



# How was students' self-regulation of during the pandemic? Future Goals for Remote Higher Education

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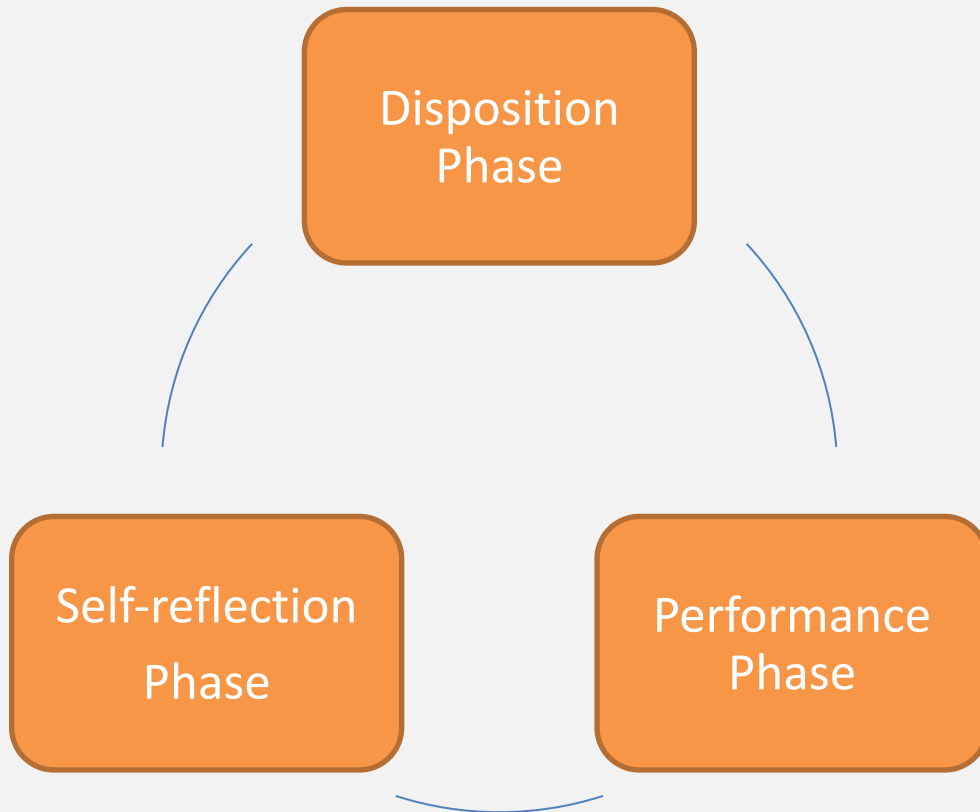
Centro de Investigación y Mejoramiento de la Educación



# 2018-2021 EXCEPTIONAL TIMES FOR HIGHER EDUCATION (GLOBALLY AND IN CHILE)

# Learning Self-regulation

## Una posible respuesta



Self-regulated Learning Model  
Barry Zimmerman (2002)

- ✓ Proactive, iterative and self-directed process
- ✓ It implies that learners direct their thoughts, feelings and behaviors towards the achievement of personally imposed learning goals.
- ✓ The goal is to monitor, regulate, control and evaluate the fulfillment of the objectives, and thus improve effectiveness.

(Boekaerts & Cascallar, 2006; Pintrich 2000; Zimmerman, 2002)

# Learning Approaches

A complementary perspective

## DEEP approach

- Intent to maximize understanding  
Relate information  
Based on interest in the area.

## SURFACE approach

- Intention to meet the course requirements.  
Routines that promote memorization.  
Relate the learning experience with high overload.

## STRATEGIC approach

- Organization of the study.  
Intention to be successful.  
Time and effort management.

# Why are they worth promoting?

Cognitive and intelligence skills do not, by themselves, explain academic achievement  
*(Zimmerman, 2001).*

Permite desarrollar habilidades que durarán toda la vida y se extrapolarán a otros contextos  
*(Vrieling, Batiens & Stijmen, 2012; Zimmerman, 2002).*

It is associated with academic adjustment in university students and higher retention  
*(Cazan, 2012).*

Possible ability to learn and train, which opens a field of intervention in Educational Psychology  
*(Schunk, 2008).*

Especially important in remote education contexts.

Possible ability to learn and train, which opens a field of intervention in Educational Psychology

*(Cazan, 2013; Cerezo, Núñez, Rosário, Rodríguez & Bernardo, 2010; Inan & Yüskel, 2010; Kistner, Rakoczy, Otto, Dignath van Ewijk, Büttner & Klieme, 2010)*

What has happened in  
pandemic?



# Project

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***"National evaluation of the remote teaching and learning process, during the COVID-19 pandemic, in higher education."*** Analysis of the variables that facilitate and hinder the educational experience of teachers and students.

Characterize the remote educational process, during the pandemic, from the experience of university students

- ✓ 15 researchers
- ✓ 13 universities from 11 regions of the country
- ✓ 17 international advisers
- ✓ 2 measurements in teachers and students

# What do we assess?

Variable	Instruments	Autors
Self-regulation of emotion and motivation	Emotion and Motivation Self-Regulation Questionnaire (EMSR-Q)	Alonso- Tapia, Panadero y Díaz
Self-regulation of Learning	Inventory of Self-Regulation Learning Processes	Rosario
Sense of agency	Agency Sense Scale	Tapal, Oven, Dar Eitam
Engagement	Student engagement scale	González- Roma y Bakker
Learning styles	Inventory of Learning Styles	Vermunt
Learning approaches	Learning process questionnaire (SPQ)	Biggs, Kember y Leung
Learning perceptions	Perceived learning scale(EAP)	Rovai



# Participants

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- N = 2762 (53% women, 22.1% women)
- Age X = 21.69
- Level of study:
  - Baccalaureate = 55.8%
  - Bachelor = 35.3%
  - Title = 8.9%
- Previous remote education experience:  
No = 69.4 Yes = 30.6
- Belonging to 21 universities, most of them regional traditional universities.

# Results: gender differences

Variables	$\bar{x}$ Men	$\bar{x}$ Women	t	p
Perception of evaluative demand	11,04 (n= 632; DE= 2.81)	<b>11,68</b> <b>(n= 1535; DE= 2.76)</b>	-4.915	≤ .001
Negative regulation of stress	9.89 (n= 419; DE= 4.41)	<b>11.36</b> <b>(n= 980; DE= 4.65)</b>	-5.664	≤ .001
Positive self-regulation of motivation	<b>12.64</b> <b>(n= 417; DE= 3.52)</b>	11.98 (n= 972; DE= 3.50)	3.182	≤ .001
Preparation	13.22 (n= 403; DE= 3.65)	<b>14.26</b> <b>(n= 974; DE= 3.44)</b>	-4.978	≤ .001
Monitoring	12.19 (n= 407; DE= 3.62)	<b>13.07</b> <b>(n= 981; DE= 3.49)</b>	-4.203	≤ .001
Negative Agency	12.48 (n= 394; DE= 4.66)	<b>13.05</b> <b>(n= 954; DE= 4.73)</b>	-2.042	= .041
Vigor	<b>17.16</b> <b>(n= 384; DE= 5.04)</b>	16.28 (n= 941; DE= 5.06)	2.878	= .004
Strategic learning	13.04 (n= 383; DE= 4.08)	<b>14.35</b> <b>(n= 909; DE= 3.73)</b>	-5.597	≤ .001
Use of digital resources	30.49 (n= 377; DE= 5.64)	<b>31.93</b> <b>(n= 880; DE= 5.24)</b>	-4.340	≤ .001

# Results: differences according to training cycle

Variables	<i>F</i>	<i>p</i>	Bachillerato	Licenciatura	Título
Empathy in pandemic	11.684	.000	<b><math>\bar{X}</math>= 15.38,</b> <b>DE= 4.18</b>	$\bar{X}$ = 14.68; DE= 4.18	$\bar{X}$ = 14.22; DE= 4.25
Learning perception	6.688	.001	$\bar{X}$ = 15.62; DE= 4.48	$\bar{X}$ = 14.88; DE= 4.27	
Honesty	16.613	.000	$\bar{X}$ = 4.82; DE= 1.96	$\bar{X}$ = 5.32; DE= 1.93	$\bar{X}$ = 5.20; DE= 1.90
Perception of evaluative demand	4.944	.007	$\bar{X}$ = 11.38; DE= 2.81	<b><math>\bar{X}</math>= 11.73;</b> <b>DE= 2.72</b>	$\bar{X}$ = 11.19; DE= 2.96
Avoidance-oriented self-regulation	3.515	.030	$\bar{X}$ = 10.42; DE= 4.03	$\bar{X}$ = 10.96; DE= 3.99	
Negative Agency	3.444	.032	$\bar{X}$ = 13.10; DE=4.75		$\bar{X}$ = 11.93; DE=4.58
Vigor	3.152	.043	$\bar{X}$ = 16.40; DE= 5.06	$\bar{X}$ = 16.38; DE= 5.00	<b><math>\bar{X}</math>= 17.55;</b> <b>DE= 5.14</b>
Superficial Learning	3.257	.039	$\bar{X}$ = 12.16; DE= 3.59)		$\bar{X}$ = 11.29; DE= 3.79
Use of digital resources	10.062	.000	<b><math>\bar{X}</math>= 30.84;</b> <b>DE= 5.74</b>	$\bar{X}$ = 32.14; DE= 5.08	$\bar{X}$ = 32.36; DE= 4.75

# Results: differences in previous experience with remote classes

Variables	$\bar{X}$ Without Experience	$\bar{X}$ With Experience	t	p
Empathy in pandemic	14.89 (n= 1679; DE= 4.16)	<b>15.28</b> <b>(n= 731; DE= 4.30)</b>	-2.078	.038
Learning perception	15.13 (n= 1521; DE= 4.46)	<b>15.76</b> <b>(n= 635; DE= 4.42)</b>	-3.003	.003
Vigor	16.29 (n= 929; DE= 5.00)	<b>16.98</b> <b>(n= 416; DE= 5.16)</b>	-2.302	.021
Strategic learning	13.79 (n= 904; DE= 3.88)	<b>14.27</b> <b>(n= 407; DE= 3.91)</b>	-2.049	.041

# Results: differences according to the predominant type of evaluation (I)

Variables	Factor: Predominant evaluation type	n	$\bar{x}$	DE
Empathy in pandemic (F= 13.945; p≤ .001)	Tests with closed response items	831	14,60	4,08
	Tests with open response items	658	14,68	4,23
	<b>Performance Based Tasks</b>	647	15,68	4,36
	<b>Total</b>	2136	14,95	4,24
Dialogical interaction in classes - Participation (F= 9.997; p≤. 001)	Tests with closed response items	831	12,69	2,94
	Tests with open response items	658	12,96	3,09
	<b>Performance Based Tasks</b>	647	13,39	3,05
	<b>Total</b>	2136	12,98	3,03
Learning perceptions (F= 8.148; p≤ .001)	Tests with closed response items	798	14,80	4,25
	Tests with open response items	598	15,45	4,58
	<b>Performance Based Tasks</b>	629	15,71	4,58
	<b>Total</b>	2025	15,27	4,47
Negative regulation of stress(F= 3.072; p=.047)	Tests with closed response items	554	11,26	4,61
	Tests with open response items	427	10,93	4,53
	<b>Performance Based Tasks</b>	439	10,52	4,73
	<b>Total</b>	1420	10,93	4,63

# Results: differences according to the predominant type of evaluation (II)

Variables	Factor: Predominant evaluation type	n	$\bar{X}$	DE
	<b>Tests with closed response items</b>	510	12,45	3,49
Superficial Learning (F= 5.989; p= .003)	Tests with open response items	410	11,78	3,55
	Performance based tasks	410	11,75	3,58
	Total	1330	12,03	3,55
	Tests with closed response items	487	31,29	5,53
Use of Digital Resources (F= 4.221; p= .015)	Tests with open response items	401	31,14	5,50
	<b>Performance based tasks</b>	388	32,17	5,18
	Total	1276	31,51	5,43
	Tests with closed response items	472	23,04	5,06
Learning Perception (F= 5.674; p= .004)	Tests with open response items	369	23,98	5,39
	Performance based tasks	378	24,17	5,56
	Total	1219	23,67	5,34

# Results: predictors of self-regulation in this context

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Model	Non-standardized coefficients		Standardized coefficients			Collinearity statistics	
	B	E.E.	$\beta$	t	sr <sup>2</sup>	Tolerancia	FIV
(Constant)	8.463	.824		10.268			
Strategic Learning	1.042	.055	.439	19.114	.14	.721	1.387
Learning processes	.664	.061	.249	10.955	.05	.737	1.357
Vigor	.477	.047	.259	10.223	.04	.590	.1695

## Conclusion

- Women are more self-regulating (in all phases). Their performance is higher in all variables associated with learning. However, they regulate stress worse, perceive greater demand and less vigor.



## Goal

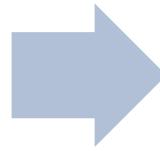
- Understand what explains these differences. Get all students to self-regulate, regardless of their gender. Get women to perceive the process in a more positive way.

Gender Does Matter



## Conclusion

- In high school, students perceive greater empathy from their teachers, greater learning, and report less copying. His approach is more superficial and there are more external attributions. In undergraduate there is a greater use of digital resources and a greater sense of demand. In title there is greater vigor.



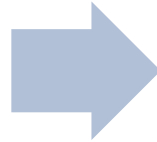
## Goal

- Incorporate instances to develop a deep focus and personal agency, intracurricularly, from the early years. Design of an honesty policy in evaluations, with clear penalties from the first years.

The Trajectory Does Influence

## Conclusion

- Students with remote / online experiences perceive greater empathy from their teachers, have a predominantly strategic focus and feel more vigor than those who did not.



## Goal

- Continue with the culture of online education (remote), in the fields in which the competencies and content are relevant. This will allow students to be better prepared for online or hybrid instruction.

Remote Experiences, But  
Not Emergency ones

## Conclusion

- Students who are evaluated with TBD perceive more empathy on the part of their teachers, report greater dialogic interaction / participation and greater use of digital resources. Students who are evaluated with closed item tests have a lower perception of learning and a higher negative regulation of stress.



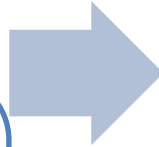
## Goal

- Use TBD as a priority instead of tests with closed items. Reflect on the backwash effect of standardized tests and against time, which are carried out on the platforms. Evaluate the teaching conditions for the use of TBD.

Assessment Effect

## Conclusion

- The variables that predict self-regulation in a pandemic are: strategic learning, process orientation and vigor.  
All trainable variables and possible to develop from the first year.



## Goal

- Design institutional and discipline-specific accompaniments that promote study strategies and promote metacognition about the study itself.  
Conduct classes that activate students, where they are the protagonists.

**OFFER SKILLS DEVELOPMENT OPPORTUNITIES**