

Bilaga 1. Sökstrategi

Detta är en detaljerad beskrivning av den sökstrategi som använts i den systematiska översikten *Språk- och kunskapsutvecklande undervisning i det flerspråkiga klassrummet – med fokus naturvetenskap* (Skolforskningsinstitutets systematiska översikter 2018:02) och beskrivits kortfattat i 5.4 Litteratursökning i översikten. Sökstrategin redovisas här i följande ordning:

- Huvudsökning i internationella, vetenskapliga databaser
- Kompletterande sökning i internationella, vetenskapliga databaser
- Sökning i skandinaviska, vetenskapliga databaser
- Kompletterande sökning i skandinaviska, vetenskapliga databaser
- Citeringssökning
- Kedjesökning
- Handsökning

Huvudsökning i internationella, vetenskapliga databaser

Sju databaser, dvs. Academic Search Complete (ASC), Australian Education Index (AEI), British Education Index (BEI), Education Database (ED), Education Source (ES), Education Resources Information Center (ERIC) och PsycINFO (PI) användes. Fem av databaserna, dvs. ASC, BEI, ES, ERIC och PI användes på plattformen EBSCOhost (EH). Två av databaserna, dvs. AEI och ED användes på plattformen ProQuest (PQ). Databaserna AEI, BEI, ED, ES och ERIC är ämnesdatabaser inom utbildningsvetenskap. Se tabell A1 för databaserna, plattformarna och sökfälten som användes.

TABELL A1. Databaser, plattformar och sökfält som användes i huvudsökningarna.

| PLATTFORM | SÖKFÄLT | DATABAS |
|----------------|---------------------------------|-----------------------------------------------|
| EBSCOhost (EH) | Titel (TI) | Academic Search Complete (ASC) |
| | Sammanfattning (AB) | British Education Index (BEI) |
| | Nyckelord (KW) | Education Source (ES) |
| | Ämne (indexerad fras: DE) | Education Resources Information Center (ERIC) |
| | | PsycINFO (PI) |
| ProQuest (PQ) | Titel (TI) | Australian Education Index (AEI) |
| | Sammanfattning (AB) | Education Database (ED) |
| | Ämne (exakt ämnesord: SU.EXACT) | |

Sökningarna utfördes i november 2016 genom att kombinera block, dvs. kortare söksträngar, med sökord inom skolundervisning, naturvetenskap och språkutveckling. Blocken kombinerades med hjälp av den booleska operatören AND. Vid sökningar i ämnesdatabaserna inom utbildningsvetenskap uteslöts

skolundervisningsblocket. Sökresultaten begränsades till litteratur publicerad fr.o.m. år 2000.

Se tabell A2 för en detaljerad beskrivning av blocken och tabell A3 för blockkombinationerna och begränsningarna vid huvudsökningarna i databaserna ASC, BEI, ES, ERIC och PI på plattformen EH.

TABELL A2. Block som användes vid huvudsökningarna i databaserna Academic Search Complete (ASC), British Education Index (BEI), Education Source (ES), Education Resources Information Center (ERIC) och PsycINFO (PI) på plattformen EBSCOhost (EH).

| BLOCK | SÖKFÄLT | SÖKSTRÄNG |
|---------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Skolundervisning (block X) | TI AB KW | school* OR teach* OR learn* OR tutor* OR student* OR pupil* OR class* OR classroom* OR practice OR instruct* OR educat* OR didactic* OR pedagog* OR K-* OR (grade* 1*) OR (first grade*) OR (grade* one) OR (grade* 2*) OR (second grade*) OR (grade* two) OR (grade* 3*) OR (third grade*) OR (grade* three) OR (grade* 4*) OR (four* grade*) OR (grade* 5*) OR (fifth grade*) OR (grade* five) OR (grade* 6*) OR (six* grade*) OR (grade* 7*) OR (seven* grade*) OR (grade* eight*) OR (grade* 8*) OR (ninth grade*) OR (grade* nine) OR (grade* 9*) OR (ten* grade*) OR (grade* 10*) OR (eleven* grade*) OR (grade* 11*) OR (twel* grade*) OR (grade* 12*) OR "junior high" OR highschool OR *elementary OR "primary grade*" OR "intermediate grade*" OR "middle grade*" OR "secondary grade*" OR lyce* OR "sixth form" OR "lower sixth" OR "upper sixth" OR "key stage 5" OR "junior college*" OR gymnasium* OR "upper secondary" OR "lower secondary" |
| Naturvetenskap (block Y _{EH}) | TI AB KW | *science* OR biology OR chemistry OR physics OR geology OR astronomy OR STEM |
| Naturvetenskap (block Y _{ASC}) | DE | "SCIENCE -- Study & teaching" |
| Naturvetenskap (block Y _{BEI}) | DE | "SCIENCE -- Study & teaching" OR "LIFE sciences -- Study & teaching" OR "NATURAL history -- Study & teaching" OR "NATURE study" OR "PHYSICAL sciences -- Study & teaching" OR "SCIENCE -- Study & teaching (Elementary)" OR "SCIENCE -- Study & teaching (Secondary)" OR "SCIENCE -- Study & teaching -- Aids & devices" OR "SCIENCE -- Study & teaching -- Audiovisual aids" OR "BIOLOGY -- Study & teaching" OR "LIFE sciences -- Study & teaching" OR "BIOLOGY -- Study & teaching (Middle school)" OR "BOTANY -- Study & teaching" OR "ECOLOGY -- Study & teaching" OR "ZOOLOGY -- Study & teaching" OR "PHYSICS -- Study & teaching" OR "PHYSICAL sciences -- Study & teaching" OR "CHEMISTRY -- Study & teaching" OR "CHEMISTRY -- Study & teaching (Elementary)" OR "CHEMISTRY -- Study & teaching (Middle school)" OR "ASTRONOMY -- Study & teaching" OR "ASTRONOMY -- Study & teaching (Elementary)" OR "ASTRONOMY -- Study & teaching (Middle school)" OR "ASTRONOMY -- Study & teaching (Secondary)" OR "GEOLOGY -- Study & teaching" OR "EARTH sciences -- Study & teaching" OR "GEOLOGY -- Study & teaching (Secondary)" |
| Naturvetenskap (block Y _{ES}) | DE | "Science -- Study & teaching" OR DE "Life sciences -- Study & teaching" OR DE "Natural history -- Study & teaching" OR DE "Nature study" OR DE "Physical sciences -- Study & teaching" OR DE "Science -- Study & teaching (Elementary)" OR DE "Science -- Study & teaching (Secondary)" OR DE "Science -- Study & teaching -- Aids & devices" OR DE "Science -- Study & teaching -- Audiovisual aids" OR DE "Biology -- Study & teaching" OR DE "Biology -- Study & teaching (Middle school)" OR DE "Botany -- Study & teaching" OR DE "Ecology -- Study & teaching" OR DE "Zoology -- Study & teaching" OR DE "Chemistry -- Study & teaching" OR DE "Chemistry -- Study & teaching (Elementary)" OR DE "Chemistry -- Study & teaching (Middle school)" OR DE "Physics -- Study & teaching" OR DE "Astronomy -- Study & teaching" OR DE "Astronomy -- Study & teaching (Elementary)" OR DE "Astronomy -- Study & teaching (Middle school)" OR DE "Astronomy -- Study & teaching (Secondary)" OR DE "Geology -- Study & teaching" OR DE "Geology -- History - Study & teaching" OR DE "Geology -- Study & teaching (Secondary)" |

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| | | |
|------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Naturvetenskap (block Y _{ERIC}) | DE | "Science Instruction" OR "College Science" OR "Elementary School Science" OR "Secondary School Science") |
| Språkutveckling (block Z _{EH1}) | TI AB KW | bilingual* OR multilingual* OR (English N5 "second language") OR (English N5 "additional language") OR "English learn*" OR "learner* of English" OR "limited English-speak*" OR "limited English-proficient*" OR "non-English speak*" OR ("non-native" N5 speak*) OR ("non-native" N5 learn*) OR ("non-native" N5 student*) OR ("non-native" N5 pupil*) OR ("second language" N5 speak*) OR (language N5 learn*) OR (language N5 acquisition) OR SLL OR SLLs OR SLL:s OR ELL OR ELLs OR ELL:s OR EL:s OR "Els" OR EAL OR EALs OR EAL:s OR ESL OR L2 OR "English for speakers of other language*" OR "non-English language background*" OR ESOL OR ((asylum OR refugee* OR foreign* OR fugitive* OR migrant* OR immigrant* OR newcomer* OR "newly arrived" OR "language minorit*" OR "minority language*" OR "minority group*" OR "ethnic minorit*" OR "ethnically divers*" OR "ethnically heterogeneous" OR "linguistically divers*" OR "linguistically heterogeneous" OR "culturally divers*" OR "culturally heterogeneous" OR multicultural OR "multi-cultural" OR multiethnic OR "multi-ethnic" OR (diverse N5 background*) OR nonmainstream OR "non-mainstream" OR urban) AND (school* OR learn* OR pupil* OR student* OR child* OR classroom OR "class room")) |
| Språkutveckling (block Z _{BEH1}) | DE | "MINORITY students" OR "ASIAN American students" OR "HISPANIC American students" OR "LIMITED English-proficient students" OR "MINORITY college students" |
| Språkutveckling (block Z _{ES1}) | DE | "Limited English-proficient students" |
| Språkutveckling (block Z _{ERIC1}) | DE | "English Language Learners" OR "Limited English Speaking" OR "Non English Speaking" |
| Språkutveckling (block Z _{PI1}) | DE | "English as Second Language" |

TABELL A3. Söksträngar som utformades genom kombination av blocken vid huvudsökningarna i databaserna Academic Search Complete (ASC), British Education Index (BEI), Education Source (ES), Education Resources Information Center (ERIC) och PsycINFO (PI) på plattformen EBSCOhost (EH). Se tabell A2 för beskrivning av blocken.

| DATABAS | BEGRENSNING | SÖKSTRÄNG |
|---------|------------------|-------------------------------------------------------------------------------------------------------------------------|
| ASC | Referentgranskat | (block X) AND ((block Y _{EH}) OR (block Y _{ASC})) AND (block Z _{EH1}) |
| BEI | Referentgranskat | ((block Y _{EH}) OR (block Y _{BEI})) AND ((block Z _{EH1}) OR (block Z _{BEI1})) |
| ES | Referentgranskat | ((block Y _{EH}) OR (block Y _{ES})) AND ((block Z _{EH1}) OR (block Z _{ES1})) |
| ERIC | Referentgranskat | ((block Y _{EH}) OR (block Y _{ERIC})) AND ((block Z _{EH1}) OR (block Z _{ERIC1})) |
| PI | Referentgranskat | (block X) AND (block Y _{EH}) AND ((block Z _{EH1}) OR (block Z _{PI1})) |

Se tabell A4 för en detaljerad beskrivning av blocken och tabell A5 för blockkombinationerna och begränsningarna vid huvudsökningarna i databaserna AEI och EED på plattformen PQ.

TABELL A4. Block som användes vid huvudsökningarna i databaserna Australian Education Index (AEI) och Education Database (ED) på plattformen ProQuest (PQ).

| BLOCK | SÖKFÄLT | SÖKSTRÄNG |
|----------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Naturvetenskap (block Y _{PQ}) | TI AB | lifescience* OR earthscience* OR science* OR biology OR chemistry OR physics OR geology OR astronomy OR STEM |
| Naturvetenskap (block Y _{AEI}) | SU.EXACT | "Secondary school science" OR "Primary school science" OR "Science teaching" OR "College science" OR "Biology" OR "Physics" OR "Chemistry" |
| Språkutveckling (block Z _{PQ1}) | TI AB | bilingual* OR multilingual* OR (English N/5 "second language") OR (English N/5 "additional language") OR "English learn*" OR "learner* of English" OR "limited English-speak*" OR "limited English-proficient*" OR "non-English speak*" OR ("non-native" N/5 speak*) OR ("non-native" N/5 learn*) OR ("non-native" N/5 student*) OR ("non-native" N/5 pupil*) OR ("second |

language" N/5 speak*) OR (language N/5 learn*) OR (language N/5 acquisition) OR SLL OR SLLs OR SLL:s OR ELL OR ELLs OR ELL:s OR EL:s OR "Els" OR EAL OR EALs OR EAL:s OR ESL OR L2 OR "English for speakers of other language*" OR "non-English language background*" OR ESOL OR ((asylum OR refugee* OR foreign* OR fugitive* OR migrant* OR immigrant* OR newcomer* OR "newly arrived" OR "language minorit*" OR "minority language*" OR "minority group*" OR "ethnic minorit*" OR "ethnically divers*" OR "ethnically heterogeneous" OR "linguistically divers*" OR "linguistically heterogeneous" OR "culturally divers*" OR "culturally heterogeneous" OR multicultural OR "multi-cultural" OR multiethnic OR "multi-ethnic" OR (diverse N/5 background*) OR nonmainstream OR "non-mainstream" OR urban) AND (school* OR learn* OR pupil* OR student* OR child* OR classroom OR "class room")

| | | |
|-------------------------------------------|----------|-------------------------------------|
| Språkutveckling (block Z _{AEI}) | SU.EXACT | "English (Second language)" |
| Språkutveckling (block Z _{ED}) | SU.EXACT | "English as a second language--ESL" |

TABELL A5. Söksträngar som utformades genom kombination av block vid huvudsökningarna i databaserna Australian Education Index (AEI) och Education Database (ED) på plattformen ProQuest (PQ). Se tabell A4 för beskrivning av blocken.

| DATABAS | BEGRÄNSNING | SÖKSTÄNG |
|---------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| AEI | Tidskriftsartikel Avhandling/upsats Bokkapitel Utländsk tidskriftsartikel Forskningsrapport | ((block Y _{PQ}) OR (block Y _{AEI})) AND ((block Z _{PQ}) OR (block Z _{AEI})) |
| ED | Referentgranskat | (block Y _{PQ}) AND ((block Z _{PQ}) OR (block Z _{ED})) |

Kompletterande sökning i internationella, vetenskapliga databaser

För att även finna publikationer om undervisning baserad på integrering av ämnesinnehåll utfördes kompletterande sökningar i internationella, vetenskapliga databaser.

Sju databaser, dvs. AEI, BEI, ED, ES, ERIC, PI och Scopus (S) användes. Fyra av databaserna, dvs. BEI, ES, ERIC och PI användes på plattformen EH. Två av databaserna, dvs. AEI och ED användes på plattformen PQ. Databasen S användes på databasens egna plattform. Se tabell A6 för databaserna, plattformarna och sökfälten som användes.

TABELL A6. Databaser, plattformar och sökfält som användes i de kompletterande sökningarna.

| PLATTFORM | SÖKFÄLT | DATABAS |
|----------------|----------------------------------------|-----------------------------------------------|
| EBSCOhost (EH) | Titel (TI) | British Education Index (BEI) |
| | Sammanfattning (AB) | Education Source (ES) |
| | Nyckelord (KW) | Education Resources Information Center (ERIC) |
| | Ämne (indexerad fras: DE) | PsycINFO (PI) |
| ProQuest (PQ) | Titel (TI) | Australian Education Index (AEI) |
| | Sammanfattning (AB) | Education Database (ED) |
| | Ämne (exakt ämnesord: SU.EXACT; exakt) | |

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| | | |
|------------|--------------------------------------------------------------------|------------|
| | ämnesord och dess associerade, snävare ämnesord: SU.EXACT.EXPLODE) | |
| Scopus (S) | Titel (TI) | Scopus (S) |
| | Sammanfattning (AB) | |
| | Nyckelord (KW) | |

Sökningarna utfördes i maj 2017 genom att kombinera block med sökord inom skolundervisning, naturvetenskap och språkutveckling. Blocken kombinerades med hjälp av den booleska operatoren AND. Vid sökningar i ämnesdatabaserna inom utbildningsvetenskap uteslöts skolundervisningsblocket. Sökresultaten begränsades till litteratur publicerad fr.o.m. år 2000.

Se tabell A7 för detaljerad beskrivning av blocken och tabell A8 för blockkombinationerna och begränsningarna vid de kompletterande sökningarna i databaserna BEI, ES, ERIC och PI på plattformen EH.

TABELL A7. Block som användes vid de kompletterande sökningarna i databaserna British Education Index (BEI), Education Source (ES), Education Resources Information Center (ERIC) och PsycINFO (PI) på plattformen EBSCOhost (EH).

| BLOCK | SÖKFÄLT | SÖKSTRÄNG |
|---------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Språkutveckling (block Z _{EH2}) | TI AB KW | "dual-language" OR "dual language" OR CLIL OR "content and language integrated" OR immersion OR CBI OR "content based instruction" OR "content-based instruction" OR "content based learning" OR "content-based learning" OR "content based teaching" OR "content-based teaching" OR CBLT OR "content based language teaching" OR "content-based language teaching" OR CBLI OR "content based language instruction" OR "content-based language instruction" OR "content based language learning" OR "content-based language learning" OR "content based approach" OR "content-based approach" OR (language N3 curriculum) OR (languages N3 curriculum) OR "language-content-task" OR "LCT framework" OR SIOP |
| Språkutveckling (block Z _{EH3}) | TI AB KW | "dual-language" OR "dual language" OR CLIL OR "content and language integrated" OR "content-language integrated" OR "content language integrated" OR immersion OR CBI OR "content based instruction" OR "content-based instruction" OR "content based learning" OR "content-based learning" OR "content based teaching" OR "content-based teaching" OR CBLT OR "content based language teaching" OR "content-based language teaching" OR CBLI OR "content based language instruction" OR "content-based language instruction" OR "content based language learning" OR "content-based language learning" OR "content based approach" OR "content-based approach" OR (language N3 curriculum) OR (languages N3 curriculum) OR "language-content-task" OR "LCT framework" OR SIOP OR "sheltered instruction observation protocol" |
| Språkutveckling (block Z _{BEI2}) | DE | "MULTILINGUAL education" OR "MULTILINGUAL teaching aids & devices" OR "BILINGUAL education -- Aids & devices" OR "BILINGUAL education" OR "LANGUAGE & languages -- Study & teaching -- Bilingual method" OR "MAINSTREAMING in bilingual education" OR "BILINGUAL education -- Aids & devices" OR "BILINGUAL education -- Study & teaching" OR "BILINGUAL schools" OR "BILINGUAL students" OR "BILINGUAL teachers" OR "IMMERSION method (Language teaching)" OR "ENGLISH language -- Study & teaching -- Immersion method" OR "IMMIGRANT students" OR "IMMIGRANTS" OR "CHILDREN of immigrants" OR "IMMIGRANT students" OR "UNDOCUMENTED immigrants" OR "IMMIGRANTS -- Education" |
| Språkutveckling (block Z _{ES2}) | (Samma som Z _{BEI2}) | (Samma som Z _{BEI2}) |
| Språkutveckling (block Z _{ERIC2}) | DE | "Immersion Programs" |
| Språkutveckling (block Z _{PI2}) | DE | "Bilingual Education" |

TABELL A8. Söksträngar som utformades genom kombination av block vid de kompletterande sökningarna i databaserna British Education Index (BEI), Education Source (ES), Education Resources Information Center (ERIC) och PsycINFO (PI) på plattformen EBSCOhost (EH). Se tabell A2 och A7 för beskrivning av blocken.

| DATA-BAS | BEGRÄNSNING | SÖKSTÄNG | PUBLICERINGS-TID |
|----------|------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| BEI | Referentgranskat | ((block Y _{EH}) OR (block Y _{BEI})) AND ((block Z _{EH2}) OR (block Z _{BEI2})) | fr.o.m. 2000 |
| | | NOT ((block Y _{EH}) OR (block Y _{BEI})) AND ((block Z _{EH1}) OR (block Z _{BEI1})) | fr.o.m. 2000 t.o.m. nov 2016 |
| ES | Referentgranskat | ((block Y _{EH}) OR (block Y _{ES})) AND ((block Z _{EH2}) OR (block Z _{ES2})) | fr.o.m. 2000 |
| | | NOT ((block Y _{EH}) OR (block Y _{ES})) AND ((block Z _{EH1}) OR (block Z _{ES1})) | fr.o.m. 2000 t.o.m. nov 2016 |
| ERIC | Referentgranskat | ((block Y _{EH}) OR (block Y _{ERIC})) AND ((block Z _{EH2}) OR (block Z _{ERIC2})) | fr.o.m. 2000 |
| | | NOT (block Y _{EH}) OR (block Y _{ERIC}) AND ((block Z _{EH1}) OR (block Z _{ERIC1})) | fr.o.m. 2000 t.o.m. dec 2015 |
| PI | Referentgranskat | (block X) AND (block Y _{EH}) AND ((block Z _{EH3}) OR (block Z _{PI2})) | fr.o.m. 2000 |
| | | NOT (block X) AND (block Y _{EH}) AND ((block Z _{EH1}) OR (block Z _{PI1})) | fr.o.m. 2000 t.o.m. sep 2016 |

Se tabell A9 för detaljerad beskrivning av blocken och tabell A10 för blockkombinationerna och begränsningarna vid de kompletterande sökningarna i databaserna AEI och ED på plattformen PQ.

TABELL A9. Block som användes vid de kompletterande sökningarna i databaserna Australian Education Index (AEI) och Education Database (ED) på plattformen ProQuest (PQ).

| BLOCK | SÖKFÄLT | SÖKSTRÄNG |
|-----------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Språkutveckling (block Z _{PQ2}) | TI AB | "dual-language" OR "dual language" OR CLIL OR "content and language integrated" OR immersion OR CBI OR "content based instruction" OR "content-based instruction" OR "content based learning" OR "content-based learning" OR "content based teaching" OR "content-based teaching" OR CBLT OR "content based language teaching" OR "content-based language teaching" OR CBLI OR "content based language instruction" OR "content-based language instruction" OR "content based language learning" OR "content-based language learning" OR "content based approach" OR "content-based approach" OR (language N/3 curriculum) OR (languages N/3 curriculum) OR "language-content-task" OR "LCT framework" OR SIOP |
| Språkutveckling (block Z _{AEI2}) | SU.EXACT.EXPLODE | "Bilingual students" OR "Bilingual instructional materials" OR "Bilingual teacher aides" OR "Bilingual schools" OR "Bilingual teachers" OR "Bilingual education programs" OR "Bilingual education" OR "Immersion programs" OR "Multilingual materials" |
| Språkutveckling (block Z _{ED2}) | SU.EXACT | "Bilingual education" OR "Bilingual materials" OR "Immersion programs" |

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TABELL A10. Söksträngar som utformades genom kombination av block vid de kompletterande sökningarna i databaserna Australian Education Index (AEI) och Education Database (ED) på plattformen ProQuest (PQ). Se tabell A4 och A9 för beskrivning av blocken.

| DATA-BAS | BEGRÄNSNING | SÖKSTÄNG | PUBLICERINGS-TID |
|-------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| AEI | Tidskriftsartikel | (((block Y _{PQ}) OR (block Y _{AEI})) AND ((block Z _{PQ2}) OR (block Z _{AEI2}))) | fr.o.m. 2000 |
| | Avhandling/upsats | | |
| | Bokkapitel | NOT | |
| | Utländsk tidskriftsartikel | (((block Y _{PQ}) OR (block Y _{AEI})) AND ((block Z _{PQ1}) OR (block Z _{AEI1}))) | fr.o.m. 2000 |
| Forskningsrapport | | | |
| ED | Referentgranskat | (block Y _{PQ}) AND ((block Z _{PQ2}) OR (block Z _{ED2})) | fr.o.m. 2000 |
| | | NOT | |
| | | (block Y _{PQ}) AND ((block Z _{PQ1}) OR (block Z _{ED1})) | fr.o.m. 2000 t.o.m. 2015 |

Se tabell A11 för detaljerad beskrivning av blocken och tabell A12 för blockkombinationerna och begränsningarna vid sökningarna i databasen S. Sökningarna utfördes i november 2016 genom att kombinera block, dvs. kortare söksträngar, med sökord inom skolundervisning, naturvetenskap och språkutveckling. Sökningen uteslöt skolundervisningsblocket och begränsades till ämnesområden konst och humaniora, psykologi samt samhällsvetenskap.

TABELL A11. Block som användes vid den kompletterande sökningen i databasen Scopus (S).

| BLOCK | SÖKFÄLT | SÖKSTRÄNG |
|-----------------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Naturvetenskap (block Y _s) | (Samma som Y _{PQ}) | (Samma som Y _{PQ}) |
| Språkutveckling (block Z _s) | TI AB KW | "dual-language" OR "dual language" OR CLIL OR "content and language integrated" OR immersion OR CBI OR "content based instruction" OR "content-based instruction" OR "content based learning" OR "content-based learning" OR "content based teaching" OR "content-based teaching" OR CBLT OR "content based language teaching" OR "content-based language teaching" OR CBLI OR "content based language instruction" OR "content-based language instruction" OR "content based language learning" OR "content-based language learning" OR "content based approach" OR "content-based approach" OR (language W/3 curriculum) OR (languages W/3 curriculum) OR "language-content-task" OR "LCT framework" OR SIOP |

TABELL A12. Söksträngar som utformades genom kombination av block vid den kompletterande sökningen i databasen Scopus (S). Se tabell A11 för beskrivning av blocken.

| DATA-BAS | BEGRÄNSNING (DOKUMENTTYP) | (ÄMNESOMRÅDE) | SÖKSTÄNG | PUBLICERINGS-TID |
|----------|----------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|------------------|
| S | Artikel Artikel under utgivning Översiktsartikel Bokkapitel | Konst och humaniora Psykologi Samhällsvetenskap | (block Y _s) AND (block Z _s) | fr.o.m. 2000 |

Sökning i skandinaviska, vetenskapliga databaser

Fyra databaser, dvs. Den Danske Forskningsdatabas, Libris, Oria (uio.oria.no) och SwePub, användes. I varje databas utfördes två sökningar, dvs. en sökning med sökord på engelska och en annan sökning med sökord på databasens originalspråk, i alla sökfälten.

Sökningarna utfördes i januari 2017, utom sökningen på danska i Den Danske Forskningsdatabas som utfördes i juni 2017. Sökningarna utfördes genom att kombinera block med sökord inom skolundervisning, naturvetenskap och språkutveckling. Blocken kombinerades med hjälp av den booleska operatoren AND. Sökresultaten begränsades till litteratur publicerad år 2000–2016.

Se tabell A13 för detaljerad beskrivning av blocken och tabell A14 för blockkombinationerna och begränsningarna vid sökningarna på engelska i de skandinaviska, vetenskapliga databaserna.

TABELL A13. Block som användes vid sökningarna på engelska i de skandinaviska, vetenskapliga databaserna.

| BLOCK | SÖKSTRÅNG |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Skolundervisning (block P) | school* OR teach* OR learn* OR tutor* OR student* OR pupil* OR class* OR classroom* OR practice* OR instruct* OR educat* OR didactic* OR pedagog* OR grade* OR "junior high" OR highschool OR elementary OR primary grade* OR intermediate grade* OR middle grade* OR secondary grade* OR lyce* OR "sixth form" OR "lower sixth" OR "upper sixth" OR "key stage 5" OR junior college* OR gymnasium* OR "upper secondary" OR "lower secondary" |
| Naturvetenskap (block Q1) | science OR sciences OR biology OR chemistry OR physics OR geology OR astronomy |
| Naturvetenskap (block Q2) | science* OR biology OR chemistry OR physics OR geology OR astronomy |
| Språkutveckling (block R1) | bilingual* OR multilingual* OR "second language" OR "second languages" OR "additional language" OR "additional languages" OR "learner of danish" OR "learners of danish" OR "non-native" OR "non-natives" OR "danish for speakers of another language" OR "danish for speakers of other languages" OR "non-danish language background" OR "non-danish language backgrounds" OR "asylum seeker" OR "asylum seekers" OR refugee* OR fugitive* OR migrant* OR immigrant* OR newcomer* OR foreign* OR "newly arrived" OR "language minorities" OR "language minority" OR "minority languages" OR "minority language" OR "minority group" OR "minority groups" OR "ethnic minority" OR "ethnic minorities" OR "ethnically diverse" OR "ethnically heterogeneous" OR "linguistically diverse" OR "linguistically heterogeneous" OR "culturally diverse" OR "culturally heterogeneous" OR multicultural OR "multi-cultural" OR multiethnic OR "multi-ethnic" OR nonmainstream OR "non-mainstream" |
| Språkutveckling (block R2) | bilingual* OR multilingual* OR "second language" OR "additional language" OR "learner of swedish" OR "learners of swedish" OR "non-native" OR "swedish for speakers of another language" OR "swedish for speakers of other languages" OR "non-swedish language background" OR "non-swedish language backgrounds" OR "swedish language learners" OR "asylum seeker" OR "asylum seekers" OR refugee* OR foreign* OR fugitive* OR migrant* OR immigrant* OR newcomer* OR "newly arrived" OR language minorit* OR minority language* OR minority group* OR ethnic minorit* OR ethnically divers* OR "ethnically heterogeneous" OR linguistically divers* OR "linguistically heterogeneous" OR culturally divers* OR "culturally heterogeneous" OR multicultural OR "multi-cultural" OR multiethnic OR "multi-ethnic" OR nonmainstream OR "non-mainstream" |
| Språkutveckling (block R3) | bilingual* OR multilingual* OR "second language" OR "additional language" OR "learner of norwegian" OR "learners of norwegian" OR "non-native" OR "norwegian for speakers of another language" OR "norwegian for speakers of other languages" OR "non-norwegian language background" OR "non-norwegian language backgrounds" OR "norwegian language learners" OR "asylum seeker" OR "asylum seekers" OR refugee* OR fugitive* OR foreign* OR migrant* OR immigrant* OR newcomer* OR "newly arrived" OR language minorit* OR minority language* OR minority group* OR ethnic minorit* OR ethnically divers* OR |

"ethnically heterogeneous" OR linguistically divers* OR "linguistically heterogeneous" OR culturally divers* OR "culturally heterogeneous" OR multicultural OR "multi-cultural" OR multiethnic OR "multi-ethnic" OR nonmainstream OR "non-mainstream"

TABELL A14. Söksträngar som utformades genom kombination av block vid sökningarna på engelska i de skandinaviska, vetenskapliga databaserna.

| DATABAS | SÖKSTRÄNG | PUBLIKATIONSTYP |
|--------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Den Danske Forsknings-database | (block Q1) AND (block R1) | Afhandling-Ph.D. Afhandling-Doktor |
| LIBRIS | (block Q2) AND (block R2) | Avhandling Artiklar/kapitel övriga |
| SwePub | (block P) AND (block Q2) AND (block R2) | Doktorsavhandling Tidskriftsartikel (referentgranskat) Bokkapitel (referentgranskat) Forskningsöversikt (referentgranskat) Samlingsverk (redaktörskap) |
| Oria (Alle bibliotek) | (block Q2) AND (block R3) | Avhandlingar |

Se tabell A15 för detaljerad beskrivning av blocken och tabell A16 för blockkombinationerna och begränsningarna vid sökningarna på databasens originalspråk i de skandinaviska, vetenskapliga databaserna.

TABELL A15. Block som användes vid sökningar på databasens originalspråk i de skandinaviska, vetenskapliga databaserna.

| BLOCK | SPRÅK | SÖKSTRÄNG |
|-------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Naturvetenskap (block S1) | Danska | naturfag* OR naturvidenskab* OR biologi OR kemi OR fysik OR geologi* OR astronomi* OR genrepædagog* OR sprogbaseret* OR stilladiser* |
| Naturvetenskap (block S2) | Svenska | NO-klass* OR NO-undervisn* OR NO-ämne* OR NO-lärare* OR NO-kunskap* OR NO-stud* OR NO-elev* OR naturorienter* OR naturvetenskap* OR biologi* OR kemi* OR fysik* OR geologi* OR astronomi* OR "språk- och kunskapsutvecklande" OR "språkinriktad ämnesundervisning" OR "språkutvecklande ämnesundervisning" OR genrepædagog* OR cirkelmodell* OR stött* |
| Naturvetenskap (block S3) | Norska | naturfag* OR naturvitenskap* OR biologi* OR kjemi* OR fysikk* OR geologi* OR astronomi OR genrepædagog* OR støtte* OR fag- og språkutvikl* |
| Språkutveckling (block T1) | Danska | andetsprog* OR flersprog* OR tosprag* OR indvand* OR flygtning* OR udlændi* OR nyankom* OR multikultur* OR "andet modersmål" OR asylansøg* OR alenekommende* OR migrant* OR immigrant* OR minoritet* |
| Språkutveckling (block T2) | Svenska | andraspråk* OR flerspråk* OR tvåspråk* OR asyl* OR flykting* OR ensamkommande* OR utlän* OR migranter* OR invandra* OR immigrant* OR "direktintegrerade elever" OR minoritet* OR nyanlända* OR multikultur* OR "annat modersmål" |
| Språkutveckling (block T3) | Norska | andrespråk* OR flerspråk* OR tospråk* OR asylsøk* OR flykting* OR alenekommende* OR utlændi* OR migrant* OR innvandrere* OR minoritet* OR nykom* OR nyankom* OR "nylig ankomne" OR nytilkom* OR multikultur* OR "annet morsmål" |

TABELL A16. Söksträngar som utformades genom kombination av block vid sökningarna på databasens originalspråk i skandinaviska, vetenskapliga databaser.

| DATABAS | SÖKSTRÄNG | PUBLIKATIONSTYP |
|----------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Den Danske Forskningsdatabas | (block S1) AND (block T1) | Afhandling-Ph.D. Tidsskrift-artikel |
| LIBRIS | (block S2) AND (block T2) | Avhandlingar Artiklar/kapitel övriga |
| SwePub | (block S2) AND (block T2) | Doktorsavhandling Tidskriftsartikel (referentgranskat) Bokkapitel (referentgranskat) Forskningsöversikt (referentgranskat) Samlingsverk (redaktörskap) |
| Oria (Böcker i norske fagbibliotek) | (block S3) AND (block T3) | Avhandlingar Artikler |

Kompletterande sökning i skandinaviska, vetenskapliga databaser

Kompletterande sökning utfördes i skandinaviska, vetenskapliga databaser för att även finna publikationer om undervisning baserad på integrering av ämnesinnehåll samt flera publikationer om undervisning i naturvetenskap.

Fyra databaser, dvs. Den Danske Forskningsdatabas, Libris, Oria (nb.oria.no) och SwePub, användes. För att finna publikationer om undervisning baserad på integrering av ämnesinnehåll utfördes sökningarna i alla fyra databaserna. För att finna flera publikationer om undervisning i naturvetenskap utfördes sökningarna i alla fyra databaserna utom Den Danske Forskningsdatabas.

Sökningarna utfördes i juni 2017. Sökningarna utfördes genom att kombinera block med sökord inom naturvetenskap och språkutveckling. Blocken kombinerades med hjälp av den booleska operatoren AND. Sökresultaten begränsades till litteratur publicerad år 2000–2017.

Se tabell A17 för detaljerad beskrivning av blocken och tabell A18 för blockkombinationerna och begränsningarna vid de kompletterande sökningarna i de skandinaviska, vetenskapliga databaserna för att finna publikationer om undervisning baserad på integrering av ämnesinnehåll.

TABELL A17. Block som användes vid de kompletterande sökningarna i de skandinaviska, vetenskapliga databaserna för att finna publikationer om undervisning baserad på integrering av ämnesinnehåll.

| BLOCK | SÖKSTRÄNG |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Naturvetenskap (block Q3) | science OR sciences OR biology OR chemistry OR physics OR geology OR astronomy OR naturfag* OR naturvidenskab* OR biologi* OR kemi* OR fysik* OR geologi* OR astronomi* |
| Naturvetenskap (block Q4) | science* OR biology OR chemistry OR physics OR geology OR astronomy OR NO-klass* OR NO-undervisn* OR NO-ämne* OR NO-lärare* OR naturkunskap* OR NO-stud* OR NO-elev* OR naturorienter* OR naturvetenskap* OR biologi* OR kemi* OR fysik* OR geologi* OR astronomi* |
| Språkutveckling (block R4) | "dual-language" OR "dual language" OR CLIL OR "content and language integrated" OR "content-language integrated" OR "content language integrated" OR immersion OR CBI OR "content based instruction" OR "content-based instruction" OR "content based learning" OR "content-based learning" OR "content based teaching" OR "content-based teaching" OR CBLT OR "content based language teaching" OR "content-based language teaching" OR CBLI |

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| | |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Språkutveckling (block R5) | OR "content based language instruction" OR "content-based language instruction" OR "content based language learning" OR "content-based language learning" OR "content based approach" OR "content-based approach" OR "language across the curriculum" OR "languages across the curriculum" OR "language across curriculum" OR "languages across curriculum" OR "language integrated curriculum" OR "language-integrated curriculum" OR "language-content-task" OR "LCT framework" OR SIOP OR "sheltered instruction observation protocol" |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

TABELL A18. Söksträngar som utformades genom kombination av block eller sökord vid de kompletterande sökningarna i de skandinaviska, vetenskapliga databaserna för att finna publikationer om undervisning baserad på integrering av ämnesinnehåll.

| DATABAS | SÖKSTRÄNG | PUBLIKATIONSTYP |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Den Danske Forskningsdatabase | (block Q3) AND (block R4) | Afhandling-Ph.D. Tidsskrift-artikel |
| LIBRIS | (block Q4) AND (block R5) | Avhandling Artiklar/kapitel övriga |
| SwePub | (block Q4) AND (block R5) | Doktorsavhandling Tidskriftsartikel (referentgranskat) Bokkapitel (referentgranskat) Forskningsöversikt (referentgranskat) Samlingsverk (redaktörskap) |
| Oria (Norske fagbibliotek, Inkluderer materiale ditt bibliotek ikke har tilgang til, Norwegian Open Research Archives (NORA)) | immersion AND science* immersion AND biology immersion AND chemistry immersion AND physics | Avhandlingar |

Se tabell A19 för detaljerad beskrivning av blocken och tabell A20 för blockkombinationerna och begränsningarna vid de kompletterande sökningarna för att finna flera publikationer om undervisning i naturvetenskap.

TABELL A19. Block som användes vid de kompletterande sökningar i den norska, vetenskapliga databasen Oria för att finna flera publikationer om undervisning i naturvetenskap.

| BLOCK | SÖKSTRÄNG |
|----------------------------|--------------------------------|
| Naturvetenskap (block S4) | naturfag* OR naturvitenskap* |
| Naturvetenskap (block S5) | biologi* OR kjemi* |
| Naturvetenskap (block S6) | fysikk* OR geologi* |
| Naturvetenskap (block S7) | astronomi* |
| Språkutveckling (block T4) | flerspråk* OR tospråk* |
| Språkutveckling (block T5) | andrespråk* OR "annet morsmål" |
| Språkutveckling (block T6) | fagutvikl* OR språkutvikl* |

TABELL A20. Söksträngar som utformades genom kombination av block eller sökord vid de kompletterande sökningarna i skandinaviska, vetenskapliga databaser för att finna flera publikationer om undervisning i naturvetenskap.

| DATABAS | SÖKSTRÄNG | PUBLIKATIONSTYP |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LIBRIS | naturkunskap* AND (block T2) | Avhandlingar Artiklar/kapitel övriga |
| SwePub | naturkunskap* AND (block T2) | Doktorsavhandling Tidskriftsartikel (referentgranskat) Bokkapitel (referentgranskat) Forskningsöversikt (referentgranskat) Samlingsverk (redaktörskap) |
| Oria (Norske fagbibliotek, Inkluder materiale ditt bibliotek ikke har tilgang til) | (block S4) AND (block T4) (block S4) AND (block T5) (block S4) AND (block T6) (block S5) AND (block T4) (block S5) AND (block T5) (block S5) AND (block T6) (block S6) AND (block T4) (block S6) AND (block T5) (block S6) AND (block T6) (block S7) AND (block T4) (block S7) AND (block T5) (block S7) AND (block T6) | Avhandlingar Artikler |

Citeringssökning

Publikationer som citerat följande 65 referenser eftersöktes i juni-juli 2017. Sökning utfördes i Scopus i första hand på de 65 referenser som bedömdes som intressanta vid relevansgranskning av fulltext. Om det i Scopus inte gick att hitta någon av referenserna eller någon publikation som citerat någon av referenserna, utfördes sökning även i Social Science Premium Collection på ProQuest och sedan i Google Scholar.

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Kedjesökning

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Handsökning

Följande vetenskapliga tidskrifter, som identifierats under arbetet och bedömts vara intressanta, genomsöktes manuellt i september 2017. Syftet var att hitta sent publicerade studier.

TABELL A21. Vetenskapliga tidskrifter som manuell genomsökning utfördes i.

| TIDSKRIFT | FR.O.M. |
|---------------------------------------------------|---------------------|
| <i>Cultural Studies of Science Education</i> | vol 11 nr 4 (2016) |
| <i>International Journal of Science Education</i> | vol 38 nr 10 (2016) |
| <i>Journal of Research in Science Teaching</i> | vol 54 nr 1 (2017) |
| <i>Language and Education</i> | vol 30 nr 6 (2016) |

Dessutom genomsöktes webbportalen Skolporten manuellt i oktober 2017 för avhandlingar inom kategorierna Naturvetenskap och Språk (<https://www.skolporten.se/forskning/avhandlingar/>).