



Comisión Nacional de Investigación
Científica y Tecnológica - CONICYT



COMISIÓN NACIONAL DE INVESTIGACION CIENTÍFICA Y TECNOLÓGICA

VERSION OFICIAL N° 2

FECHA: 28/08/2015

N° PROYECTO : 1120441

DURACIÓN : 3 años

AÑO ETAPA : 2014

TÍTULO PROYECTO : VALIDATION OF THE CHILEAN NATIONAL TEACHER EVALUATION SYSTEM USING STUDENT LEARNING PROGRESS AND IN-DEPTH EXAMINATIONS OF TEACHING PRACTICE

DISCIPLINA PRINCIPAL : PEDAGOGIA Y EDUCACION

GRUPO DE ESTUDIO : EDUCACION

INVESTIGADOR(A) RESPONSABLE : MARIANNE SANDY TAUT

DIRECCIÓN :

COMUNA :

CIUDAD : Santiago

REGIÓN : METROPOLITANA

FONDO NACIONAL DE DESARROLLO CIENTIFICO Y TECNOLOGICO (FONDECYT)

Moneda 1375, Santiago de Chile - casilla 297-V, Santiago 21

Telefono: 2435 4350 FAX 2365 4435

Email: informes.fondecyt@conicyt.cl

INFORME FINAL

PROYECTO FONDECYT REGULAR

MODIFICACIONES ACADÉMICAS

Nuevas Solicitudes para Evaluación

N°	Solicitudes para Evaluación
1	Changes_to_Fondecyt_1120441.pdf
Ver documento adjunto: http://sial.fondecyt.cl/index.php/investigador/f2_modificaciones_academicas/forzar_descarga_adjunto_pdf/1120441/2014/1/109/	

Otros Aspectos Importantes a Considerar

Sin comentarios.

PROJECT RESULTS:

The general goals of this project were:

1. Studying the validity of the Chilean National Teacher Evaluation System by relating its results with those of an in-depth assessment of teaching practice.
2. Studying the validity of the Chilean National Teacher Evaluation System by relating its results with students' learning progress.

In what follows we describe our **results for each of the specific objectives** of the project.

1.1 Assessing teaching practices in participating classrooms using different instruments and relating these descriptions to teachers' evaluation results.

In this project we assessed teaching practices in 7th grade mathematics classrooms of Chilean public (municipal) schools of the Metropolitan region as well as V and VI regions. Our total sample consisted of N=53 teachers who had previously been evaluated by the Chilean national teacher evaluation system: N=29 were in the performance category of "competent" while N=24 were in the performance category of "basic". Therefore, our sample was not completely balanced as we had intended. However, the sample size is sufficient to perform the statistical analyses we planned on. Our sample consisted of teachers who worked in municipal schools pertaining, on average, to a mid-low SES, and most of them had SIMCE mathematics results (in 8th grade in 2013) that were below the average for their SES group. The groups of basic and competent teachers did not differ significantly in this regard. In addition, students' SEPA pre-test scores in both groups (basic versus competent teachers) of our sample did not differ significantly.

Video-taping mathematics instruction and coding these videos using two different coding schemes

In total we video-recorded N=104 mathematics lessons (in 2013 we filmed one 90-minute and one 45-minute lesson, for each of the 22 classrooms; in 2014 we filmed two 60-minute lessons for 29 classrooms and one 60-minute lesson for 2 classrooms). In the second year progress report we attached (a) Manual for video-taping mathematics lessons; (b) Manual for coding classroom videos ("base coding"). The video-taping was performed by a specialized company offering camera services. The videos were recorded using two cameras and high-quality audio equipment. The cameras were positioned using TIMSS methodology: We had a student camera that was in a fixed position in the front of the classroom, while the teacher camera was following the teachers' movements and was taken off the tripod when the teacher was supervising group or individual work.

Base coding

We trained coders to apply the base coding manual and to use Videograph software for coding. We monitored inter-coder agreement by double-coding N=11 videos in 2013 (25% of our total N=44) and N=60 videos (100% of our sample) in 2014. Overall, we reached sufficient reliability for our coding process for all variables except for "students on task", which is why we will eliminate it from further analyses (see Appendix A for details).

In what follows and in Appendix B we provide initial results that describe the structural features of the teaching practice of our sample of 7th grade mathematics teachers in terms of a) use of time, b) classroom format, and c) purposes of instructional activities. We describe the whole sample as well as basic versus competent teachers' practices.

In general, teachers worked the great majority of the lessons implementing activities related to mathematics content (82,9%). They used a bit more than a tenth (11,1%) of classroom time to organize these activities, and the rest of the time they spent on activities not related to mathematics (3,4%). There were differences between "basic" and "competent" teachers in how much time they spent organizing activities (*competent teachers needing less time than basic teachers for organization of learning activities*) and how much time was spent on actually learning mathematics content (competent teachers spending slightly more time related to mathematics content than basic teachers). The majority of the time teachers worked with the whole classroom (59,3%), while individual work was used in about a fourth of instructional time (24,6%), but group work was much scarcer (8,1%). Transitions between formats were brief (1,6%). *Group work format was used to a much larger extent in basic teachers' classrooms (12,8%) than in competent teachers' classrooms (4,2%),* while individual work and whole group instruction were both slightly more prevalent in competent teachers' lessons. Regarding the main purpose of instructional

activities, about half of the time teachers were reviewing contents previously taught (49,7%), about a fifth of the time they were teaching new contents (21%), and another fifth of the time they were practicing or applying these new contents (22,4%). Basic teachers used slightly more time teaching new contents and slightly less time practicing or applying these new contents, as compared to competent teachers, while there were no differences regarding the time spent on review.

These initial results represent good news in that a very large share of mathematics instructional time is spent actually working on mathematics content, and that little time is spent either organizing activities or not related to mathematics content. However, the large amount of time spent on reviewing contents previously taught seems disproportionate in international comparison. However, these findings might also represent artifacts of this study, since teachers might have strategically chosen to review contents when being video-taped, and they might have spent less time than usual on non-mathematical contents simply because they were being observed. Furthermore, it is interesting that there are no fundamental differences in the way competent and basic teachers structure their mathematics instructions. The only seemingly meaningful differences between the two groups are related to time needed for classroom organization and using group work format.

Classroom Assessment Scoring System for Secondary School (CLASS-S) coding

Regarding the second coding scheme, we translated the Manual for the “Classroom Assessment Scoring System for Secondary School (CLASS-S)” to Spanish (see second year progress report)¹. During the first half of 2015 we applied this observation protocol to all our 104 classroom videos. We trained and certified four raters²; 50% of our videos (i.e., one video of each study participant) were double-coded and any differences larger than one point on the seven-point rating scale were resolved through master coding. The results of the double-rating process and the rater certification are presented in Appendix A. We defined the pass rate for certification as above 80% adjacent agreement with pre-established master codes, according to the literature reporting studies using the CLASS-S observation protocol (Pianta, Hamre & Mintz, 2012; Gitomer et al., 2014; Hafen et al., 2014). Our results are similar to those reported in these studies. In our study, three raters were certified on all eleven dimensions; one rater was certified for nine out of the eleven dimensions. To resolve this situation, we asked a certified rater to score the videos of this rater on the two uncertified dimensions.

In what follows in Appendix B we describe preliminary results from the CLASS-S video coding, with regards to the eleven dimensions of quality instruction in secondary school proposed by this observation protocol. We describe results of our entire sample of 7th grade mathematics lessons, as well as comparisons between teachers evaluated as basic and teachers evaluated as competent in the national teacher evaluation system. It is important to point out that our raters did not know each participating teacher’s evaluation result, nor did they receive any other additional information about the teachers in our sample.

In Appendix B, for comparison we also provide the results of a large-scale study conducted in the United States (the Measures of Effective Teaching or MET study), where N=698 7th to 9th grade Mathematics and English Language Arts classrooms (roughly half and half) were coded with the CLASS-S observation protocol. Second, we provide results from a small-scale study in Chile in 4th grade mathematics classrooms (N=17), coded with the CLASS Elementary school protocol. Regarding our sample of N=51 7th grade mathematics classrooms in Chilean municipal schools, we found an interesting profile of strengths and weaknesses in terms of the quality of the teaching-learning process that resembles the profile found in the large-scale study in the United States. However, the results in Chile are generally lower, except for Behavior Management, Productivity and Negative Climate, where they were above the U.S. results. This might or might not have to do with the fact that in Chile only math was observed, while in the U.S. both math and language lessons were included. In both studies, Analysis and Inquiry, Instructional Dialogue and Regard for Student Perspectives were the aspects of instructional quality that received the lowest scores. When comparing our results to the elementary school study in Chile we find striking differences regarding Positive Climate and Teacher Sensitivity in the sense that the 4th grade elementary classrooms showed a markedly higher quality in this regard (also much higher than U.S. secondary classrooms), which makes us hypothesize that this finding has to do with the adolescent developmental stage of students in 7th grade that negatively impacts climate-related and relational aspects of instructional quality.

¹ When applying this Manual we found that further improvements and adaptation to the Chilean context would be required in order to improve the reliability and validity of this observation protocol. However, translation and usage agreements with the intellectual owners of this instrument from the United States prohibited us from doing so.

When we compare the practices of basic and competent teachers, then we find that their profiles of strengths and weaknesses are very similar but that in all dimensions, the competent teachers in our sample obtained better scores than our basic teachers. In four dimensions these differences reach statistical significance despite the small sample size (see table in Appendix B).

These results seem to validate the distinction between basic and competent performance levels as informed by the national teacher evaluation system. Competent teachers seem to consistently outperform basic teachers on all dimensions of the CLASS-S observation protocol. At the same time one can say that all teachers, independent of their evaluation results, show important weaknesses in terms of the quality of the teaching-learning processes observed in their classrooms, especially in terms of Regard for adolescent perspectives, Quality of feedback, Instructional dialogue and Analysis and inquiry, so that attending professional development should be expected from all these teachers.

However, these results only hold true if we use the final evaluation result as grouping variable, but not if we use portfolio result (it has to be considered, however, that in this case our sample becomes very unbalanced in terms of size, and one group very small with N=9).

Comparing teachers based on their students' learning results and learning progress

We compared basic and competent teachers in our sample with regard to their students' learning in various ways (see Appendix C for psychometric characteristics and descriptives of the student learning tests we used): (a) t tests for independent samples using learning progress in SEPA as dependent variable and both teachers' results in the overall evaluation, as well as in the portfolio, as grouping variables; (b) t tests for independent samples using results in the unit tests as dependent variable and both teachers' results in the overall evaluation, as well as in the portfolio, as grouping variables; (c) multi-level linear regressions with SEPA post-test scores as dependent variable and SEPA pre-test scores as predictor at student level, and teachers' evaluation results as predictor at teacher/classroom level.

Group comparisons for SEPA learning progress:

We compared SEPA results for students (using averages at classroom level) of teachers evaluated as unsatisfactory/basic versus competent (in their portfolio) and find that SEPA pre-test and SEPA post-test results do not differ significantly. Although for learning progress we do not find significant differences either, there are differences that are practically significant with an effect size of $d=0.56$ in favor of competent teachers (average learning progress of classrooms of competent teachers = 24.3; average learning progress of classrooms of unsatisfactory/basic teachers = 19.8). We do not find any differences in terms of SEPA results when using final evaluation category as grouping variable.

Group comparisons for unit test results:

We compared learning test results for students (using averages at classroom level) of teachers evaluated as either basic or competent (in their final evaluation result), and find marginally significant differences ($p<0.1$) for the geometry unit test and significant differences ($p<0.05$) for the power unit test, in favor of competent teachers.

Relation between students' SEPA results and teachers' evaluation results using multi-level modeling:

Appendix D shows the results of these analyses. We find statistically significant results for SEPA pre-test score at both individual and group (average) levels. In addition, we find a significant cross-level interaction between teachers' portfolio category and students' SEPA pre-test score. This means that there is an effect of teacher quality (as measured by the portfolio) at the level of individual student learning trajectories within each classroom: Students who were taught by teachers with a basic portfolio, for each s.d. increase in their SEPA pre-test scores, they showed an increase of 0.47 s.d. in their SEPA post-test scores; students who were taught by teachers with a competent portfolio, for each s.d. increase in SEPA pre-test scores, they showed an increase of 0.66 s.d. in their SEPA post-test scores (i.e., 0.19 s.d. more). But this interaction effect disappears at group level.

Group comparisons for student perceptions of teaching practices:

In addition, we compared teachers evaluated as basic and competent in the portfolio with regard to their students' perceptions of their teaching. One robust finding is that the Pedagogical Support scale ($\alpha = 0.85$) showed significant differences in favor of competent teachers (effect size $d=0.86$). This result also held when we used teachers' final result in the

evaluation as grouping variable (effect size $d = 0.59$). Although we find other statistically significant differences in the perceptions of students regarding their basic versus competent teachers' teaching practices (e.g., regarding their motivational support for students and the extent to which they engage in direct instruction), we must be careful in interpreting these results, since the student perception scales are highly correlated with each other.

Teacher classroom assessment portfolio

We had pilot-tested a portfolio collecting evidence on classroom assessment practices during the first year of project implementation, but the results showed that this instrument needed to be substantially modified in order to provide valid and reliable results in the Chilean context (see Masters thesis by Maria Asunción Pérez-Cotapos), so we decided to invert our scarce project resources in other activities.

Teachers' mathematical knowledge about teaching questionnaire

We also asked teachers to take a test called "Mathematical Knowledge for Teaching (MKT)", which was adapted to the Chilean context by a group of researchers from the Universidad de Chile, who gave us permission to use this instrument with our group of teachers. These data will be scaled according to the procedures established by the team that adapted this instrument for the Chilean population and will be used to complement our analyses going beyond the general pedagogical aspects and adding a disciplinary perspective.

- | | |
|-----|---|
| 1.2 | Identifying teachers and classroom settings where students show substantial learning progress. |
| 1.3 | Describing teaching practices in these classrooms in contrast to those where substantial learning is lacking. |
| 1.4 | Relating these findings to context information obtained from teachers and students. |

By August 2015 we have built a final database with student learning data (pre-test score, post-test score, SEPA gain score) from $N=48$ 7th grade mathematics classrooms. We reached the following participation rates for our student-level instruments: 82% student questionnaire; 82% unit test; 81% SEPA pre-test score; 73% SEPA post-test score; 63% SEPA gain score (match pre-post).

The mathematics achievement data is based on the SEPA standardized mathematics tests developed by the Measurement Center MIDE UC, School of Psychology, Pontificia Universidad Católica de Chile. We used 6th grade tests at the beginning of the school year and 7th grade tests at the end of the school year. See Appendix C for descriptive results of our student and teacher sample in the SEPA tests.

We find that our sample of students advanced about 21 points over the course of a school year, as measured by the SEPA testing system. Variation in student learning progress is of course much larger at individual level than when analyzing between-classroom averages. At student level, there is a wide range of learning progress (from 91 points to -60 points), while at teacher/classroom level, progress ranges from zero to 42 points, with a s.d. of 8 points. In the overall SEPA sample, which includes a more heterogeneous sample of schools, the mean classroom level progress in mathematics in 7th grade is 20.5 points, with a s.d. of 14 points.

We also developed, piloted and administered a unit-specific test: $N=19$ classrooms have geometry unit learning results, $N=32$ classrooms have power unit learning results. Please refer to the Appendix C for tables providing the psychometric characteristics and descriptive results of the unit-specific tests for our sample of students and classrooms.

In 2014, we **presented a paper with preliminary results for the first part of the sample in the European Educational Research Association (EERA-ECER) conference** in Porto, Portugal. The paper entitled "**Linking Mathematics Learning Growth and Students' Attitudes**" describes the relationship between student learning growth in our participating classrooms and their attitudes toward learning mathematics as they were self-reported in a questionnaire at the end of the school year. This relationship was examined using the SEPA results obtained at the beginning and at the end of the school year, as well as the interest for mathematics and perceived competence reported by the students. A multilevel analysis was performed using learning growth as dependent variable, while gender, socioeconomic status, interest, perceived competence and achievement at the beginning of the school year were included as predictors at the student level. The score obtained by the teacher in the teacher evaluation was included as control variable at classroom level. The preliminary results (using the partial sample that participated in 2014) showed a significant association between perceived competence and learning growth, but there was no significant association with interest for mathematics.

Student and teacher questionnaires

We analyzed the data from the questionnaires and confirmed the metric quality of the scales we included (see Appendix E for details).

As of August 2015, both quantitative and qualitative data analysis is still ongoing for the above-mentioned project objectives.

- 2.1 Modeling students' post-test scores on a standardized achievement test to arrive at a measure of the "teacher effect", taking into account students' pre-test scores and other variables available regarding student background and classroom context.
- 2.2 Relating these "teacher effects" to teachers' evaluation results.

These two objectives were implemented during the first year of project implementation, and the corresponding results were reported in the first year progress report. **We presented initial research results in a symposium at the EARLI conference in 2013** and an **article was published in 2014 in the journal "Assessment in Education: Principles, Policy & Practice" (Scopus)** (see Products section). In addition, in July 2015 we published a short report of this study (MIDevidencias No. 2) targeting a wide, non-academic audience, as **part of a series of policy briefs** by MIDE UC, Centro de Medición, Pontificia Universidad Católica de Chile (see <http://www.mideuc.cl/investigacion/midevidencias/>).

Other products related to the context of the project

We wrote a **book chapter** related to the Chilean education system and, particularly, the role of teachers, entitled "**Das Bildungssystem Chiles unter besonderer Berücksichtigung der Rolle der Lehrerinnen und Lehrer als Schlüssel der Bildungsqualität [The educational system in Chile with special emphasis on the role of teachers as the key to educational quality]**", which was published in an edited book by Waxmann in German language at the beginning of 2015 (see products attached to this report).

We also published in 2014, **in the journal Education Policy Analysis Archives (Scopus), a paper entitled "The Development and Implementation of a National, Standards-based, Multi-method Teacher Performance Assessment System in Chile"**, which was also related to the general context of our research project.

Feedback sessions with participating teachers

We implemented two feedback sessions, one in January 2014 for the 22 teachers who participated in our study during 2013, and another in March 2015 for the 31 teachers who participated during 2014. In these sessions we provided each teacher with the learning results of his or her group of students in the SEPA tests and we described each teacher's classroom results on the unit test highlighting common mistakes. We also discussed an extract of a classroom observation protocol for teachers' self-reflection. We started by practicing the use of the protocol on a video of a teacher who had given us authorization to use it in the session, and then gave each participant a copy of one of their own videos we had filmed for the project, so they could analyse it.

Masters theses

A number of Masters theses are related to the project, one of which has been completed in 2013 (María Asunción Pérez-Cotapos), two others in 2014 (Paula Salvatierra and Ana María Espinoza) and two are still ongoing (David Salas and Francisca Ramirez). The thesis by María Asunción Pérez-Cotapos has resulted in an **article accepted for publication in the journal "Psyke" (Scopus)** (see acceptance letter attached to this report). Ana María Espinoza has **submitted an article** to the same journal (see submission confirmation).

Appendix A

Rater agreement for the base coding process in 2013 and 2014.

Coding Variable	Average Kappa	Average % agreement	Average Kappa	Average % agreement	Average Kappa	Average % agreement
	2013	2013	2014	2014	2013-2014	2013-2014
Instructional time	0.64	97%	0.84	99%	0.80	98%
Use of time	0.63	86%	0.68	90%	0.68	88%
Classroom format	0.74	91%	0.81	90%	0.80	90%
Purpose of instructional activity	0.69	87%	0.64	76%	0.64	82%
Students on task	0.52	79%	0.49	86%	0.51	83%

Rater certification results for CLASS-S video scoring process.

DOMINIO	APOYO EMOCIONAL									ORGANIZACIÓN DEL AULA								
	clim_pos			sensib			consider			man_cond			product			clim_neg		
	AC	AC_A D	Nº CC	AC	AC_A D	Nº CC	AC	AC_A D	Nº CC	AC	AC_A D	Nº CC	AC	AC_A D	Nº CC	AC	AC_A D	Nº CC
Codificador 1	33%	83%	6	33%	100%	6	33%	100%	6	33%	100%	6	33%	100%	6	83%	100%	6
Codificador 2	50%	100%	6	50%	100%	6	100%	100%	6	67%	100%	6	100%	100%	6	100%	100%	6
Codificador 3	50%	63%	8	13%	50%	8	83%	100%	6	50%	100%	6	83%	100%	6	100%	100%	6
Codificador 4	67%	100%	6	67%	100%	6	100%	100%	6	33%	83%	6	63%	88%	8	100%	100%	6
PROM.*/T OT	50%	86%	26	41%	88%	26	79%	100%	24	46%	96%	24	70%	97%	26	96%	100%	24

DOMINIO	APOYO PEDAGOGICO														
	form_ens			comp_cont			anal_ind			calid_retro			dial_pedag		
	AC	AC_AD	Nº CC	AC	AC_AD	Nº CC	AC	AC_AD	Nº CC	AC	AC_AD	Nº CC	AC	AC_AD	Nº CC
Codificador 1	17%	100%	6	17%	100%	6	100%	100%	6	33%	83%	6	33%	100%	6
Codificador 2	33%	100%	6	33%	83%	6	100%	100%	6	33%	83%	6	33%	100%	6
Codificador 3	17%	83%	6	17%	83%	6	67%	100%	6	50%	83%	6	50%	83%	6
Codificador 4	67%	100%	6	50%	83%	6	100%	100%	6	50%	100%	6	67%	83%	6
PROM.*/TOT	33%	96%	24	29%	87%	24	92%	100%	24	42%	87%	24	46%	92%	24

Agreement in double-ratings for CLASS-S video scoring process.

SEMANA	DOMINIO	APOYO EMOCIONAL									ORGANIZACIÓN DEL AULA								
	DIMENSIÓN	clim_pos			sensib			consider			man_cond			product			clim_neg		
PAREJA	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	
FINAL	1	0.47	48%	89%	0.54	45%	97%	0.61	54%	100%	0.20	48%	100%	0.75	38%	95%	0.33	83%	98%
	2	0.34	36%	72%	0.43	30%	75%	0.27	58%	97%	0.75	48%	86%	0.65	50%	91%	0.59	69%	94%
	PROM.	0.41	42%	81%	0.48	37%	86%	0.44	56%	98%	0.47	48%	93%	0.70	44%	93%	0.46	76%	96%

SEMANA	DOMINIO	APOYO EMOCIONAL																	
	DIMENSIÓN	form_ens			comp_cont			anal_ind			calid_retro			dial_pedag					
PAREJA	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	ICC	AC	AC_AD	
FINAL	1	0.46	51%	97%	0.52	51%	92%	0.34	75%	100%	0.48	57%	97%	0.63	86%	100%			
	2	0.39	25%	77%	0.58	47%	91%	0.37	47%	91%	0.50	38%	95%	0.31	52%	81%			
	PROM.	0.42	38%	87%	0.55	49%	91%	0.36	61%	95%	0.49	47%	96%	0.47	69%	91%			

Appendix B

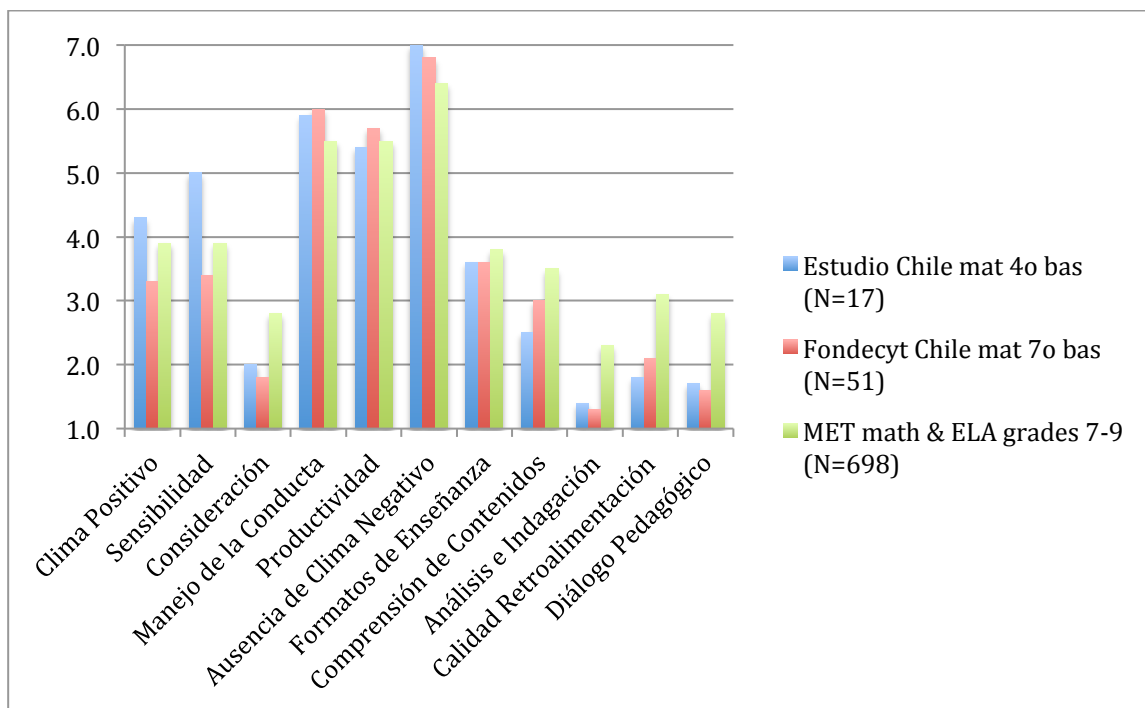
Structural or surface characteristics of 7th grade mathematics lessons.

Coding Variable	Basic	Competent	Total
Instructional time	N=24	N=29	N=53
No instructional activities in course	2.05%	1.86%	1.95%
Instruction in course	97.85%	98.13%	97.98%
Use of time	N=24	N=29	N=53
Without activities facilitated by teacher	0.43%	0.43%	0.43%
Activity not related to mathematics content	3.17%	3.76%	3.49%
Organization of activities related to mathematics content	13.26%	9.42%	11.16%
Activity related to learning mathematics content	80.97%	84.50%	82.91%
Does not apply	2.01%	1.86%	1.95%
Classroom format	N=24	N=29	N=53
Whole classroom format	57.15%	61.24%	59.39%
Individual work format	22.10%	26.80%	24.67%
Group work format	12.85%	4.21%	8.11%
Various formats at the same time	1.64%	0%	0.74%
Transition between different formats	1.23%	1.99%	1.65%
Other	0.35%	0%	0.16%
Does not apply	5.16%	5.7%	5.47%
Purpose of instructional activity	N=24	N=29	N=53
Review of contents previously taught	49.76%	49.68%	49.71%
Instruction of / developing new contents	23.17%	19.34%	21.07%
Practice / application of new contents	20.66%	23.86%	22.41%
Other	1.48%	1.21%	1.33%
Does not apply	4.78%	5.89%	5.39%

CLASS-S results for 7th grade mathematics lesson.

Dimensión	Mean	Std Dev	Range
Clima Positivo	3.3	0.73	2.58
Sensibilidad	3.4	0.72	3.25
Consideración	1.8	0.35	1.75
Manejo de la Conducta	6.0	0.64	2.95
Productividad	5.7	0.61	2.75
Ausencia de Clima Negativo	6.8	0.39	1.58
Formatos de Enseñanza	3.6	0.56	2.54
Comprensión de Contenidos	3.0	0.56	2.95
Calidad de la Retroalimentación	2.1	0.49	2.66
Análisis e Indagación	1.3	0.32	1.62
Diálogo Pedagógico	1.6	0.60	2.66

CLASS-S comparative results from three studies.



Comparison of basic and competent teachers' CLASS-S results.

CLASS-S dimensions	Mean scores, basic teachers (final ED result; N=22)	Mean scores, competent teachers (final ED result; N=29)
Clima Positivo	3.1	3.4
Sensibilidad**	3.2	3.7
Consideración	1.7	1.9
Manejo de la Conducta	5.9	6
Productividad*	5.5	5.8
Ausencia de Clima Negativo	6.7	6.8
Formatos de Enseñanza	3.5	3.7
Comprensión de Contenidos*	2.8	3.1
Análisis e Indagación	1.2	1.4
Calidad Retroalimentación	1.9	2.2
Diálogo Pedagógico*	1.4	1.7

Note: ** statistically significant difference between both groups with $p < 0.01$;

* statistically significant difference between both groups with $p < 0.05$

Appendix C

SEPA student level descriptive results.

Label	N	N Miss	Mean	Std Dev	Variance	Minimum	Maximum	Range	25th Pctl	Median	75th Pctl
SEPA PRE	1432	273	391.59	18.23	332.22	322.00	474.00	152.00	379.00	389.00	401.00
SEPA POST	1311	394	412.51	17.95	322.15	331.00	515.00	184.00	401.00	410.00	423.00
SEPA PROGRESO	1143	562	20.96	18.00	323.83	-60.00	91.00	151.00	11.00	22.00	32.00

SEPA teacher level descriptive results.

Label	N	N Miss	Mean	Std Dev	Variance	Minimum	Maximum	Range	25th Pctl	Median	75th Pctl
SEPA PRE	48	3	391.20	7.23	52.24	375.42	412.09	36.67	385.53	390.95	395.26
SEPA POST	48	3	412.03	7.61	57.98	389.53	433.87	44.34	407.87	411.63	416.99
SEPA PROGRESO	48	3	20.63	8.11	65.78	-0.03	41.89	41.93	16.36	21.11	25.10

Psychometric characteristics of the power unit test.

N° de ítems	N° de alumnos	Alpha de Cronbach	Puntaje promedio	Puntaje máximo	Puntaje mínimo	Varianza	SD
22	935	0.64	9.27	22	1	12.79	3.57

Psychometric characteristics of the geometry unit test.

N° de ítems	N° de alumnos	Alpha de Cronbach	Puntaje promedio	Puntaje máximo	Puntaje mínimo	Varianza	SD
23	526	0.49	7.84	20	1	8.77	2.09

Geometry unit test student level descriptive results.

Variable	N	N Miss	Mean	Std Dev	Variance	Minimum	Maximum	Range	25th Pctl	Median	75th Pctl
ptj_geo	521	94	8.10	3.17	10.07	1.00	22.00	21.00	6.00	8.00	10.00
prc_pr_unidad	521	94	30.02	11.72	137.39	4.00	81.00	77.00	22.00	30.00	37.00

Power unit test student level descriptive results.

Variable	N	N Miss	Mean	Std Dev	Variance	Minimum	Maximum	Range	25th Pctl	Median	75th Pctl
ptj_pot	931	159	10.27	4.34	18.85	1.00	26.00	25.00	7.00	10.00	13.00
prc_pr_unidad	931	159	39.50	16.71	279.33	4.00	100.00	96.00	27.00	38.00	50.00

Geometry unit test teacher level descriptive results.

Variable	N	N Miss	Mean	Std Dev	Variance	Minimum	Maximum	Range	25th Pctl	Median	75th Pctl
ptj_geo	19	0	8.13	1.19	1.41	5.92	11.07	5.15	7.28	8.14	8.88
prc_pr_unidad	19	0	30.13	4.40	19.34	21.92	41.04	19.12	27.00	30.15	32.93

Power unit test teacher level descriptive results.

Variable	N	N Miss	Mean	Std Dev	Variance	Minimum	Maximum	Range	25th Pctl	Median	75th Pctl
ptj_pot	32	0	10.05	2.01	4.03	6.56	15.63	9.07	8.56	9.82	11.52
prc_pr_unidad	32	0	38.64	7.74	59.84	25.11	60.13	35.01	32.94	37.71	44.31

Resultados de las estimaciones HLM

SEPA Post (coeficientes estandarizados) incluyendo Portafolio (dicotómico, B=0 y C=1)

	MN	M1	M2	M3	M4
<i>Nivel individual</i>					
SEPA PRE		0.508** (14.11)	0.508** (14.11)	0.472** (13.94)	0.472** (13.94)
(Intercepto)	-0.017 (-0.265)	-0.033 (-0.45)	-0.042 (-0.62)	-0.042 (-0.63)	-0.041 (-0.62)
<i>Nivel profesor</i>					
Portafolio		0.166 (1.00)	0.217 (1.49)	0.217 (1.49)	0.229 (1.61)
SEPA PRE por profesor			0.498** (3.31)	0.498** (3.31)	0.472** (2.76)
SEPA PRE por profesor * Portafolio					0.172 (0.72)
<i>Interacción Nivel individual y Nivel profesor</i>					
SEPA PRE * Portafolio				0.193* (2.47)	0.193* (2.47)

Estimación con máxima verosimilitud restringida (REML). * p<0.05, ** p<0.01. En paréntesis se muestra el valor de t.

SEPA Post (coeficientes estandarizados) incluyendo Evaluación Docente (dicotómica, B=0 y C=1)

	MN	M1	M2	M3	M4
<i>Nivel individual</i>					
SEPA PRE		0.508** (14.11)	0.508** (14.11)	0.441** (8.62)	0.441** (8.62)
(Intercepto)	-0.017 (-0.265)	-0.097 (-1.28)	-0.070 (-0.84)	-0.070 (-0.84)	-0.096 (-1.25)
<i>Nivel profesor</i>					
Evaluación Docente		0.148 (1.23)	0.110 (0.94)	0.109 (1.59)	0.134 (1.20)
SEPA PRE por profesor			0.462** (2.89)	0.462** (2.89)	0.007 (0.025)
SEPA PRE por profesor * Evaluación Docente					0.539 (1.52)
<i>Interacción Nivel individual y Nivel profesor</i>					
SEPA PRE * Evaluación Docente				0.109 (1.59)	0.109 (1.59)

Estimación con máxima verosimilitud restringida (REML). * p<0.05, ** p<0.01. En paréntesis se muestra el valor de t.

Model fit

	SEPA POST (PORTAFOLIO)					SEPA POST (EVALUACIÓN DOCENTE)				
	MN	M1	M2	M3	M4	MN	M1	M2	M3	M4
U0	0.17	0.14	0.14	0.14	0.14	0.17	0.17	0.14	0.14	0.14
R	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
StDev U0	0.42	0.42	0.37	0.37	0.38	0.42	0.41	0.38	0.38	0.37
StdDev R	0.77	0.77	0.77	0.77	0.77	0.77	.077	0.77	0.77	0.77
Deviance	3328	2564	2554	2551	2549	3328	2564	2556	2558	2554
Estimated Parameters	3	4	5	6	7	3	4	5	6	7
ICC	0.16	0.22	0.19	0.19	0.19	0.16	0.22	0.19	0.19	0.19
N Level 1	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
N Level 2	44	44	44	44	44	44	44	44	44	44

Appendix E.

Questionnaire about students' perceptions of teaching practices in their mathematics classroom:

Escala	Número de ítems de la escala	Cronbach's Alpha
Constructivismo del professor	8	0.73
Instrucción directa del professor	4	0.64
Apoyo pedagógico por parte del profesor	7	0.85
Apoyo motivacional por parte del profesor	4	0.78
Interés por las matemáticas (general)	6	0.79
• Interés y motivación intrínseca por las matemáticas	4	0.85
• Interés y motivación instrumental por las matemáticas	3	0.72

There are high correlations among the scales regarding perceptions of teaching practices (all above 0.5), and among the general and the two specific interest and motivation scales (above 0.8).

Questionnaire about teachers' perceptions of their teaching practices and work environment:

Escala	Número de ítems de la escala	Cronbach's Alpha
Constructivismo	4	0.90
Instrucción directa	5	0.73
Preparación para enseñar potencias	5	0.95
Preparación para enseñar geometría	4	0.86
Auto-eficacia docente (general)	16	0.94
• Auto-eficacia docente, ámbito instruccional	4	0.80
• Auto-eficacia docente, ámbito motivacional	4	0.85
• Auto-eficacia docente, adaptabilidad	4	0.84
• Auto-eficacia docente, ámbito disciplinar	4	0.89
Dificultades para enseñar en el aula (estudiantes)	7	0.87
Dificultades para enseñar en el colegio (infraestructura)	4	0.87
Seguridad del entorno laboral	3	0.70
Nivel de conflicto laboral	2	0.75
Práctica de retroalimentación y uso de tareas	5	0.76
Uso diferencial de las tareas	4	0.75

In terms of correlations among scales of the teacher questionnaire, these do not show high inter-correlations, except that self-assessed preparation in one of the teaching topics under study (power unit) correlates above 0.5 with instructional self-efficacy; also, the sub-scales of the teacher self-efficacy scale correlate highly among each other (above 0.6) and with general self-efficacy (above 0.8).

PRODUCTOS

ARTÍCULOS

Para trabajos en Prensa/ Aceptados/Enviados adjunte copia de carta de aceptación o de recepción.

Nº : 1
Autor (a)(es/as) : Taut, S.; Valencia, E.; Palacios, D.; Santelices, V.; Jimenez, D.; Manzi, J.
Nombre Completo de la Revista : Assessment in Education: Principles, Policy & Practice
Título (Idioma original) : Teacher performance and student learning: Linking evidence from two national assessment programs
Indexación : SCOPUS **Especificar :**

ISSN :

Año :

Vol. :

Nº :

Páginas :

Estado de la publicación a la fecha : En Prensa

Otras Fuentes de financiamiento, si las hay :

Envía documento en papel : no

Archivo(s) Asociado(s) al artículo :

Assessment_in_Education_Taut_et_al_2014.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_articulos/descarga/21871801/1120441/2014/65631/1/

Nº : 2
Autor (a)(es/as) : Taut, S.; Sun, Y.
Nombre Completo de la Revista : Educational Policy Analysis Archives
Título (Idioma original) : The Development and Implementation of a National, Standards-based, Multi-method Teacher Performance Assessment System in Chile
Indexación : SCOPUS **Especificar :**

ISSN :

Año : 2014

Vol. : 22

Nº : 71

Páginas : 1-33

Estado de la publicación a la fecha : Publicada

Otras Fuentes de financiamiento, si las hay :

Envía documento en papel : no

Archivo(s) Asociado(s) al artículo :

EPAA_2014.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_articulos/descarga/21871801/1120441/2014/65632/1/

Nº : 3
Autor (a)(es/as) : Perez-Cotapos, M.A.; Taut, S.
Nombre Completo de la Revista : Psykhe
Título (Idioma original) : Adaptación y pilotaje de un portafolio para evaluar prácticas de evaluación de aprendizajes en el aula en profesores de matemática de segundo ciclo básico
Indexación : SCOPUS **Especificar :**

ISSN :

Año :

Vol. :

Nº :

Páginas :

Estado de la publicación a la fecha : Aceptada

Otras Fuentes de financiamiento, si las hay :

Envía documento en papel : no

Archivo(s) Asociado(s) al artículo :

0681_Perez-Cotapos_3RV-_ed_final.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_articulos/descarga/21871801/1120441/2014/65633/1/

Psykhe_carta_de_aceptacion.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_articulos/descarga/21871801/1120441/2014/65633/2/

OTRAS PUBLICACIONES / PRODUCTOS

Nº : 1

Autor (a)(es/as) : Taut, S.; Valencia, E.; Escobar, J.

Título (Idioma original) : La Validez de la Evaluación Docente en Chile Usando Como Criterio Estimaciones de Valor Agregado de Profesores de Enseñanza Media

Tipo de publicación o producto : Informe Técnico

ISBN :

Editor (es) (Libro o Capitulo de libros) :

Nombre de la editorial /Organización : Pontificia Universidad Católica de Chile, Escuela de Psicología, Centro de Medición MIDE UC

País : CHILE

Ciudad : Santiago

Fecha : Diciembre - 2012

Año : 2012

Vol. :

Nº : 2

Páginas : 1-71

Otras Fuentes de financiamiento, si las hay :

Envía documento en papel : no

Archivo(s) Asociado(s) al artículo :

Taut_et_al_IT1202.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_otras_publicaciones/descarga/21871801/1120441/2014/18037/1/

Nº : 2
Autor (a)(es/as) : Jimenez, D.; Taut, S.
Título (Idioma original) : Das Bildungssystem in Chile unter besonderer Berücksichtigung der Rolle der Lehrerinnen und Lehrer als Schlüssel der Bildungsqualität
Tipo de publicación o producto : Capítulo de Libro
ISBN :
Editor (es) (Libro o Capitulo de libros) : Claudia Richter & Verónica Oelsner
Nombre de la editorial /Organización : Waxmann
País : ALEMANIA
Ciudad :
Fecha : Diciembre - 2014
Año : 2014
Vol. :
Nº :
Páginas : 98-118
Otras Fuentes de financiamiento, si las hay :

--

Envía documento en papel : no

Archivo(s) Asociado(s) al artículo :

Jimenez_und_Taut_2014_Chile.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_otras_publicaciones/descarga/21871801/1120441/2014/18038/1/

Oelsner_und_Richter_2014_Inhalt.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_otras_publicaciones/descarga/21871801/1120441/2014/18038/2/

Nº : 3
Autor (a)(es/as) : Jimenez, D.; Barrientos, A.; Taut, S.; Duarte, M.P.
Título (Idioma original) : Sistema de Calificación para la Evaluación en el Aula: Manual para Enseñanza Secundaria
Tipo de publicación o producto : Otros **Especificar :** Traducción

ISBN :

Editor (es) (Libro o Capitulo de libros) :

Nombre de la editorial /Organización :

País : CHILE

Ciudad : Santiago

Fecha : Noviembre - 2013

Año :

Vol. :

Nº :

Páginas :

Otras Fuentes de financiamiento, si las hay :

--

Envía documento en papel : no

Archivo(s) Asociado(s) al artículo :

Chilean_Translation_License_CLASS-S.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_otras_publicaciones/descarga/21871801/1120441/2014/18039/1/

Portada_exterior.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_otras_publicaciones/descarga/21871801/1120441/2014/18039/2/

Portada_interior.pdf

http://sial.fondecyt.cl/index.php/investigador/f4_otras_publicaciones/descarga/21871801/1120441/2014/18039/3/

CONGRESOS

Nº : 1
Autor (a)(es/as) : Taut, S.; Valencia, E.; Escobar, J.
Título (Idioma original) : La Relación entre Estimaciones de Valor Agregado de Profesores y sus Resultados en la Evaluación Docente
Nombre del Congreso : Congreso Latinoamericano de Medición y Evaluación Educacional (COLMEE)
País : CHILE
Ciudad : Santiago
Fecha Inicio : 03/10/2012
Fecha Término : 05/10/2012
Nombre Publicación :
Año :
Vol. :
Nº :
Páginas :
Envía documento en papel : no
Archivo Asociado :
COLMEE_VAM_y_ED_2012-corto.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_congresos/descarga/21871801/1120441/2014/104827/1/

Nº : 2
Autor (a)(es/as) : Taut, S.
Título (Idioma original) : Relationship between multiple measures of teaching quality and student learning: Evidence from Chile
Nombre del Congreso : European Association of Research on Learning and Instruction (EARLI)
País : ALEMANIA
Ciudad : Munich
Fecha Inicio : 27/08/2013
Fecha Término : 31/08/2013
Nombre Publicación :
Año :
Vol. :

Nº :
Páginas :
Envía documento en papel : no
Archivo Asociado :
EARLI_2013_teacher_eval_and_VAM_Chile_Taut.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_congresos/descarga/21871801/1120441/2014/104828/1/

Nº : 3
Autor (a)(es/as) : Daniela Jiménez & Maria José García-Zattera
Título (Idioma original) : Linking Mathematics Learning Growth and Students' Attitudes
Nombre del Congreso : European Educational Research Association (EERA-ECER)
País : PORTUGAL
Ciudad : Porto
Fecha Inicio : 01/09/2014
Fecha Término : 04/09/2014
Nombre Publicación :
Año :
Vol. :
Nº :
Páginas :
Envía documento en papel : no
Archivo Asociado :
Jime#769nez_Garci#769a-Zattera_Linking_final.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_congresos/descarga/21871801/1120441/2014/104928/1/

TESIS/MEMORIAS

Nº : 1
Título de Tesis : Adaptación y pilotaje de un portafolio sobre prácticas de evaluación de aula de profesores de matemática
Nombre y Apellidos del(de la) Alumno(a) : María Asunción Pérez Cotapos
Nombre y Apellidos del(de la) Tutor(a) : Marianne Sandy Taut
Título Grado : Magister
Institución : Pontificia Universidad Católica de Chile
País : CHILE
Ciudad : Santiago
Estado de Tesis : Terminada
Fecha Inicio : 01/05/2012
Fecha Término : 15/12/2013
Envía documento en papel : no
Archivo Asociado :
Tesis_final_Perez-Cotapos_20131.pdf

Constancia_Tesis_2012.pdf

Nº : 2
Título de Tesis : Relación entre creencias epistemológicas y prácticas en el aula
Nombre y Apellidos del(de la) Alumno(a) : Paula Alejandra Salvatierra Fernández
Nombre y Apellidos del(de la) Tutor(a) : Marianne Sandy Taut
Título Grado : Magister
Institución : Pontificia Universidad Católica de Chile
País : CHILE
Ciudad : Santiago
Estado de Tesis : Terminada
Fecha Inicio : 01/04/2013
Fecha Término : 15/12/2014
Envía documento en papel : no
Archivo Asociado :
Constancia_Paula_Salvatierra_(2).pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54432/1/
Tesis_Paula_Salvatierra_final_2014.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54432/2/

Nº : 3
Título de Tesis : Teorías implícitas sobre la enseñanza-aprendizaje que subyacen a las prácticas instruccionales
Nombre y Apellidos del(de la) Alumno(a) : Ana María Espinoza Catalán
Nombre y Apellidos del(de la) Tutor(a) : David Preiss
Título Grado : Magister
Institución : Pontificia Universidad Católica de Chile
País : CHILE
Ciudad : Santiago
Estado de Tesis : Terminada
Fecha Inicio : 01/12/2013
Fecha Término : 15/12/2014
Envía documento en papel : no
Archivo Asociado :
Constancia_Ana_Mari#769a_Espinoza_2.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54433/1/
Resumen_Tesis_de_Magi#769ster_AME.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54433/2/

Nº : 4
Título de Tesis : Percepción de los directores de establecimientos municipales en su rol de evaluador de profesores

Nombre y Apellidos del(de la) Alumno(a) : David Abraham Salas López
Nombre y Apellidos del(de la) Tutor(a) : Marianne Sandy Taut
Título Grado : Magister
Institución : Pontificia Universidad Católica de Chile
País : CHILE
Ciudad : Santiago
Estado de Tesis : En Ejecución
Fecha Inicio : 01/08/2013
Fecha Término :
Envía documento en papel : no
Archivo Asociado :
CONSTANCIA_D._SALAS_FONDECYT_27-12-13.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54434/1/
Proyecto_de_Magister_Salas_2014.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54434/2/

N° : 5
Título de Tesis : Descripción de la Zona de Desarrollo Próximo de profesores en ejercicio y en formación al observar prácticas que fomentan la autonomía, la metacognición y la autorregulación del aprendizaje
Nombre y Apellidos del(de la) Alumno(a) : María Francisca Ramirez
Nombre y Apellidos del(de la) Tutor(a) : Valeska Grau
Título Grado : Magister
Institución : Pontificia Universidad Católica de Chile
País : CHILE
Ciudad : Santiago
Estado de Tesis : En Ejecución
Fecha Inicio : 15/05/2013
Fecha Término :
Envía documento en papel : no
Archivo Asociado :
Constancia_MF_Rami#769rez.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54435/1/
Estado_avance_Tesis_Mg_Ramirez.pdf
http://sial.fondecyt.cl/index.php/investigador/f4_tesis_memorias/descarga/21871801/1120441/2014/54435/2/

ANEXOS

N° : 1
Archivo Asociado : Informe_seguimiento_etico:bioetico_P1120441PUC.pdf
http://sial.fondecyt.cl/index.php/investigador/f5_anexos/descarga/21871801/1120441/2014/56339/

A continuación se detallan los anexos físicos/papel que no se incluyen en el informe en formato PDF.

