery Education" OR SU "Experiential Learning" OR SU "Blended Learning" OR SU "Problem-based Learning" OR SU "Educational Games"		18,099

SocIndex

#	Query	Limiters/Expanders	Results
S12	S10 NOT S11	Limiters - Date of Publication: 20000101-20210231; Language: Danish, English, Norwegian, Swedish	17
S11	(((((((ZG "afghanistan") or (ZG "africa") or (ZG "albania") or (ZG "algeria") or (ZG "american samoa") or (ZG "angola") or (ZG "anguilla")) or ((ZG "armenia") or (ZG "aruba") or (ZG "asia") or (ZG "azerbaijan") or (ZG "bahamas") or (ZG "bahrain") or (ZG "bangladesh") or (ZG "barbados") or (ZG "belarus"))) or ((ZG "belize") or (ZG "benin") or (ZG "bermuda") or (ZG "bolivia") or (ZG "bosnia and herzegovina") or (ZG "bosnia and herzegovina (sarajevo)") or (ZG "botswana") or (ZG "brazil") or (ZG "brunei") or (ZG "bulgaria") or (ZG "burkina faso") or (ZG "burma") or (ZG "burundi"))) or ((ZG "cambodia") or (ZG "cameroon") or (ZG "chile") or (ZG "chile (santiago)"))) or ((ZG "chile (santiago)") or (ZG "china") or (ZG "china (guangzhou)") or (ZG "china (shanghai)") or (ZG "colombia") or (ZG "colombia (bogota)") or (ZG "congo") or (ZG "costa rica"))) or ((ZG "costa rica") or (ZG "cote d'ivoire") or (ZG "cuba") or (ZG "dominica") or (ZG "dominican republic") or (ZG "egypt") or (ZG "el salvador") or (ZG "ethiopia"))) or ((ZG "ethiopia"))) or ((ZG "gambia") or (ZG "ghana") or (ZG "guam") or (ZG "guatemala") or (ZG "guyana") or (ZG "haiti"))) or ((ZG "haiti") or (ZG "honduras") or (ZG "hong kong") or (ZG "india") or (ZG "indonesia"))) or ((ZG "indonesia") or (ZG "indonesia (jakarta)") or (ZG "iran") or (ZG "iran (tehran)") or (ZG "iraq") or (ZG "jamaica") or (ZG "japan"))) or ((ZG "jordan") or (ZG "kazakhstan") or (ZG "kenya") or (ZG "kenya (nairobi)") or (ZG "kosovo") or (ZG "kuwait") or (ZG "kyrgyzstan") or (ZG "laos"))) or ((ZG "lebanon") or (ZG "lesotho") or (ZG "liberia") or (ZG "libya") or (ZG "macedonia") or (ZG "madagascar") or (ZG "malawi") or (ZG "malaysia") or (ZG "malaysia (kuala lumpur)") or (ZG "maldives"))) or ((ZG "mali") or (ZG "mauritania") or (ZG "mauritius") or (ZG "mexico") or (ZG "mexico (mexico city)"))) or ((ZG "mongolia") or (ZG "montenegro") or (ZG "morocco") or (ZG "mozambique") or (ZG "namibia") or (ZG "nepal"))) or ((ZG "nicaragua") or (ZG "nigeria") or (ZG "nigeria (lagos)"))) or ((ZG "oman") or (ZG "pakistan") or (ZG "pakistan (karachi)") or (ZG "palestine") or (ZG "papua new guinea") or (ZG "paraguay"))) or ((ZG "peru") or (ZG "philippines") or (ZG "philippines (manila)") or (ZG "poland") or (ZG "puerto rico") or (ZG "qatar") or (ZG "rhodesia") or (ZG "romania") or (ZG "rwanda"))) or ((ZG "saint lucia") or (ZG "saint vincent and the grenadines") or (ZG "samoa") or (ZG "saudi arabia") or (ZG "senegal") or (ZG "serbia") or (ZG "sierra leone") or (ZG "slovenia") or (ZG "solomon islands") or (ZG "somalia") or (ZG "south america"))) or ((ZG "south america") or (ZG "south korea") or (ZG "south korea (seoul)") or (ZG "sri lanka") or (ZG "sudan") or (ZG "swaziland") or (ZG "syria") or (ZG "taiwan"))) or ((ZG "taiwan") or (ZG "taiwan (taipei)") or (ZG "tajikistan") or (ZG "tanzania"))) or ((ZG "thailand") or (ZG "thailand (bangkok)") or (ZG "timor-leste") or (ZG "togo") or (ZG "tonga") or (ZG "trinidad and tobago") or (ZG "tunisia") or (ZG "turkmenistan") or (ZG "uganda") or (ZG "united arab emirates") or (ZG "united arab emirates (abu dhabi)"))) or ((ZG "uruguay") or (ZG "ussr") or (ZG "uzbekistan") or (ZG "vanuatu") or (ZG "venezuela") or (ZG "vietnam") or (ZG "virgin islands"))) or ((ZG "yemen") or (ZG "zambia") or (ZG "zimbabwe"))		157,879
S10	S8 AND S9	Limiters - Date of Publication: 20000101-20210231	27
S9	(SU "Organizational Change" OR SU "Social Change" OR SU "Change Strategies" OR SU "Readiness to Change" OR SU "Educational Program Evaluation" OR SU "Program Development" OR SU "Educational Program Planning" OR SU "Edu-		402,703

#	Query	Limiters/Expanders	Results
	cational Reform" OR SU "Innovation" OR SU "Program Implementation" OR SU "Program Effectiveness" OR SU "Program Evaluation" OR SU "Transition Planning" OR SU "Scaffolding") OR (TI (change* OR shift* OR development OR Innovation*)) OR (transition* OR implement* OR initiation OR start-up OR starting-up OR adapt* OR scaffold* OR facilitat* OR framework* OR structural change* OR structural development OR transform* OR reform* OR balanc*)		
S8	S3 AND S6 AND S7		152
S7	(DE "School children" OR elementary school* OR elementary level* OR elementary education OR primary school* OR preschool* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade*" OR "2nd grade*" OR "3rd grade*" OR "4th grade*" OR "5th grade*" OR "6th grade*" OR "7th grade*" OR "8th grade*" OR "9th grade*" OR "10th grade*")		63,044
S6	S4 OR S5		502,010
S5	((child* OR pupil* OR schoolchild* OR school child* OR student* OR participant* OR learning OR project*) N3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR well-being OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*))		502,010
S4	SU "Student Satisfaction" OR SU "Student engagement" OR SU "Learner engagement" OR SU "Student motivation" OR SU "Student attitudes" OR SU "Student reaction" OR "Student Experience" OR SU "Student surveys" OR SU "Student Empowerment" OR SU "Learning motivation"		4,344
S3	S1 OR S2		2,460
S2	TI ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) OR SU ("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)		2,460
S1	SU "Active learning" OR SU "Discovery Education" OR SU "Experiential Learning" OR SU "Blended Learning" OR SU "Problem-based Learning" OR SU "Educational Games"		2,121

EconLit

#	Query	Limiters/Expanders	Results
S12	S10 NOT S11	Limiters - Published Date: 20000101-20210231	42
S11	(((((((ZG "afghanistan") or (ZG "africa") or (ZG "albania") or (ZG "algeria") or (ZG "american samoa") or (ZG "angola") or (ZG "anguilla")) or ((ZG "armenia") or (ZG "aruba") or (ZG "asia") or (ZG "azerbaijan") or (ZG "bahamas") or (ZG "bahrain") or (ZG "bangladesh") or (ZG "barbados") or (ZG "belarus"))) or ((ZG "belize") or (ZG "benin") or (ZG "bermuda") or (ZG "bolivia") or (ZG "bosnia and herzegovina") or (ZG "bosnia and herzegovina (sarajevo)") or (ZG "botswana") or (ZG "brazil") or (ZG "brunei") or (ZG "bulgaria") or (ZG "burkina faso") or (ZG "burma") or (ZG "burundi"))) or ((ZG "cambodia") or (ZG "cameroon") or (ZG "chile") or (ZG "chile (santiago)"))) or ((ZG "chile (santiago)") or (ZG "china") or (ZG "china (guangzhou)") or (ZG "china (shanghai)") or (ZG "colombia") or (ZG "colombia (bogota)") or (ZG "congo") or (ZG "costa rica"))) or ((ZG "costa rica") or (ZG "cote d'ivoire") or (ZG "cuba") or (ZG "dominica") or (ZG "dominican republic") or (ZG "egypt") or (ZG "el salvador") or (ZG "ethiopia"))) or ((ZG "ethiopia"))) or ((ZG "gambia") or (ZG "ghana") or (ZG "guam") or (ZG "guatemala") or (ZG "guyana") or (ZG "haiti"))) or ((ZG "haiti") or (ZG "honduras") or (ZG "hong kong") or (ZG "india") or (ZG "indonesia"))) or ((ZG "indonesia") or (ZG "indonesia (jakarta)") or (ZG "iran") or (ZG "iran (tehran)") or (ZG "iraq") or (ZG "jamaica") or (ZG "japan"))) or ((ZG "jordan") or (ZG "kazakhstan") or (ZG "kenya") or (ZG "kenya (nairobi)") or (ZG "kosovo") or (ZG "kuwait") or (ZG "kyrgyzstan") or (ZG "laos"))) or ((ZG "lebanon") or (ZG "lesotho") or (ZG "liberia") or (ZG "libya") or (ZG "macedonia") or (ZG "madagascar") or (ZG "malawi") or (ZG "malaysia") or (ZG "malaysia (kuala lumpur)") or (ZG "maldives"))) or ((ZG "mali") or (ZG "mauritania") or (ZG "mauritius") or (ZG "mexico") or (ZG "mexico (mexico city)"))) or ((ZG "mongolia") or (ZG "montenegro") or (ZG "morocco") or (ZG "mozambique") or (ZG "namibia") or (ZG "nepal"))) or ((ZG "nicaragua") or (ZG "nigeria") or (ZG "nigeria (lagos)"))) or ((ZG "oman") or (ZG "pakistan") or (ZG "pakistan (karachi)") or (ZG "palestine") or (ZG "papua new guinea") or (ZG "paraguay"))) or ((ZG "peru") or (ZG "philippines") or (ZG "philippines (manila)") or (ZG "poland") or (ZG "puerto rico") or (ZG "qatar") or (ZG "rhodesia") or (ZG "romania") or (ZG "rwanda"))) or ((ZG "saint lucia") or (ZG "saint vincent and the grenadines") or (ZG "samoa") or (ZG "saudi arabia") or (ZG "senegal") or (ZG "serbia") or (ZG "sierra leone") or (ZG "slovenia") or (ZG "solomon islands") or (ZG "somalia") or (ZG "south america"))) or ((ZG "south america") or (ZG "south korea") or (ZG "south korea (seoul)") or (ZG "sri lanka") or (ZG "sudan") or (ZG "swaziland") or (ZG "syria") or (ZG "taiwan"))) or ((ZG "taiwan") or (ZG "taiwan (taipei)") or (ZG "tajikistan") or (ZG "tanzania"))) or ((ZG "thailand") or (ZG "thailand (bangkok)") or (ZG "timor-leste") or (ZG "togo") or (ZG "tonga") or (ZG "trinidad and tobago") or (ZG "tunisia") or (ZG "turkmenistan") or (ZG "uganda") or (ZG "united arab emirates") or (ZG "united arab emirates (abu dhabi)"))) or ((ZG "uruguay") or (ZG "ussr") or (ZG "uzbekistan") or (ZG "vanuatu") or (ZG "venezuela") or (ZG "vietnam") or (ZG "virgin islands"))) or ((ZG "yemen") or (ZG "zambia") or (ZG "zimbabwe"))		247,995
S10	S3 AND S6 AND S9	Limiters - Published Date: 20000101-20210231	50
S9	S7 OR S8		108,604
S8	SU (H52 OR H75 OR I21 OR I22 OR I23 OR I24 OR I25 OR I26 OR I27 OR I28 OR I29 OR O30 OR O31 OR O32 OR O33 OR O38 OR O39)		107,080

#	Query	Limiters/Expanders	Results
S7	("School children" OR elementary school* OR elementary level* OR elementary education OR primary school* OR pre-school* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade*" OR "2nd grade*" OR "3rd grade*" OR "4th grade*" OR "5th grade*" OR "6th grade*" OR "7th grade*" OR "8th grade*" OR "9th grade*" OR "10th grade*")		4,105
S6	S4 OR S5		18,355
S5	((child* OR pupil* OR schoolchild* OR school child* OR student* OR participant* OR learning OR project*) N3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR well-being OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*))		18,355
S4	SU "Student Satisfaction" OR SU "Student engagement" OR SU "Learner engagement" OR SU "Student motivation" OR SU "Student attitudes" OR SU "Student reaction" OR "Student Experience" OR SU "Student surveys" OR SU "Student Empowerment" OR SU "Learning motivation"		31
S3	S1 OR S2		563
S2	("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)		563
S1	SU "Active learning" OR SU "Discovery Education" OR SU "Experiential Learning" OR SU "Blended Learning" OR SU "Problem-based Learning" OR SU "Educational Games"		13

Proquest Dissertations

SU("Active learning" OR "Discovery Education" OR "Experiential Learning" OR "Blended Learning" OR "Problem-based Learning" OR (Play* NEAR/1 Learning) OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play-based learning" OR "play pedagogy" OR "play integration" OR "integrated play" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimential learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego) AND (SU (Child* OR student* OR pupil* OR schoolchild* OR school* OR classroom*)) AND (SU (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR well-being OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice* OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*)) AND SU (elementary school* OR elementary level* OR elementary education OR primary school* OR preschool* OR pre-school* OR junior high school* OR lower secondary school* OR middle school* OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade*" OR "2nd grade*" OR "3rd grade*" OR "4th grade*" OR "5th grade*" OR "6th grade*" OR "7th grade*" OR "8th grade*" OR "9th grade*" OR "10th grade*") Limits applied

Afgrænsning: 2000-2021

Web of Science

Afgrænsning: 2000-2021

Social Science Citation Index + Arts & Humanities Citation Index

Set	Results	
# 5	187	(#4 AND #3 AND #2 AND #1) *AND* LANGUAGE: (English OR Danish OR Norwegian OR Swedish) *AND* DOCUMENT TYPES: (Article OR Book OR Book Chapter OR Review) *Indexes=SSCI, A&HCI Timespan=2000-2021*
# 4	7,768,211	(TS=("Organizational Change" OR "Social Change" OR "Change Strategies" OR "Readiness to Change" OR "Educational Program Evaluation" OR "Program Development" OR "Educational Program Planning" OR "Educational Reform" OR "Innovation" OR "Program Implementation" OR "Program Effectiveness" OR "Program Evaluation" OR "Transition Planning" OR Innovation* OR transition* OR implement* OR initiation OR start-up OR starting-up OR adapt* OR scaffold* OR facilitat* OR framework* OR "structural change" OR "structural changes" OR "structural development" OR transform* OR reform* OR balanc*) OR TI=(change* OR shift* OR develop*)) *Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years*
# 3	204,796	TS=("elementary school" OR "elementary level" OR "elementary education" OR "primary school" OR "primary schools" OR preschool* OR pre-school* OR "junior high school" OR "junior high schools" OR "lower secondary school" OR "lower secondary schools" OR "middle school" OR "middle schools" OR "grade 1" OR "grade 2" OR "grade 3" OR "grade 4" OR "grade 5" OR "grade 6" OR "grade 7" OR "grade 8" OR "grade 9" OR "grade 10" OR "1st grade" OR "2nd grade" OR "3rd grade" OR "4th grade" OR "5th grade" OR "6th grade" OR "7th grade" OR "8th grade" OR "9th grade" OR "10th grade") *Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years*
# 2	569,137	TS=((child* OR pupil* OR schoolchild* OR "school child" OR "school children" OR student* OR participant* OR learning OR project*) NEAR/3 (engagement OR satisfaction* OR motivat* OR interest* OR attitude* OR reaction* OR demotivat* OR stress OR anxiety OR wellbeing OR well-being OR thriv* OR social* OR "special needs" OR support* OR self-efficacy OR selfefficacy OR success* OR voice OR view* OR opinion* OR survey* OR questionnaire* OR feed-back OR feedback OR perception* OR perspective* OR experience* OR interview*)) *Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=All years*
# 1	27,105	TS=("active learning" OR "blended learning" OR "physical activity integration" OR Learning-through-play OR "learning through play" OR "playful learning" OR "play-based learning" OR "learning-by-Play" OR "play labs" OR "play lab" OR "play pedagogies" OR "play pedagogy" OR "play integration" OR "integrated play" OR "educational games" OR "movement integration" OR montessori* OR "pupil-led" OR "student-led" OR "discovery learning" OR "discovery-based learning" OR "discovery based learning" OR "learning-through-discovery" OR "learning through discovery" OR "learning-by-discovery" OR "learning by discovery" OR "experimental learning" OR "experiential learning" OR "inquiry learning" OR "inquiry-based learning" OR "inquiry based learning" OR "problem-based learning" OR "problem based learning" OR "integrated pedagogies" OR lego)

VIVE

DET NATIONALE FORSKNINGS- OG ANALYSECENTER FOR VELFÆRD