



# **The Research/Practice Divide: The Integration Of Educational Research on The Geography Classrooms of Trinidad & Tobago**

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# Presentation Outline

- ❑ Background to the problem
- ❑ Theoretical Framework
- ❑ Research questions
- ❑ Methods
- ❑ Findings
- ❑ Conclusions
- ❑ Recommendations



# Background

o Student performance in CAPE geography.

**Table 1 - Distribution of Student Performance Grades in the CXC CAPE Geography (2003-2010)**

| No. of Students | Grade I - Excellent | Grade II - Very Good | Grade III - Good | Grade IV - Satisfactory | Grade V - Acceptable | Grade VI - Weak | Grade VII - Unsatisfactory |
|-----------------|---------------------|----------------------|------------------|-------------------------|----------------------|-----------------|----------------------------|
| 12,049          | 131                 | 798                  | 2,335            | 3,780                   | 3,569                | 1,346           | 90                         |
| %               | 1.09                | 6.62                 | 19.38            | 31.37                   | 29.62                | 11.17           | 0.75                       |

**Table 2 - Distribution of Student Performance Grades (in Percentages) on Select Subjects in the CXC CAPE for 2010**

| Subject               | Grade I - Excellent | Grade II - Very Good | Grade III - Good | Grade IV - Satisfactory | Grade V - Acceptable | Grade VI - Weak | Grade VII - Unsatisfactory |
|-----------------------|---------------------|----------------------|------------------|-------------------------|----------------------|-----------------|----------------------------|
| Geography             | 1.1                 | 6.6                  | 19.4             | 31.4                    | 29.6                 | 11.2            | 0.8                        |
| Environmental Science | 14.6                | 25.7                 | 23.8             | 18.9                    | 12.4                 | 3.5             | 1.0                        |
| Caribbean Studies     | 16.9                | 25.7                 | 27.1             | 16.6                    | 11.0                 | 2.6             | 0.2                        |
| Chemistry             | 24.8                | 18.0                 | 21.1             | 12.7                    | 12.1                 | 9.9             | 1.5                        |
| Biology               | 22.8                | 22.6                 | 19.0             | 14.2                    | 10.8                 | 8.2             | 2.4                        |

# Background cont'd

Persistent problems observed by the examiners (2003-2011):

- ❑ lack of knowledge and confusion of basic concepts;
- ❑ inability to explain relationships;
- ❑ poor map work skills;
- ❑ lack of research skills;
- ❑ poor graphicacy skills;
- ❑ lack of knowledge of relevant case studies and current issues; and
- ❑ poor essay writing skills.

# Theoretical Framework

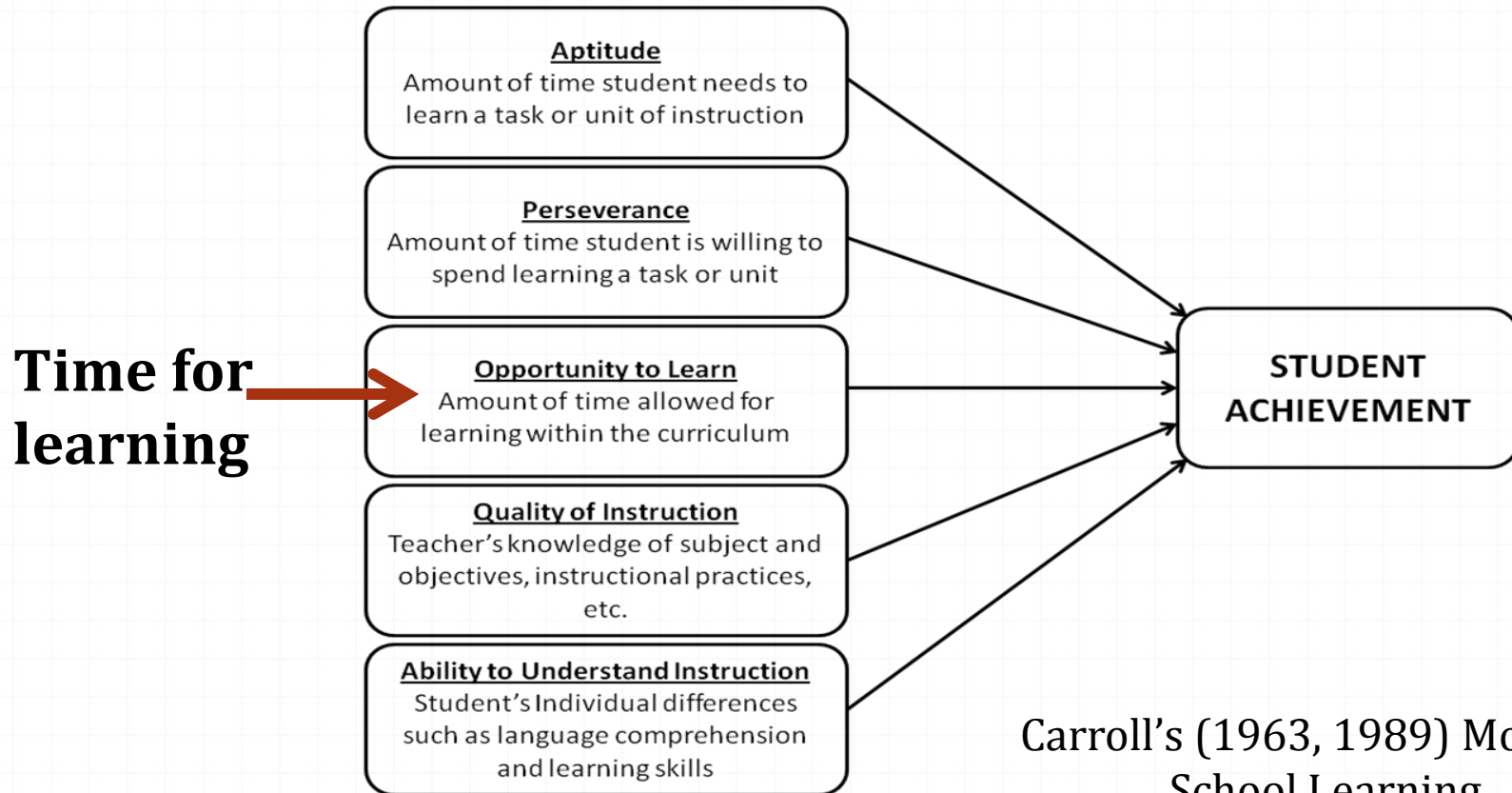
## ALIGNMENT (Webb, 1997, 2002)

- Assessment should measure what is actually taught, and what is taught should reflect the curriculum that students are expected to learn.
- Alignment of the CIA components has a direct effect on student performance.
- The long term effectiveness and outcomes of an educational enterprise is dependent upon the successful alignment of the CIA components (Bransford et al., 2000; Pellegrino et al, 2001).

# Key Concepts

## o The opportunity to learn [OTL]:

what is taking place in schools and classrooms to support students' learning and progress (Herman et al., 2000).



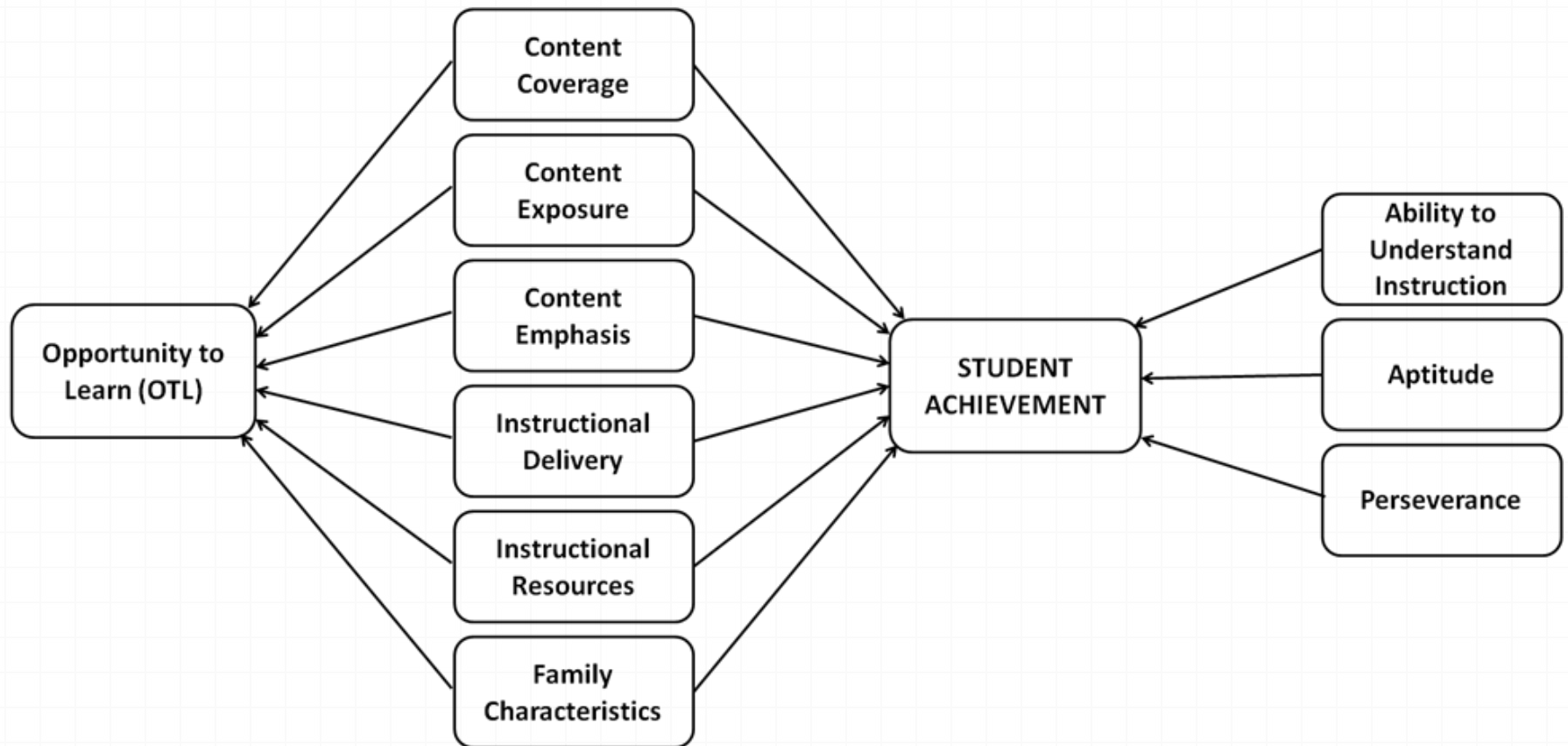
Carroll's (1963, 1989) Model of School Learning

# Key Concepts cont'd

- o Bloom's (1968) concept of mastery learning first drew attention to quality of instruction as a factor in students' achievement gains.
- o Teachers' instructional strategies are associated with students' achievement gains (Cohen & Hill, 2000; Newman, Bryk, Nagaoka (2001); Wenglinsky (2000, 2002).
- o The concept of OTL now includes not only a concern with the amount of time allowed for learning but also the quality of instruction afforded students (Hallinan, 1987) .

## **Quality of Instruction:**

exposure to the types of teaching and learning strategies that are essential for maximizing student development and achieving high levels of complex performance (Eisner, 1985)



Source: Jukes et al. (2006); Liu (2009)

## New Conceptualization of Opportunity to Learn (OTL)



# Research Questions

- o What are the instructional strategies employed by teachers during geography instruction in the CSEC and CAPE level classes?
- o To what extent are the teachers' instructional practices informed by theories of learning and reflect the best practices for effective teaching and learning?

# Methods

- 30 hours Classroom observation –Stallings Classroom Observation Protocol.
- Teachers' self-report survey (instructional practices) administered to 28 CAPE geography teachers.
- Interviews (3 teachers, 2 geography teacher educators, Senior CXC geography examiner).
- Audio recordings of classroom sessions and in-depth field notes.

# Research & Practice

## Characteristics of Traditional Approaches to Instruction -vs- the New Paradigm

| Traditional Approaches to Instruction                                                                                                                                                                                                                                   | The New Paradigm                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Teacher-directed<br>Didactic teaching<br>Short blocks of instruction on a single subject<br>Passive or one-way modes of instruction<br>Individual, competitive work<br>Teacher as a knowledge dispenser<br>Ability grouping<br>Assessment of knowledge, specific skills | Learner-centered<br>Student exploration<br>Extended blocks of multidisciplinary instruction<br>Active and interactive modes of instruction<br>Collaborative, cooperative work<br>Teacher as a facilitator or guide<br>Heterogeneous grouping<br>Performance-based assessment |

Source: Gillespie (1998) cited in Van der Schee (2003)

*Research/Practice Divide*

# Research & Practice cont'd

- o Rosenshine (1983) identified six practices as being necessary for effective teaching:
  - i. review of previous knowledge;
  - ii. proper demonstration or presentation of new materials;
  - iii. guided group practice;
  - iv. appropriate feedback and correction;
  - v. guided independent practice; and
  - vi. periodic review.

# Instructional Strategies

- o Teacher centred rather than student centred instruction:
  - ▣ teachers took on the role of transmitters of knowledge;
  - ▣ classroom activities tightly controlled by the teacher.
- o Spoken discourse in the classroom was monologic rather than dialogic.
- o Closed style of teaching and learning rather than open/negotiated.

|                | ← Closed                                                                                                      | Framed                                                                                                                                                     | Negotiated →                                                                                                                                    |
|----------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Content        | Tightly controlled by teacher. Not negotiable                                                                 | Teacher controls topic, frames of reference and tasks; criteria made explicit                                                                              | Discussed at each point; joint decisions                                                                                                        |
| Focus          | Authoritative knowledge and skills; simplified, monolithic                                                    | Stress on empirical testing; processes chosen by teacher; some legitimization of student ideas                                                             | Search for justifications and principles; strong legitimization of student ideas                                                                |
| Students' Role | Acceptance; routine performance; little access to principles                                                  | Join in teacher's thinking; make hypotheses, set up tests; operate teacher's frame                                                                         | Discuss goals and methods critically; share responsibility for frame and criteria                                                               |
| Key Concepts   | 'Authority': the proper procedures and the right answers                                                      | 'Access': to skills, processes, criteria                                                                                                                   | 'Relevance': critical discussion of students' priorities                                                                                        |
| Methods        | Exposition; worksheets (closed); note-giving; individual exercises; routine practical work. Teacher evaluates | Exposition, with discussion eliciting suggestions; individual/group problem solving; lists of tasks given; discussion of outcomes, but teacher adjudicates | Group and class discussion and decision making about goals and criteria. Students plan and carry out work, make presentations, evaluate success |

Source: Barnes et al., 1987 cited in Roberts 1996

## The Participation Dimension

# Instructional Strategies cont'd

- Teachers mainly posed closed recall and observation type questions.
- Rarely asked questions that required the students' higher order thinking, or stimulated students to ask questions of their own.

## Functions of Student Questioning in the Teaching and Learning Process

- Create a culture of inquiry (Marbach-Ad & Sokolove, 2000)
- Heighten conceptual understanding: improve understanding and retention of the learning a student encounters (Almeida, 2010).
- Drive classroom interactions: fosters discussion and debate; increase student interest, enthusiasm, and engagement (Watts et al., 1997).
- Promote autonomous inquiry-based learning (Marbach-Ad & Sokolove, 2000).

# Instructional Strategies cont'd

- o Individual work, individual learning.
- o No opportunity to engage in cooperative learning activities.

## Suggested Instructional Strategies Within Work Groups or Learning Communities

### Teachers can have students:

- explain their problem-solving strategies instead of just giving the answer
- Ask each other specific high level questions about the material
- Ask questions to monitor each other's comprehension , recognize and challenge misconceptions
- Require justification of proposals and challenges
- Engage in specific summarizing and listening activities
- Respond to specific prompts to explain why they believe their answers are correct or incorrect
- Generate questions and make predictions about text
- Interpret and use each other's statements

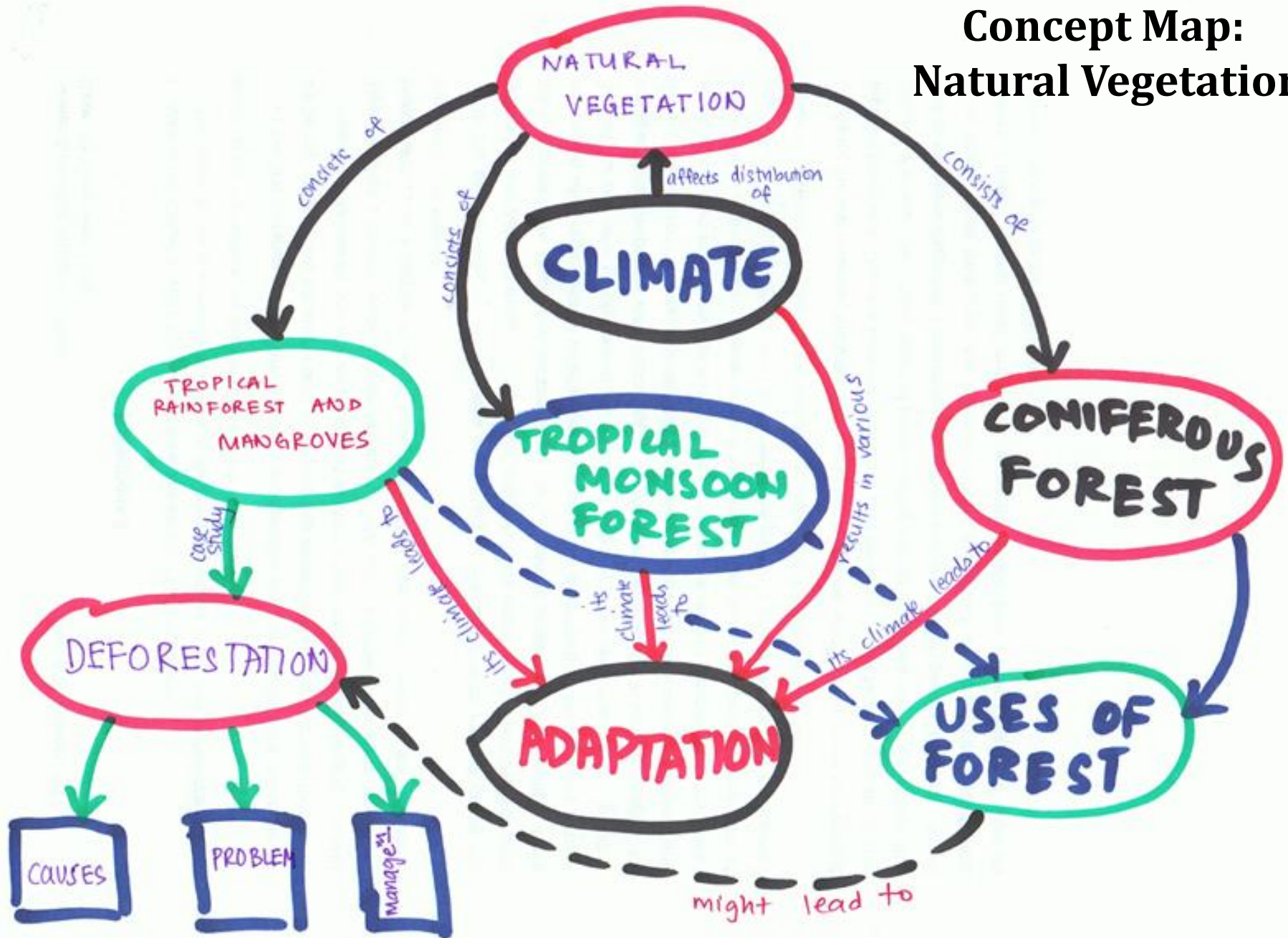
Source: works cited in Webb, Franke, Ing, Chan, De, Freund, & Battey (2008); Allen (2008)



# Instructional Strategies cont'd

- o Written work was focused on the practice of past paper questions or drill exercises.
- o No discursive forms of writing such as reports, brochures, newspaper reports, briefs, and speeches.
- o Students were engrossed in copying verbatim of notes from off the board or powerpoint slides.
  - ▣ Chalk and talk replaced by point and click

# Concept Map: Natural Vegetation



## Two Column Notes: Atolls

| Topic: Atolls                                                               |                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main Idea                                                                   | Detail Notes                                                                                                                                                                                                                                                                                                                                                  |
| An atoll is a coral island that encircles a lagoon partially or completely. | <ol style="list-style-type: none"><li>1. Atolls are the product of the growth of tropical marine organisms, so these islands are only found in warm tropical waters.</li></ol>                                                                                                                                                                                |
| Atolls have three specific shapes                                           | <ol style="list-style-type: none"><li>1. Round (e.g. Cook Island)</li><li>2. Oval (e.g. Gilbert Island)</li><li>3. Horseshoe (e.g. Marshall Islands)</li></ol>                                                                                                                                                                                                |
| Atolls are formed in four steps                                             | <ol style="list-style-type: none"><li>1. Volcanoes erupt and form volcanic islands.</li><li>2. A coral reef forms around the volcanic island.</li><li>3. The volcano sinks into the depths of the oceans, leaving the coral reef.</li><li>4. Pieces of coral are pounded by waves into sand. This sand builds up into an island on top of the reef.</li></ol> |

# Instructional Strategies cont'd

- o Textbooks were the main instructional resource used in the classrooms.
- o Hoffman (1990) found that textbooks generally do not encourage a process-oriented geography education. They emphasize selected facts rather than the explanation of facts and the description of patterns.
- o As teachers become more reliant on textbooks their ability to innovate, be creative, and utilize different types of resources seems to decline - Fisher (1998) referred to as the 'reduction view' of teaching.

# Instructional Strategies cont'd

- Teachers ignored their students' previous knowledge.

So this afternoon we'll be looking at the introduction to a map and the objectives to:

Define a map

Describe the different aspects of the map

Identify various types of maps and the type of map we'll be working with

Draw simple maps

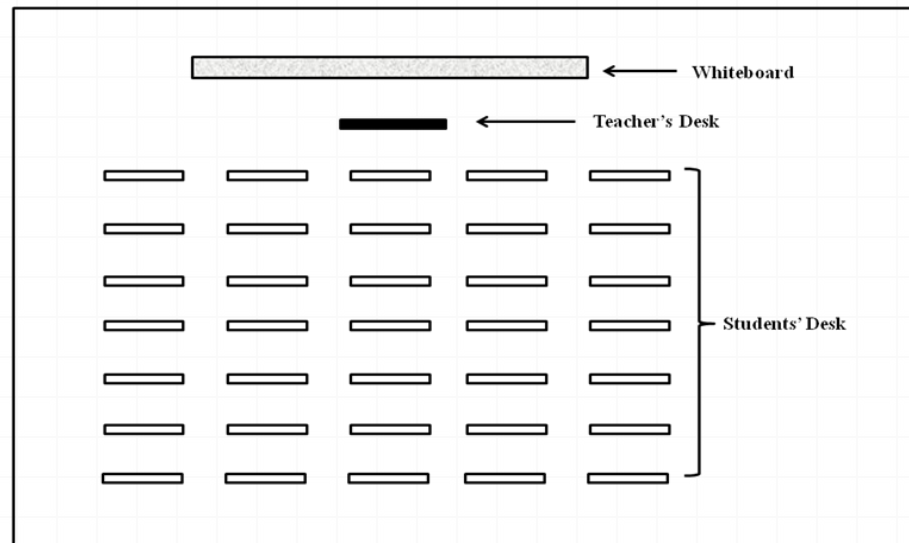
I would like you to take down this as your objectives.

Definition of a map: A drawing of a piece of land seen from above..."

*(Excerpt from a lesson taught by the Form 4 geography teacher)*

# Instructional Strategies cont'd

- o Standard rows and column seating arrangement.
- o Students facing the teacher at the front of the room - promoted teacher-centred instruction and made attempts at group work difficult.

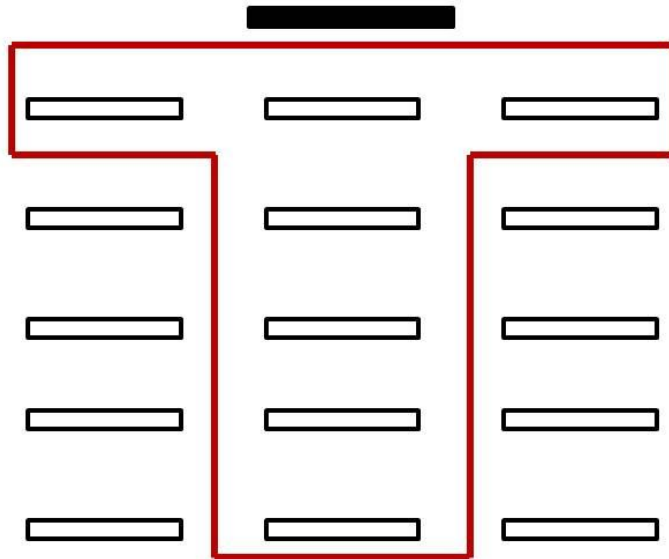


Traditional Classroom Arrangement Used in the Case Study School



## T-ACTION ZONE

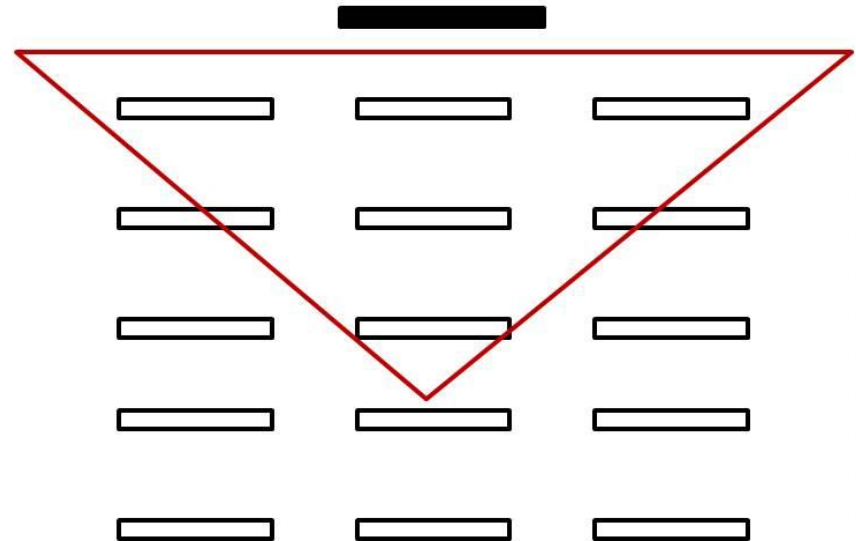
Row-and-Column Seating  
Arrangement



Source: Adam & Biddle (1970)

## TRIANGLE ACTION ZONE

Row-and-Column Seating  
Arrangement



Source: Koneya (1976)

The T and Triangle Action Zones in Row-and Column Seating

# Possible Causes

## o Lack of content knowledge -

- Bale & McPortland (1986) found that it is typical for geography teachers to not have a detailed knowledge of the content areas or pedagogy required to teach geography, especially at the advanced level.
- When teachers feel insecure in their content knowledge they tend to control and structure their lessons tightly around the content they know best (Cazden, 2001).



# Possible Causes cont'd

## o Teacher professional development:

- ❑ lack of training in general and content-knowledge pedagogy (especially for untrained teachers);
- ❑ lack of on-going, relevant in-service professional development.

| Skills, Knowledge, and Values Required of Teachers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• general pedagogic knowledge;</li><li>• subject-matter knowledge;</li><li>• pedagogic content-knowledge;</li><li>• knowledge of student context and a disposition to find out more about students, their families and their schools;</li><li>• knowledge of strategies, techniques and tools to create and sustain a learning environment/community, and the ability to use them effectively;</li><li>• knowledge and skills to know how to implement technology in the classroom; and,</li><li>• knowledge, skills and dispositions to work with children of diverse cultural, social and linguistic backgrounds.</li></ul> |



Villegas-Reimers (2003)

# Possible Causes cont'd

- o Lack of mentoring and proper administrative supervision:
  - ❑ inexperienced teachers fend for themselves;
  - ❑ infrequent supervision and feedback;
  - ❑ little facilitation/support for teachers attending professional development activities.

# Possible Causes cont'd

o Teacher demotivation and frustration:

- overloaded syllabus;
- vague assessment criteria and feedback from CXC;
- limited teaching time;
- lack of administrative and collegial support;
- emotional Exhaustion (“burnt-out”)

.....➤ revert to how they were taught.

Even teachers who are well trained in the most current instructional methods tend to revert to teaching how they were taught in high school (Moore, 2001).

# Conclusions

- Some instructional strategies are more effective at helping students develop deep understanding, critical thinking, and problem-solving skills.
- Very little evidence that any of that research is applied in the actual instructional practices of teachers.
- Schools and classrooms have hardly changed at all in the last century.
- “Teaching” is defined as standing in front of the classroom addressing students (Allen, 2008).
- Current practices tends to serve curricula emphasizing knowledge acquisition over knowledge generation.

# Recommendations

- Workshops and training must be relevant and of interest to the teachers.
- Teacher professional development activities that move beyond the “one-shot” approaches such as workshops, training, and conferences (Desimone, 2009).
- Professional development more in keeping with adult learning theories and situated cognitive perspectives on learning.
- Ongoing and lifelong professional development embedded in schools as a natural and expected component of the professional activities of teachers.

# Recommendations cont'd

- o Develop a wider range of instructional materials; alternatives to the traditional textbooks.
- o A three-pronged effort to ensure successful adoption of new or revised instructional resources:
  - (i) develop strong materials;
  - (ii) train teachers to use the materials; and
  - (iii) ensure adoption of the materials through strong curriculum guidance provided by curriculum officers, education specialist, academic geographers, and other experts (Hill, 1994).

# Recommendations cont'd

## o Create a Culture of Teacher as Researcher:

- ▣ Teachers as active contributors to knowledge, not just consumers of knowledge (Miller & Pine, 1990; Williamson, 1992).
- Increase their knowledge and skills in research methods and applications (Abdal-Haqq, 1995).
- Become more critical and reflective of their own practice (Oja & Pine, 1989; Street, 1986).
- Pay closer attention to their instructional practices, perceptions, understanding, and to the teaching-learning process (Abdal-Haqq, 1995).

# Future Directions & Research

- o Expand the research to include observations in more schools across the region.
- o Examine other components of OTL e.g. student individual characteristics (aptitude, perseverance) and family characteristics.
- o Create and pursue a research agenda for geography education in the region.
  - ▣ Collaborative research among geography teachers, education researchers and academic geographers that improves, e.g. our understanding of geographic literacy, learning and problem solving in the geography classroom, professional development (pre- and in-service), etc.



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