# Translational Research: Process-Induced Learning in the CVIF Dynamic Learning Program

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Education is a tough and complex problem since one deals with a fluid environment and changing landscape as technology advances:

Each generation may have different perspectives and think differently.

Important: Zero in on essentials and universals of the learning process.



## **CVIF Program Design Requirements**

- Iarge-scale enough for state school systems, but individualized enough for each student in any school
- has best evidence-based features, for curriculum and didactics
- so low in *cost* that effective implementation is possible for *any nation*.

Ford's Model T: iconic disruptive showcase Key: Process Efficiency

"1908 Ford Model T" by User Rmhermen on en.wikipedia (1908 Ford Model T ad from Oct. 1, 1908 Life magazine). Licensed under Public Domain via Commons https://commons.wikimedia.org/wiki/





## In the least time,

## at least cost,

## to have the majority of students

## having the highest levels of mastery

in science, math, and the humanities,

## based on international standards.



#### Bridging research and the classroom

## **The CVIF Dynamic Learning Program** *as a Systems Approach to Process-induced Learning*

 has been applied to the Elementary, Secondary, and Tertiary levels.

Carpio-Bernido, M. V., Bernido, C. C. (2011) CVIF Dynamic Learning Program: A Systems Approach to Process-Induced Learning. In Proc. of the epiSTEME 4 (Mumbai:HBCSE).



## **Central Visayan Institute Foundation**

### In Jagna, Bohol, Philippines





# **CVIF DLP Process-induced Learning** Strategic Thinking

Parallel Classes

Minimal teacher

intervention)

Inschool

Learner Disposition

Strateoic Rest comprehensive Portfolio Which are non-negotiable?

**Non-negotiable Features of DLP =** 

Writing and Doing

INO intro lecture)

## **Key Feature: Parallel Classes Scheme**

#### Analogy in:

- **MEDICINE:** *Medical Doctor need not stay* 24/7 with patient
- CHESS: A chess master against 20 simultaneous opponents
- EDUCATION: Teacher need not intervene while students are learning.



#### Parallel classes automatically **limit teacher intervention** to only 20 % to 30 % of the period.

#### **STUDENTS EXPLORE INDEPENDENTLY**

# Writing by Hand !

#### SCIENTIFIC AMERICAN<sup>™</sup>

## A Learning Secret: Don't Take Notes with a Laptop Students who used longhand remembered more and had a deeper understanding of the material

June 3, 2014 |By Cindi May

http://www.scientificamerican.com/article/a-learning-secret-don-t-take-notes-with-a-laptop/?WT.mc\_id=SA

"In a paper <u>in Psychological Science</u>, US researchers Pam Mueller and Daniel Oppenheimer, claim that note-taking with a pen, rather than a laptop, gives students a better grasp of the subject.

The study focused on more than 300 students at Princeton and the University of California, Los Angeles. It suggested that students who took longhand notes were better able to answer questions on the lecture than those using a laptop."

http://www.theguardian.com/science/2014/dec/16/cognitive-benefits-handwriting-decline-typing

# **Strategic Study-Rest Periods**

- MAPEH day (Wednesday)
- No homework for all subjects for all year levels
- Protect-the-week-ends policy
- No need for tutoring after school hours



**Sleep Spindles:** fast burst of brain waves while sleeping. The more sleep spindles, the more refreshed for learning.



Sleep spindles over left frontal lobe indicate refreshed learning capacity.

http://news.berkeley.edu/2011/03/08/sleep-brainwaves/

#### As we sleep, speedy brain waves boost our ABILITY TO LEARN

UC Berkeley researchers found evidence that bursts of brain waves known as "sleep spindles" may be networking between key regions of the brain to clear a path to learning. These electrical impulses help to shift fact-based memories from the brain's hippocampus – which has limited storage space – to the prefrontal cortex's "hard drive," thus freeing up the hippocampus to take in fresh data. Spindles are fast pulses of electricity generated during non-REM sleep, and they can occur up to 1,000 times a night.

- Yasmin Anwar

http://news.berkeley.edu/2011/03/08/sleep-brainwaves/

#### The CVIF Dynamic Learning Program addresses:

#### Learner Disposition:

Habit-forming Daily Protocol where students are engaged.

#### Large Classes:

Activities are individualized

#### Lack of Qualified Teachers:

Students do learning activities 70-80% of the time.

CH2 CH2 CH2 C-CH2



#### **NSAT/ NCAE**



## Impact of CVIF-DLP in Bohol, Philippines

#### Department of Education (Province of Bohol) (162 Public High Schools)



#### National Achievement Test Results





## Impact of CVIF-DLP in Basilan, Philippines

## Department of Education (Basilan, Mindanao) 19 Secondary Schools





BABUYAN DISLANDS

# National Licensure Examination for Teachers (LET)

 4<sup>th</sup> Place, September 2016 : Ma. Herna S. Macas (CVIF Batch 2012)

 7<sup>th</sup> Place, March 2016 : Vincent D. Cuarteros (CVIF Batch 2010)

#### Alumni

#### Ronald Lloren (CVIF 2005): doing his Ph.D. (Marine Science) at ETH Zurich (Swiss Federal Institute).

ETH Zurich is number one in the world in Earth and Marine Sciences, beating Harvard and MIT (2016 QS World Ranking of Universities by discipline).

ETH is where Einstein studied and taught. *"21 Nobel Prizes have been awarded to researchers who have or have had an association with ETH Zurich."* 



## **CVIF** Alumni

Madelynn Nayga (CVIF 2009) accepted for Ph.D. (Physics) joint program at Max Planck Institute (MPI) and University of Dresden, Germany. Max Planck Institute programs are highly competitive.



Ms. Nayga topped the Condensed Matter Physics post-masteral 10-month Diploma Class at the International Centre for Theoretical Physics, Trieste, Italy.

## Jesha Caseñas (CVIF 2005) graduated B.S. Anthropology from University of California (UC), Berkeley.

Note: 22 Nobel Prizes have been awarded to **UC Berkeley** faculty.



### NCAE 2016

	Standard Score	Percentile
Scientific Ability	779.02	99+
Reading Comprehension	771.09	99+
Verbal Ability	800+	99+
Math Ability	800+	99+
Logical Reasoning	758.07	99+
OVERALL GSA	800+	99+





- No homework throughout high school at CVIF
- Class lectures and discussion typically only 1/4 of the time (equivalent to one period per week, the rest for written activities)
- Portfolios and all activities cannot be brought home (returned to the students at the end of the year).



## Some CVIF DLP Implementing Schools

#### Luzon

Nuestra Sra. De La Salette, Dagupan
University of the East High Schools
Stella Maris College of Cubao
Diocese of Cabanatuan schools
Diocese of Cavite schools
University of Pangasinan

St. Michael College of LagunaDiocese of Tuguegarao schools

#### •••

#### Visayas

DepEd Bohol Division (162 schools)
CITE, Cebu City
St. Francis School of Silay City

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#### Mindanao

Davao Christian High School
Diocese of Pagadian
Claret School of Zamboanga City
DepEd Basilan (19 schools)
Cagayan de Oro College



# THANK YOU !

