Construction of Indicators and Subindexes

Table of Contents

Introduction 2
Curriculum policy 2
Curriculum practice 3
Pedagogy policy 5
Pedagogy practice 5
Training policy 8
Ethos policy 9
Ethos practice 9
Unitary System policy 11
Unitary System practice 11
Compulsory Education policy 13
Common Education policy 14
Common Education practice 14
Education for Democracy Index 15

Introduction

This document explains how we constructed the indicators and the policy and practice subindexes for the seven educational areas. For each subindex we first show the indicators included in it and the data source and full wording of the items on which these indicators are based. We then explain how we calculated the indicators. We note that we only do this for the policy and practice subindexes. As noted in the normalization and aggregation [link] section, some of the indicators were constructed differently for the levels and equality subindexes. We highlight with the color coding below what the composition of these indicators is. We do not provide the calculation of these indicators, but they generally follow the same logic of calculation as for the indicators for the other (sub)indexes. The data file [link] provides the separate indicators for the levels and equality subindexes.

Black = only to be included in the levels subindex
Red = only to be included in the equality subindex
Green = to be included in both the levels and equality subindexes

Curriculum policy

Development of the curriculum policy subindex using the ICCS 2009, 2016 and 2022 National Contexts Survey.

Indicator created: curriculum_policy_subindex

Indicators created:

1. formal_curriculum – Question 16a-c (*XA4G16BA*) Is civic and citizenship included as part of the formal curriculum? *XA4G16BA to ISCED 2.*
2. different_programs – Question 16b (*XA4G16BB*) Are there differences between different curricula across schools at this educational level? *XA4G16BB to ISCED 2*
    1. Yes
    2. No
3. curriculum_topic - Q19 (*XA4G19*) Are the following topics and skills included in the curriculum at the target grade?
    XA4G19A: Human rights
    XA4G19B: Voting elections
    XA4G19D:The environment and environmental sustainability
    XA4G19H: The constitution and political systems
    XA4G19L: Regional institutions and organisations (e.g. European Union, European Parliament, Organization of American States)
4. curriculum_aim – Q20 (*XA4G20*) Are the following learning objectives specified in the curriculum for the target grade?
    XA4G20A: Knowing basic civic and citizenship facts (e.g., about political institutions and processes)

XA4G20B: Understanding key civic and citizenship concepts (e.g., democracy, rights and responsibilities)
XA4G20C: Understanding key civic and citizenship values and attitudes (e.g., fairness, responsibility, engagement)
XA4G20I: Developing positive attitudes toward participation and engagement in civic and civil society

Normalization and Aggregation:

Indicator:

1. formal_curriculum: Rescale values from 1 to 0 and 2 to100.
2. different_programs: Rescale values from 1 to 0 and 2 to 100.
3. curriculum_topic: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
4. curriculum_aim: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Sub-index:

curriculum_policy_indicator: Arithmetic mean of formal_curriculum, different_programs, curriculum_topic, and curriculum_aim

Curriculum practice

Development of the curriculum practice subindex using the 2009, 2016 and 2022 ICCS School, Teacher, and Student surveys

Subindex created: curriculum_practice_subindex

Indicator created:

1. school_outside_activities_w_students–Q8 (*IC4G08*) During the current school year, how many [target grade] students in this school have had the opportunity to take part in any of these activities?
   IC4G08A – Activities related to environmental sustainability (e.g., [energy and water saving, recycling])
   IC4G08B – Activities related to human rights
   IC4G08C – Activities for underprivileged people or groups
   IC4G08D – Cultural activities (e.g., theatre, music)
   IC4G08F – Activities to raise people's awareness of social issues, such as [poverty, gender equality, domestic violence against women, sexual violence against women, violence against children]
2. teacher_outside_activities_w_students– Q8 (*IT4G08*) During the current school year, have you and your [target grade] students taken part in any of these activities?
   IT4G08A – Activities related to environmental sustainability (e.g., [energy and water saving, recycling])
   IT4G08B – Activities related to human rights

IT4G08C – Activities for underprivileged people or groups
IT4G08D – Cultural activities (e.g., theatre, music)
IT4G08F – Activities to raise people's awareness of social issues, such as [poverty, gender equality, domestic violence against women, sexual violence against women, violence against children]

Normalization and Aggregation:

Indictor:

1. s_t_outside_activities_w_students: We merge school_outside_activities_w_students and teacher_outside_activities_w_students since both measure the same activities, and keeping them separate would give them excessive weight.
    a. For school_outside_activities_w_students: Rescale values as follows: 5 ("not offered at school") → 0, 4 ("none or hardly any") → 1, 3 ("some of them") → 2, 2 ("most of them") → 3, and 1 ("all or nearly all") → 4. Then, calculate the arithmetic mean for each country.
    b. For teacher_outside_activities_w_students: Rescale values as follows: 1 → 100 and 2 → 0. Then, calculate the arithmetic mean for each country.

    Finally, compute the mean of both variables, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:

curriculum_practice_indicator: equal to s_t_outside_activities_w_students

Pedagogy policy

Development of the pedagogy policy subindex using the ICCS 2009, 2016 and 2022 National Contexts Survey.

Subindex created: pedagogy_policy_subindex

Indicator created:

1. curricula_guidelines – Question 15a-k (*XA4G15*) Are the following aspects of school organisation and operations explicitly recognised in national curricula or official guidelines for school education as contributing to civic and citizenship education in your country?
    XA4G15A – School governance and decision-making processes (e.g., school governing bodies/elected school boards)
    XA4G15B – Student participation (e.g., school/student councils)
    XA4G15E – Assemblies and special events
    XA4G15F – Extra-curricular activities (e.g., sports, political clubs, debating groups)
    XA4G15I – Student and teacher involvement in the community

2. learning_objectives – Q20 (*XA4G20*) Are the following learning objectives specified in the curriculum for the target grade?
    XA4G20D: Communicating through discussion and debate
    XA4G20E: Understanding decision-making and active participation
    XA4G20F: Becoming involved in decision-making in school
    XA4G20G: Participating in community-based activities

Normalization and Aggregation:

Indicator:

2. curricula_guidelines: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
3. learning_objectives: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:

pedagogy_policy_subindex: Arithmetic means of curricula_guidelines and learning_objectives

Pedagogy practice

Development of the pedagogy practice subindex using the 2009, 2016, and 2022 ICCS School, Teacher, and Student surveys

Subindex created: pedagogy_practice_subindex

Indicator created:

1. school_students_vote- Q4 (*IC4G04A:IC4G04B*) How many target grade students at this school…
   IC4G04A: elect their [class representatives]?
   IC4G04B: vote in [school parliament/council] elections?
2. teacher_often_open_classroom_activities– Q20 (*IT4G20*) How often do the following activities take place during your [target grade] lessons related to [civic and citizenship education]?
   IT4G20A - Students work on projects that involve gathering information outside school (e.g. interviews in the neighbourhood, small scale surveys).
   IT4G20B - Students work in small groups on different topics/issues
   IT4G20C - Students participate in role plays
   IT4G20H - Students propose topics/issues for the following lessons
3. student_open_discussion- Q16 (*IS4G16*) When discussing political or social issues during regular lessons, how often do the following things happen?
   IS4G16A – Teachers encourage students to make up their own minds.
   IS4G16B – Students [bring up] current political events for discussion in class.
   IS4G16C – Students express opinions in class even when their opinions are different from most of the other students.
   IS4G16D – Teachers encourage students to discuss the issues with people having different opinions.
   IS4G16E – Teachers present several sides of the issues when explaining them in class.
   IS4G16F – Teachers encourage students to express their opinions.
4. student_active_participation- Q15 (*IS4G15*) At school, have you ever done any of the following activities?
   IS4G15A – Active participation in an organized debate
   IS4G15B – Voting for [class representative] or [school parliament/council]
   IS4G15C – Taking part in decision-making about how the school is run
   IS4G15D – Taking part in discussions at a [student assembly/gathering]
   IS4G15E – Becoming a candidate for [class representative] or [school parliament/council]

Normalization and Aggregation:

Indicator:

1. school_students_vote: Rescale the values as follows: 5 ("not applicable") → NA, 4 ("none or hardly any") → 0, 3 ("some of them") → 1, 2 ("most of them") → 2, and 1 ("all or nearly all") → 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
2. teacher_often_open_classroom_activities: Rescale the values as follows: 1 ("never") → 0, 2 ("sometimes") → 1, 3 ("often") → 2, and 4 ("very often") → 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

3. student_open_discussion: Rescale the values as follows: 1 ("never") → 0, 2 ("sometimes") → 1, 3 ("often") → 2, and 4 ("very often") → 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
4. student_active_participation – Rescale the values as follows: 3 ("No, I have never done this") → 0, 2 ("Yes, I have done this more than a year ago") → 1, and 1 ("Yes, I have done this within the last twelve months") → 2. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:

pedagogy_practice_subindex: Arithmetic means of all 4 sub-indicators.

Training policy

Development of the training policy subindex using the 2009, 2016, and 2022 ICCS National Context survey

Subindex created: training_policy_subindex

Indicator created:

1. nc_training_mandatory - Question 27 (*XA4G27*) Is civic and citizenship education covered as mandatory part of pre- service/initial teacher education for the following groups of target grade teachers? (Yes/No)
   XA4G27A – Specialist teachers of civic and citizenship education
   XA4G27C – Teachers of Human/Social Sciences (History, Geography, Civics, Law, Economics, etc.)
2. nc_training_in_service – Question 30 (*XA4G30*) Is in-service, continuing education or professional development for civic and citizenship education offered to the following groups of target grade teachers? (Yes/No)
   XA4G30A – Specialist teachers of civic and citizenship education
   XA4G30C – Teachers of Human/Social Sciences (History, Geography, Civics, Law, Economics, etc.)

Normalization and Aggregation:

Indicator:

1. nc_training_mandatory: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
2. nc_training_in_service: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:

training_policy_subindex: Arithmetic means of nc_training_madatory and nc_training_in_service.

Ethos policy

Development of the ethos policy subindex using the 2009, 2016, and 2022 ICCS National Context survey

Subindex created: ethos_policy_subindex

Indicator created:

ethos_guidelines – Question 15 (XA4G15) Are the following aspects of school organisation and operations explicitly recognised in national curricula or official guidelines for school education as contributing to civic and citizenship education in your country? (Yes/No)

XA4G15C: School ethos, culture and values (e.g. school code of conduct)
XA4G15D: Parental/community involvement in school
XA4G15G: Classroom experiences/ethos
XA4G15H: School/community links (e.g., partnerships between school and the local community)

Normalization and Aggregation:

Indicator

1. ethos_guidelines: Rescale 2 to 0, keeping 1 as 1. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:

ethos_policy_subindex: equal to ethos_guidelines

Ethos practice

Development of the ethos practice subindex using the 2009, 2016, and 2022 ICCS School and Student surveys

Subindex created: ethos_practice_subindex

Indicator created:

1. school_ethos_student_involvement: Question 3 (IC4G03) In your opinion, to what extent do the following statements apply to this school, in the current school year?
   IC4G03A – Students are involved in designing [school educational plan].
   IC4G03B – Students are involved in the definition of school rules and regulations.
2. school_ethos_teacher_participation: Question 2 (IC4G02) In your opinion, how many teachers participate as follows at this school?
   IC4G02A – Making useful suggestions for improving school governance.
   IC4G02B – Supporting good discipline throughout the school.
   IC4G02C – Actively taking part in school [development/improvement activities].
   IC4G02D – Encouraging students' active participation in school life.

IC4G02E – Being willing to be members of the [school council, school governing board] as teacher representatives.

Normalization and Aggregation:

Indicator:

1. school_ethos_student_involvement: Rescale the values as follows: 4 ("not at all") → 0, 3 ("to a small extent") → 1, 2 ("to a moderate extent") → 2, and 1 ("to a large extent") → 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
2. school_ethos_teacher_participation: Rescale the values as follows: 4 ("none or hardly any") → 0, 3 ("some of them") → 1, 2 ("most of them") → 2, and 1 ("all or nearly all") → 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:
ethos_practice_subindex: Arithmetic means of school_ethos_student_involvement and school_ethos_teacher_participation

Unitary System policy

Development of the autonomy policy subindex using the 2009, 2016, and 2022 ICCS National Context survey.

Subindex created: unitary_system_policy_subindex

Indicators created:

1. nc_autonomy_assessment Question 3 (XA4G03G) How much autonomy do schools with students in the target grade usually have in relation to: Student assessment in civic and citizenship education
2. nc_autonomy_school_governance Question 3 (XA4G03A) How much autonomy do schools with students in the target grade usually have in relation to: How much autonomy do schools with students in the target grade usually have in relation to: Student assessment in civic and citizenship education
3. nc_autonomy_curriculum Question 3 (XA4G03D) How much autonomy do schools with students in the target grade usually have in relation to: Civic and citizenship curriculum planning and delivery
4. nc_autonomy_teacher_recruitment Question 3 (XA4G03D) How much autonomy do schools with students in the target grade usually have in relation to: teacher recruitment

Normalization and Aggregation:

Indicators

1. nc_autonomy_assessment - Rescale values of 1 (“Complete or a high level of autonomy”) to 0, 2 (“some autonomy”) to 50, and 3 (“Little or no autonomy”) to 100.
2. nc_autonomy_school_governance - Rescale values of 1 (“Complete or a high level of autonomy”) to 0, 2 (“some autonomy”) to 50, and 3 (“Little or no autonomy”) to 100.
3. nc_autonomy_curriculum - Rescale values of 1 (“Complete or a high level of autonomy”) to 0, 2 (“some autonomy”) to 50, and 3 (“Little or no autonomy”) to 100.
4. nc_autonomy_teacher_recruitment - Rescale values of 1 (“Complete or a high level of autonomy”) to 0, 2 (“some autonomy”) to 50, and 3 (“Little or no autonomy”) to 100.

Subindex:
unitary_system_policy_subindex: arithmetic mean of nc_autonomy_assessment, nc_autonomy_school_governance, nc_autonomy_curriculum, nc_autonomy_teacher_recruitment

Unitary System practice

Development of the autonomy practice subindex using the 2009, 2016, and 2022 ICCS School and Teacher surveys

Subindex created: unitary_system_practice_subindex

Indicator created:

1. school_autonomy_cc_activities: Question 18 (IC4G18) How much autonomy does this school have with regard to the following activities related to civic and citizenship education?
    IC4G18A – Choice of textbooks and teaching materials.
    IC4G18B – Establishing student assessment procedures and tools.
    IC4G18C – Curriculum planning.
    IC4G18D – Determining the content of in-service professional development programmes for teachers.
    IC4G18E – Organising [extra-curricular activities].
2. teacher_autonomy_official_curricula: Question 19 (IT4G19A) In planning lessons related to [civic and citizenship education] for your [target grade] students, to what extent do you draw on the following sources?
    IT4G19A: Official curricula, curricular guidelines or frameworks

Normalization and Aggregation:

Indicator:

1. school_autonomy_cc_activities: school_autonomy_cc_activities: rescale values of 1 ("full autonomy") to 0, 2 ("quite a lot of autonomy") to 1, 3 ("little autonomy") to 2, and 1 ("no autonomy") to 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.
2. teacher_autonomy_official_curricula: Rescale values of 4 ("not at all") to 0, 3 ("to a small extent") to 1, 2 ("to a moderate extent") to 2, and 1 ("large extend") to 3. Then, calculate the arithmetic mean for each country, normalize by dividing by the leading country's value, and multiply by 100.

Subindex:
unitary_system_practice_subindex: arithmetic mean of school_autonomy_cc_activities and teacher_autonomy_official_curricula

Compulsory Education policy

Development of the compulsory education subindex using the 2009, 2016, and 2022 ICCS National Context survey

Subindex created: ce_policy_subindex

Indicators created:

1. nc_ce_years_of_education: Question 4 (XA4G04C) How many years of compulsory education are there?

Normalization and Aggregation:

Indicators:

1. nc_ce_years_of_education: Normalize by dividing by the leading country's value and multiply by 100.

Subindex:
ce_policy_subindex: equal to years of compulsory education

Common Education policy

Development of the tracking policy subindex using the 2009, 2016, and 2022 PISA survey

Subindex created: tracking_policy_subindex

Indicators created:

1. age_selection- age of first stratification in the education system

Normalization and Aggregation:

Indicators:

1. tracking_policy_indicator: Normalize by dividing by the leading country's value and multiply by 100.

Subindex:
Common_education_policy_subindex – equal to age of first selection

Common Education practice

Development of the tracking practice subindex using the 2009, 2016, and 2022 PISA survey

Sub-index created: tracking_practice_indicator

Indicators created:

1. ability_grouping– Ability grouping between classes for all student (%) and ability grouping within classes for all students (%)

Normalization and Aggregation:

Indicators:

1. ability_grouping - Normalize by dividing by the leading country's value and multiply by 100.

Subindex:
Common_education_practice_subindex: equal to ability grouping

Education for Democracy Index

For the non-system index, we exclude system characteristics such as autonomy, tracking, and compulsory education. To construct the index, we using the following aggregation:

- Non-system index= (((Curriculum x 5) + (Pedagogy x 5) + (Training x 2.5) + (Ethos x 2.5) / 15)

In building the policy and practice index we only include the relevant policy or practice indicators. For example, to construct the policy index we use the following equation

- Policy index = (((Curriculum policy x 5) + (Pedagogy policy x 5) + (Training policy x 2.5) + (Ethos policy x 2.5) + (Autonomy policy x 2.5) + (Tracking policy x 2.5) + (Compulsory education x 5)) / 25)

For practice, we use:

- Practice index = (((Curriculum practice x 5) + (Pedagogy practice x 5) + (Ethos policy x 2.5) + (Autonomy policy x 2.5) + (Tracking policy x 2.5) + (Compulsory education x 5)) / 22.5)

As mentioned before the levels and equality index vary in terms of the indicators included and the construction of certain indicators, that is the items included. For example, in building the equality curriculum policy area we include the 3 indicators of differences in program, aims, and topics (see edfi data file [link]). While in levels, for the curriculum policy area we include the 3 indicators of formal requirements, aims, and topics. For the equality index, there are also variations in the items included when constructing indicators in curriculum policy as well as pedagogy practice and policy. The section above illustrates these differences through color coding.

For levels, we use:

- Levels index = (((Curriculum x 5) + (Pedagogy x 5) + (Training x 1) + (Ethos x 5) + (Compulsory education x 5)) / 21)

For equality, we use:

- Equality = (((Curriculum x 1) + (Pedagogy x 5) + (Autonomy x 5) + (Tracking x 5) + (Compulsory education x 5)) / 21)