

## “Ranking 850”, transition to higher education of students with outstanding educative achievement and insufficient University Selection Test –“Prueba de Selección Universitaria PSU”- score

### Ranking 850, transición a la educación terciaria de estudiantes con desempeño educativo superior y puntaje PSU insuficiente

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#### Abstract

Year 2013 revealed that nearly a thousand students who had obtained the highest general average at their respective high schools could not apply to universities via the Chilean university admission process –Sistema Único de Admisión (SUA)–, because they did not reach the minimum score requirement at the standardized university selection test called Prueba de Selección Universitaria (PSU). Universidad de Santiago then initiated a pilot project to a) make a timely contact with at least some of these students; b) exempt them from their PSU score requirement; c) invite them to access the Science and Humanities College Program; and d) accompany them until they became academically indistinguishable from their peers. During 2015, 10 students entered Universidad de Santiago in this process and in 2016; there were 26 new students in the university. This paper presents the latter early results in terms of average grades and retention, compared to those of students who entered via PSU.

**Keywords:** transition, performance, higher education, mandatory education

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## Resumen

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El año 2013 se develó que cerca de mil estudiantes que habían obtenido el mayor promedio de notas de enseñanza media en sus respectivos establecimientos educacionales, no podrían postular al Sistema Único de Admisión (SUA) porque no alcanzaron el mínimo puntaje exigido en el promedio PSU (Prueba de Selección Universitaria) entre las pruebas de Lenguaje y Comunicación y Matemática. La Universidad de Santiago de Chile (UdeSantiago) decidió entonces, iniciar un proyecto piloto que permitiera a) contactar oportunamente a algunos de ellos; b) eximirlos de sus puntajes PSU; c) invitarlos a ingresar al programa de Bachillerato en Ciencia y Humanidades; y d) acompañarlos hasta que fueran académicamente indistinguibles entre sus compañeros. Así, entre los años 2015 y 2016 ingresaron a la Universidad de Santiago de Chile, 10 de estos estudiantes entraron en la cohorte 2015 y 26 en la cohorte 2016. En este trabajo se muestran los primeros resultados de la cohorte 2016 en términos de promedios de notas y retención, comparados con aquéllos de estudiantes ingresados el mismo año vía DEMRE (Departamento De Evaluación, Medición Y Registro Educacional), que administra la PSU.

**Palabras clave:** transición, rendimiento, educación superior, enseñanza escolar

Since its creation in 2009, the UNESCO Chair on Inclusion in Higher Education, based at the Universidad de Santiago de Chile, has assumed responsibility for contributing to the implementation of the World Declaration on Higher Education in the 21st century, approved by the Conference on Higher Education held on October 9, 1998. Specifically regarding access to higher education, the declaration states, in accordance with the Universal Declaration of Human Rights, that it should be based on “the merit, capacity, efforts, perseverance and devotion, showed by those seeking access to it, in order to ensure there is no discrimination” (UNESCO, 1998). It also establishes the need to link secondary education with tertiary education, creating processes of connection and fortification between the two in order to understand them as a continuum, and articulating the different social and family stakeholders that influence each of them. Finally, it invites the promotion of mechanisms that facilitate access to higher education for certain social groups that are disadvantaged by the social situation in which they find themselves.

In order to address these recommendations, the UNESCO Chair promoted the creation of the UNESCO Propaedeutic Network (Gil & Del Canto, 2012), which is the basis of the PACE program<sup>1</sup>; the inclusion of the grade point average as a complementary admission criterion (Gil & Ureta, 2003; Gil, Paredes, & Sánchez, 2013); and the elimination of the Indirect Fiscal Contribution (AFI by the Spanish acronym) in 2016, after 23 years of failed efforts (Grez, Cazenave, González, & Gil, 1994; Donoso & Hawes, 1994).

Prior to the creation of the Chair, its directors had participated in the creation of the 5% Bonus, which in turn gave rise to the institutionalization of the Supernumerary Quotas<sup>2</sup> and the Academic Excellence Scholarship.

The R850 program is the natural response of the UNESCO Chair to address the need of students who, having taken full advantage of their learning opportunities during the four years of secondary education—receiving a point score of 850—do not obtain the minimum score in the standardized admissions tests required by the most selective universities in the country for admission: an average of 475 points between the Mathematics and Language and Communication tests<sup>3</sup>. This gap can be explained by the well-known higher or lower coverage achieved by schools for the official curricula in secondary education, which is specifically what the University Selection Test (Prueba de Selección Universitaria, PSU by the Spanish acronym) measures (Centro de Estudios MINEDUC, 2013).

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1 For more information visit the website of the Ministry of Education in Chile dedicated to this Program at <http://pace.mineduc.cl>

2 For more information visit the website of the Department of Measurement and Educational Registration dedicated to supernumerary quotas: <http://www.psu.demre.cl/proceso-admision/factores-seleccion/cupos-supernumerarios>

3 According to data from DEMRE, 26 of the 36 universities subscribed to the SUA currently demand a minimum score of 475 points.

The main objective of this study was to find out whether students with a point score of 850, but with a PSU score of less than 475 points, were capable of satisfactorily meeting the academic requirements of selective universities, which offer them remedial plans and support adapted to their potential and needs.

### Background information

The segmented nature of access to higher education in Chile is a phenomenon that has been studied at length by Grez, Cazenave, González, & Gil, (1994); Gándara & Silva (2016); Pearson Education (2013); Espinoza & González (2007); Fukushi, (2010); De la Jara & Lagos (2011); and Meller (2011).

Since 2003, the PSU has been the main instrument for the Single Admission System (SUA by the Spanish acronym), which regulates the admission process in the country's selective universities. This standardized measurement assesses "cognitive abilities, modes of operation, and general methods associated with the minimum obligatory contents of the Chilean curricular framework in: Language and Communication, Mathematics, History, and Social Sciences, the latter including Biology, Physics, and Chemistry" (DEMRE, 2006). As in other countries, the use of a standardized test as a predominant indicator of admission has created a series of problems (Santelices, Galleguillos, & Catalán, 2015): it observes performance at a single moment of time, which detracts from its validity and makes it difficult to generalize the results; it is based on a one-dimensional concept of intelligence, it can be practiced, and the results are highly correlated with the social characteristics of the home and the learning opportunities to which the student has had access. Young people of a high socioeconomic status, therefore, score considerably higher than their peers of a lower socioeconomic level (Contreras, Corbalán, & Redondo, 2007; Acuña & Arévalo, 2009; Zwick, 2012; Pearson Education, 2013). And lastly, it is an admission system whose results are exclusive. Studies on the equity of the admissions system conducted by the Technical Advisory Committee (CTA) for Selection Tests and Admission Activities of the Council of Rectors of Chilean Universities (Manzi, Bravo, del Pino, Donoso, Martínez, & Pizarro, 2006; Manzi, Bravo, del Pino, Donoso, Martínez, & Pizarro 2008; Manzi, Bosch, Bravo, del Pino, Donoso, & Pizarro, 2010) has suggested, following Zwick (2006), that the differences in the results do not necessarily take account of the biases in the tests, so they have focused more on the investigation of possible biases in the predictive capacity of the PSU as an instrument. However, they admit it as being fact that the PSU, like other standardized tests around the world, produces gaps in results that adversely affect excluded groups. Meanwhile, at international level, studies like those by Geiser at the University of California (Geiser, 2016) have shown that the predictive validity of the SAT (Scholastic Assessment Test) is strongly affected by the socioeconomic origin of the students. So, as stated by Espinoza & González (2015), the most vulnerable students who apply to higher education in Chile have to face double discrimination: on the one hand due to their socioeconomic origin and, on the other, the poor curricular coverage of secondary education. When both variables are correlated, the PSU becomes a source of exclusion and a factor that increases inequalities.

Specifically, given the magnitude of the gaps created by ordinary admission via the PSU and the homogeneous nature of the student body in the selective universities that it produces, public discussion began around a decade ago about the relevance of considering academic performance during secondary education as an admission criterion, as in other countries. In fact, this phenomenon occurs not only in Chile with the aforementioned admissions process, but also in international cases, such as those described by García & Baird (2000) and DesJardins, Alhburg, & McCall (2006) in relation to US universities and the effect of the homogenization of white student bodies resulting from the exclusion of the Afro-descendant population who share the socioeconomic profile of our R850 students, according to many authors. In Chile, "various studies have shown that this admission criterion exceeds standardized selection tests as a predictor of academic achievement in university studies" (Santelices, 2016; Bralic & Romagnoli, 2000; Gil & Ureta, 2003; Geiser & Santelices, 2007; Contreras, Gallegos, & Meneses, 2009, Centro de Estudios MINEDUC, 2013, Muñoz & Redondo, 2013). After intense debates, in which the UNESCO Chair on Inclusion in Higher Education played a prominent role, in 2012 the Council of Rectors of Chilean Universities (CRUCH) incorporated the ranking of grades (which had already been used at the Universidad Católica Silva Henríquez since 2010, which is not part of CRUCH) as an additional selection factor, with a weighting that has been growing year by year compared to the PSU, and in combination with the NEM (an indicator that accounts for the grades obtained in secondary education). Specifically, the Ranking puts students' scores into order based on their academic performance in secondary school

and rewards their relative position regarding the maximum and average historical grades within each educational establishment.

Despite the progress due to the gradual incorporation of the ranking, most of the institutions subscribed to the SUA continue to require that students achieve a minimum score of 475 points on average between the PSU for Language and Mathematics in order to apply. According to the figures from DEMRE, of those who took the PSU in 2015, some 46.8% scored less than 475 points. This implies that almost half of those who take the standardized test each year are disqualified from applying to one of these institutions. For the reasons already mentioned, this cut-off point does not affect all students equally, but systematically affects those graduating from certain educational establishments, which tend to be those with the highest School Vulnerability Index (IVE). DEMRE figures show that only 2.6% of the students with less than 475 points on average come from fee-paying private schools and, instead, 72.4% finished 12th grade in a technical-professional establishment. Unfortunately, many of these students achieved such good performances in their educational establishments that they obtained a point score of 850, that is, in the Top 1. However, given the entry barrier of an average 475 points on the PSU at many of the SUA universities, in the 2016 admissions process, 877 students were deprived of the possibility of considering post-secondary university education at one of the these selective institutions despite having made the most of the learning opportunities offered in their school context. In the United States, validity studies on the SAT, such as those already cited by Camara and Echternacht (2000), have consistently confirmed that: (i) secondary school qualifications are a better predictor of university performance than standardized aptitude tests; and (ii) the combined use of both criteria makes it possible to predict this performance in a substantive and meaningful manner. Meanwhile, based on the 30-year experience of the University of California, Geiser recently stated that:

The findings on prediction errors, the relationship between scores on tests and socioeconomic status, and the effects of signaling of admission indicators suggest that standardized test scores should be used only as one of many admission criteria (2016, p.17).

Thus, the Ranking850 program is aimed at a category of students that can be classed as paradigmatic of the exclusionary features of the admissions system prevailing in Chile: those who, having had an outstanding relative performance during their secondary education –a factor that, as we have mentioned, has been associated in the literature with exceptional academic potential regardless of the establishment of origin– are radically excluded from access due to their poor performance on a standardized test. Therefore, there are students who are located at opposite ends (upper segment/lower segment) of two important predictive factors of a successful trajectory in higher education. The question about their performance once admitted to higher education, in terms of evidence, is one that we can now begin to answer, thanks to an initiative such as the Ranking 850 Program, which has been implemented at the Universidad de Santiago since 2015 and which, in 2017, also has quotas at four higher education institutions throughout the country (Universidad Católica del Norte, Universidad Alberto Hurtado, Universidad Católica de Temuco, and Universidad Austral de Chile), which is an increase from 40 places in 2016 to 105 places in 2017.

## Characterization

Table 1  
General characterization of the 2016 cohort by type of school

	N°	%	Average IVE Sinae 2014 (%)	Average PSU	Average of RANKING
R850 quotas	26	100%	0.79	440	850
Private	1	4%	ND	470	850
Subsidized	13	50%	0.75	435	850
Municipal	12	46%	0.83	444	850
DEMRE quotas	101	100%	0.51	614	734
Private	15	15%	0.38	640	705
Subsidized	56	55%	0.47	610	737
Municipal	30	30%	0.59	610	744
General total	127			579	758

For the purposes of this study, it should be noted that, despite the reduced size of the sample, the differences in the PSU and Ranking score between the R850 and the DEMRE students are extremely significant according to the T-Test of significance of comparison of means:  $P < 0.0001$  for the differences in the PSU (440 vs. 614) and  $P < 0.0001$  for the differences in Ranking (850 vs. 734).

The remaining data summarized in Table 1 and Table 2 are generally consistent with what has been observed for decades. Table 1 shows that the R850 students are mostly graduates of educational establishments (EE) that are subsidized and municipal, although that is also seen among those graduating from 2x1 fee-paying EE or from remedial studies. Students admitted via R850 and DEMRE are EE graduates who have average School Vulnerability Indices (IVE) of 0.79 and 0.51, respectively. The average IVE increases according to the following order: private fee-paying < subsidized < municipal. The PSU scores are higher among graduates of fee-paying EE than for graduates of subsidized and municipal EE, both in the group of students admitted via R850 and DEMRE; and, finally, the average of the Ranking scores is obviously the same among Top1 students, while among the students admitted via DEMRE, they follow the following order: municipal > subsidized > private fee-paying. The latter last trend cannot be extrapolated to other samples because, by design, the Ranking score has no gap due to school financing or socioeconomic level.

Table 2  
General characterization of the 2016 cohort by gender

	N°	%	Average IVE Sinae 2014 (%)	Average PSU	Average of RANKING
R850 quota	26	100%	0.79	440	850
Women	14	54%	0.78	447	850
Men	12	46%	0.80	432	850
DEMRE quotas	101	100%	0.51	614	734
Women	63	62%	0.52	597	751
Men	38	38%	0.50	642	707
General total	127			579	758

On the other hand, Table 2 shows that, as is usual in the Universidad de Santiago Baccalaureate Program, there are more female students enrolled than males, and obviously the average IVE of the EE from which the female students come does not differ from that of the males. Meanwhile, among students

admitted via DEMRE, women have lower PSU scores and higher Ranking scores on average than their male counterparts.

### Support

The support strategies to promote permanence of students are consistent with the approach of Fernández de Morgado (2012), understanding that to facilitate this, the most relevant factors are: (a) the expectations of the university institution for student performance and the expectations of student of their own performance; (b) academic, social, and personal support for the student; (c) early and frequent feedback on their performance; (d) contact with and inclusion in the university community (peers and teaching staff); and (e) promotion of active and collaborative learning in study communities; establishing institutional, contextual, and the student's own criteria to work on their persistence.

Academic support was mostly provided by peer tutors in Mathematics and Academic Literacy, as well as in other areas of knowledge to a lesser extent, demanded by the students themselves. Bearing in mind that students with high academic performance at school have superior reading habits to their school peers due to self-interest (Bralic & Romagnoli, 2000), it was assumed that they need less support in Literacy than in Mathematical Thinking, so the respective tutors support four and two students, respectively, varying the level of personalization of the intervention. Support in other academic areas is provided in the most appropriate proportions according to the needs and requirements of the students. This support is supplied and coordinated by Services of Support for Learning and Permanence (SAAP by the Spanish acronym), under the Universidad de Santiago Program of Inclusive Equity and Permanence (PAIEP) and is monitored on a daily basis by the team responsible for the Ranking 850 program. It should be noted that, since 2012, the PAIEP has provided support to the learning and permanence of first year students at Universidad de Santiago through peer tutors for those students who request it, regardless of the method of admission they have used to gain admission to the university.

On the other hand, in order to facilitate the university integration process, the PAIEP provides the students with support through in-depth personal interviews where different subjects are worked upon, depending on the specific process that each student experiences: therefore, work is done on topics such as tolerance to frustration and emotional restraint at certain times of the year, while with others work is done on vocational guidance, in a process of personalized and relevant support. This work allows them to understand some factors of motivation and demotivation, and to discover and develop skills of which they were not aware, such as resilience or restraint, and thus to make their trajectories at the university more meaningful.

Meanwhile, the training processes of the tutors consider both the academic potential and deficiencies of the R850 students, understanding that they are dependent, based on the description by Garbanzo (2007), on (a) personal, (b) social, and (c) institutional determinants, as also mentioned by Fernández de Morgado (2012). Thus, this model of student support is aimed at coordinating scenarios to improve the support processes, taking advantage of academic spaces to reinforce the personal resources of the students. In this way, integral socio-educational support processes are created, since it is not only the professional staff of the program who monitor the student, but also other key actors –who operate as informants– to provide the most complete view as possible of the student's integration process.

Finally, the option for students to enter the baccalaureate is based on the fact that this kind of program can fulfill the function of the *foundation programs* that are used in other countries (mostly English-speaking nations), as a transition year between secondary education and higher education offered to the student –particularly those who come from groups that are traditionally excluded from higher education– as a period in which to familiarize themselves with university life and to complete basic general education, while conducting or completing their decision-making process in vocational terms (Warren, 2002).



## Results

### Persistence

Looking at the 2015 generation, of the R850 and DEMRE students –as of March 2017– 8 out of 10 and 55 out of the initial 101 have persevered, respectively; that is, the retention rates are 80% and 55%. This large difference is probably linked to a 12-14-week student strike at Universidad de Santiago in 2015. During this stoppage, R850 students increased their frequency of attending academic support services offered by PAIEP, suggesting that they have extraordinary resilience and determination to continue their higher education. Their peers gaining admission via DEMRE also increased their attendance of PAIEP, but within the usual ranges. It should be noted that in years in which there are student strikes, the retention rates are usually lower than those in years in which there are none. The R850 students in the 2015 cohort who decided to apply for temporary withdrawal self-reported that the reasons for this were related to vocation and changes in their life projects.

In the 2016 generation –when there was no strike– 21 of the 26 R850 students persevered along with 83 of the 101 admitted via DEMRE; that is, the retention rates were 81% and 83%, respectively. There are clearly no significant differences between the retention rates for R850 and DEMRE students receiving personalized academic support. The self-reported reasons of withdrawing students are mostly related to social situations that are beyond the control of the student and the institution, as well as vocational reasons.

### Grades

Figures 1, 2, and 3 show the average grades achieved by each student in the 2016 cohort at the end of the second semester of 2016 in the semester subjects (Figure 1), the annual subjects without the Chair in Mathematical Thinking (Figure 2), and the results of the Chair in Mathematical Thinking compared between the two groups (Figure 3) admitted via the R850 and DEMRE programs, respectively. Grades of 1.0 were excluded, as they are awarded to students who do not attend the assessments.

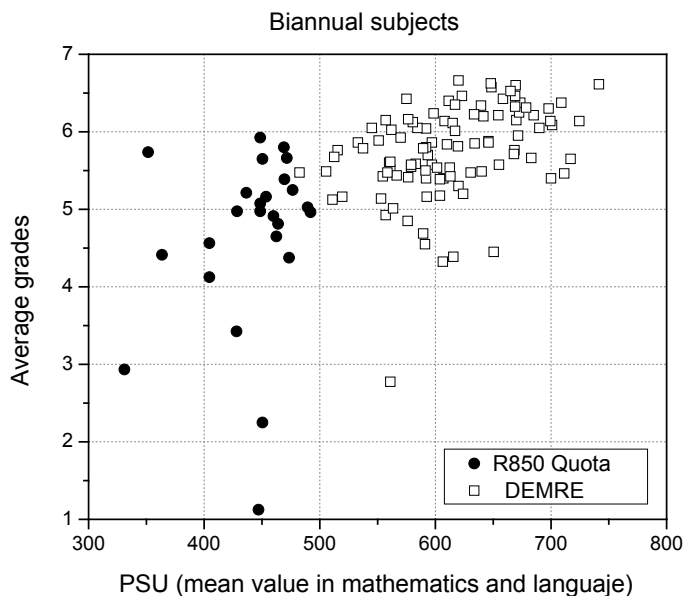


Figure 1. Average grades in the semester subjects in the Baccalaureate Program of Science and Humanities at the end of the first year of study of the 2016 cohort.

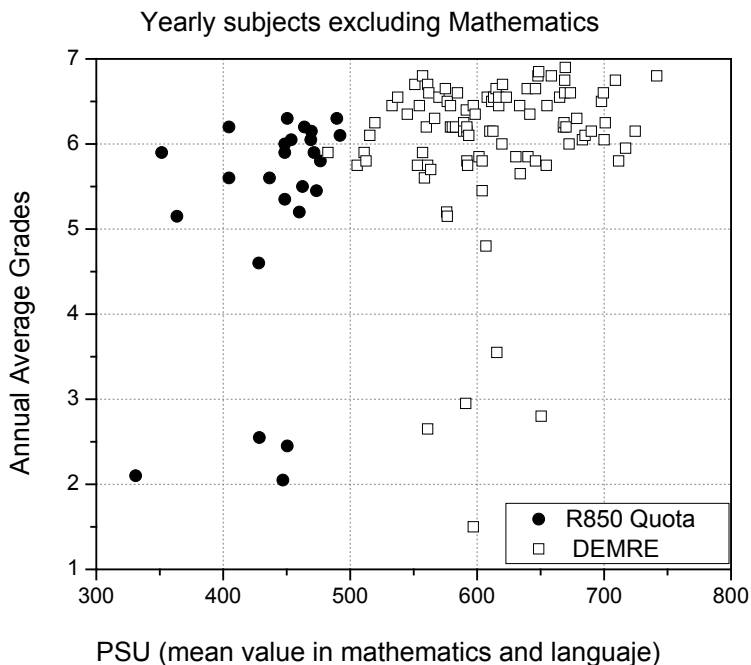


Figure 2. Average grades in annual subjects, excluding mathematics, in the Baccalaureate Program of Science and Humanities at the end of the first year of study of the 2016 cohort.

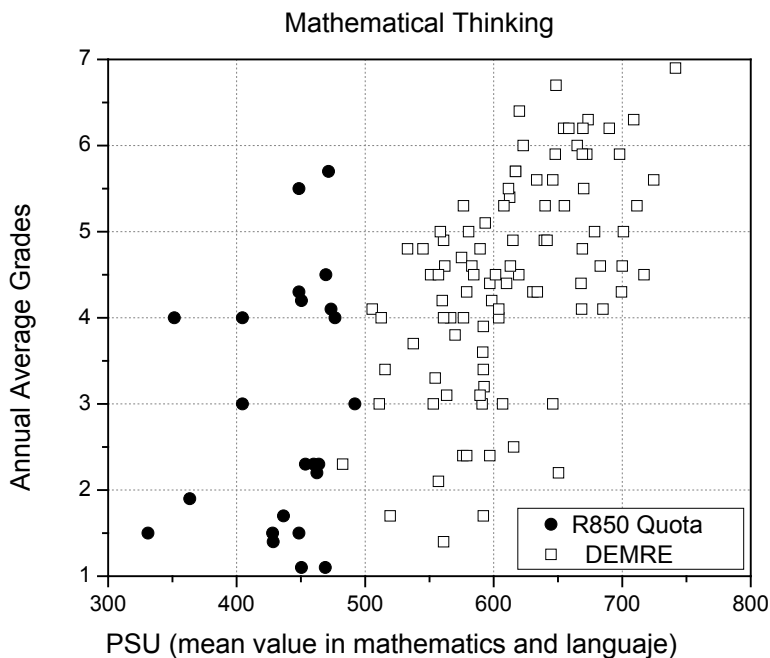


Figure 3. Average grades in Mathematical Thinking in the Baccalaureate Program of Science and Humanities at the end of the first year of study of the 2016 cohort.



The three graphs agree that, with exceptions, each R850 student achieved an average grade that was indistinguishable from or higher than that of a different “mirror” student admitted via DEMRE and with PSU scores 200-300 points higher. Furthermore, the application of the T-Test for comparison of means shows that the differences are not statistically significant in any of the three cases. It is interesting to note that, as noted previously, although there are extremely significant differences in the PSU scores according to the T-test for comparison of means at the expense of the R850 students, the differences in first-year grades are not statistically significant, according to the same test. This result suggests that the so-called “cradle effect” (Murillo & Román, 2011), that is, the impact of the socioeconomic and cultural level of the family, has little influence on grade averages and the retention of students who have tried in secondary education and that have extreme motivation, ease, and liking for study, as well as having above average reading habits. In summary, their outstanding personal academic characteristics –reflected in their high ranking scores– compensate for the so-called “cradle effect” reflected in their low PSU scores.

Figure 3 displays the Mathematical Thinking subject because it corresponds to the area of knowledge with the least relative curricular coverage, according to available evidence: specifically, in 2013, in mathematics the average coverage was 73% of the Minimum Compulsory Content and only 12.7% of the courses cover 100% of the content of the level (MINEDUC Study Center, 2013).

Looking at the three figures, it is obvious that, in the semester subjects that require greater Literacy skills [Vocational Induction I and II; Philosophical Knowledge; Science, Technology and Society; Integrated Thinking and Synthesis Workshop; General Psychology; General Biology; Basic Physics; Fundamentals of Chemistry; Technology, Challenges of Current Chilean Education; and Instrumental English] (Figure 1) and the annual subjects [Musical Culture and Oral and Written Communication Workshop] (Figure 2), the R850 students are even less differentiated from their DEMRE peers than in Mathematical Thinking, which has an annual duration (Figure 3), where the curricular coverage in secondary education is particularly low.

Based on experience accumulated during 2015 and 2016, it has been verified that it is essential to offer R850 students a support plan adapted to their potential, requirements, and contexts –that is not paternalistic or overly psychologized– because they are exceptional students who enter tertiary education only partially knowing the minimum compulsory content of secondary education. These first results are auspicious, particularly because the predictive power of the ranking of grades grows as the student progresses through their university studies (Segovia & Manzi, 2016).

## Conclusions

Students who take full advantage of learning opportunities in their respective school contexts, achieving 850 Ranking points for example, have, from the first year, the capacity to satisfactorily meet the academic demands of selective universities that offer them remedial and support plans adapted to their potential and needs.

In the sample studied, the predictive power of the ranking of grades for performance in higher education exceeds that of the PSU score, according to which R850 students did not meet the minimum conditions to apply to selective institutions, let alone to remain at them and achieve a performance indistinguishable from that of other students.

Universities whose Development Plans contemplate *growing in inclusion* with excellence, can admit students with the R850 profile. To do this is, it is advisable for them to have: (a) academic support plans adapted to their potential and needs; (b) voluntary systems of socio-educational support aimed at strengthening their extraordinary persistence and determination; and, (c) curricula that favor the transition, either of the baccalaureate, college, or year zero type, or others. These recommendations are consistent with models developed in other contexts (García & Baird, 2000; DesJardins, Alhburg, & McCall, 2006).

Access to selective universities for meritorious students from vulnerable contexts does not jeopardize the academic excellence of institutions; on the contrary, it promotes it.

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