

Effects of an Inclusive Educational Model for Students with High Intellectual Capacity and Special Educational Needs: A Case Study in Talentos UdeC, Chile

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Abstract—In Chile, since 2002, there are extracurricular enrichment programs complementary to regular education for students with high intellectual capacity. This paper describes a model for the educational inclusion of students, with special educational needs associated with high intellectual capacity, developed at the University of Concepción and its effects on its students, academics and undergraduate students that collaborate with the program. The Talentos UdeC Program was created in 2003 and is intended for 240 children and youth from 11 to 18 years old, from 15 communes of the Biobio region. The case Talentos UdeC is analyzed from a mixed qualitative study in which those participating in the educational model are considered. The sample was composed of 30 students, 30 academics, and 30 undergraduate students. In the case of students, pre and post program measurements were made to analyze their socio-emotional adaptation, academic motivation and socially responsible behavior. The mentioned variables are measured through questionnaires designed and validated by the University of Concepción that included: The Socially Responsible Behavior Questionnaire (CCSR); the Academic Motivation Questionnaire (CMA) and the Socio-Emotional Adaptation Questionnaire (CASE). The information obtained by these questionnaires was analyzed through a quantitative analysis. Academics and undergraduate students were interviewed to learn their perception of the effects of the program on themselves, on students and on society. The information obtained is analyzed using qualitative analysis based on the identification of common themes and descriptors for the construction of conceptual categories of answers. Quantitative results show differences in the first three variables analyzed in the students, after their participation for two years in Talentos UdeC. Qualitative results demonstrate perception of effects in the vision of world, project of life and in other areas of the students' development; perception of effects in a personal, professional and organizational plane by academics and a perception of effects in their personal-social development and training in generic competencies by undergraduates students.

Keywords—Educational model, high intellectual capacity, inclusion, special educational needs.

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I. THEORETICAL FRAMEWORK

THE high intellectual endowment or high intellectual capacity refers to the percentage of the population with outstanding general or specific intellectual endowment; for Gagne [1], [2] it would be 10% of the population and for Rodríguez [3] 7%, 2% of which have a high general endowment and 5% have a high specific endowment. According to the author, these people have three characteristics:

1. Exceptionality: They are students who differ from others of their same age.
2. Precocity: They present some anticipated development compared to their peers.
3. Super-endowment: They have an intelligence measured above the 75th percentile in all cognitive abilities and high creativity that allows them to discover solutions to problems that differ from those proposed by their peers.

Benito et al. [4] describe gifted people as those who have three characteristics:

- High intellectual functioning.
- Greater precision and speed in the processing of information.
- Manifestation of the giftedness between conception and before 18 years.

The high capacity or high intellectual endowment gives potential of academic talent to the students, that is, it gives them the potential to have an outstanding performance in academic activities. This potentiality will be expressed to the extent that it is possible to respond to their special educational needs and associated socio-emotional needs [2], [5]. Thus, a student can count on high intellectual capacity, but this cannot be reflected through an outstanding academic performance or talent, because the development of talent requires challenges that mobilize motivation, effort and perseverance, and if there is no such stimulation, there is a risk that the potential is extinguished, the student loses the motivation to learn and develop undesirable behaviors or a personality with emotional and/or social squeal [6].

According to Castelló and Tailor-Riba [7] the superior performance potential that characterizes students with high capacity or intellectual endowment is not only a consequence of their high intelligence, but also of the conjunction of a series of personal and contextual variables that interact to give

rise to the manifestation of different intellectual profiles. Then, children and young people with high intellectual capacity, which according to Lynn and Irwing [8], would not be associated with sex before 15 years of age, would be endowed with a series of capacities and academic aptitudes, understood as their academic talent potential, and will manage to transform them into academic talent after a systematic stimulation work that leads to the manifestation of said potential as an outstanding academic performance. Regarding this, Gagne [1], [2] states that talent requires outstanding natural abilities, but ultimately results from a complex interaction of internal and external influences.

Regarding the cognitive characteristics of people with high capacity or intellectual endowment, Bralic and Romagnoli [6] from a bibliographical review, summarize them in:

- Useful use of memory, presenting high capacity to connect new knowledge, with previously stored information.
- Great speed of information processing, with ability to register and access it to solve problems.
- Greater ability to classify in previously established categories, the information they acquire and a greater ability to discard irrelevant information.
- Provision of more elaborate strategies to be able to make use of their knowledge.
- Ability to make changes for the successful resolution of a proposed task, covering multiple alternatives.
- Greater ability to make use of superior and abstract thoughts, focusing on challenging problems that present a high level of difficulty and exigency.
- Ability to regulate, guide and correct their own learning processes, putting into play meta-cognitive processes.

Although there is no agreement regarding the socio-emotional differences between people with high abilities and those who do not have high capacities [9], research shows some characteristics of children and young people with high intellectual endowment that can be considered as special needs that should be attended in their education, as for example:

- They show dyssynchrony during their development that can cause them suffering because they perceive that their intellectual, emotional and social development is not similar to that of the children in their environment [10].
- They are perfectionist children, a trait that occasionally causes stress and discomfort.
- According to Freeman [11] and Prieto et al. [12], they are people with higher levels of sensitivity and emotional intensity, which leads to a higher probability of presenting emotional problems and/or emotional instability.

Regarding social development, there is no consensus on whether their interpersonal relationships are better or worse than those of their peers [13], but it is clear that they perceive interpersonal relationships as very important in their lives [14].

The ignorance of their characteristics by others is a risk factor for emotional problems which, according to Brody [15] and Lagos and Llancavil [16], could be prevented with adequate support at school and in the family, with their early

identification and inclusion in specific educational programs for them. Espín et al. [17] argue that there are sexist stereotypes associated with personality traits. Intelligence, emotional stability and aptitudes for sciences would be associated to males; and the emotional instability and thought subjectivity would be associated to females. In relation to this, one might expect that there are more men than women identified in schools as people with high abilities.

Their most frequent problems in social and emotional adjustment are: a) anxiety caused by the high level of knowledge and speed of learning; b) great sensitivity to the feelings of the other; c) perfectionist traits; d) feelings of feeling alone, isolated and being different; and e) boredom and apathy resulting from a non-stimulating educational context [11]. Rodríguez [3], based on his professional experience with students with high capacities, argues that among the special educational needs in the intellectual aspect of these students, there is need for resources to manage intelligence, that is, to know what to do with the information that they are able to obtain alone. Students also need to develop effective study and work techniques, especially for those who have already passed the courses without much effort. They also need to learn to take advantage of different sources and think critically as well as get used to systematizing the information. They need to classify and organize the information, enriching their knowledge in specific fields of their special interest. These students also have a need of contact with equals; and of creativity stimulation, due to its reciprocal feedback with intelligence.

Regarding the emotional aspect, they need to learn to anticipate what is happening so that they can be controlled in relation to their high sensitivity and emotional intensity; develop social skills of relationship, understanding and acceptance of diversity and inclusion; and develop new channels of expression. Benito et al. [4] hold that the purpose of the education is to allow these children to have opportunities to fully use their capacities and to correct or to compensate early, the difficulties that have. For his part, Gagne [1], [2] proposes an education of academic talents that leads to the systematic search by students of personal long-term goals of excellence. This implies 7 important elements: An enriched curriculum; systematic and regular enrichment; the full-time group; the personalized and accelerated rhythm; long-term goals of excellence; very selective access and early implementation. According to the author, in the process of achieving outstanding academic performance or development of talent (D) the aptitudes, gifts or natural abilities (G) are the departure point, while the skills or talents (T) are the point of arrival. In this process, the environmental (E) and intrapersonal (I) catalysts, including support, are fundamental [1], [2].

Complementary education to the regular school for students with high intellectual capacity and potential for academic talent began in the Chilean universities in 2002, with the PENTA UC Program at the Pontificia Universidad Católica, and there are currently seven programs in universities in the country for the educational inclusion of these children:

DeLTA UCN, BETA-PUCV, PENTA UC, SEMILLA UCT, TALENTOS UDEC, PROENTA-UFRO and ALTA-UACH. Regarding the effect of programs of this type, Sastre-Rivas [18] in study conducted in Spain, concludes that the participation in extracurricular enrichment programs generates a high satisfaction with the results obtained in the domain of cognitive and personal management of the participants.

The Chilean experience shows that students with potential for academic talent have asynchrony in their development characterized by acceleration in cognitive development and normal or slightly delayed development in the social and emotional context. The latter sometimes creates difficulties in social adaptation, distancing them from their peers. This could be accentuated by the difference of interests that they show from an early age in respect to other children of their age. As a result, they tend to seek interpersonal relationships according to intellectual affinity at school, which sometimes fallouts in preferring the company of older people. These characteristics lead them to require a special education that responds to their needs for acquisition and deepening of knowledge and differentiated educational contexts that help them understand their difference, validate them and value them and offer them real possibilities to develop their potential [19].

Based on the model of Gagne [20] and Penta UC [21], the Talentos UdeC program was created in 2004, at the University of Concepción-Chile (hereinafter, the Program). Talentos UdeC is a Psychoeducational Program of Extracurricular Enrichment, from the University of Concepción (hereinafter UdeC), whose mission is to offer an opportunity, complementary to regular education, to promote the development of academic talent, social responsibility and social and affective development in children and young people of the BioBio region, with special educational needs associated with outstanding intellectual capacity and interested in participating [22]. The Program seeks to provide opportunities for inclusion in the educational field, to students with high abilities and potential for academic talent, that enrich, expand and deepen those that are usually provided by the school experience, to contribute to forming creative, critical and proactive people, motivated by knowledge and, at the same time, emotionally integrated and willing to exercise their social responsibility. This is achieved through an educational model that adds 350 hours to regular schooling, whose focus is on (1) the academic, personal and socio-moral formation of the students, (2) the quality of the processes and procedures with permanent evaluation, (3) the social climate favorable to the educational process and (4) the implementation of the methodological strategy of learning and service in courses and workshops. During an academic year, each student participates in 8 courses and workshops to complement their education; the courses emphasize the deepening of theoretical content and the workshops emphasize the application of information to problem solving [23].

During 2017, 263 students from 17 municipalities of the Biobio region participated; 41 academics in the role of professors and 24 undergraduate students, in the role of Student Coordinators (responsible for the logistical support to

teachers and to collaborate in the personal-social training of students). The 2017 academic year was divided in three periods: Autumn (From March to July) and Spring (From August to November) with 15 weeks each and Summer, which run in January 2018 for 10 consecutive days. 12 students who finished high school, graduated from the program, where they participated between 5 and 7 years. 11 of them entered higher education in 2018 [24].

The mission of Talentos UdeC [23] is to offer an educational opportunity of excellence, to meet the special educational needs of children and young people with outstanding intellectual capacity; to offer an opportunity to develop or strengthen academic talent by voluntarily committing to learning, training and systematic practice of their skills, social-emotional adaptation and social responsibility. In addition, it assumes a mission with undergraduate students and with UdeC academics:

- With undergraduate students (Student Coordinators) assumes the mission of offering an effective opportunity for the development of generic competences, through learning and service: critical thinking, communication, social responsibility, entrepreneurship and interdisciplinary teamwork.
- In UdeC academics (professors) it assumes the mission of offering an effective opportunity for academic improvement, through training and practice in the Talentos UdeC educational model and the transfer of learning to the performance of the teaching function with university students.

The pillars of the educational model are:

- 1) Focus on academic training: It is materialized in classes with university academics or post-graduate students in courses and workshops in the disciplinary areas: Chemical-biological, physic-mathematical and social sciences. In them, the achievement of learning results of both disciplinary and attitudinal values is emphasized.
- 2) Social climate favorable to the educational process: Attention to the diversity of characteristics and needs of students, interacting in a warm and welcoming climate supported by respect, good treatment and emotional bonding.
- 3) Focus on social personal training: Incorporation of learning outcomes and methodological strategies for personal - social development in courses and workshops, in addition to the realization of specific workshops planned for such purposes.
- 4) Learning and service in all courses and workshops: Learning and service is a teaching-learning strategy with a double purpose. The first purpose is to reach disciplinary and attitudinal learning results in students. The second one is to contribute to meet the needs identified in the community [25]

Regarding the process of identifying new students, the Program has a standardized procedure of two major stages: Pre-identification in schools and definitive identification by the Program team. In the first stage and after being trained by the Program, the teachers who attend the students in the

regular schools identify two or three students per course, which, according to their assessment, present in a greater measure a set of behavioral characteristics that are indicators of the potential of academic talent. In a second stage, students pre-identified by their school teachers are evaluated by specialists at the University of Concepción, to conclude who present high capacities and require the Program to meet their special educational needs [22].

From the foregoing, it can be assumed that participation in the Talentos UdeC program would have effects on students as well as on the professors and collaborators participating in it, but it is not known what these effects are and whether they are the same for each promotion; then the need to identify them arises. The study described below is part of a line of research on the subject and constitutes one of its pilot studies.

II. AIMS

1. To characterize the students who applied to the Talentos UdeC in 2015 for the 2016 academic year.
2. To determine if there are differences in academic motivation, socio-emotional adaptation and self-attribution of socially responsible behavior between students who are identified as having academic talent potential and those who are not.
3. To compare the initial academic motivation in the students with their academic motivation after two years of participation in the program.
4. To compare the socio-emotional adaptation and self-attribution of initial social responsibility of students with those after participating for two years in the program.
5. To describe the perception of academics and student coordinators about the effects of the program on themselves, on students and on society.

III. HYPOTHESES

1. There are differences in socio-emotional characteristics between students who are identified as having potential for academic talent and those who are not.
2. Participation in Talentos UdeC improves social-emotional adaptation and social responsibility in students.
3. The participation in Talentos UdeC maintains the academic motivation in the students
4. Academics and student coordinators perceive positive effects in themselves from their participation in Talentos UdeC.
5. Academic and student coordinators perceive positive or desirable effects on students and society, from the participation in Talentos UdeC.

IV. METHODOLOGY

A qualitative-quantitative descriptive study was carried out to characterize the students who applied to the 2016 academic year. This to identify differences among students who were identified as having potential for academic talent and those that were not, in terms of their academic motivation, social-emotional adaptation and self-attribution of socially

responsible behavior. In addition, it seeks to identify some effects of the Program in its participants after two years (2017).

In the case of students, three variables were measured before entering the program and after two years of participating in it (socio-emotional adaptation, academic motivation and self-attribution of socially responsible behavior); in academics and collaborators a survey was applied to identify perceived effects of the program.

The population was formed by applicants, students, academics and student coordinators of the Program. Four samples were considered:

- Sample 1: 150 boys and girls that applied to the Program in 2015 for the 2016 academic year. These applicants mostly attended fifth and sixth year of basic education.
- Sample 2: 30 of the 57 students who were evaluated with potential for academic talent (Raven's matrices test score located in the range between the 90th and 100th percentiles) and entered the Program in 2016; 16 men (53%) and 14 women (47%).
- Sample 3: 28 academics who taught courses or workshops during the 2016 and/or 2017 academic year and who were willing to participate in the study.
- Sample 4: 24 student coordinators willing to participate in the study responding to the survey for these purposes.

V. INSTRUMENTS

- Social-Emotional Adaptation Questionnaire (CASE). It is a Likert scale, built by the team of psychologists of the Talentos UdeC Program. The original scale was constructed with 27 items, with 5 response alternatives (totally disagree to fully agree). After a study that showed adequate psychometric characteristics [26], 4 items were suppressed, therefore the scale was left with 23 items distributed in three subscales: Emotional skills, with 10 items; Self-efficacy, with 7; and Social skills, with 5. Of the total of 13 inverted items in the original format, 10 were left on the final scale.
- Motivations and interests questionnaire (CMI). This instrument was also developed by the team of psychologists of the Talentos UdeC Program to evaluate academic motivation. It is a Likert scale of 28 items, on which the subject must express their degree of agreement from the total agreement (5 points) to the total disagreement (1 point). A psychometric study was carried out to demonstrate the reliability of this questionnaire, resulting in a Cronbach's alpha of 0.88 and highly significant correlations of all its items with the total scale [27].
- Questionnaire of Self-attribution of Socially Responsible Behaviors (CARS). This is a list of 19 behaviors that show social responsibility on which the subject must report the frequency with which he performs them from never (0) to always (4). A psychometric study of this questionnaire was also made, which shows its reliability through a Cronbach's alpha of 0.82 and highly significant correlations of all its items with the total scale [27].

- Survey for academics and student coordinators. It is a questionnaire prepared for research. It has 4 open questions with limited space for the answer, about what the respondent perceives as effects of the program in different interest groups.

Data Analysis

Quantitative analysis for sample 1 and 2: Univariate analysis is performed to describe results in each test applied before and after participating in the Program and then the comparison of means is made by means of the t test for related samples.

Qualitative analysis for samples 3 and 4: The responses to the survey are analyzed. Based on this, conceptual categories are constructed with common answers, through analysis, synthesis and integration of ideas from responses.

VI. RESULTS

A. Characterization of the Students that Apply to the Talentos UdeC Program

Of the 150 applicants to the Program, 38% were women (57) and 62% men (93). As shown in Table I, 57 were identified as having an academic talent potential, that is, they obtained a score in the Raven test between the 90th and 100th percentile and 93 with no potential for academic talent. As shown in Table II, the percentage of students identified as having academic talent potential is similar within men and women (see Table II).

B. Difference between Identified Students and Non-Identified Students

Table III shows results obtained from the application of the three questionnaires to students identified with potential for academic talent and those who did not present this potential. The students identified with ATP present greater academic motivation (MIQ) at the time of taking the tests. These students also have a lower socio-emotional adaptation (SEAQ) and lower self-attribution of socially responsible behaviors (QSSR). The difference that exists in the socio-emotional adaptation in both groups is significant.

TABLE I
AVERAGE OBTAINED IN MOTIVATIONS AND INTERESTS (CMI), SOCIO-EMOTIONAL ADAPTATION (CASE) AND SELF-ATTRIBUTION OF SOCIALLY RESPONSIBLE BEHAVIOR (CARS) BY IDENTIFIED CANDIDATES WITH POTENTIAL FOR ACADEMIC TALENT (PTA) AND WITHOUT ACADEMIC TALENT POTENTIAL

Situation		CMI	CASE	CARS
Identified	Average	4,317	3,260	4,053
	N	57	56	57
	St. dev	0,368	0,281	0,516
Non-identified	Average	4,273	3,397	4,103
	N	91	91	89
	St. dev	0,446	0,411	0,540
Total	N	148	147	146

TABLE II
PERCENTAGE DISTRIBUTION OF THE RESULTS OF THE IDENTIFICATION PROCESS ACCORDING TO SEX

Intellectual evaluation result	Women	Men
Non-identified	35 (61,40%)	58 (62,37%)
Identified with PTA	22 (38,60%)	35 (37,63%)
Total	57 (38%)	93 (62%)

TABLE III
T TEST FOR COMPARISON OF MEANS BETWEEN STUDENTS IDENTIFIED WITH POTENTIAL FOR ACADEMIC TALENT AND THOSE WITHOUT ACADEMIC TALENT POTENTIAL

	t	gl	Sig. (bilateral)	Diff. of means	Diff error	95% Confidence interval for the difference	
						Inferior	Superior
MI	0,623	146	0,534	0,044	0,071	-0,096	0,184
CASE	-2,404	143,347	0,017*	-0,137	0,057	-0,250	-0,024
CARS	-0,551	144	0,582	-0,050	0,090	-0,228	0,128

$\alpha=0,05$. * = values $<0,05$

TABLE IV
MATRIX OF CORRELATIONS BETWEEN MEASURED VARIABLES

		CMI	CASE	CARS
CMI	C. Pearson	1	0,206*	0,559**
	Sig. (bilateral)		0,012	0,000
	N	148	147	146
CASE	C. Pearson	0,206*	1	0,228**
	Sig. (bilateral)	0,012		0,006
	N	147	147	145
CARS	C. Pearson	0,559**	0,228**	1
	Sig. (bilateral)	0,000	0,006	0,006
	N	146	145	146

As presented in Table IV, the socio-emotional adaptation (SEAQ) has a significant and positive correlation with self-attribution of socially responsible behaviors (QSSR) and significant correlation, although to a lesser extent, with

academic motivation (MIQ). The academic motivation variable (MIQ) correlates significantly with all the variables evaluated.

TABLE V
STATISTICS OF RELATED SAMPLES

	Mean	N	Typical deviation	Average error of the mean
Pre-CMI	4,37720	30	,340202	,062112
Post-CMI	4,23452	30	,566766	,103477
Pre-CASE	3,75276	30	,571973	,104428
Post-CASE	3,80617	30	0,528787	0,096542
Pre-CARS	4,11579	30	0,528742	0,096535
Post-CARS	3,92807	30	0,527310	0,096273

C. Comparison Pre-Post Participation in the Program Measurements: Academic Motivation; Socio-Emotional Adaptation and Self-Attribution of Socially Responsible Behavior

There are only differences in favor of the posttest in the socio-emotional adaptation of students (CASE). Students have a higher self-attribution of socially responsible behavior and

higher academic motivation at the time of entering the Program than two years later (see Table V).

As shown in Table VI, the only statistically significant difference is in self-attribution of socially responsible behaviors ($\alpha < 0.05$), being significantly greater in the first measurement than after two years.

TABLE VI
TEST OF RELATED SAMPLES

	Mean	T.D.	Average mean error	95% Confidence interval for the difference		t	gl	Sig. (bil)
				Inferior	Superior			
Pre CMI – post CMI	0,14	0,55	0,10	-0,06	0,35	1,42	29	0,17
preCASE - postCASE	-0,05	0,75	0,14	-0,33	0,22	-0,39	29	0,70
preCARS - postCARS	0,19	0,50	0,09	0,0014	0,37	2,06	29	0,048*

$\alpha=0,05$. *= values <0.05

D. Perception of Student Coordinators and Academics on the Effects of the Program on Academics, Student Coordinators, Students and Society

The qualitative data show that student and academic coordinators perceive positive effects of the Program, both in Students and in Student Coordinators, in Academics and in Society in general.

1. Effects that the Program Generates in the Participating Academics

38 responses were obtained from student coordinators and 60 from academics. They share the narrative that the participation in the Program raises the teaching motivation and assessment of their role in academics (13% of responses from student coordinators and 17% of academics). The academics recover and strengthen their interest in education and in the training of people both in the disciplinary as well as in the attitudinal and personal values. Student Coordinator example: "... challenge them to propose an attractive methodology to present their disciplines to a younger audience than they usually do". Academic example: "... there is a greater responsibility in the learning process of the children; I am important to them and I can contribute a lot if I worry about doing it well"

In addition to the common category with academics, the responses of the student coordinators were classified into 5 other categories:

- Strengthens personal skills and abilities for teaching (28%). Academics know and exercise with support and supervision personal skills for the relationship with students and the Program team, and specific tools for teaching content, personal values and personal social development. Example: "... learn to reflect and share with other disciplines"
- Mindset changing (24%). Academics change their way of understanding education and feel re-enriched with their teaching role. They become aware of the importance of their role, the importance of professional development, and the importance of transversal education and aware of the impact that their role generates in society. Example: "... they manage to have a different approach and purpose,

acquiring and teaching significant values"

- Delivery information for effective teaching (13%): Academics acquire information about students, their characteristics, diversity and special needs; they acquire information about their teaching role and effective strategies to carry it out. Example: "...recognize that there are children who are interested in knowledge".
- Increase social commitment (11%). Academics become aware of their role and their need to contribute toward social development. They assume they must contribute to common good and that they can do so from their work. Example: "... they realize the impact their knowledge can have on the common good"
- Develop skills to influence the organization (11%). Academics acquire personal and interpersonal skills that contribute to enhance their working environment. Additionally, they develop methodological and relational strategies that they apply to their teaching, improving the relationship with their students, therefore, and their teaching effectiveness. Example: "... they learn to know different students and to relate better with them during classes, generating a better climate".

In addition to the category shared with student coordinators, the responses of the academics were classified into 3 categories of effects:

- Professional development. Academics feel constantly challenged by the characteristics of the students and the educational model of Talentos UdeC. Therefore, they care about their professional development and teaching practices and they are motivated to learn and implement interdisciplinary and effective strategies to respond to students' needs. Example "... Academics develop an attitude and constant motivation for the search of new strategies, techniques and content, to meet the needs of students in a didactic way"
- Affective-intrapersonal development. Academics perceived that the participation in the program has a positive effect on academics as a person. The climate and bonds that are generated help academics to know each other better in their potential, to value themselves, to lose fears related to the formation of people and to express

their affections. Example "... a great contribution in his personal experience; I think it humanizes them and helps them to spread fears"

- Social-interpersonal development. 12 (20%). The academics that participate in the Program improve their skills to interact and work as a team with people from different disciplines and to interact with students with different characteristics and needs. Given that the educational model seeks to strengthen interpersonal skills in students and conceives academics as models in what they teach, they commit themselves and strive to improve or strengthen themselves in that aspect. Example "... the academic improves in their interpersonal relationships because they must be a good model for children"

2. Regarding the Effect that Talentos UdeC Generates in Students

There were 55 responses in Student Coordinators and 53 in Academics, from which four categories of common ideas were constructed and an additional one that arose only in Academic.

- Effects in cognitive-academic development: Participation in the Program generates effects on the conception of the world, on the expectations and intellectual aspirations, since it expands the possibilities of knowing and interacting; it strengthens the academic motivation, improves the cognitive processes and the abilities to develop in the academic world. Student coordinators' example: "... constantly motivates to acquire new knowledge deeper than the school." Academics' example: "... the students work better in their schools, they have more interest and better intellectual tools to face the school challenges".
- Effects in social-interpersonal development: Participation in the Program facilitates interaction with different people, the assessment of coexistence and acceptance of diversity and learning of social skills and rules of coexistence. Student coordinators' example: "... students are taught how to relate in an appropriate way in such a diverse society." Academics example: "... some overcome shyness and most learn to interact with others better"
- Effects on affective-intrapersonal development: The participation in the Program favors the self-knowledge, acceptance and evaluation of themselves, as well as the construction of the personal identity, the adequate expression of affections and emotional regulation. Student coordinators' example: "... in their identity processes, in their relationships with their peers and in the generation of links" Academic example: "... bloom, improve their self-esteem and learn to express their affections"
- Effects on moral-spiritual development: Participation in the Program helps to acquire norms to self-regulate and coexist with others; to learn values and principles to self-regulate and to develop spiritually. Student coordinators example: "... know how to distinguish between good and bad value the contribution of different disciplines to the common good". Academics example: "... acquire values to evaluate their behavior and guide their actions".

- Effects on the world view and life project: In addition to the mentioned effects, Academics perceive that the Program also generates effects on the vision of the world and the life project of its students. 25% of the academics mentioned that the program offers diversity and multiple alternatives in courses, workshops, methodological strategies, physical spaces, people, etc. These alternatives broad students' knowledge of the reality and worldview, expand the opportunities for their future and allow them to formulate a more complete and complex life plan. Example "... it is a space of protection that shows them different life alternatives to their reality and opens expectations ... expanding their cultural baggage and worldview".

3. Effect that Talents UdeC Generates in the Participating Student Coordinators

There were 60 responses in Student Coordinators and 52 in Academics. They share the perception of positive effects in the commitment of the student coordinators with the environment and the service to others. Participation in the Program increases the commitment with the environment and with the people, because it shows the diversity of characteristics and the need to contribute to everyone. To do this, it teaches to contribute from the service and to commit to it from the discipline itself. Student coordinator example: "...you learn to serve through interdisciplinary work". Academic 23 (45%) "...develop the interest to serve others from their personal characteristics and from their discipline". Student coordinators also perceive three positive effects in themselves:

- Development of generic competences: Participation in the Program generates effects in the formation of generic competences, both by the theoretical training and practical training that is received, as well as by the experience of educational work with children and adolescents. Strengthens especially those that are part of the institutional educational model for the undergraduate students which include among others: communication, social responsibility, teamwork and problem solving. Example: "... helps to put into practice all the theoretical knowledge ... and also cultivate the UdeC's model in generic competences"
- Personal-social development. Participation in the Program helps the student coordinators to self-evaluate, to bond emotionally, to learn skills to relate to others and to learn adequate rules of social coexistence with different social groups and in different spaces. Example "... learn to interact with a variety of personalities, adoption of basic operating rules"
- Motivation to develop and train themselves. Participation in the Program is attractive to student coordinators and positively affects their willingness to take actions to develop themselves as individuals in order to contribute to others and to train in those knowledge and skills that contribute to the formation of children and adolescents who participate in the program. Example "... generates

permanent interest in training and evaluating progress constantly".

Academics perceive three other positive effects in student coordinators:

- **Responsibility.** The program generates effects in the sense of duty; the students learn that they must do the tasks entrusted to them, because they affect others and that each one has the obligation to do with quality and in a timely manner what is entrusted to them. Example "... encourages them the responsibility ..., the discipline that commands and governs in an educational model of high demands"
- **Management skills.** They learn to perform the necessary actions so that the proposed purposes and objectives are fulfilled. It positively affects their abilities to identify and take the necessary steps to achieve what they propose. Example "... it affects their logistical capacity ... they learn to do what is necessary so that things turn out well; the excellence".
- **Leadership skills.** The student coordinators learn to perform small but specific actions to lead the children towards the values and behaviors proposed by the educational model. In this way, they acquire skills to lead other university students towards common purposes. Example "... exercise leadership skills; they are prepared to lead their peers in the professional future"

4. Effect that Talentos UdeC Generates in Society

Academics and Student Coordinators (with 32 and 38 responses, respectively) agree that the Program generates positive effects in society, both of greater inclusion and greater social responsibility. The shared narrative arises that since the Program is made up of people with different characteristics and needs, people learn to work and coexist in diversity and to contribute so that everyone has opportunities and spaces to satisfy their needs. These people generate an effect in other spaces and contribute to forming a more socially responsible society, in which there is a tendency to reconcile the satisfaction of the needs of different groups.

- **Student coordinator example:** "... Talentos UdeC helps to promote the common good among people, therefore it is possible to create a better and more collaborative society"; "... the creation of the Program unites children of different social realities and communes, with different characteristics ... this demolishes stereotypes and opens the mind, ... creates a great potential so that in the future they give opportunities to all"
- **Academic.** Example: "...generates people with capacities and desires to contribute to improving the country and the quality of life of the people" and "... gives opportunities to people with needs that schools do not satisfy".

Three other effect categories appear in Student Coordinators:

- **Social welfare.** People who participate in the Program achieve greater intellectual, social and emotional skills that contribute to build a society of people with a better quality of life and happier. Example "more social welfare,

because more respectful people are formed, who help each other and share".

- **Cultural Asset.** The program is an opportunity for low-income students to approach higher education early, which influences their expectations and aspirations to achieve higher levels of academic and personal education, achieving entry and completion of higher education. Example "... allows the university to approach people, regardless of social class or distance, and gives skills to children for their development and later life."
- **Society-university relationship.** The link between the University and society increases; identifies children with special educational needs and gives a quality educational opportunity complementary to regular education, also supports their families and school teachers. Likewise, it promotes active and committed participation in society in Academics and undergraduate students. Example "... the University teaches to be an agent of change of this society from the children and participants of the Programme".

In addition to the common categories, two categories of effects appear in academics:

- **Equity.** The program contributes to building a more equitable society, because it gives opportunities to people who need to attend to their needs, regardless of the economic resources of their families and the type of school they attend. Example "... creates a necessary space that rescues the academic talents in a transversal way".
- **Integral citizens.** The Program contributes to form a better society because it strengthens in the students their intellectual, emotional, social and moral abilities and the interest to participate in society. Example "... enables the construction of citizenship with people who are fully trained".

VII. DISCUSSION AND CONCLUSION

Almost two thirds of the 2016 applicants to Talentos UdeC are male, which means school teachers identify more boys than girls with high intellectual capacity and potential of academic talent (PTA); however, after specialized evaluation it is appreciated that a similar percentage of male and female have high intellectual capacity. This corroborates what was concluded by Lynn and Irwing [8] in the sense that there are no differences in intelligence between men and women ages 6 to 14; and what was proposed by Espin et al. [4] about the presence of sexist stereotypes in culture that could be producing biases related to gender in the perception of teachers.

The socioemotional adaptation has a significant and positive correlation with the self-attribution of socially responsible behaviors and significant, although to a lesser extent, with the academic motivation. Based on these results, an educative program that encourages the development of these variables, for example, the socioemotional adaptation, could have a positive impact in others. The students identified with PTA show, at the time of taking the tests, greater academic motivation and show less socioemotional adaptation and self-attribution of socially responsible behavior. The

difference in socio-emotional adaptation is significant and, together with allowing the hypothesis proposed for the investigation to be verified, allows to verify what was raised by Flanagan and Arancibia [11] regarding the existence of problems in the social and emotional adjustment of these children and constitutes a confirmation of the need for educational programs, such as Talentos UdeC, that meet and respond to the special educational needs of these students.

The participation in Talentos UdeC improves the socio-emotional adaptation, but it does not reach to be statistically significant after a lapse of two years which suggests the need to evaluate again after a longer period of participation in the Program to identify later significant differences. No significant differences were observed in the academic motivation of the students after participating in the Program, so the hypothesis that the student maintains academic motivation could be accepted. The results show significant differences in self-attribution of socially responsible behavior after participating in the Program, but unlike the hypothesis proposed; these differences are in favor of the pre-test. An explanation of this finding could be that the educational model addresses the concept of social responsibility and the characteristics of the behaviors through which it is exercised, a knowledge that would lead students to describe less their behavior as socially responsible in the post-test.

Finally, the qualitative results allow accepting the two last hypotheses that sustain that the participation in Talentos UdeC generates effects in academics, student coordinators, students and society, perceived as positive or desirable by academics and student coordinators who collaborate in the Program. These effects reflect a perception of the achievement of the purposes of the Program and the effectiveness of its teaching and evaluation strategies, which is reflected in the learning outcomes of students, academics and student coordinators.

Among the limitations of the study, it is necessary to highlight two: 1) the small size of the sample used for the quantitative analysis that require interpreting these results with caution and 2) the qualitative results contradictory with the quantitative ones obtained through the answers given by the Academics and Student Coordinators. This suggests replicating the study, in its quantitative part, with a larger sample to check whether the results are maintained or vary.

It is concluded that the study provides empirical evidence of the relationships between the intellectual, social, affective and moral development of the people of the age range addressed, as well as of significant differences in the socio-emotional adaptation of those with high abilities versus those who do not have them and, of the positive effects that the different participants of the Program perceive. This has important educational implications, among them suggests promoting Extracurricular Enrichment Program complementary to regular education to meet special educational needs of students with high abilities in which the focus on socio-emotional adaptation could be sufficient to influence other characteristics that affect their adaptation.

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