



**SESSION 1:  
UNDERSTANDING CONTEXTUAL  
FACTORS AND FRAMEWORK**

The image features two large, thick, black L-shaped brackets. One is positioned in the top-left corner, and the other is in the bottom-right corner. They are oriented towards each other, framing the central text.

WHAT DO YOU UNDERSTAND  
WITH CONTEXTUAL FACTORS?

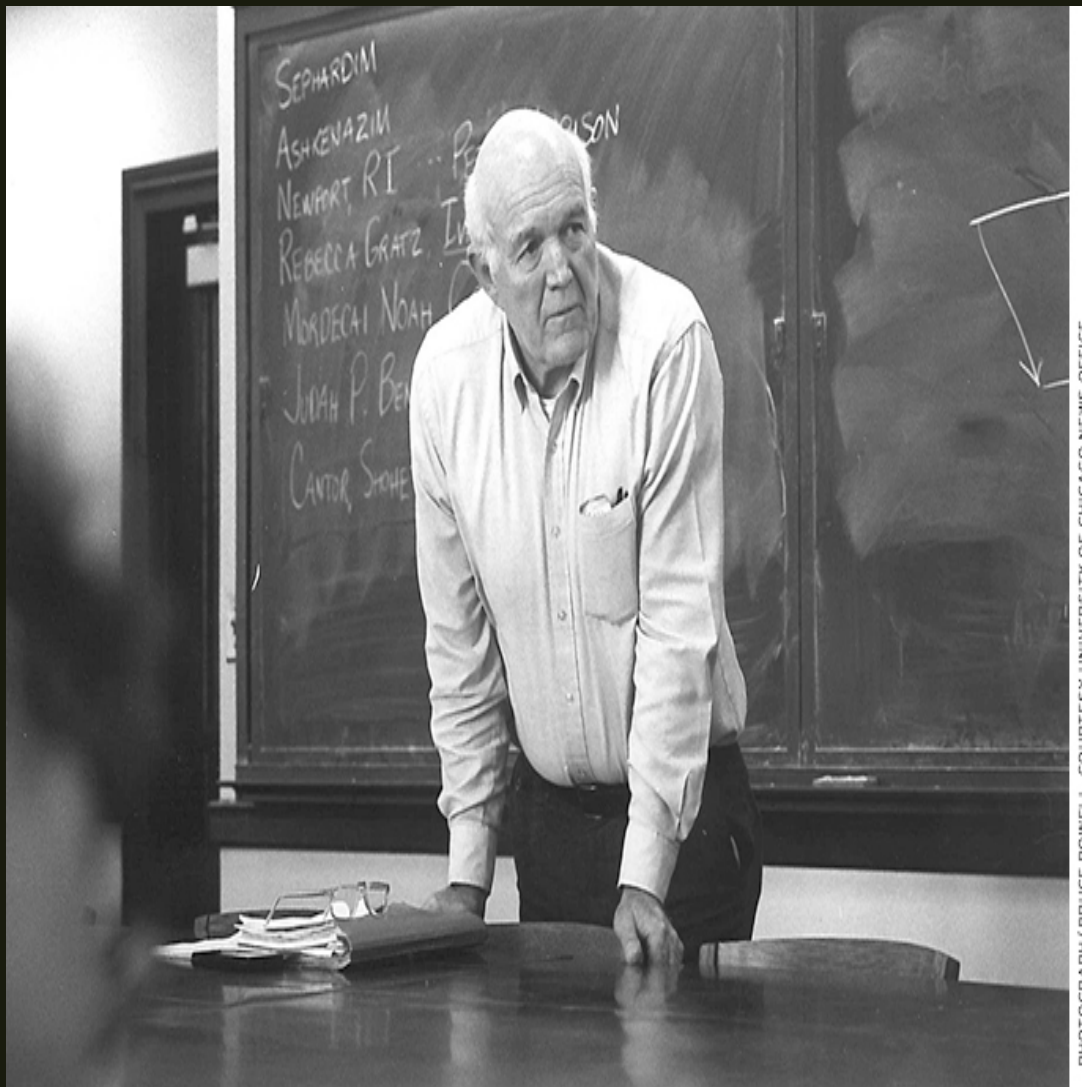
# Contextual Factors ...

- **Contextual factors**, a way to categorize the outside effects, are attributes of the community, the students, and the school itself that may affect the process of **teaching** and **learning**.
- Teaching and learning do not happen in a bubble. The process is affected by the world beyond the classroom. Contextual factors, a way to categorize these outside effects, are attributes of the community, the students, and the school itself that may affect the process of teaching and learning.

[Contextual Factors of the Classroom, School, and Community and How They Affect the Teaching and Learning process

[retrieved from: <https://www.ukessays.com/essays/education/contextual-factors-of-the-classroom-education-essay.php>]





PHOTOGRAPH BY BRUCE POWELL, COURTESY UNIVERSITY OF CHICAGO NEWS OFFICE

# FIVE DECADES AGO...

Do you remember?

# JAMES COLEMAN AND COLLEAGUES PUBLISHED A WELL-KNOWN AND MOST DEBATABLE REPORT

James Coleman's 1966 Report, Equality of Educational Opportunity



# Equality of Educational Opportunity or “Coleman Report”

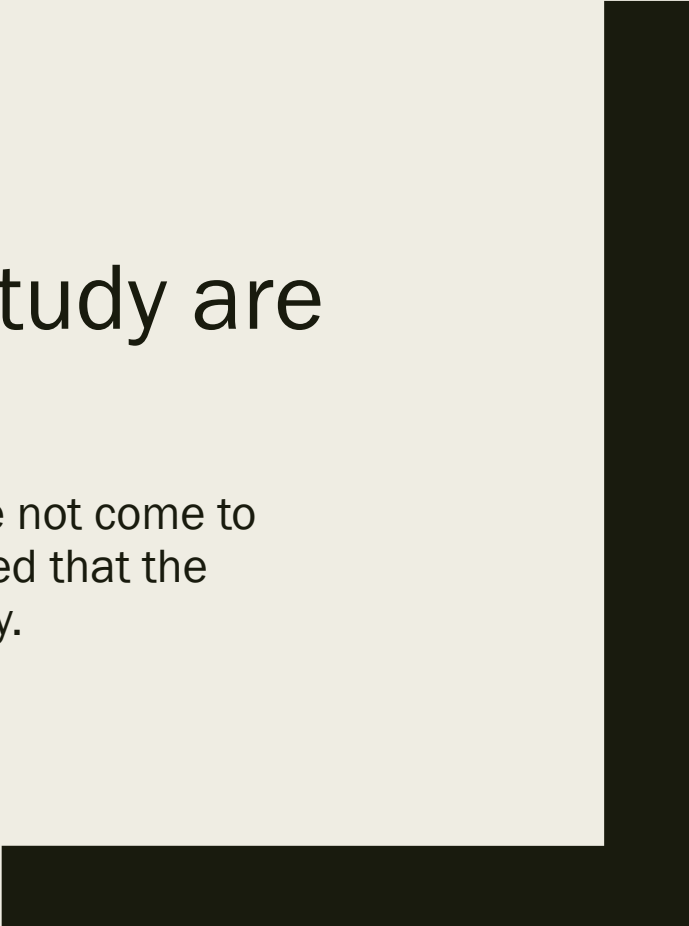

- Coleman is credited for **providing data and reporting results that have clearly documented the achievement gap** (Bartz, 2016).
- Coleman et al. (1966) found that:  
*Taking all these results together, one implication stands out above all: That **schools bring little influence** to bear on a child’s achievement that is independent of his background and general social context; and that this very lack of an independent effect means that inequalities imposed on children by their home neighbourhood, and peer environment are carried along to become inequalities with which they confront adult life at the end of school (Coleman et al., 1966, p. 325).*

# Equality of Educational Opportunity or “Coleman Report”

- The Coleman Report concluded:

*That family background (e.g., parents' education, number of siblings, and parents reading to children) explained more about a child's achievement than school resources (e.g., inputs such as school expenditures, class size, and teacher qualifications).*

- Hanushek (2016) Coleman also found that school resources such as per pupil expenditures, school size, science labs and other aspects of the facility, curriculum, and volumes in the library had minimal impact on achievement (Hanushek, 2016; Hoxby, 2016). Peer influence was found to be an important factor for a given student's quality of education (Coleman et al., 1966). Peer influence was measured by variables such as average hours of homework done per week, preparation and planning to go to college, discipline problems and related issues, mobility, attendance, and the proportion of students having encyclopaedias at home (Coleman et al., 1966).



However, the results of EEO study are  
often criticized!!

See Hoxby (2016, p.66) stated that “Coleman may have not come to inaccurate conclusion, but his methods were so flawed that the conclusions were not justified from his study.



# Criticism...

- Hanushek (2016):

*“The finding in the Coleman Report that family-background factors powerfully affect student achievement is not and never has been disputed. Virtually all subsequent analyses have found measures of family background (parents’ education, family structure, and so forth) to be a significant explanation of achievement differences” (p. 23).*

- This and subsequent study → highlighted the importance of **CONTEXTUAL FACTORS!**

WHY??

# Context and Students' Learning

- Learning did not occur in isolation. It took place within a context. **It is important to understand the contexts** in which students learn.
- Questioning of **“how” and “why”** students learn gain importance in study design and reporting.
- There are **numerous contextual factors** that effect students' learning.
- What are these contextual factors?
- Why need to study or include these contextual factors?

# Lists your suggestions on contextual factors affecting students' learning

List your suggestions HERE:

1.

2.

3.

4.

5.

6.

7.

8.

# Contextual Factors Affected Students' Learning: What are These Factors?

Name \_\_\_\_\_ Date \_\_\_\_\_

**Detail 1**  
To begin with:

**Detail 2**  
After:

**Topic**  
Evaluation Issue:

**Detail 3**  
In addition:

**Detail 4**  
In conclusion:

# RATIONALE OF MEASURING CONTEXTUAL FACTORS

WHY??



# Rationale to Measure Contextual Factors?

Add your lists here:

1.

2.

3.

4.

5.

# The use of Contextual Questionnaire

- The use of contextual questionnaires administered to students, parents, teachers or school principals has increasingly become **an integral part of research studies in education**.
- Contextual information collected through questionnaires is typically **used to examine factors** that are linked to differences in student performance.
- The purpose of measuring and reporting these kinds of questionnaire-derived indicators makes it essential to **consider the theoretical as well as practical issues** involved in the design and implementation of questionnaires.

# Importance of Contextual Factors

- To **provide indicators for educational monitoring**  
*Example:* Educational monitoring delivers valuable information about equity and effectiveness of educational systems across all students and for particular subgroups (Klieme & Kuger, 2016).
- To **explain outcomes at the student level** and **background data is essential** to the estimation of achievement (Rutkowski & Rutkowski, 2010).
- Indicators can be related to students' learning while **referring to different levels within the system** and assuming a variety of mechanisms of educational effectiveness.



# Importance of Contextual Factors

- There is also a growing interest in In the 1990s, the OECD described the aims of PISA as follows: to “*provide [...] contextual indicators, showing how such skills relate to important demographic, social, economic and educational variables*”, as well as to provide “*indicators on trends that will emerge from the on-going, cyclical nature of the data collection and that will show changes in outcome levels, changes in outcome distributions and changes in relationships between student-level and school-level background variables and outcomes over time.*” (OECD 1999, p. 10).
- These indicators can be used for repeated and trend reporting as well as country-specific national publications (e.g. Hanushek, Peterson, & Woessmann, 2012; Huebener, Kuger, & Marcus, 2016).

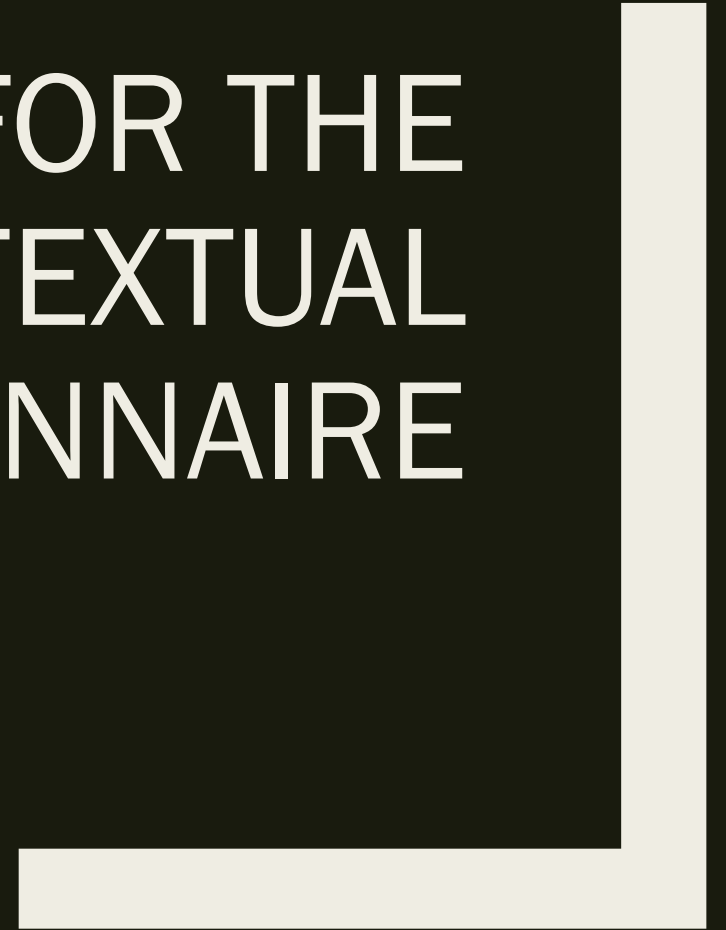
# Possible List of Justifications

- Collecting data and information at different levels of schooling [studying the impact of policy or institutional level factors on students' learning outcomes]
- Understanding relationships [to examine the relationship between factors in primary and lower secondary schools (inputs and processes) and the learning achieved by primary and lower secondary school pupils (outputs and outcomes)]
- Understanding differences [between groups of students – equity and equality of educational opportunity]
- Thinking for improvement and changes [education system, policy changes, curriculum changes, teaching improvement etc.]
- Thinking how to maximize learning and its relevant outcomes

# Contextual Questionnaire

- The contextual questionnaires are administered to students, parents, teachers or school principals has increasingly become **an integral part of research studies in education**.
- Contextual information collected through questionnaires is typically used to **examine factors that are linked to student performance**.
- The purpose of measuring and reporting these kinds of questionnaire-derived indicators makes it essential to **consider the theoretical as well as practical issues** involved in the design and implementation of questionnaires.

# FRAMEWORKS FOR THE DEVELOPMENT OF CONTEXTUAL QUESTIONNAIRE



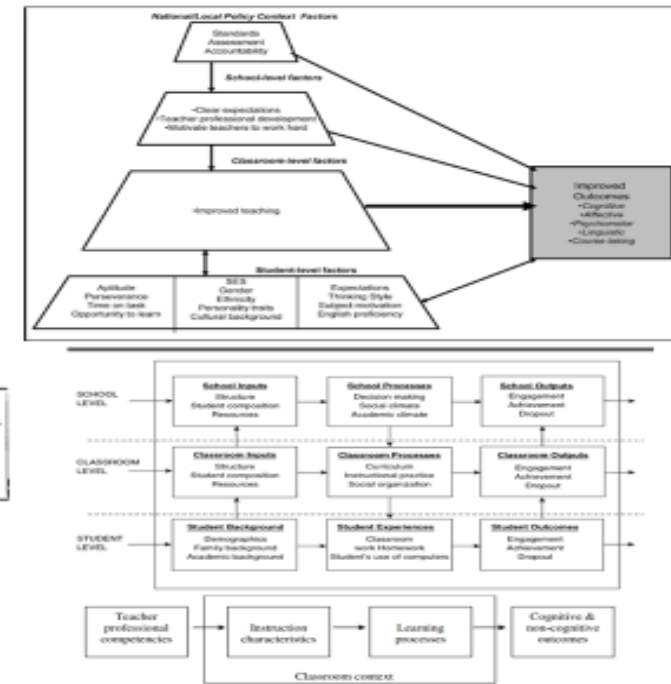
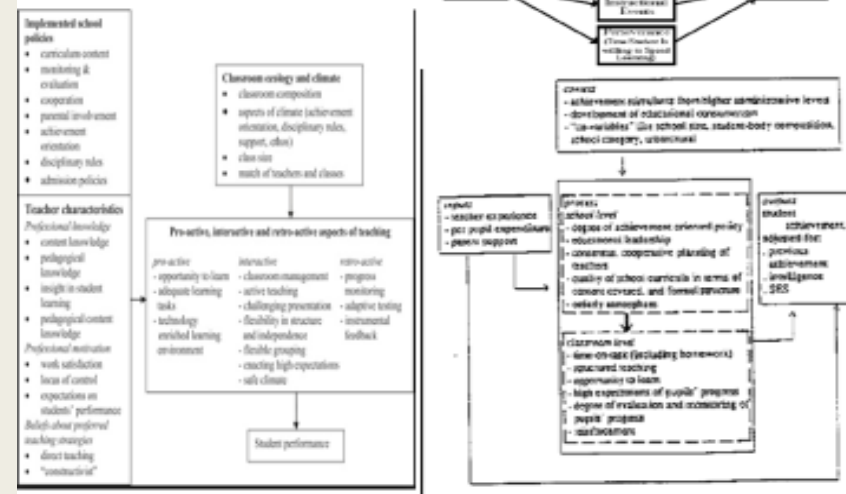
# Framework for Developing Contextual Questionnaire

- In group, study the handout given to your group and discuss these educational models that can be used by your group to develop contextual (a.k.a background) questionnaire.

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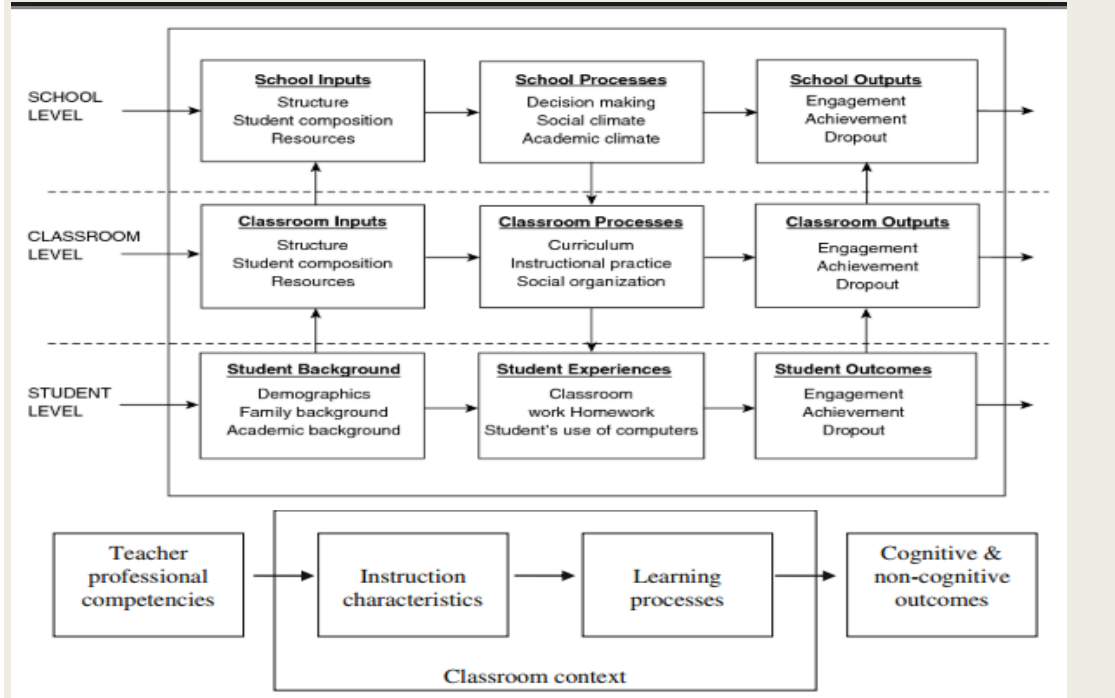
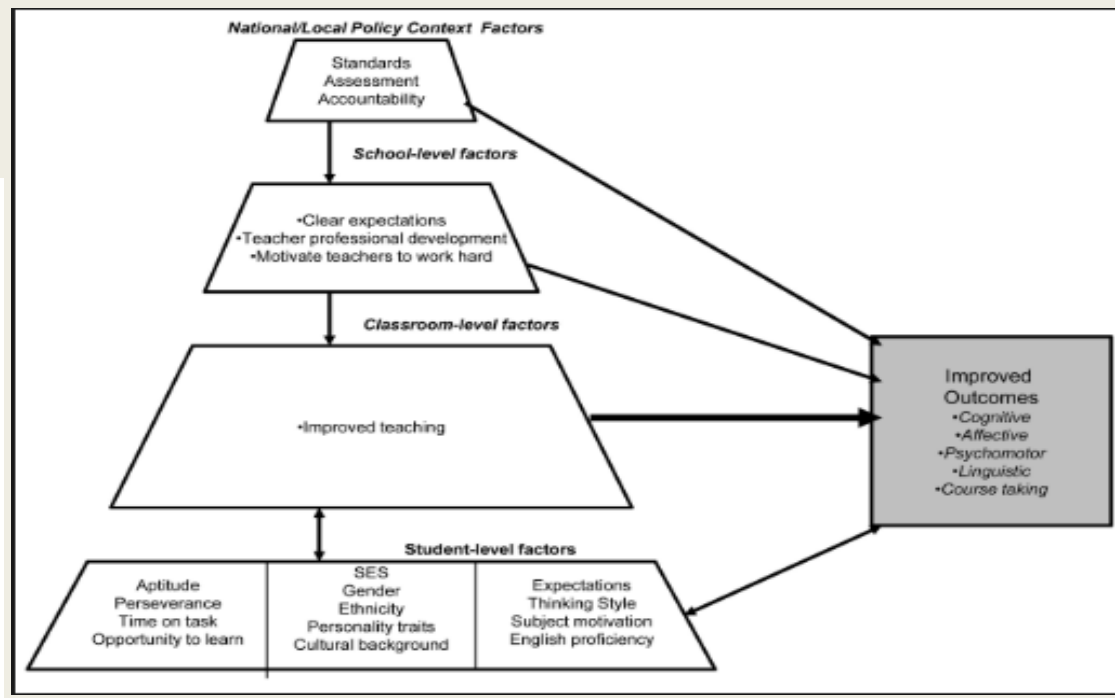
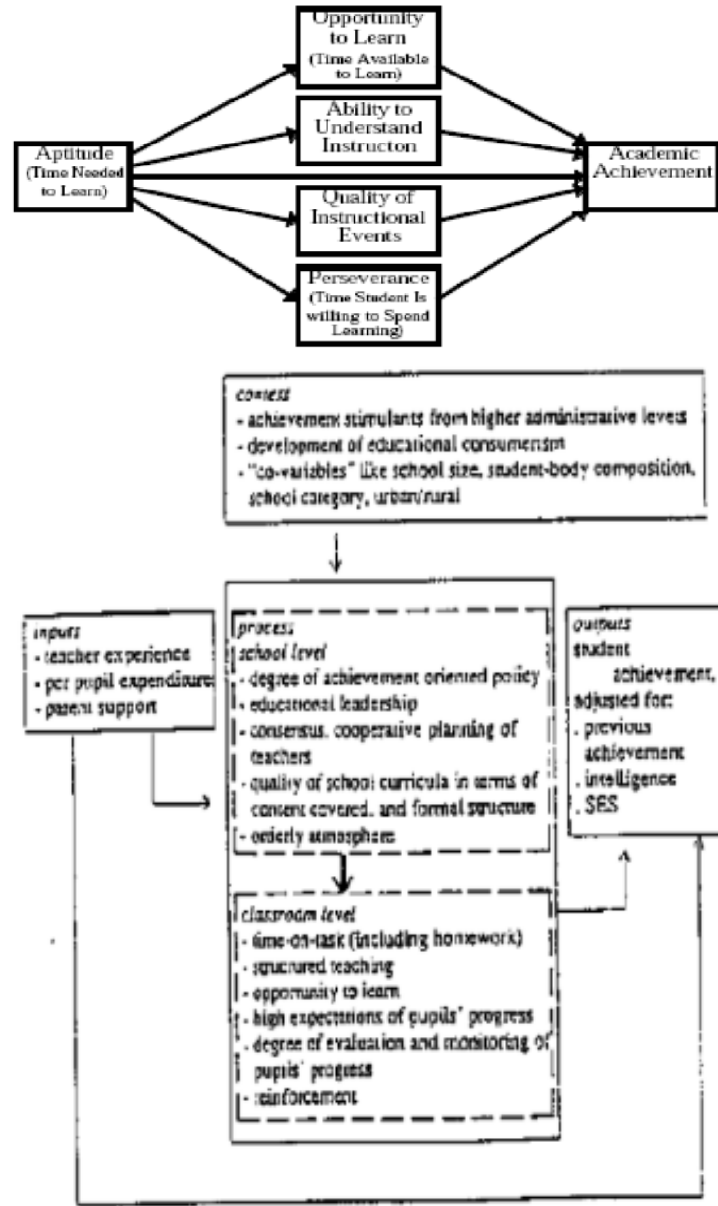
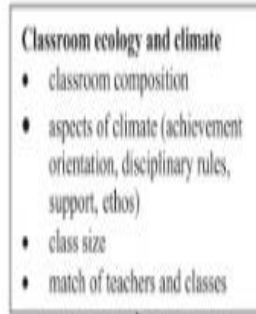
## Activity 2: Handout 1

- Study the Handout 1



# Activity: Handout 1

- Implemented school policies**
- curriculum content
  - monitoring & evaluation
  - cooperation
  - parental involvement
  - achievement orientation
  - disciplinary rules
  - admission policies
- Teacher characteristics**
- Professional knowledge*
- content knowledge
  - pedagogical knowledge
  - insight in student learning
  - pedagogical content knowledge
- Professional motivation*
- work satisfaction
  - locus of control
  - expectations on students' performance
- Beliefs about preferred teaching strategies*
- direct teaching
  - "constructivist"

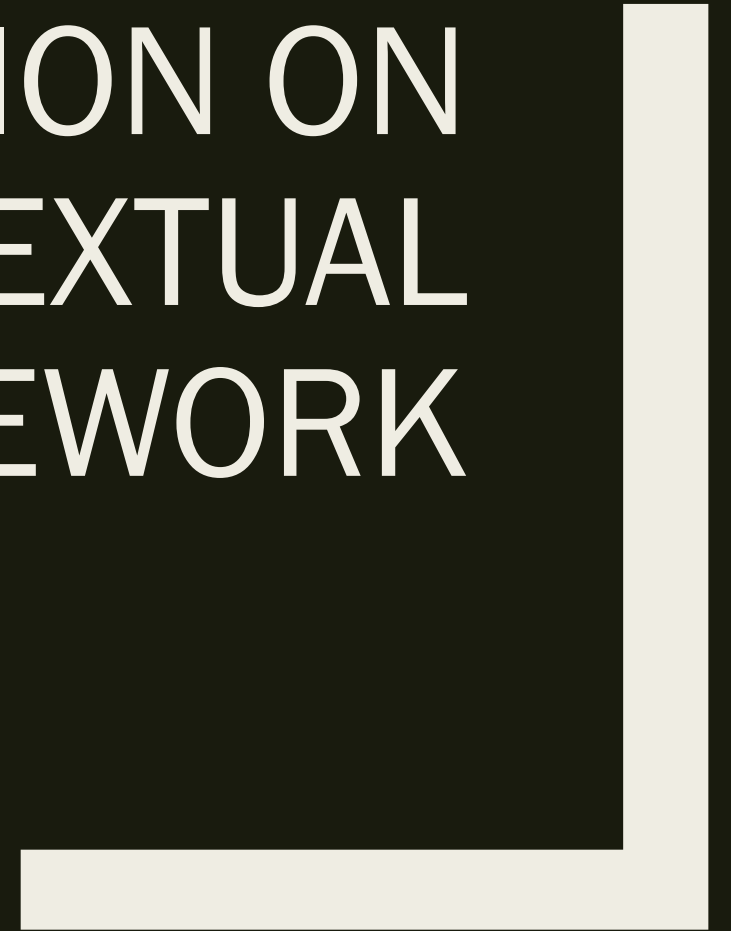


# Why Adapt EER Framework?

The advantages of basing on an EER framework are:

- EER acknowledges the complexity of educational systems (e. g. Teddlie & Reynolds, 2000),
- EER frameworks ultimately aim at explaining student outcomes (i.e., achievement, performance, motivation, interests, engagement etc.), and
- overarching EER theories offer a number of different anchors to relate to other, interdisciplinary theories or frameworks (e. g. Creemers & Kyriakides, 2010)

# SHARING SESSION ON GROUP CONTEXTUAL FRAMEWORK





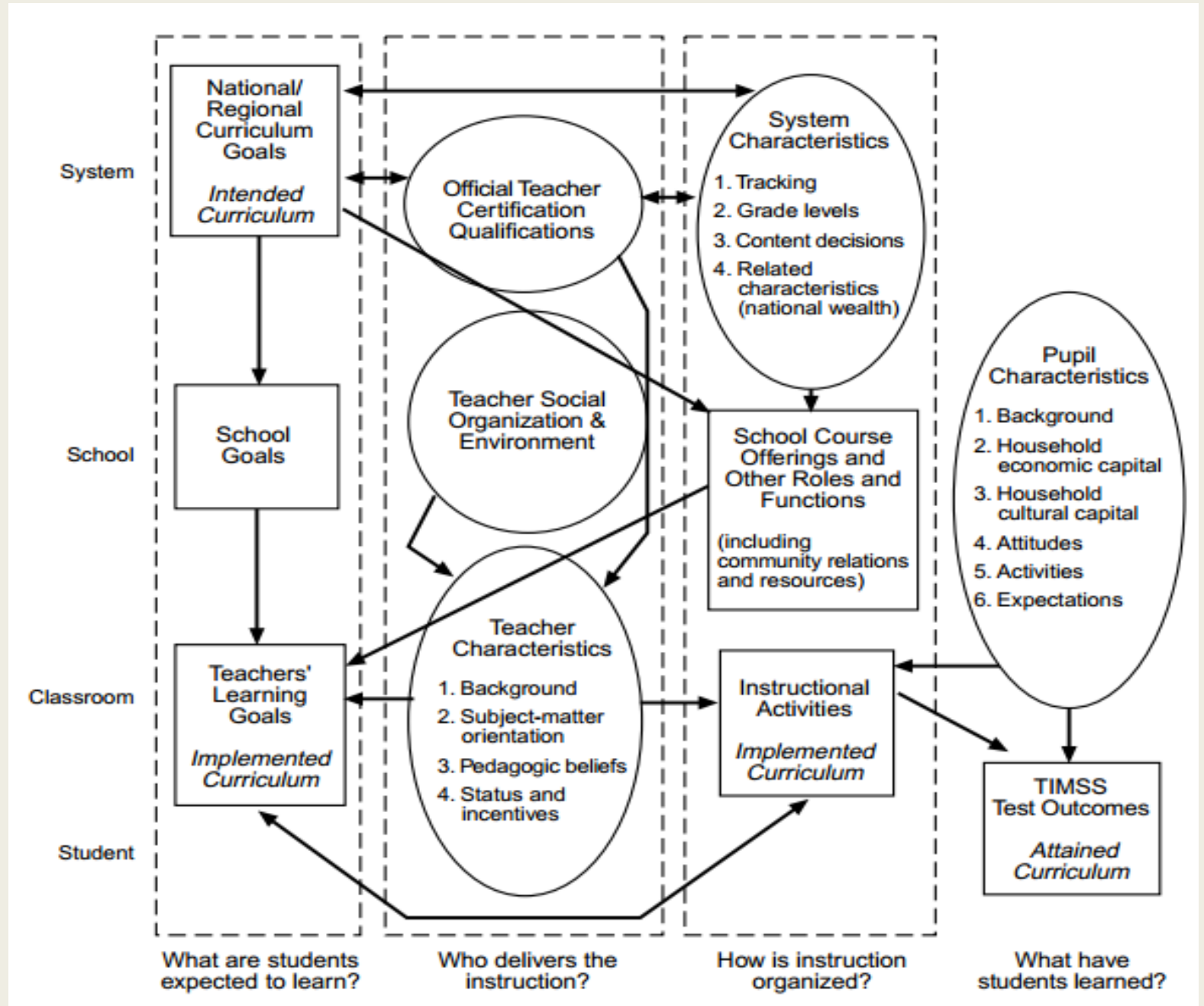
# Example of International Large-scale Assessment (ILSA) framework (Contextual Questionnaire)

- TIMSS

- PISA

- ICCS

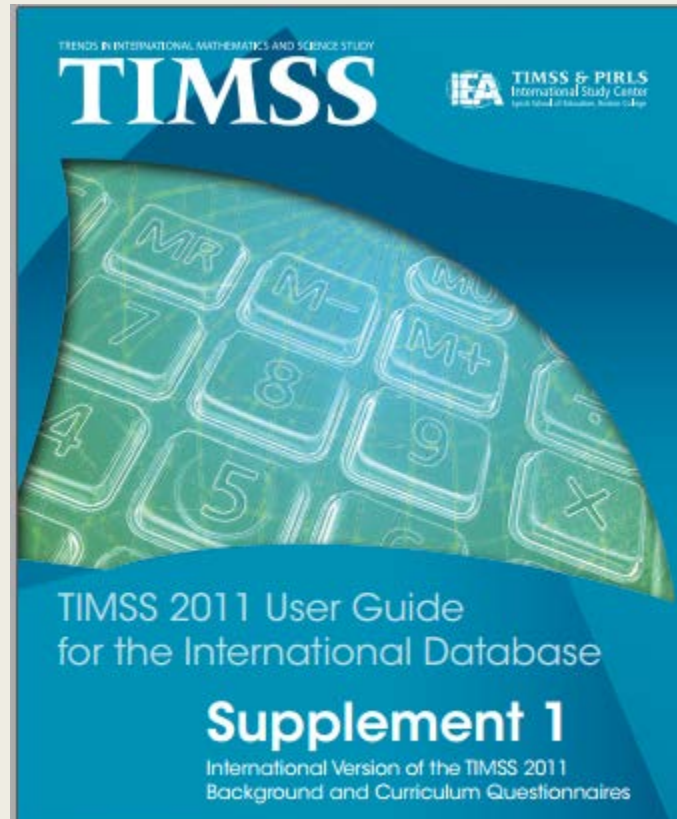
# Trends in International Mathematics and Science Study (TIMSS)



Source: Schmidt, W.H. and Cogan, L.S. (1996) "Development of the TIMSS Context Questionnaires" in M.O. Martin and D.L. Kelly (eds.), *Third International Mathematics and Science Study (TIMSS) Technical Report, Volume I: Design and Development*. Chestnut Hill, MA: Boston College.

# TIMSS – Contextual Variables

- More information on TIMSS Contextual Factors please read any TIMSS Assessment Framework, AND
- Supplement 1 – see photo



# PISA

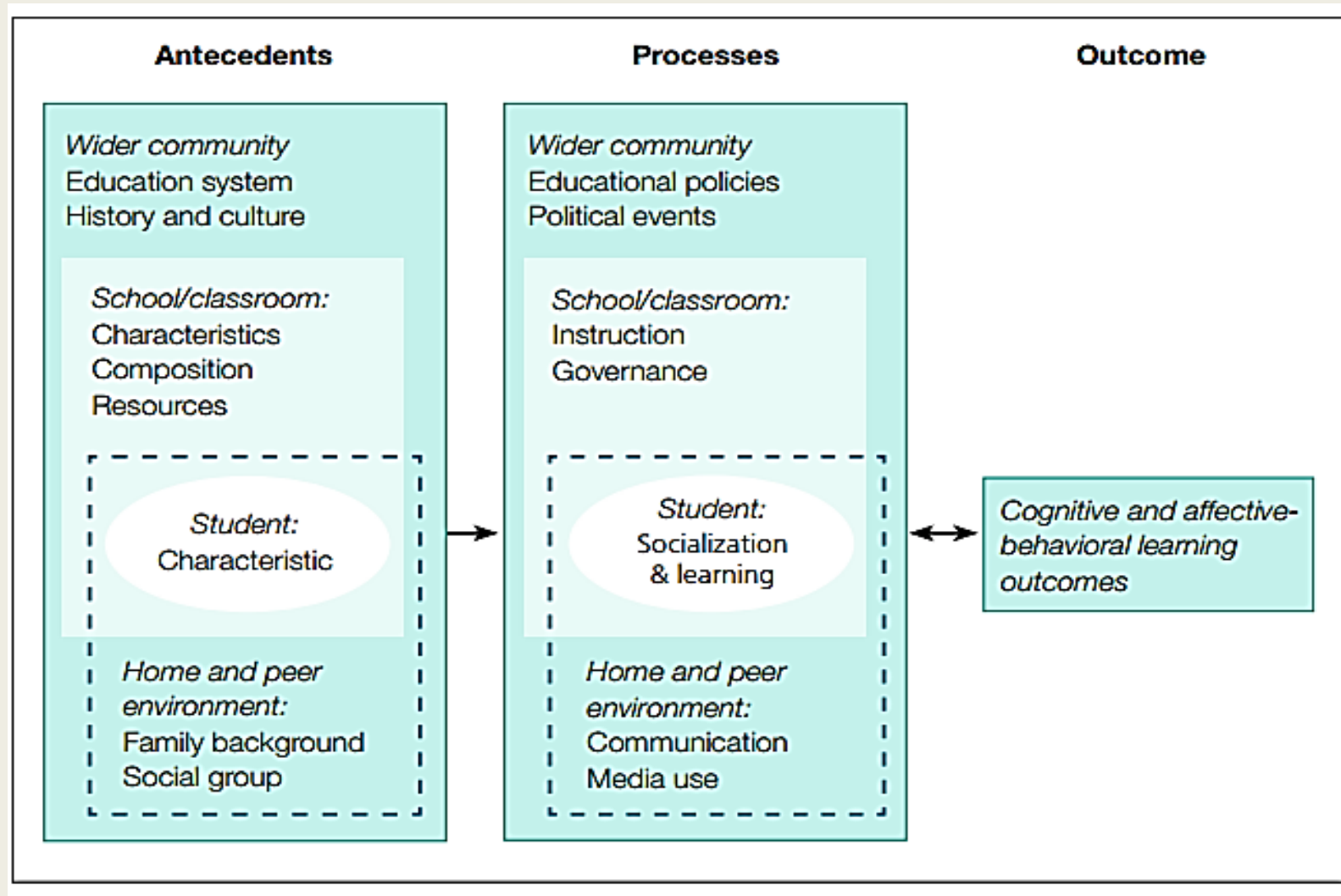
- For more information, please refer to PISA assessment framework 2009 or the recent PISA 2018 Assessment Framework.

## PISA 2009 Assessment Framework

Key competencies in reading, mathematics and science

	Two-dimensional matrix with examples of variables collected or available from other sources		
	Antecedents	Processes	Outcomes
The education system as a whole	<b>Cell 1:</b> Macro-economic and demographic context <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Gross Domestic Product</li> <li>▪ Distribution of wealth (Gini index)</li> <li>▪ Percentage of immigrants</li> </ul>	<b>Cell 5:</b> Policies and organisation of education <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Organisation of education (school autonomy, programme structure)</li> <li>▪ Teacher qualifications and training requirements</li> <li>▪ School entry age, retention</li> </ul>	<b>Cell 9:</b> Outcomes at the level of the education system <i>For example:</i> <ul style="list-style-type: none"> <li>▪ System level aggregates of: reading, mathematical and scientific literacy</li> <li>▪ Habits in relation to content domains</li> <li>▪ Attitudinal outcomes</li> <li>▪ Life skills and learning strategies</li> <li>▪ Equity related outcomes</li> </ul>
Educational institutions	<b>Cell 2:</b> Characteristics of educational institutions <i>For example:</i> <ul style="list-style-type: none"> <li>▪ The involvement of parents</li> <li>▪ Social intake</li> <li>▪ Source of funding, location and size</li> <li>▪ Type of educational provider (e.g. out-of-school, educational media programme)</li> </ul>	<b>Cell 6:</b> Institutional policies and practice <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Instructional support including both material and human resources</li> <li>▪ Policies and practices, including assessment and admittance policies</li> <li>▪ Activities to promote student learning</li> </ul>	<b>Cell 10:</b> Learning outcomes at the institutional level <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Institution level aggregates of: reading, mathematical and scientific literacy</li> <li>▪ Habits in relation to content domains</li> <li>▪ Affective outcomes (e.g. attitudes to mathematics)</li> <li>▪ Life skills and learning strategies</li> <li>▪ Differences in outcomes for students of various backgrounds</li> </ul>
Instructional settings	<b>Cell 3:</b> Characteristics of instructional settings <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Teacher qualifications</li> <li>▪ Classroom size</li> </ul>	<b>Cell 7:</b> Learning environment <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Ability grouping</li> <li>▪ Teaching styles</li> <li>▪ Learning time</li> </ul>	<b>Cell 11:</b> Learning outcomes at the level of instructional setting <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Classroom motivation to learn</li> <li>▪ Average classroom performance</li> </ul>
Individual participants in education and learning	<b>Cell 4:</b> Individual background <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Parental occupational status</li> <li>▪ Parental educational level</li> <li>▪ Educational resources at home</li> <li>▪ Ethnicity and language</li> <li>▪ Age and gender</li> </ul>	<b>Cell 8:</b> Individual learning process <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Engagement and attitudes to science</li> <li>▪ Self-concept and self-efficacy when learning science</li> <li>▪ Motivation to learn science</li> </ul>	<b>Cell 12:</b> Individual outcomes <i>For example:</i> <ul style="list-style-type: none"> <li>▪ Reading, mathematical and scientific literacy</li> <li>▪ Affective outcomes (e.g. attitudes to science)</li> </ul>

# ICCS



# ICCS (continued...)

Level of ...	Antecedents	Processes	Outcomes
<i>Wider community</i>	NCS & other sources: Democratic history Structure of education	NCS & other sources: Intended curriculum Political developments	StT & StQ/RQ: Test results Student attitudes and engagement
<i>School/classroom</i>	ScQ & TQ: School characteristics Resources	ScQ & TQ: Implemented curriculum Policies and practices	
<i>Student</i>	StQ: Gender Age	StQ: Civic learning Practiced engagement	
<i>Home and peer environment</i>	StQ: Parent SES Ethnicity Language Country of birth	StQ: Family communication Communication with peers Media information	

**Note:** NCS = national contexts survey; ScQ = school questionnaire; TQ = teacher questionnaire; RQ = regional questionnaire; StQ = student questionnaire; StT = student test; SES = socioeconomic status.

- ***Context of the wider community***

This level comprises the wider context within which schools and home environments work. Factors can be found at local, regional, and national levels.

- ***Context of schools and classrooms***

This level comprises factors related to the instruction students receive, the school culture, and the general school environment.

- ***Context of home and peer environments***

This level comprises factors related to the home background and the immediate social out-of-school environment of the student (for example, peer-group activities).

- ***Context of the individual***

This level refers to the individual characteristics of the student.



# WRITE YOUR SUMMARY

of this session!!





# Summary

1. There are many factors affecting students' learning.
2. These factors exist at different levels of schooling – student, teachers, classroom, school or national/country level
3. Large-scale assessment such as TIMSS and PISA adapted these models in designing their contextual questionnaire
4. Choosing appropriate factors is important to provide useful information for decision making;
5. Most important aspect is how to measure these factors?



Source: <https://educateachild.org/explore/barriers-to-education/quality>

