



OECD Learning Environments Evaluation Programme [LEEP]: **Achievements & activities**

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XI Regional Workshop on school infrastructure

Learning in 21st century schools

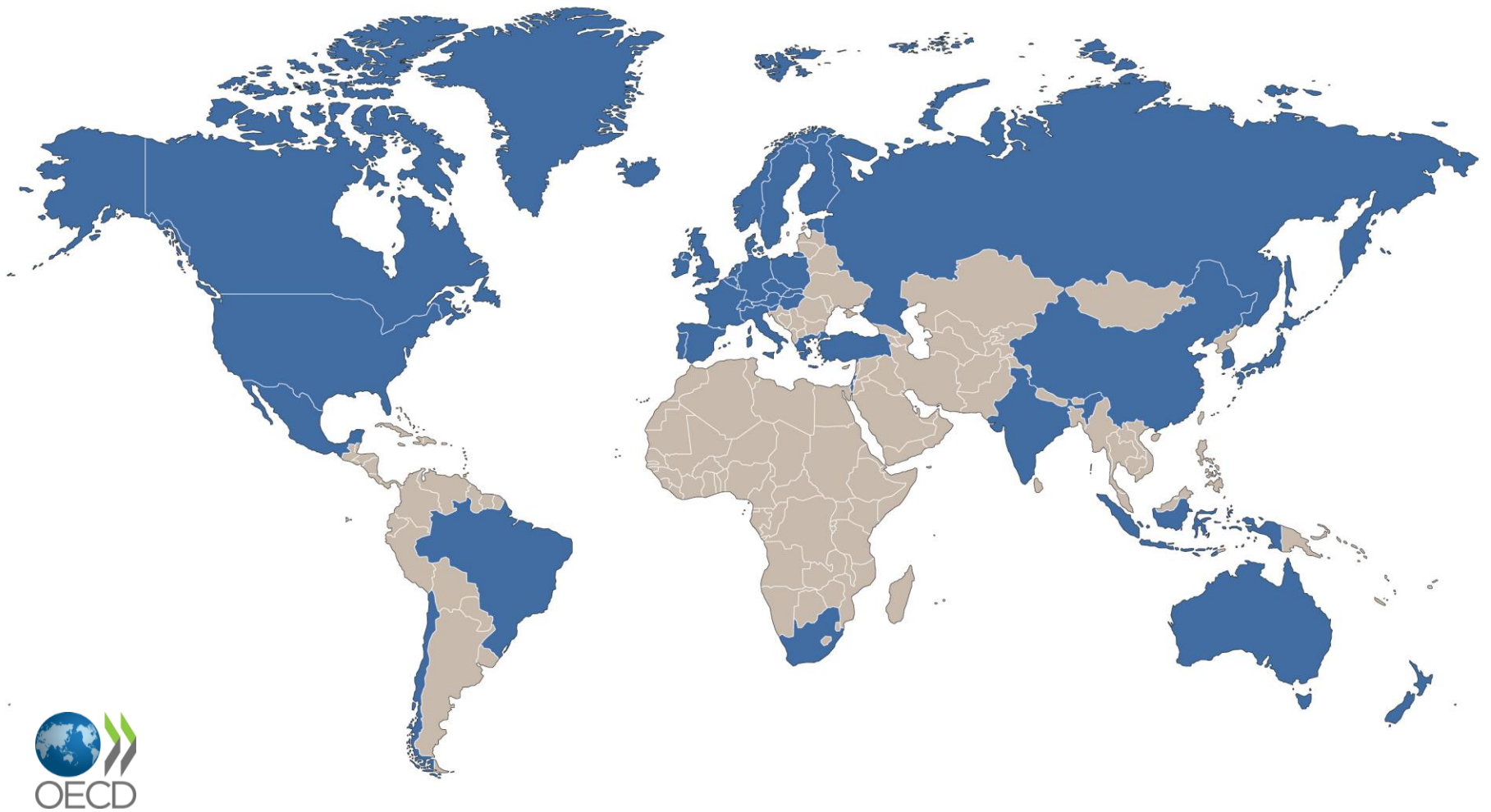
Inter-American Development Bank

Bridgetown, 31 March 2017



Agenda: Topics covered in this presentation

- OECD and PISA
- Learning Environments Evaluation Programme
- LEEP Questionnaire development – LEEP Module field trial
- Earthquake Safety for Schools
- UN Sustainable Development Goals [SDGs]



35 Member countries

Accession countries: Colombia, Costa Rica, Lithuania

Ongoing membership talks with Russia

Key Partners: Brazil, China, India, Indonesia, and South Africa



OECD Directorate of Education and Skills

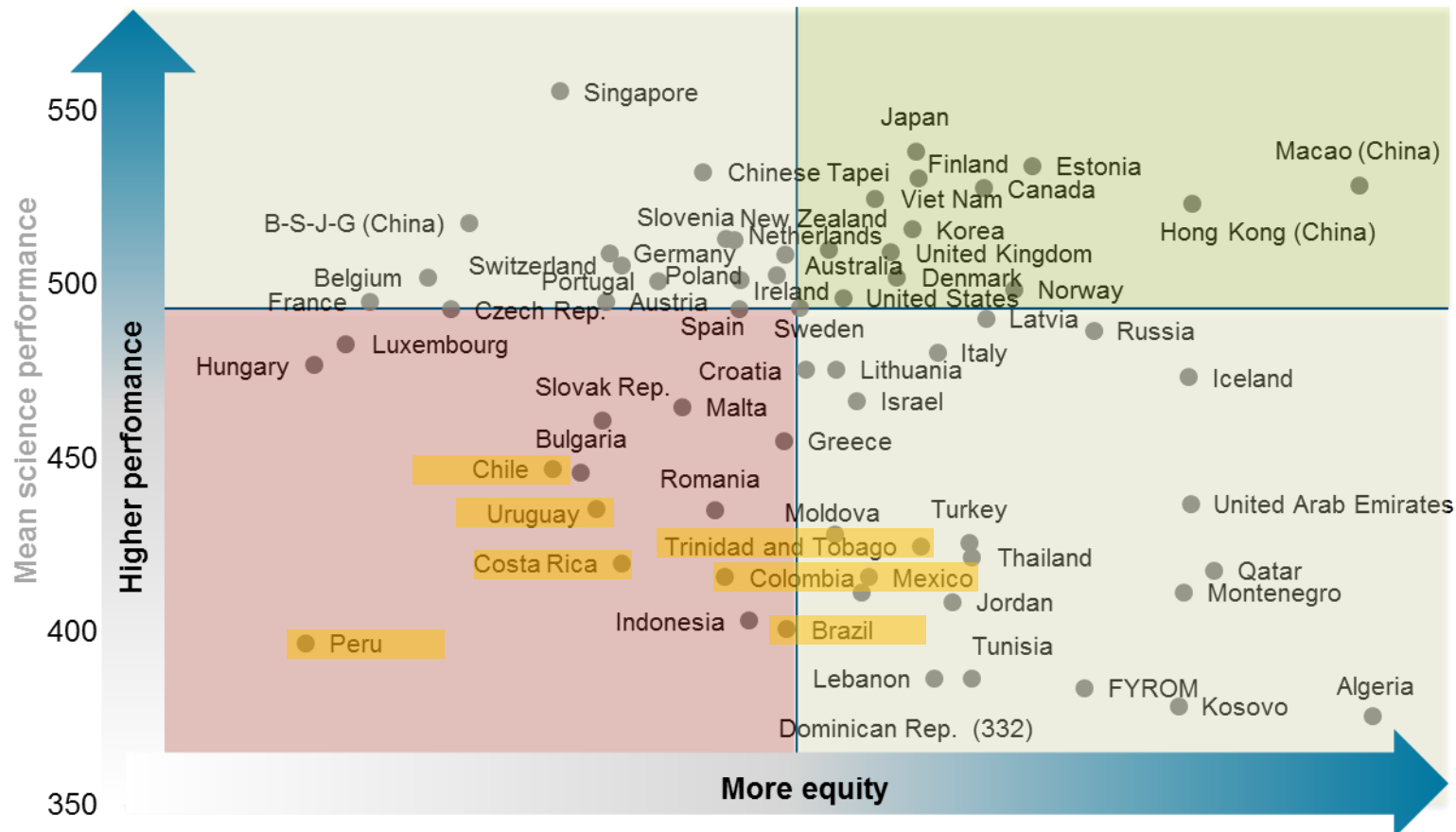
The OECD Directorate for Education and Skills focuses on helping countries to identify and develop the knowledge and skills that drive better jobs and better lives, generate prosperity and promote social inclusion, and accompanies them in the difficult process of policy implementation.





Science performance and **equity** in PISA (2015)

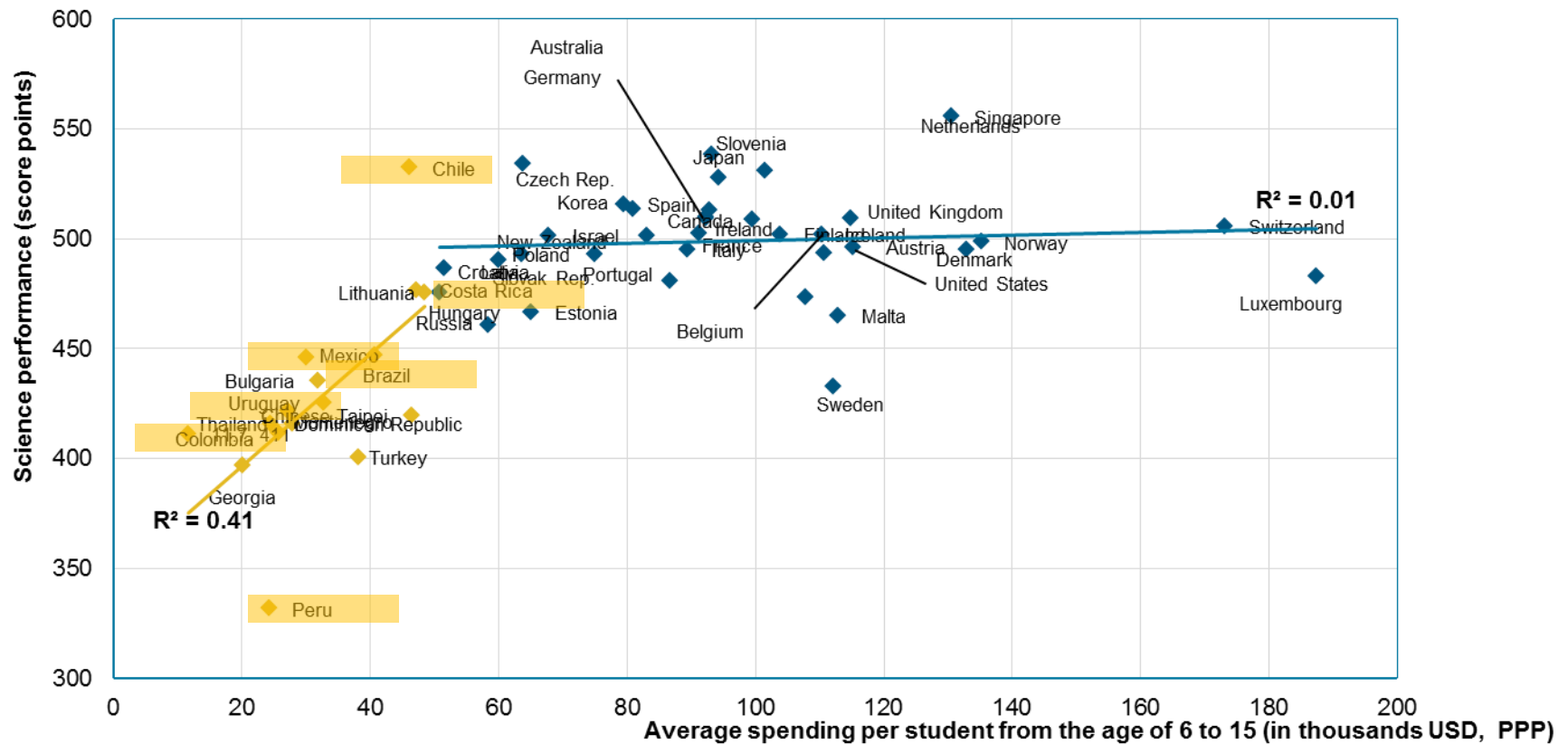
Some countries combine excellence with equity





Spending per student from the age of 6 to 15 and science performance

Figure II.6.2



What is **LEEP**



What is LEEP

- **LEARNING ENVIRONMENTS EVALUATION PROGRAMME (LEEP)** was launched in 2013 and it seeks to broaden and re-focus the work of the OECD Centre for Effective Learning Environments (CELE) by examining the relationship between a range of policy levers that shape the learning environment and educational and other outcomes.
- **MISSION:** “To produce **instruments** and **analyses** that inform school leaders, researchers, designers, policymakers and others about how investments in learning environments, including educational spaces and different technologies, translate into **improved learning, health, social and well-being outcomes**, leading to more efficient use of education resources.”



Definitions & objective

Objective:

- To develop the **evidence base** for how the physical learning environment* impacts on learning by continuing the implementation of the Learning Environments Evaluation Programme (LEEP) evaluation methodology and carry out analysis of existing research, data and literature.
- To create **best practice guidelines supported by toolkits** to assist OECD countries in developing physical learning environments that meet the needs of 21st century learning and guide investment decisions.

*A physical learning environment is a term used to describe the interplay between the physical resources and complex learning, social, online, and other environments.



The 3 dimensions defined by LEEP

The **factors** that lead to successful education outcomes include **3 dimensions** defined by LEEP:

- i) achieving effective learning environments (**effectiveness**),
- ii) enabling more efficient use of space with regard to resource and space planning, use and management (**efficiency**), and
- iii) providing sufficient to meet the minimum requirements to ensure users' comfort, access, health, safety and security (**sufficiency**).



Effectiveness, Efficiency, Sufficiency

Educational effectiveness: the ability of a school or school system to adequately **accomplish its stated education objectives**. Studies of educational effectiveness analyse whether specific resource inputs have positive effects on outputs, broadly defined (OECD, 2013c).

Educational efficiency: the achievement of stated education objectives **at the lowest possible cost**. In other words, efficiency is effectiveness plus the additional requirement that this is achieved in the least expensive manner (OECD, 2013c).

Educational sufficiency: the baseline components of the built environment which are considered **necessary conditions** for providing the affordances most likely to impact on student learning (e.g. access to safety, water, natural light, power, heat and technology) in changing demographic, social and political contexts.



LEEP: explore desired outcomes

Increased
community
participation

Improved student
performance

Less student
absenteeism

More effective
and innovative
teaching



Healthier and happier
students and teachers

Improved access
to education

Fewer incidences of
bullying and negative
behaviours



To meet the demands of 21st century skills

Education systems are expected to help students **develop:**

Way of thinking:

- Creativity
- Critical thinking
- Problem-solving

Way of working:

- Collaboration
- Teamwork
- Adaptability
- Leadership

Way of living together:

- Curiosity
- Empathy
- Self-esteem
- Resilience

Pedagogy from teaching to learning

Teaching and teacher centric

- Teacher as knower/expert
- 'Covers' the curriculum
- Knowledge as certain
- Learner **passive**
- Sort learners

Learner and learning centric

- Teacher facilitates learning
- Engages learner in 'discovering'
- Knowledge as evolving
- Learner **active**
- Developing capabilities to learn for life

The LEEP module:

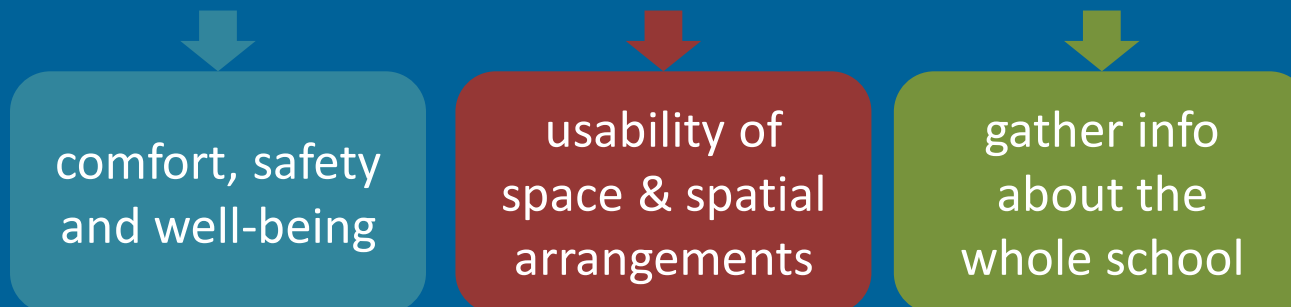
**Developing the questionnaires & the
field trial**



Development of LEEP module

| LEEP Questionnaires on efficiency, effectiveness and sufficiency | | |
|---|-----------------------|----------------------|
| Student questionnaire | Teacher questionnaire | School questionnaire |
| 21 questions | 30 questions | 14 questions |
| 5 sections | 8 sections | 4 sections |
| Common question about overall satisfaction | | |

The questionnaires were re-engineered to **focus** on only a few issues.





| | Student questionnaire | Teacher questionnaire | School questionnaire |
|-----------|-------------------------|--|--|
| Section 1 | About You 4 | About You 8 | About You 6 |
| Section 2 | Spaces you use 6 | About your school 2 | The physical environment of the school 4 |
| Section 3 | Comfort 8 | Spaces you use 5 | Technology at the school 3 |
| Section 4 | Safety and well being 2 | Comfort 6 | Overall satisfaction 1 |
| Section 5 | Overall satisfaction 1 | Technology 2 | |
| Section 6 | | Arrangement of the space 5 | |
| Section 7 | | Space for admin work & class preparation 1 | |
| Section 8 | | Overall satisfaction 1 | |



LEEP module **field trial**

Main facts and figures:

| | Planned | |
|---|-----------------|--|
| Age group of students: | 13-18 year olds | |
| Number of schools per country: | 6-12 | |
| Number of students per school: | 50-60 | |
| Total student questionnaires per country: | 300-720 | |
| Number of teachers per school: | 8-12 | |
| Total teacher questionnaires per country: | 48-144 | |
| Total school questionnaires per country: | 6-12 | |



Student questionnaire

comfort, safety
and well-being

Section 1: About you

General questions

About You

4

Section 2: Spaces you use

Use of spaces during lesson time

Use of spaces outside lesson time

Use of outdoor spaces

Spaces you use

6

Section 3: Comfort

Temperature

Quality of air; Quality of natural light

Sound & See

Comfort of desk/chairs; Shade

Comfort

8



Student questionnaire

comfort, safety
and well-being

Section 4: Safety and well-being

Safety and well being **2**

19. In general, do you feel safe in your school?
20. Do you feel **safe** (i.e not embarrassed or afraid) in different parts of the school and grounds? *(5 items)*
(toilet facilities; learning spaces; school buildings; school grounds)

Section 5: Overall satisfaction

Overall satisfaction **1**

21. In general, how satisfied are you with the spaces you use for learning? (all)



Teacher questionnaire

usability of
space & spatial
arrangements

Section 1: About you

General questions

About You

4

Section 2: About your school

Vision of school shared with principals

Potential impact of the buildings and facilities

About your school

2

Section 3: Spaces you use

If they use only one classroom

Number of teachers; number of students in a class

Frequency of use of internal and external spaces

Spaces you use

5



Teacher questionnaire

usability of
space & spatial
arrangements

Section 4: Comfort

Temperature

Quality of air; Quality of natural light

Sound

Control over temperature, natural light, etc

(In all of the spaces; In most of the spaces; In a few of the spaces; In none of the spaces used)

Comfort

6

Section 5: Technology

Available technology equipment

Use of technology equipment

Technology

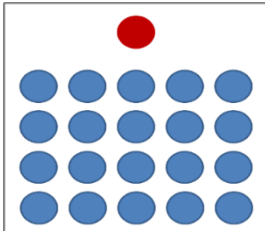
2



Teacher questionnaire

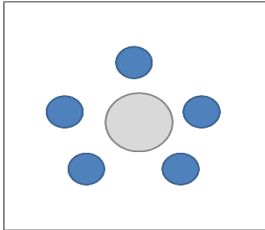
usability of
space & spatial
arrangements

Section 6: Arrangement of the space



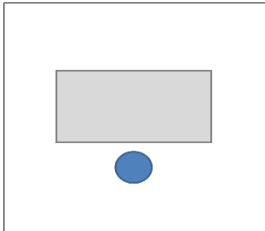
Presentation:

Layouts that support explicit instruction/presentation to the whole group.



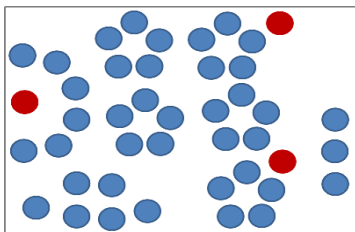
Group:

Layouts that support approaches where students are required to collaborate and work in small groups to share ideas and help each other.



Individual:

Layouts that support approaches where students work independently to write, read, research, think and reflect.



Team teaching:

Layouts that support approaches where two or more teachers work collaboratively with groups of students sharing the same space.



Teacher questionnaire

usability of
space & spatial
arrangements

Section 6: Arrangement of the space

Arrangement
of the space

5

24. Thinking about your current teaching, how often do you use the following spatial arrangements?
25. Thinking about the spaces/rooms in which you teach, how often do you: (*rearrange layout*) (*4 items*)
26. Thinking about the spaces/rooms in which you teach and what supports or hinders the use of different spatial settings, how much do you agree or disagree with the following statements?
27. When you need to, in what proportion of the spaces/rooms in which you teach can you quickly (in less than 5 minutes) rearrange the furniture to create any of the following arrangements?
28. If you could, how often do you think that you would use any of the following spatial arrangements for teaching?



Teacher questionnaire

usability of
space & spatial
arrangements

Section 7: Space for administrative work and class preparation

Space for admin work
& class preparation

1

Provision of quiet space in school to work; space to socialise; meet parents

Section 8: Overall satisfaction

Overall satisfaction

1

30. In general, how satisfied are you with the spaces/rooms in which you teach? (all)



School questionnaire

gather info
about the
whole school

Section 1: The structure and organisation of the school

General questions

About You

6

Section 2: The physical environment of the school

Temporary buildings ; age of buildings

Allocation of classrooms/learning spaces

School's vision shared with teachers

Potential impact of buildings and facilities

The physical environment
of the school

4



School questionnaire

gather info
about the
whole school

Section 3: Technology at the school

Technological equipment available

Bring-their-own-device scheme

Internet speed

Technology
at the school

3

Section 4: Overall satisfaction

Overall satisfaction

1

14. In general, how satisfied are you with the spaces of your school?
(all)

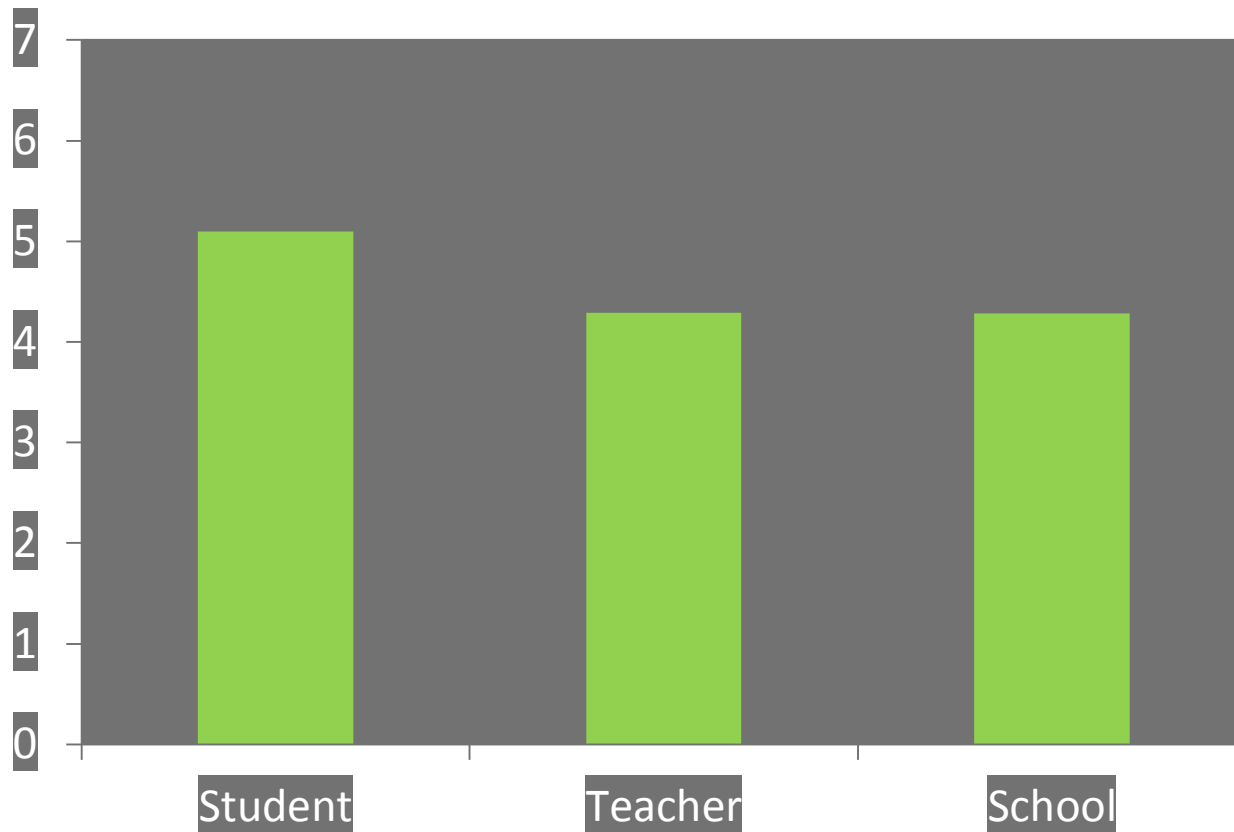
LEEP field trial:

Main findings



Norway Questionnaire results

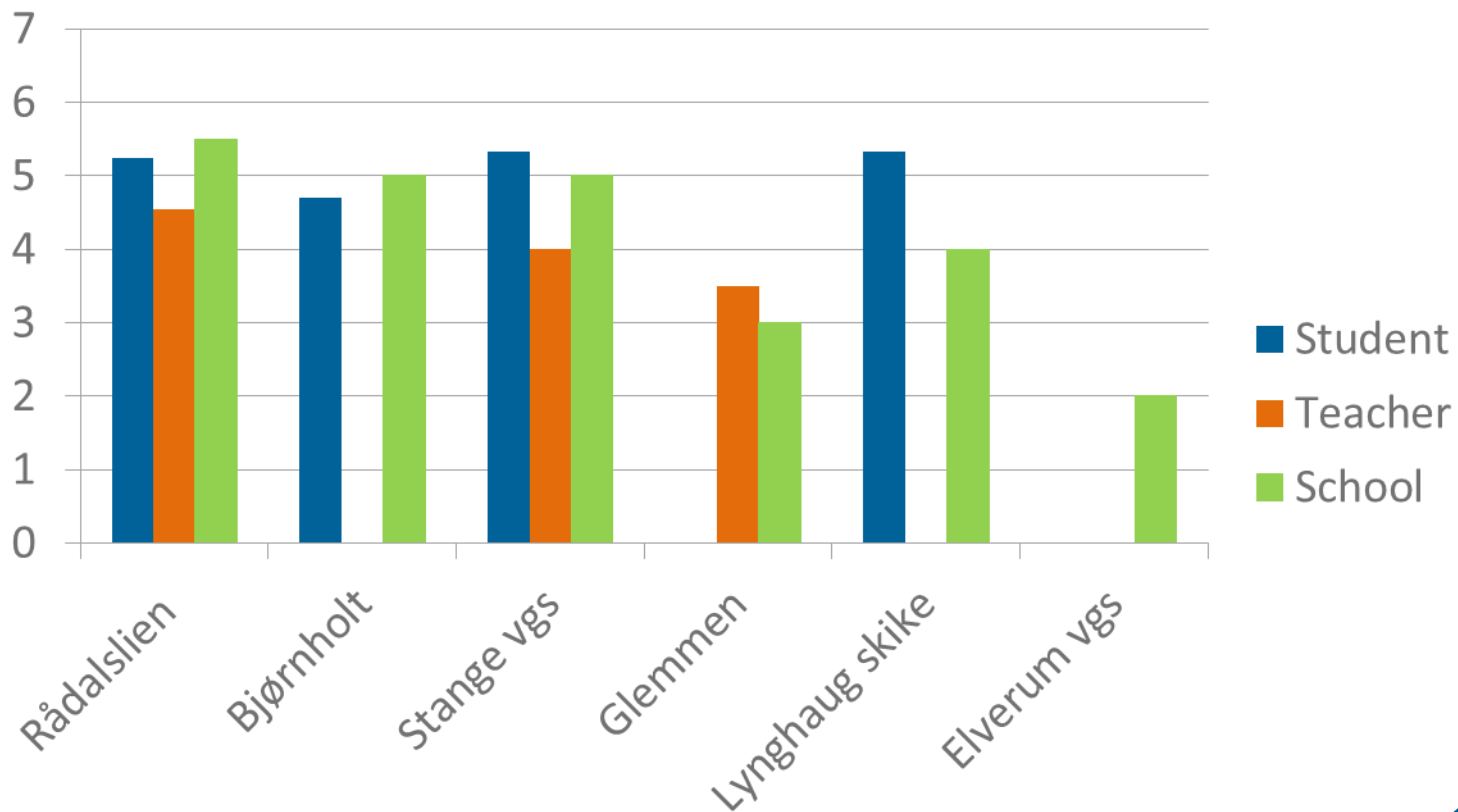
Overall satisfaction





Norway Questionnaire results

Overall satisfaction per school

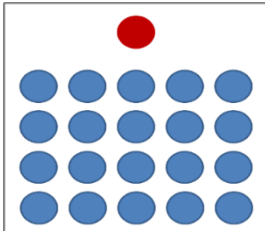




Teacher questionnaire

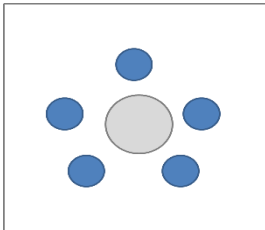
usability of
space & spatial
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Section 6: Arrangement of the space



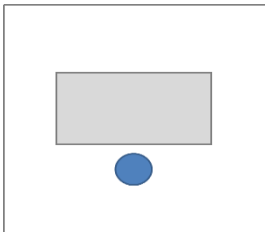
Presentation:

Layouts that support explicit instruction/presentation to the whole group.



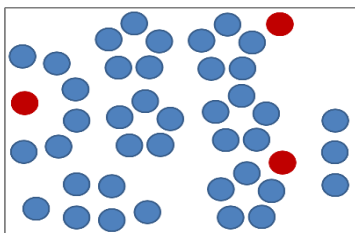
Group:

Layouts that support approaches where students are required to collaborate and work in small groups to share ideas and help each other.



Individual:

Layouts that support approaches where students work independently to write, read, research, think and reflect.

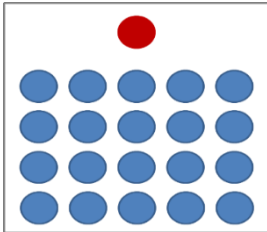


Team teaching:

Layouts that support approaches where two or more teachers work collaboratively with groups of students sharing the same space.

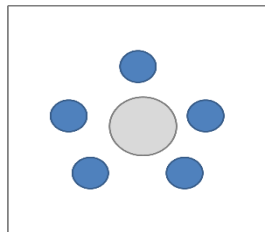


How easy is it to use the space in different ways?



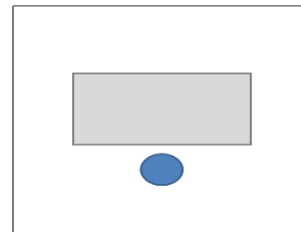
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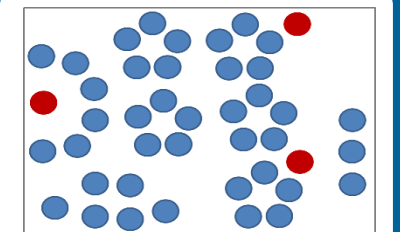
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Team teaching:

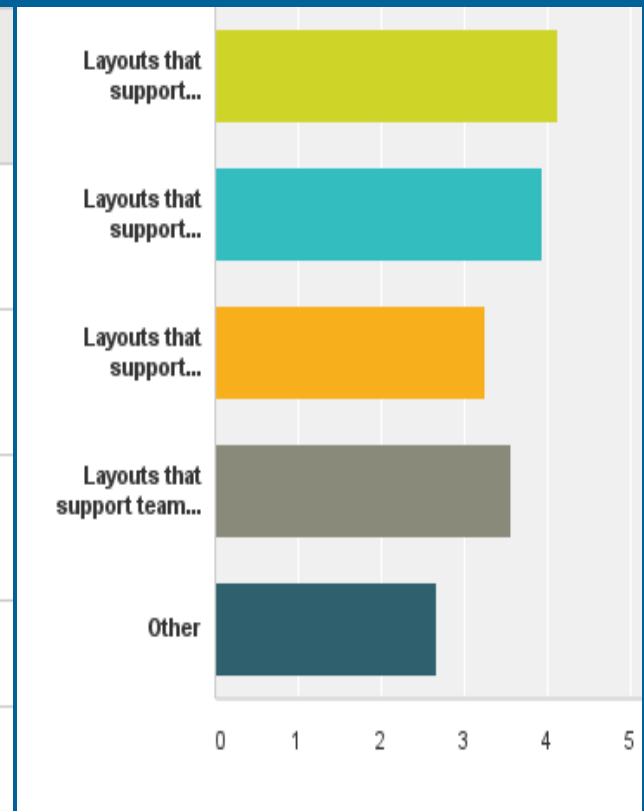
Layouts that support approaches where two or more teachers work collaboratively with groups of students sharing the same space.



Q24: Thinking about your current teaching, how often do you use the following **spatial arrangements**?

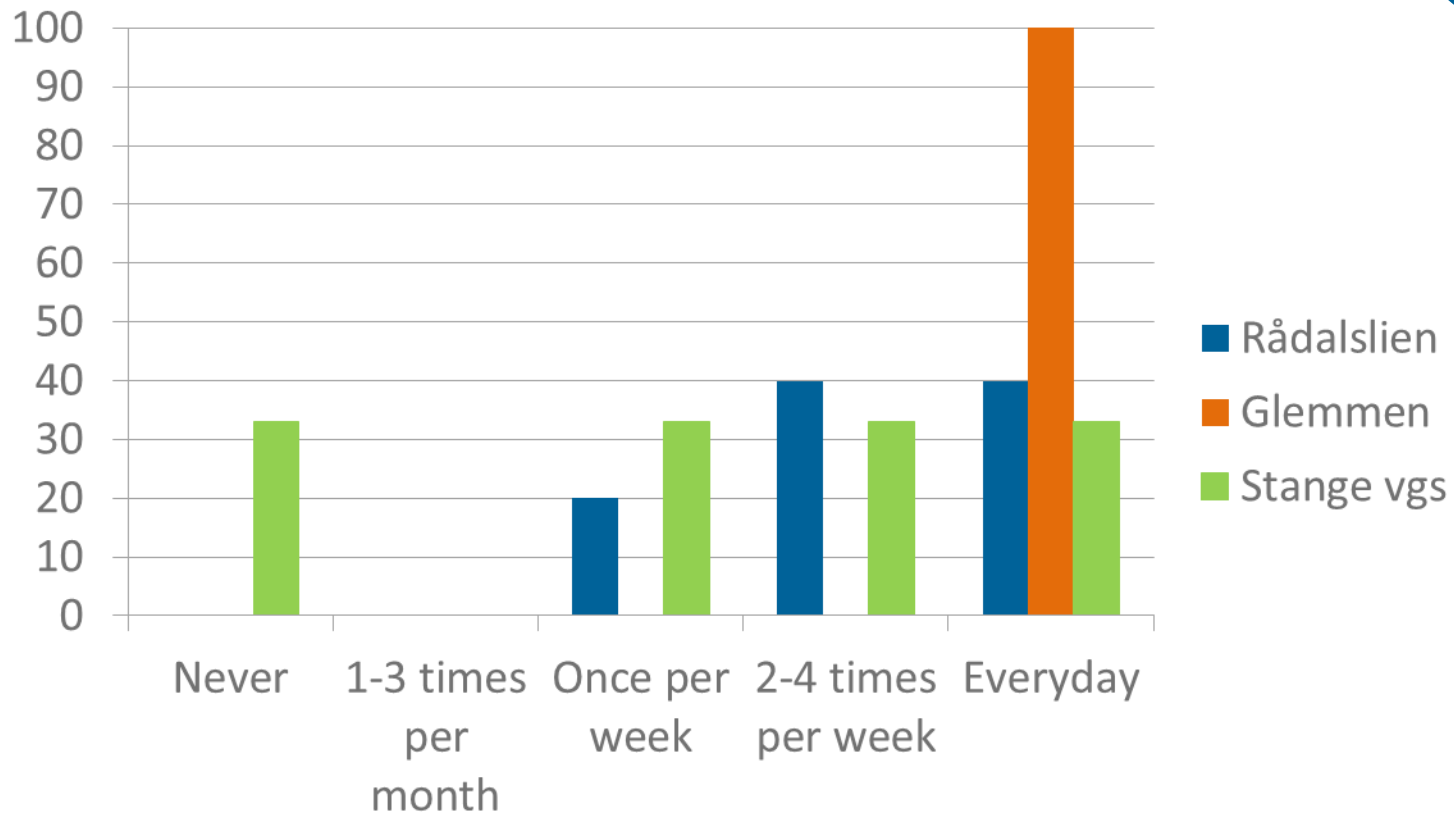
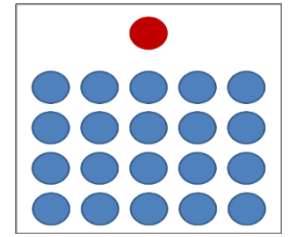
Answered: 16 Skipped: 9

| | Never or hardly ever | 1 to 3 times a month | Once a week | 2 to 4 times a week | Everyday | Total | Weighted Average |
|---|----------------------|----------------------|-------------|---------------------|-------------|-------|------------------|
| Layouts that support explicit instruction/ presentation | 0.00% 0 | 6.25% 1 | 18.75% 3 | 31.25% 5 | 43.75% 7 | 16 | 4.13 |
| Layouts that support students working in small groups | 6.25% 1 | 6.25% 1 | 25.00% 4 | 12.50% 2 | 50.00% 8 | 16 | 3.94 |
| Layouts that support students working independently | 6.25% 1 | 18.75% 3 | 31.25% 5 | 31.25% 5 | 12.50% 2 | 16 | 3.25 |
| Layouts that support team teaching | 18.75% 3 | 0.00% 0 | 18.75% 3 | 31.25% 5 | 31.25% 5 | 16 | 3.56 |
| Other | 22.22% 2 | 11.11% 1 | 44.44% 4 | 22.22% 2 | 0.00% 0 | 9 | 2.67 |



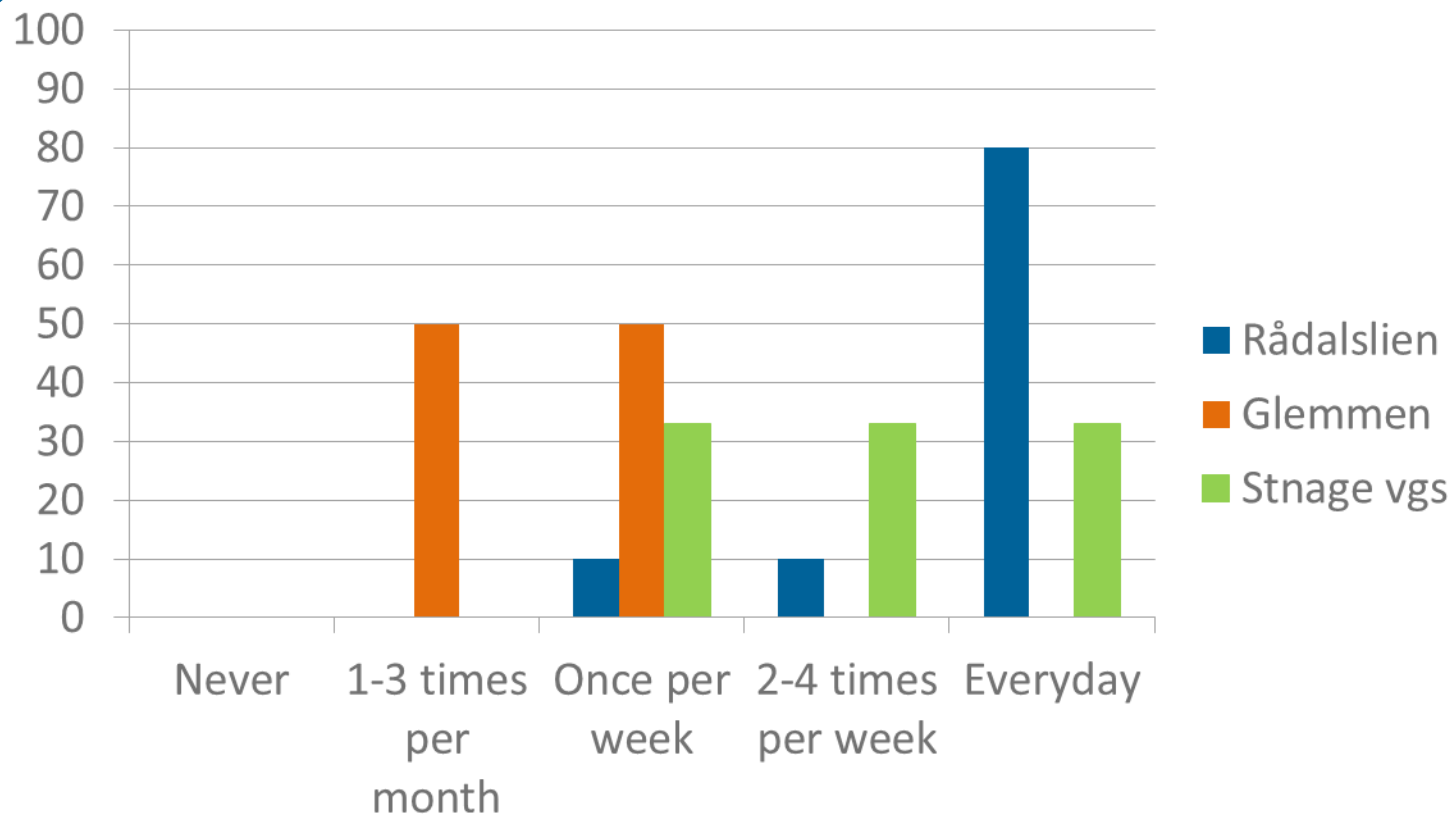
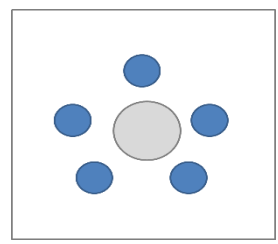


Use of classroom layouts for **explicit instruction/presentation**



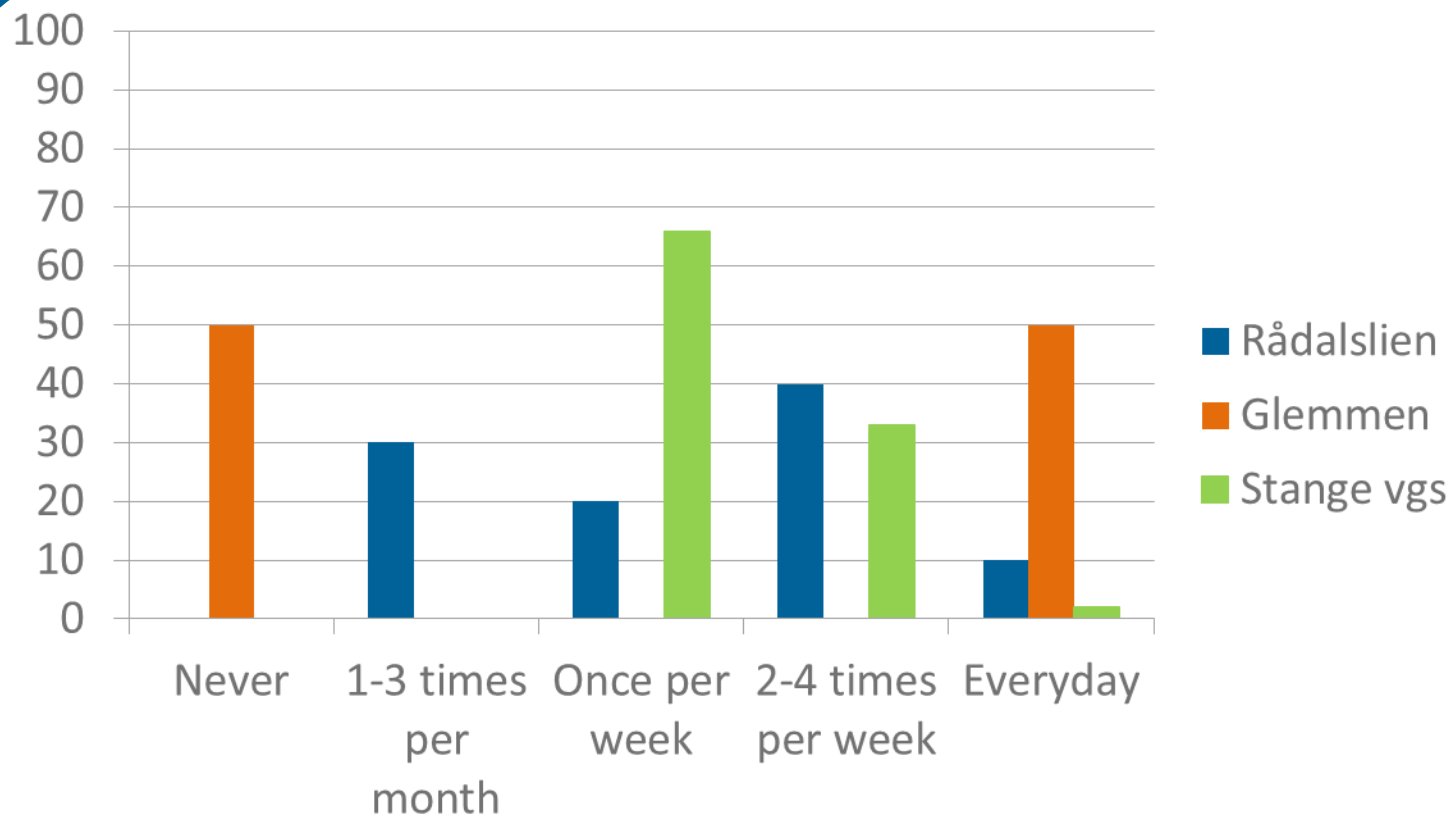
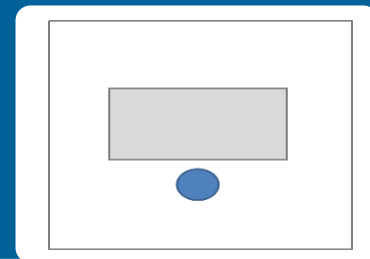


Use of classroom layouts for **group instruction** (students working in small groups)



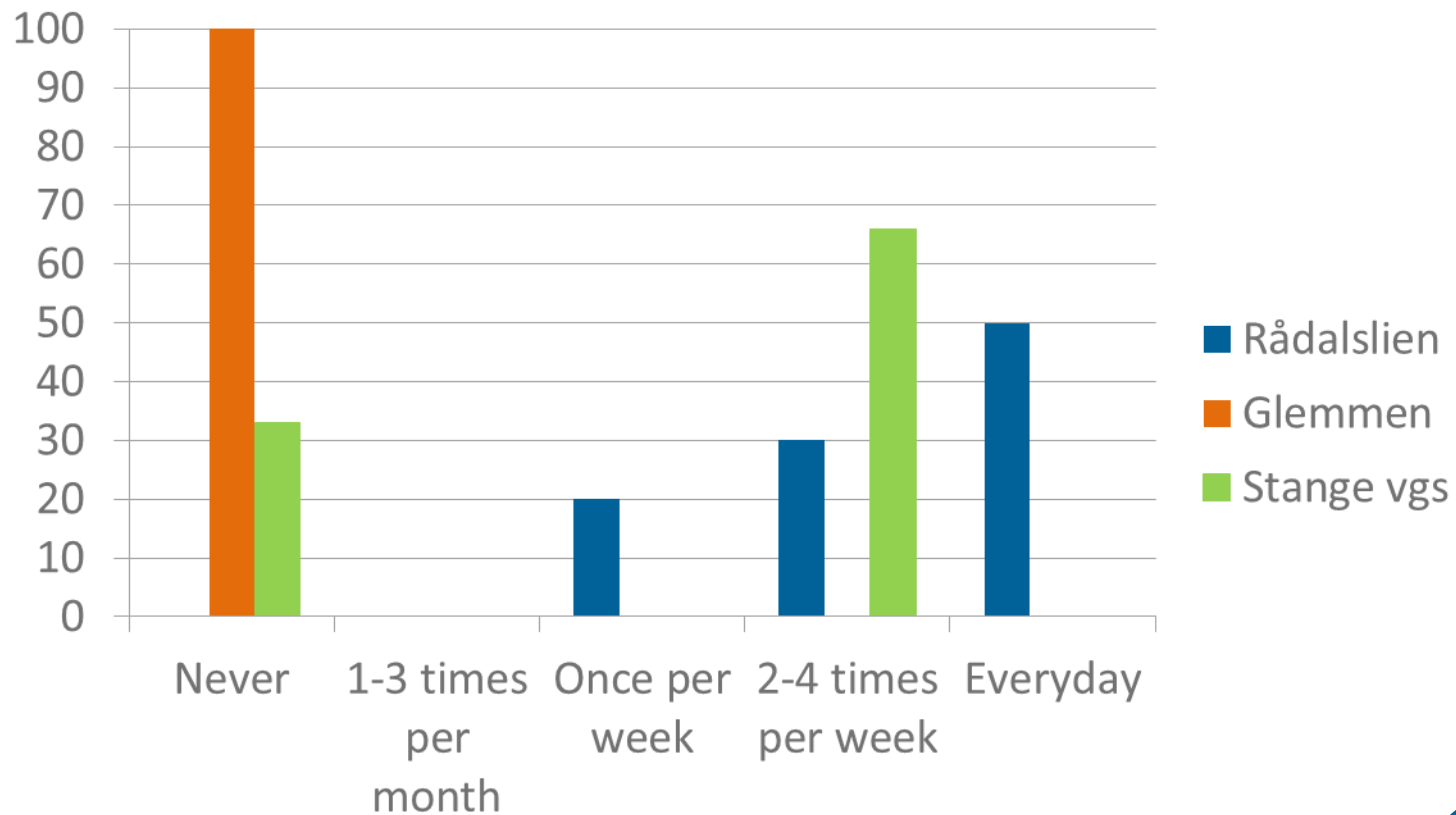
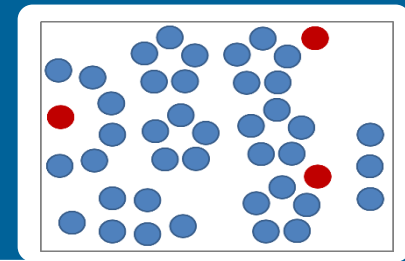


Use of classroom layouts for **individual instruction** (students working independently)





Use of classroom layouts for **team teaching**





Main findings : LEEP module field trial

The questionnaires were answered by 217 students, 24 teachers and 9 school principals or relevant. The main findings are:

- The girls feel less safe than the boys by almost 15%.
- The teachers mostly use more than one classroom, but very rarely do they change the layout.
- The teachers believe there is not enough time to change the layout of a classroom (even if they wanted to).
- A variety of classroom layouts were used.
- The students are more satisfied by the school facilities than their teachers.
- Both students and teachers were rather satisfied by temperature, quality of air, light and acoustics in the classrooms.



Main findings : LEEP module field trial, p.2

- The classrooms and the school canteens were the spaces mostly used by students, while the classrooms and the hall/auditoriums were the spaces mostly used by teachers.
- The teachers believe that the buildings and facilities of the school have an effect to some extent on making teachers inclined to stay at school, making it easier to attract new teachers, to retain teachers and to attract parents.
- The school principals believe that the buildings and facilities of the school have an effect to some extent on making teachers inclined to stay at school, making it easier to attract new teachers and to attract parents.
- The majority of the classrooms have wireless internet access.
- Teachers prefer layouts that support explicit instruction/presentation and students working in small groups.

Earthquake Safety for Schools: Protecting Students from Risk



Earthquake Safety for Schools: **Protecting Students from Risk**

14 October 2014

The 2014 Monitoring Report is published; it describes the progress made since the 2010 Monitoring Report.

January 2014

Secretary General invited Ministers of Education and OECD Delegations to complete/ update the 2008 questionnaire.

2015

2010

29 March 2010

CELE presents 2010 Monitoring Report to Council, even though only 5 Member countries had completed the questionnaire.

18 December 2008

Council reviews interim report in the efforts undertaken by the OECD Members. Only 4 countries filled out questionnaire.

2008

OECD countries were asked to complete a self-evaluation questionnaire concerning seismic safety programs in schools.

21 July 2005

Council approves Recommendation Concerning Guidelines on Earthquake Safety in Schools.

2005



OECD Recommendation: The 7 principles of a school seismic safety programme

The 7 Principles of the Recommendation

| | |
|---|--|
| 1 | Seismic safety policy |
| 2 | Accountability |
| 3 | Building codes and enforcement |
| 4 | Training and qualification |
| 5 | Preparedness and planning |
| 6 | Community awareness and participation |
| 7 | Risk reduction in new and existing schools |



Earthquake Safety For Schools: **Protecting Students from Risk**

Earthquake Safety for Schools: Protecting Students from Risk

EDU/EDPC/GNEELE/RD(2016)1

This document is presented to the Group of National Experts on Effective Learning Environments at the 4th meeting on 6-7 November 2016 under agenda item #6, and to the EDPC for information at the 20th session on 15-16 November 2016 under agenda item #3. The document is available only in pdf format.



This publication is prepared by Learning Environments Evaluation Programme of OECD. Our team at the OECD Centre for Effective Learning Environments works with school leaders, researchers and policy makers to explore how investments in the learning environment, including the physical learning environment and technologies, translate into improved education, health, social and well-being outcomes.
(CELE, www.oecd.org/edu/facilities)





2014 Monitoring Report

Earthquake safety in schools

5 countries reporting in 2010 resubmitted self-evaluation questionnaires



Greece



Japan



Mexico



New Zealand



United States
(California)

10 additional countries submitted self-evaluation questionnaires for the first time



Australia



Belgium
(French Community)



Chile



France



Hungary



Portugal



Slovak Republic



Slovenia



Spain



Turkey

Austria, Denmark and Sweden also responded and did not fill out the self-evaluation questionnaire (their country was located in an area with low seismic risk).



Publication: Earthquake safety in schools

- The publication is organised around the 7 principles of the initial Recommendation and the country profiles of the 15 countries that completed the self-evaluation questionnaire for the 2014 Monitoring Report.
- Countries are classified by their seismic risk: red indicates high risk, orange indicates moderate risk and green indicates low seismic risk.

| High Seismic Risk Countries | Moderate Seismic Risk Countries | Low Seismic Risk Countries |
|-----------------------------|---------------------------------|----------------------------|
| Chile | Australia | Belgium (French Community) |
| Greece | Hungary | France |
| Japan | Mexico | Slovak Republic |
| New Zealand | Portugal | Spain |
| United States (California) | Slovenia | |
| | Turkey | |



Earthquake Safety For Schools: **Protecting Students from Risk**

Principle 1: Seismic Safety Policy

- “ Policies should be established by the competent authorities and should state well-defined and measurable objectives. Priorities and strategies for satisfying the objectives should be established by the appropriate authorities. The policy must be clear and should have adequate support and authority to enforce its scope and objectives and to carry out the plan over a specified number of years. The policy should:
- Recognise the need to ensure the safety of schoolchildren.
 - Recognise the consequential need for the safety of school buildings.
 - Establish minimum standards for protection of human life.
 - Adopt sustainable standards to guide design for new and existing school infrastructure based on prescribed performance objectives, knowledge of the ground shaking severity in different regions, quantification of site specific hazards, and the ability of the community to educate, train and license its members to effectively achieve established objectives.
 - Establish programmes for seismic risk reduction of school buildings and their components.
 - Provide adequate funding and human resources for the protracted duration of the programme.
 - Be supported by committed and competent leaders with sufficient legal and moral authority to ensure the effectiveness, sustainability and continuity of the programmes that derive from the policy. ”



Country Analysis on Principle 1: Seismic Safety Policy

| National Programmes Prioritising & Strengthening Vulnerable Schools | Follow Local/Regional Legislation | Follow National Legislation |
|--|--------------------------------------|--------------------------------|
| Chile | United States (California) | Chile |
| Greece | | Greece |
| Japan | Follow International Legislation | Japan |
| New Zealand | Slovenia | New Zealand |
| United States (California) | Belgium (French Community) | Australia |
| Australia | Slovak Republic | Hungary |
| Mexico | | Mexico |
| Portugal | | Portugal |
| Turkey | | Slovenia |
| Spain | | Turkey |
| | | France |
| | | Spain |

7 Principles

Key Findings

Although reporting countries are at different phases of implementation, given the recent and significant investments by countries in strengthening schools, there has been limited assessment of the long-term sustainability and effectiveness of these programmes.

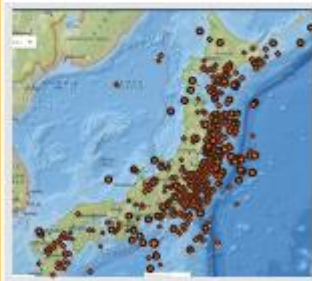


Earthquake Safety For Schools: Protecting Students from Risk

Japan

High Seismic Risk

Japan has a wealth of experience and expertise in this area, and assessing the vulnerability of its' school buildings' stock and establishing a funding mechanism to strengthen schools most at risk. In recent years these schools have received significant attention. Japan has well-established building legislation, and funding legislation that secures earthquake-proofing of schools buildings. Japan is particularly strong in the area of disaster prevention, and there is a high level of community awareness and participation in the country.



Earthquakes of 4.5M or more from 1960-2016

flag

Who is Responsible for the 7 Principles?

International Level



1. Seismic Legislation

National Level

1. Seismic Legislation
2. Accountability
3. Building Codes
4. Training and Qualification
5. Preparedness and Planning
7. Risk Reduction



Local Level



2. Accountability
4. Training and Qualification
6. Community Awareness

School Level



3. Building Codes
6. Community Awareness



Independent Level

4. Training and Qualification
7. Risk Reduction

flag

Mexico

Moderate Seismic Risk



Earthquakes of 4.5M or more from 1960-2016

Since last reporting, Mexico has increased efforts to implement the Recommendation. In the past 4 years, the National Institute of Physical Infrastructure for Education (INIFED) has issued several important standards to ensure schools seismic safety. Moreover, a national programme launched in 2013 to renovate 40,000 school in need of repair, including schools in need of seismic strengthening. However, with its complex legal frameworks, large school stock, and complex administrative structure, one of the greatest challenges for INIFED remains to establish effective communication channels between different administrative levels in the country and to increase its' enforcement capabilities.

Who is Responsible for the 7 Principles?

National Level



1. Seismic Legislation
2. Accountability
4. Training and Qualification
6. Community Awareness
7. Risk Reduction

Local Level



2. Accountability
5. Preparedness and Planning
6. Community Awareness

Independent Level



6. Community Awareness

United Nations Sustainable Development Goals



United Nations SDGs: **Who, what, how?**

Who has developed them:

- The Sustainable Development Goals are developed by the United Nations. They were approved in September 2015

What are the SDGs?

- The Sustainable Development Goals [SDGs] are the transition from the MDGs = Millennium Development Goals

How will they be implemented/monitored?

- There is a monitoring process, with 2030 as the final milestone. Each goal has specific Key Performance Indicators [KPIs].



United Nations SDGs: **Who, what, how?**



A look at the Sustainable Development Goals

<https://www.youtube.com/watch?v=5G0ndS3uRdo>



Development Goals: MDGs and SDGs



MDGs

- vertical
- 8 goals
- 60 indicators
- established in 2000
- aimed to reduce poverty and improve health, access to education, clean water and sanitation

SDGs



- horizontal
- 17 goals
- 168 indicators
- accepted by the UN in 2015
- designed to end all forms of poverty everywhere and build a better planet



SDG 4: **about Education**

“Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”



GOAL 4

ENSURE INCLUSIVE AND EQUITABLE QUALITY
EDUCATION AND PROMOTE LIFELONG LEARNING
OPPORTUNITIES FOR ALL

SUSTAINABLE DEVELOPMENT GOALS
More at sustainabledevelopment.un.org/sdgsproposal



Target 4a

Build and upgrade education facilities that are
child,
disability and gender sensitive
and provide safe,
non-violent,
inclusive
and effective learning environments
for all



Target 4a: Key Performance Indicators

Global number: 4.a.1 | Thematic numbers: 31, 32, 30

Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)

Global number: 4.a.2 | Thematic numbers: 33

Percentage of students experiencing bullying, corporal punishment, harassment, violence, sexual discrimination and abuse

Global number: 4.a.3 | Thematic numbers: 34

Number of attacks on students, personnel and institutions

Thank you!

Any questions?



Stay in touch!

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Best Practices in
Educational Facilities Investments



Education GPS

Our team at the OECD Centre for Effective Learning Environments (CELE, www.oecd.org/edu/facilities) works with school leaders, researchers and policy makers to explore how investments in the learning environment, including the physical learning environment and technologies, translate into improved education, health, social and well-being outcomes.

