

Science without Borders – An alternative framework for evaluation

Ciência sem Fronteiras – Uma abordagem alternativa de avaliação

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Abstract: This paper proposes a tentative methodology to critically evaluate some aspects of the first phase of the Brazilian international higher education mobility program called *Ciência sem Fronteiras* (Science without Borders SwB) on its undergraduate scholarship share in Canada. The data to be analyzed come from the first Calls for Application (108/2012-109/2012), and two of the monitoring tools designed by the program administrators: *Painel de Controle* and *Bolsistas pelo Mundo* sites (prepared by the program administrators themselves). These data were expanded with the further information provided (or not) by the *Lattes CV* (an electronic standardized record of academic life) of 522 students who were placed in the five Canadian universities which presented the largest number of SwB undergraduate students all through the first phase. These students studied in Canada and returned to complete their programs in their home universities in Brazil at least 21 months before – at the time data were collected (January, 2016). Our understanding of educational policies is in line with *The Policy Cycle Approach* (Bowe, Ball and Gold, 1992). The concept of ‘disposition’ (Dewey 1992 in Hickman & Alexander 2009; Andreotti et al. 2015) will be used as a framework for a critical analysis of the attitudes students have related to updating their *Lattes CV*, which is here understood as a tool that enables accountability to stakeholders.

Keywords: Science without Borders. Academic Mobility. Internationalization of Higher Education.

Resumo: Neste artigo, apresentamos uma nova metodologia para avaliar, criticamente, a primeira fase do programa brasileiro de mobilidade internacional — o Ciência sem Fronteiras (CsF) — em sua opção para estudantes de graduação em universidades no Canadá. Os dados a serem analisados são referentes às primeiras duas chamadas (108/2012 e 109/2012), conforme divulgados em duas ferramentas criadas pelos administradores do programa: o site Painel de Controle e o website Bolsistas pelo Mundo. Esses dados foram ampliados com informações levantadas nos 522 CV Lattes (uma ferramenta eletrônica padronizada para o registro da vida acadêmica) dos estudantes de nossa amostra. Para o presente estudo, foram selecionados os estudantes de graduação, da primeira fase do programa, que estudaram em uma das cinco universidades canadenses com o maior número de estudantes do Ciência sem Fronteiras. Estes estudantes passaram seu período no Canadá e retornaram ao Brasil para completar seus cursos em suas universidades de origem há pelo menos 21 meses — no momento em que os dados foram coletados em janeiro de 2016. Em nossa análise, políticas educacionais são compreendidas de acordo com a Abordagem do Ciclo de Políticas (Bowe, Ball e Gold, 1992). O conceito de ‘disposição’ (Dewey 1992 in Hickman & Alexander 2009; Andreotti et al, 2015) é utilizado como base para uma análise crítica das atitudes dos estudantes em relação à atualização de seus CV Lattes, aqui entendido como ferramenta de prestação de contas.

Palavras-chave: Ciência sem Fronteiras. Mobilidade acadêmica. Internacionalização da educação superior.

Introduction

Ciência sem Fronteiras (Science without Borders – **SwB**) is the international student mobility program devised, implemented and funded in 2011 by the Brazilian federal government, which also included limited financial support from the private sector. Its main objective was to promote the internationalization of Brazilian science and technology by providing complementary qualification of Brazilian higher education students in universities of excellence abroad (Calls for Application 108/109, BRASIL,

2011) — according to the quality criteria established in international rankings. Its target was to send, over the period of four years, 101,000 undergraduate and graduate students to attend sciences, technology, engineering and mathematics-related courses in universities, in 29 other countries, including Canada.

SwB was implemented as part of the Ministry of Science, Technology and Innovations policy to promote sustained development in the country, for which the internationalization of its capacity in science and technology was deemed fundamental. Aligned with that, and on the basis of what had been structurally achieved in these fields up to 2011, government strategies were put together by that Ministry, as can be seen in the document called ENCTI 2012-2015 (National Strategy for Science, Technology and Innovation 2012-2015). This document states that, historically, the productive sector in Brazil has limited itself to developing innovation of the so-called ‘adaptive’ type and attributes such reliance to the low rate of investment on Research and Development, since it “requires less technological efforts and implies an extremely low number of researchers employed to develop their activities within the enterprise itself” (p.42). In order to change this scenario, the document sets as its main strategic goal to boost entrepreneurial innovation, with emphasis in areas considered to be central for the country’s development and, thus, proposes that a set of programs be treated as priority for public investment in science, technology and innovation in the country — among them, SwB (ENCTI 2012-2015, p.97 and 113). In such line of argument, SwB is seen in its potential to contribute to a university reform by means of promoting a state-controlled ‘entrepreneurial subject-production’ (SOUZA, 2015). In

this sense, Souza quotes Read (2009) in saying that “neoliberalism is not just a manner of governing states or economies, but is intimately tied to the government of the individual, to a particular manner of living” (27) which is “entrepreneurial in nature” (DARDOT and LAVAL 2013).

Therefore, SwB’s strong commitment to entrepreneurship in science and technology, invested in the concept of innovation, and its interrelated ties with meritocratic quality and competition, becomes evident. Within such outlook, it is no surprise that the OBJECTIVES of the program refer to the need to complement Brazilian students’ higher education formation by offering them the opportunity to partake in educational environments where “quality, entrepreneurship, competition and innovation” (SwB Calls 108/109, BRASIL, 2011) are considered hallmarks. Furthermore, the expectation on the part of the program administrator in Brazil was to “allow that the student updated his/her knowledge according to differentiated curricula thus enabling access to institutions of high quality standards where he/she could acquire posterior complementary technical-scientific formation in priority and strategic areas seen as needed for the development of the country” (SwB Calls 108/109).

In order to achieve its goals, SwB also included, as an intrinsic part of the program, a period of four-month internship in industry or research laboratories⁶. Internships were expected to enhance students’ awareness to entrepreneurship and innovation, welcoming features in neoliberal-driven education, as indicated in much of the current critical literature (HILL & KUMAR 2009; JIANG 2008). A correlate objective of the program was to “motivate higher education institutions in Brazil to embark in new and expand existing internationalization⁷ initiatives.” Finally, the

Brazilian mobility program sought to “increase the number of highly qualified technical-scientific specialists ready to be absorbed by initiatives in ‘research and development’, especially in the private sector”.

So far (January, 2016) 92,800 scholarships have been implemented, divided into outbound (73,353 for undergraduate students; 9,685 PhD sandwich; 3,353 Full PhD; 4,652 Post-Doctoral) and inbound mobility (775 Visiting Researcher; 504 Young Talents⁸). Canada is the third favorite destination (after the US and the UK), having received 7,311 students/researchers so far. Five universities in Canada received 2,618 students, adding up to over a third of the cohort: University of Toronto (UofT), University of British Columbia (UBC), University of Manitoba (UofM), University of Alberta (UofA), University of Guelph (UofG).

SwB has received both compliments and criticisms. Compliments relate to placing Brazil in the international scenario for higher education, fostering the learning of additional languages, providing students with the opportunity to work in industry and/or research internships as part of their study-abroad experience, among others. Criticisms, on the other hand, lie mostly on the lack of the program’s evaluation. It is precisely in this point that we aim to contribute with this paper. In this study the objectives are twofold. Based on the Policy Cycle approach (BOWE, BALL AND GOLD, 1992), we will first provide an overview of the first phase of the program (undergraduate students who arrived in 2012/2013 and left Canada in April 2014, at the latest) in the five Canadian universities which presented the largest number of SwB undergraduate students (already listed above). The choice of restricting our study to this first phase is related to the fact that there could have been enough time for some of

the returning students to have graduated and thus gone ahead with their academic/professional lives. Therefore, we look for some evidence of SwB impact on their careers. This first part will also provide the grounds for the second objective, which is analyzing undergraduate students' Lattes CV, and, ultimately, SwB itself. This way, we propose a tentative methodology, based on the concept of 'disposition' (DEWEY 1992 in HICKMAN & ALEXANDER 2009; ANDREOTTI 2015). Because we perceive the program's objectives to weigh more towards an "entrepreneurial subject-production" (as discussed above) which demands an 'attitude to' rather than 'acquisition of' knowledge *per se*, on the part of the participant, we take disposition, as it refers to the way the undergraduate students engage with experience, as a more suitable concept to frame our proposal. In other words, it is their 'disposition' as perceived in their handling their Lattes CV that has been taken as indicative of the degree to which the goals established by the program may have been achieved. In this study, such 'dispositions' are defined in the degree of commitment the students display in updating their Lattes CV: high, medium or low. Ultimately, it is their updated Lattes CV that should allow the program's administrators to offer accountability to the Brazilian public at large — the actual supporters of SwB as a whole.

The Policy Cycle approach and methodological procedures

The Policy Cycle approach (BOWE; BALL; GOLD, 1992) is used to shed light on the complexity of educational policies such as the SwB. For the authors, the policies are a series of ever-changing texts, whose expression and interpretation vary according to the context in which they

are being put into practice. The Policy Cycle approach is useful for analyzing the SwB because it proposes to look at policies by taking into account their different contexts, which are interrelated and follow a non-linear fashion (MAINARDES, 2006). Bowe et al (1992) thought primarily of three contexts, illustrated in Figure 1, wherein each context embodies “a number of arenas of action, some public, some private” (p.19):

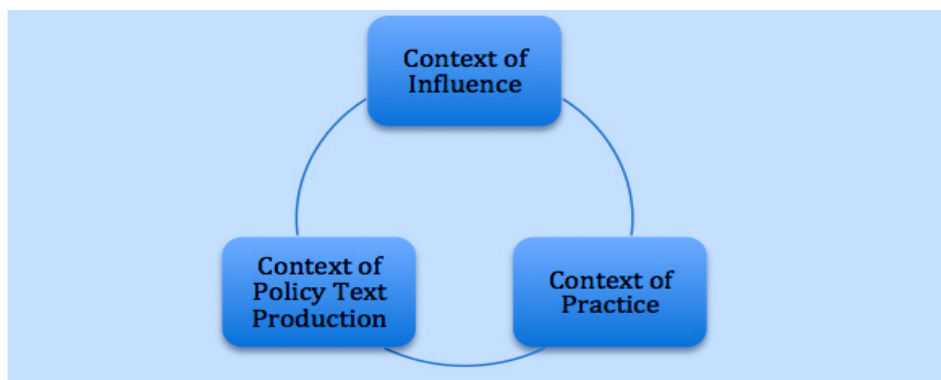


Figure 1: Contexts of Policy making.
Source: (BOWE; BALL; GOLD, 1992, p.20).

According to the authors, the legislation, i.e., The Context of Policy Text Production, is only one aspect of the “continual process in which the loci of power are constantly shifting as the various resources implicit and explicit in texts are recontextualized and employed... “ (BOWE BALL; GOLD, 1992, p. 13). Moreover, it is important to recognize that policy plans might comprehend “ambiguities, contradictions and omissions that provide particular opportunities” for different stakeholders in the context of practice. Also, this way, it is always important to go beyond the legislative text(s) itself to try to have a better understanding of how the policy actually

worked. Hence, relating legislative texts to other policy texts and available evidence is paramount.

We are fully aware that SwB is a broad multifaceted, multi-aimed program, being, thus, impossible to analyze it fully, and this is why we are proposing a narrower scope of analysis focusing on a number of documents. Our understanding of documents is broad, including Manuals, Calls and Official Websites. Following an interpretive paradigm, we shall compare the information and requirements of SwB Calls for Application to Canada (BRASIL, 2011) with information freely obtained in the Bolsistas pelo Mundo (Scholarship holders around the World) website (BPMw). Our assumption is that, whereas the Calls represent the policy plans understood as the legislative texts (Context of Text Production), the information in the BPMw are much closer to what actually occurred in practice, or, to the Context of Practice. The data for the analysis were composed of the following documents:

Table 1: Documents to be analyzed

Documents selected	Data analyzed	Policy Cycle Context
(1) Call 108/2012 - CALDO ⁹	-Objectives of the Program -Requirements for participation in SwB	Context of Text Production
(2) Call 109/2012 – CBIE ¹⁰	-Objectives of the Program -Requirements for participation in SwB	Context of Text Production
(3) Canada Brasil Ciência sem Fronteiras Scholarship Program - Undergraduate Student Handbook- CBIE	-Information about students, foreseen length of stay in Canada, and English Courses	Context of Text Production

(4) Science without Borders Control Panel Website	-General information about SwB	Context of Practice
(5) Bolsistas pelo Mundo (Scholarship holders around the World) website – Science without Borders Website	-Information about students' actual length of stay, period of study, access to student' Lattes	Context of Practice
(6) Lattes CVs	-Information about students' last CV update, type of information included in the CV, publications, graduation and follow-up studies	Context of Practice

Source: Table elaborated by the authors based on data provided by the documents above.

Methodological Procedures

Calls 108/109 (BRASIL, 2011) were investigated so that we could understand the objectives, the requirements for participation and rules for length of stay. Science without Borders Control Panel website, was searched for general figures about SwB in Canada, such as total number of students and preferred institutions. This way, the five top already mentioned universities were selected: UofT, UBC, UofM, UofA, UofG, in this order.

Based on this information and also on the information from Calls 108/109 regarding students' period of study in Canada (we wanted to make sure we selected all students who were under these Calls' regulations), we moved to BPMw. A manual search was then conducted in order to select all students from the first phase in these universities. This site provides, firstly, an overview of the host university, including both total number of participants and their quantity in each of the four categories: Sandwich PhD, Full PhD, Sandwich Undergraduate, and Post Doctoral programs. Using the filters, just one category can be selected, for example:

University of Alberta × **University of Alberta**

<http://www.ualberta.ca/>
Edmonton, T6G 2R3, Canadá

Bolsistas:

Doutorado Sanduíche no Exterior:	55
Doutorado no Exterior:	17
Graduação Sanduíche no Exterior:	247
Pós-Doutorado no Exterior:	26
Total:	345

Filtros: Canadá;

Bolsistas Vigentes **Todos os Bolsistas**

Figure 2: Information on Canadian Universities.

Source: Bolsistas pelo Mundo *website*.

After selecting only undergraduate students, we then clicked on “Todos os Bolsistas” (All scholarship holders) and scrolled down until we found students from the first phase. The BPM website provides students’ names, home university, type of scholarship, areas of knowledge, and period/length of stay. Also, anyone can send students emails or visit their Lattes CVs by clicking on the respective icons (Figure 3).

UEM - Universidade Estadual de Maringá
Maringá - PR
Bolsista de Graduação Sanduíche no Exterior
Área prioritária: Produção Agrícola Sustentável
Área do conhecimento: Zootecnia
Vigência: 01/04/2012 a 30/04/2013

Figure 3: Individual information.

Source: Bolsistas pelo Mundo *Website*.

Before we advance any further, an explanation about Lattes CV is due. Lattes CV is an electronic standardized record of current and past academic life of students and researchers in Brazil. It gathers detailed information on the students and researchers' identification; educational formation; involvement with professional and academic activities; participation in research and community projects; intellectual production; participation in congresses, conferences, seminars, and the like; past and present supervision of dissertations and theses; participation in qualifying and graduate committees; and an additional field for extra relevant information. Created and administered by CNPq¹¹, it has become an indispensable tool in the analysis of merit and competence of claims for funding in the area of science and technology, and is now adopted by most funding agencies, universities and research institutes in the country. It also offers subsidies for planning and policy-making in the fields of science and technology. In addition, it is accessible also to the general public, as its data account for the installed research capacity in the country.

Then, with the information gathered from each student in the BPM website and Lattes CV, an Excel worksheet was created with the following fields:

- University in Canada
- University in Brazil
- State in Brazil
- Priority Area
- Knowledge Area
- Period of Stay in Canada
- Length of stay in Months

- Student's name
- If the student is attending Master or PhD/ If so, where
- Date in which Lattes was last updated
- Details about Lattes: publications, conferences, etc.

Documents (1) to (5) from Table 1 will be dealt with in the next section with the objectives of providing an overview of SwB's first year in Canada and also to check to what extent guidelines, rules and requirements presented in the Calls (documents 1, 2 and 3) can be traceable in the other documents which reflect what actually happened to students. Information from Lattes CV will be analyzed in the subsequent section using a "disposition" framework as a proposed measure of accountability.

An overview of the First Calls for Application

In Canada, there were two organizations that oversaw the administration of SwB on behalf of CAPES¹² and CNPq – CBIE and CALDO, representing 946 academic programs offered by the 95 Canadian institutions members of the Association of Universities and Colleges of Canada (AUCC) and which have been listed to participate in the Brazilian mobility program. Besides aiding in the application process carried out by the students individually to seek acceptance in one of the universities, these organizations were also responsible for the actual placement of the students, an orientation session and assistance in obtaining Canadian visas. Furthermore, they intermediated the payment of the tuition fees on behalf of CAPES and CNPq.

The two first and simultaneous Public Calls were 108/2012 (CALDO) and 109/2012 (CBIE). Both documents presented very similar information

concerning requirements and rules for participation. Candidates had to meet, among others, the following main requirements:

- I. Be enrolled in a higher education program in the priority areas;
- II. Have a Brazilian nationality;
- III. Have fulfilled from 20% to 90% of the required credits at the time of the planned start of the mobility program¹³.

Apart from that, candidates should also have an updated Lattes CV at the time of candidacy. However, this information was not provided in the Calls, only in the Science without Borders Institutional Managers Manual (SwBIMM-BRASIL, 2012). Brazilian universities have a local manager who is responsible for pre-approving candidates' applications before they are sent out to the funding agencies (CAPES or CNPq). Candidates would only be aware of the requirement for the Lattes CV when they actually faced the online application procedures. Information placed in this CV should be considered in each participant's selection process by the university managers, according to the SwBIMM.

There were further requirements concerning proficiency in English and these differed in the two Calls, as illustrated in Table 2

Table 2: IELTS Scores

Call	108	109
IELTS	6.5 / 5.5	4.5
TOEFL IBT	86 / 70	61
TOEFL PBT	580 / 525	500

Source: Table elaborated by the authors based on Calls 108 and 109.

On the one hand both Calls 108 and 109 accepted the same language proficiency tests, i.e., IELTS, TOEFL IBT and TOEFL PBT. However, the score varied a great deal. Whereas Call 109/2012 (CBIE) demanded IELTS 4.5, TOEFL IBT 61 and TOEFL PBT 500; Call 108/2012 (CALDO) demanded IELTS 6.5, TOEFL IBT 86 and TOEFL PBT 580, with an alternative path for candidates who got a slower score (IELTS 5.5, TOEFL IBT 70 and TOEFL PBT 525) to have some language training concurrently with their academic studies. As will be unveiled below, when we refer to length of stay, there is some divergence between the Calls and the information provided in the BPM website.

As for required scores, according to the official IELTS website¹⁴, IELTS results are reported on a 9-band scale, being 1 the lowest and 9 the highest. A 4.5 score is in the middle of a Limited and a Modest user, whereas 6.5 would be between Competent and Good user, as can be seen in Table 3, which shows only the scores relevant to our discussion:

Table 3: IELTS Descriptors – Bands 4 to 7

Band score	Skill level	Description
7	Good user	The test taker has operational command of the language, though with occasional inaccuracies, inappropriate usage and misunderstandings in some situations. They generally handle complex language well and understand detailed reasoning.
6	Competent user	The test taker has an effective command of the language despite some inaccuracies, inappropriate usage and misunderstandings. They can use and understand fairly complex language, particularly in familiar situations.

5	Modest user	The test taker has a partial command of the language and copes with overall meaning in most situations, although they are likely to make many mistakes. They should be able to handle basic communication in their own field.
4	Limited user	The test taker's basic competence is limited to familiar situations. They frequently show problems in understanding and expression. They are not able to use complex language.

Source: IELTS website.

Comparing the descriptors to the scores required especially by CBIE, it is noteworthy how low the language prerequisite was, since a 4.5 score holder would have only a partial command of the language or even present problems in understanding complex language. Proficiency level was also a criterion in the selection process, more specifically, in case of a draw, the candidate with the highest score would be selected. It is important to point out, though, that lack of proficiency in English was reported as the main obstacle for reaching the 101,000 target¹⁵. So much so that, in December 2012, English without Borders, today called Languages without Borders, was launched¹⁶.

Besides, language proficiency ended up having a straight influence in students' length of stay in Canada. As already pointed out, there were some inconsistencies related to the length of stay among the information provided in the Calls (BRASIL, 2011), the Undergraduate Student Handbook (USH) (CBIE, undated), and the BPMw. In accordance with the Calls, the language courses would be taken concurrently with credit courses, and the length of stay would be 12 months, being from nine to 10 months committed to full time study and up to three months to research or industry internship. The information from the Undergraduate Student

Handbook (undated) is slightly different and more in accordance with BPMw: “Students admitted with direct entry into academic studies will be in Canada for 12 months of study. Students requiring language training will study English as a Second Language (ESL) or French as a Second Language (FSL) for 2–4 months prior to beginning their academic studies” (p.3). Thus, the length of stay would go from 12 to 16 months (Table 4).

Table 4: length of Stay according to CBIE

Length of Program	Components		
	Language Courses	Academic Courses	Research or Industry Internship
12 months	none	8 months	4 months
14 months (fall intake only)	2 months	8 months	4 months
16 months	4 months	8 months	4 months

Source: Undergraduate Student Handbook/CBIE (p.3).

Nevertheless, the mapping conducted in the BPM website with the 522 students gives us the following results:

Table 5: Actual length of stay

Number of students	Percentage	Length of Stay (in months)
16	3,06%	from 2 to 7 months
14	2,68%	8
16	3,06%	from 10 to 11 months
312	59,77%	12
10	1,91%	from 13 to 15 months
153	29,3%	16

1	0,19%	17
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Source: Table elaborated by the authors based on BPM website.

It is possible to see that, indeed, in line with the USH, most students stayed either 12 (59,77%) or 16 (29,3%) months. Nevertheless, a number of students stayed less than 12 months (8,8%), and this was not foreseen by the Calls. Something else to be noted is that, UofA is the only university studied here which is part of CALDO and which had forecasted language courses for students with lower language scores. Surprisingly, UofA had only 16 out of 78 students attending prior language courses, or 20%, whereas students from the other Call (CBIE) had over 30% of students taking English classes. Referring to the Policy Cycle approach, we can thus see that the legislative texts did not coincide with the context of practice, where actions were actually implemented.

Regarding the main participating universities, University of Alberta was the only one covered by CALDO Call, whereas the other four followed CBIE guidelines. The following table shows the number of students/researchers in each of the top five universities:

Table 6: Number of SwB students/researchers in the five Canadian universities with the highest figures of undergraduate student participants in the program

University	Total	Undergrad	Post doctoral	Full PhD	Sandwich PhD	Number of undergraduates from the first Calls (January/2012 to April/2014)

University of Toronto (UofT)	1218	1088	41	11	78	198
University of British Columbia (UBC)	359	273	38	14	44	40
University of Manitoba (UofM)	369	334	3	4	18	113
University of Alberta (UofA)	345	247	26	17	55	78
University of Guelph (UofG)	327	264	10	9	44	92
Total	2618	2206	118	55	239	522

Source: Table elaborated by the authors based on BPM website.

As can be seen in Table 6, UofT has hosted about the same total number of students as all the other four universities together. It is important to point out that the UofT has received more students/researchers than any other university in the world (PdC website). This difference is even more prominent if we consider undergraduate students only. Nevertheless, the difference diminishes considerably in the other categories, in which we have UBC and UofA with more full PhD students than UofT.

Considering just the 522 students whose Lattes CV will be analyzed, figures change markedly. Even though UofT still tops in number of students, the difference is noticeably smaller, presenting fewer than twice as many participants as UofM, compared to four times as many when considering figures for the whole SwB, suggesting UofT has managed to attract more

students than the other four in the following years.

As for the preferred areas, or any area that had more than 10 students in a single university, we have the following configuration:

Table 7: Preferred areas of knowledge

	UBC	UofA	UofG	UofM	UofT	Total
Computer Sciences	7	18	1	1	31	58
Engineering	15	12	31	26	101	185
Pharmacology	1	1	3	12	7	24
Dentistry	3	1	3	11	0	18
Medicine	0	0	6	26	4	36
Robotics, Mechatronics and Automation	0	0	3	2	13	18

Source: Table elaborated by the authors based on BPM website.

As we grouped all the Engineering programs together, this is naturally the area with more students in the whole and in four out of the five universities studied. UBC, conversely, hosted more Computer Sciences students in this period, and Alberta evened with Medicine. It is striking to notice the number of Medicine students in Alberta, with 26 out of 34. According to the QS ranking of 2012¹⁷, Alberta would be only the fourth in the country and 108th in the world, much behind McGill University (18th in the World, and which is not even in the ten top SwB receivers in Canada), University of Toronto (19th) or University of British Columbia (45th). Nevertheless, this high number can probably be explained by the

candidates' choice for CALL 108, since, among universities represented by CALDO, Alberta ranks first.

Lattes CV 'disposition' as measure of accountability

As a government-funded program, the overall expectation is that SwB should be accountable to its stakeholders - among them, the taxpayers. The fact that each participant's Lattes CV has been made available on the BPM website for open and direct public scrutiny points out to the intention, on the part of the administrators, of engaging with the notion of accountability as part of the whole process. In this section, therefore, we will proceed to assessing accountability as translated in the different degrees of disposition we have gathered from the students' handling of their Lattes CV.

Lattes CV requires the formation of a habit on the part of its users, or it risks not accomplishing its goal – which is to allow an actual, up-to-date view of the available Brazilian capacity in science and technology, as discussed above. Regularly updating one's Lattes CV is expected and as such it can be understood as an acquired activity, influenced by prior activity. It, thus, demands a certain systematization of minor elements of action as it becomes, according to Dewey “operative in some subdued subordinate form even when not obviously [being a] dominating activity” (HICKMAN & ALEXANDER, p.33).

Following Dewey's proposition, the way SwB participants deal with their Lattes CVs allows us to place this discussion in the realm of habits and dispositions and take the latter as a measure of accountability of the program as a whole. We take Dewey's suggestion that disposition refers to “something latent, potential, something which requires a positive

stimulus outside [oneself] to become active” (p.33). In addition, it reveals a tendency to act, a potential energy needing only opportunity to “become kinetic and overt” (p.34). This is quite relevant to our discussion, for our SwB student sample’s dispositions end up being triggered by some stimuli completely of their own, since they would have found no explicit warning to update their Lattes CV neither on the Students’ Guidelines nor on the program’s website or on the Calls. Nevertheless, we should consider the fact that creating one’s Lattes CV and updating it regularly has, over the years, become close to a mandatory procedure within the higher education community in Brazil. It is expected, as a result, that any new academic or professional achievement be informed in one’s Lattes CV. Even for undergraduate students, updated Lattes CV are required, for instance, when they apply for bursaries or grants, and for participating in research projects and conferences.

In a lighter manner when compared to habit, dispositions, as suggested by Andreotti et al (2015) “develop, become latent and manifest in more complex and unpredictable ways” (p.254). Likewise, “individuals can have different dispositions in differing degrees of ‘strength’” (ibid). Furthermore, “as embodied possibilities for action”, dispositions render it possible to “acknowledge that how individuals will act in concrete situations always depends on the interaction between dispositions and situational characteristics” (p.255).

We suggest, therefore, that dispositions come handy as manifestations of the students’ degrees of commitment to their study-abroad experiences as revealed by their interaction with their Lattes CVs – ultimately the only openly available source of information about SwB’s overall outcome that

engages with the notion of accountability.

In line with Dewey’s proposition, what stimuli would set off the students’ act of updating their Lattes CV? Any major change in their academic routine, both during and after the stay-abroad experience, in the way of achievements such as starting a higher degree, publishing a paper, presenting research findings at a conference, graduating, etc. would, presumably, be taken as a positive outside stimulus to activate their willingness to register the new achievement in their Lattes CV. However, in actual fact, that is not what we have always observed, as regards our sample of 522 SwB undergraduate students in Canada.

To start with, we present a chronology of the 522 SwB students’ updates of their Lattes. Cohort was primarily divided into three categories according to when students last updated their CVs: (1) before their arrival in Canada, (2) after arriving in Canada but before going back to Brazil, (3) after their arrival in Brazil.

Table 8: Students’ Lattes CV last updates

(1)	(2)	(3)
164 students	55 students	303

Source: Table elaborated by the authors based on students’ Lattes CV.

After this first categorization, we proceeded to a closer review of all 522 CVs, looking for the information recorded before, during and after their SwB experience in order to establish the students’ dispositions as regards their handling of their Lattes CVs, and then we came up with a slightly different figure.

The first group was then added of an extra 20 students who, together with the original 164, formed the group of 184 undergraduate students (over 35%) who displayed a *low disposition* as regards updating their Lattes CV. Of these students, 164 updated their CVs before their departure (that is, before Jan 2013), merely, we presume, as a response to the operational requirement put by the program's administrator. The dates of the last updating of their Lattes CV goes from 2010 to 2012. There were two students who updated their CVs only once, as far back as 2007 and 2009, respectively. But for the great majority, the Lattes CVs show the last dates of update as being some month in 2012 – some as late as December, just before their departure in January the following year. As to the remainder 20 students in this group, they updated their CVs once they were in their stay-abroad period, but without any mention to their experience in Canadian universities. On the other hand, 35 students (second group) updated their Lattes CV during their period abroad and mentioned their Canadian experience – but that was all. We consider them as having a *medium disposition*.

At this point, we would like to call attention to a caveat as regards the 164 students who did not update their Lattes CV at all during or after their stay-abroad program – and whom we deemed as having a *low disposition*. As candidates selected for the first Calls to Canada, their scholarships terminated in April 2014, at the latest. Therefore, at the moment of writing this paper (January 2016), at least one year and nine months have elapsed since their return. If we consider that the rules of the program demanded that they would have completed at least 20% and at the most 90% of their courses to be eligible for SwB scholarships, and if we consider that most of the students

in our sample were enrolled in 5-year STEM courses, then quite a few of them would not yet have had time to complete their undergraduate courses back in Brazil. Although the rules of the SwB program established that the home universities would have to commit themselves to fully recognizing the credits from the courses and internship added to their students' curricula during their stay abroad, and the universities that adhered to the program would have signed a document to attest to that commitment¹⁸, we would have to find out whether this was truly the case for most of them - since the courses could have been considered as elective (and not compulsory). How would this fact affect these students' graduation dates? In any case, even if we consider that a high proportion of these students have not yet graduated, other stimuli could have been relevant enough to prompt the act of registering them in their Lattes CV at some point in time along their courses. This way, we can hypothesize that students who did not update their CVs after the beginning of SwB or upon their arrival in Brazil have not participated, or been participating in any extra academic activities (such as the Junior Research Program¹⁹ by CNPq), apart from regular classes themselves, in their home universities.

The third group is formed by the 303 students (over 58%) who displayed a *high degree* of disposition in handling their Lattes CVs. They showed a variety of major academic and professional achievements as stimuli. Within this group, we find 44 students who declared in their Lattes CV, updated between March 2014 and December 2015, to be engaged in Master's or Doctoral programs. Of these, 37 were taking their Master's in Brazil, 20 of whom in the same university they went for their undergraduate degrees. Among those students taking their Master's in their

original universities, four were enrolled in programs graded 7 and two in courses graded 6 (according to CAPES's 1-7 scale evaluation system, in which 6 and 7 are the highest marks). Thus, their choices could have been influenced by the status of excellence of the courses in their own original universities. On the other hand, 14 students attending Master's programs in their own original universities did not seem to take the lower grades of their chosen programs as a deterrent. Their choice may not have been guided by the quality of the programs alone.

This was not so, apparently, for the 17 students who chose to take their graduate programs in another university. Of these, 11 were in programs graded 6 or 7, according to CAPES's evaluation system, six of them in excellent grade 7 programs. Therefore, of the 37 students doing their Master's programs in Brazil, 17 (46%) were in programs graded 6 or 7 considered to be of the highest quality.

In addition, seven of these 44 students were doing their graduate programs abroad, four of them (including the only one taking a Doctoral degree) in universities other than the ones where they did their SwB undergraduate sandwich programs (between Jan 2013 and April 2014). All the four universities were in the US. Their knowledge were: Master's in Engineering Physics; Vision and Graphics Track (Computer Science); and Manufacturing Engineering; and a Doctoral degree in Phytopathology (Agrarian Sciences). As to the three who were taking their Master's in the same university as their SwB program, two were at UofM and one at UBC. The knowledge fields of their Master's programs were: Forestry at UBC and Pharmacology and Nursing (Human Anatomy) at UofM.

Apart from this group of 44 students enrolled in graduate programs,

the other stimuli we have found as determining their high degree of disposition in handling their Lattes CV include, at the top of the list, achievements such as publishing papers as co-authors; participating as members of research teams sponsored with grants from CNPq; and doing internships in industry or laboratories in themes related to their educational background. The most prominent stimulus, however, was the fact that they graduated from their bachelor’s degrees.

The following tables illustrate the findings detailed above:

Table 9: Low-degree disposition (184) and Medium degree disposition (35)

No updating of Lattes CV during or after the experience	Updating of Lattes CV during the study-abroad experience	
164	20	35
None	none (not even that they were in their study-abroad program period)	Inform about the achievement of SwB scholarship

Source: Table elaborated by the authors based on Lattes CVs.

Table 10: High degree disposition

303 students updated their Lattes CV at least once in face of their study-abroad experience and what followed from it		
37	7	259
Stimuli: enrolment in a graduate program (besides other minor achievements, comparatively)		Stimuli: other major achievements

In Brazil: Program in one's own home university	Abroad: Program in one's own host university	Co-authorship in papers · In English · In Portuguese Book Chapters Technical product Participation in research projects as team: · leaders · members (with CNPq grants) · awards · paper presentation in congress · participation in conference
Program in another university	Program in another university (including a PhD program)	Recently graduated Doing post-graduate (diploma) course Apprenticeship work

Source: Table elaborated by the authors based on Lattes CVs

Conclusions

Through an alternative framework for analysis, based on disposition, we wanted primarily to stress that the complementary formation of SwB undergraduate students has not been envisaged as a process restricted to the acquisition of academic competence. That is due, to a great extent, to one of the main objectives of the program being that of enhancing, in every SwB undergraduate student, an attitude towards values intrinsic to the so-called 'knowledge economy' (JIANG 2008). Thus, the document called National Strategies for Science, Technology and Innovation (ENCTI 2012-2015) shows a concern with nurturing values in the country's "best talents among undergraduate and graduate students and researchers" by offering them the opportunity to partake in "educational and professional environments where innovation, entrepreneurship and competition have already been incorporated as standard values" (p.38). As a result, the ensuing Calls

spelled out the objectives set out for the program according to the same premises: “To complement the formation of Brazilian students, giving them the opportunity to have first-hand educational experiences based on quality, entrepreneurship, competition and innovation²⁰.” (Calls 108 and 109, p.1)

On the other hand, some studies highlight the attitudinal approach found in different international mobility programs, albeit of a different order. These studies conclude that, from the point of view of the students themselves, such programs tend to be valued much more for their personal gains, in the way of intercultural and professionally relevant experiences, than for any strictly academic achievements (LUMKES, Jr. et al, 2012; VAZQUEZ et al, 2014; GRIECO 2015). And yet, when it comes to registering and assessing students’ experiences in connection to their study-abroad programs – as should be the case with the Lattes CV –, no emphasis has been placed on any key dimensions beyond academic- and professionally-oriented achievements. In other words, as the tool supposed to be used by the students to register their international-mobility-program-related accomplishments, we observe that Lattes CV did not reflect well the entrepreneurship competences set by the program’s administrators and, much less, the personal and intercultural gains valued by the participants themselves.

We suggest that the absence of proper questions in the Lattes CV that can reflect the attitudinal goals set for the program might explain the *low disposition* of, at least, some of the 164 students who did not update their CVs during or after their stay-abroad experience. We contend that their non-academic motivation would not have been met by the academic-centered outlook embodied in the sequence of information sought by the pre-set Lattes CV form. Apparently, all they felt compelled to do was

to update their Lattes CV once, before their departure, so as to meet the operational requirements established by the SwB's administrators. By the same token, we suggest that the *high disposition* displayed by the 303 students who updated their Lattes CV after their return from their SwB program was more academic - or professionally - oriented. In this case, the Lattes CV played its role through the academic or professional nature perceived in the sequence of information comprised in the form.

As for the personal gains implicit in learning and becoming fluent in a foreign language and its association with acquiring an intercultural experience, which are somewhat valued by the students themselves, there is no mention in any of the SwB guiding documents. There is also no mention in the Calls of a period of language study prior to the academic course. However, out of the 522 participants analyzed in our study, around 30% had this extra benefit. Related to that, in her master's thesis, Grieco (2015) found that students who attended the English program prior to their academic courses, benefitted from a number of aspects other than just language proficiency:

A number of students mentioned that it [the English course] also contributed to other aspects of their transition, including intercultural learning and increased awareness of the differences between the academic culture and the university systems in Brazil and Canada. Considering the length of time of the ELP and the fact that this is an immersion program designed by the university it makes sense that students would benefit from other learning aside from language learning (GRIECO, 2015, p.61).

The author expands on that suggesting that this prior English course also provided students with information about course structures, issues

related to academic writing including plagiarism, types of evaluations, and expectations towards their subsequent internship.

Finally, we would like to draw attention to the importance of looking at policies as unfinished processes, composed of a number of interrelated contexts. Comparing and contrasting the information available in the multiple documents here analyzed, i.e., the Calls and the websites, has shown a clearer picture of the way SwB evolved from text into practice.

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Notes

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- ⁵ Drawing on Dr. Sarmento's experience in the coordination of the national project Languages without Borders, in Brazil, the objective of the article was set to address a practical concern related to adequate mobility programs evaluation. Dr. Sarmento and Dr. Thiago performed the collection and analysis of the data while in a sabbatical at the University of British Columbia, in the context of the international research project Ethics and Internationalization in Higher Education, coordinated by Dr. Andreotti, who contributed to discussions about the context and methodology.
- ⁶ Internships in industry and/or laboratories were compulsory for students sponsored by CNPq only, which affected most of the students in our sample.
- ⁷ Something to be noted is that, although the term "internationalization" appears in a number of documents related to SwB, it is not clear what is referred by that, as there are many different definitions.
- ⁸ Young post-docs working abroad with very good scientific accomplishments and who have excelled in their scientific or technological career. <http://www.cienciasemfronteiras.gov.br/web/csf-eng/faq>
- ⁹ CALDO is a consortium of nine leading Canadian research universities dedicated to the development of international education partnerships between Canada and Latin America.
- ¹⁰ The Canadian Bureau for International Education (CBIE) is a national, bilingual, not-for-profit, membership organization dedicated to the promotion of Canada's international relations through international education.
- ¹¹ National Counsel of Technological and Scientific Development.
- ¹² Federal Agency for the Evaluation and Funding of Higher Education
- ¹³ According to the Calls, students could start their periods abroad from September 2012.
- ¹⁴ <https://www.ielts.org/about-the-test/how-ielts-is-scored>
- ¹⁵ <http://educacao.uol.com.br/noticias/2013/01/04/idioma-e-o-maior-obstaculo-para-ciencia-sem-fronteiras-inscricao-vai-ate-14-de-janeiro.htm>.
- ¹⁶ <http://isf.mec.gov.br/>.
- ¹⁷ <http://www.topuniversities.com/university-rankings/world-university-rankings/2012#sorting=rank+region=+country=+faculty=+stars=false+search=>
- ¹⁸ The document "Acordo de adesão das Instituições de Ensino Superior" (HEI's Agreement to the rules of the program) can be retrieved from <http://www.cienciasemfronteiras.gov.br/web/csf/baixar-documentos>.
- ¹⁹ Iniciação Científica.
- ²⁰ Complementar a formação de estudantes brasileiros, dando-lhes a oportunidade de vivenciar experiências educacionais voltadas para a qualidade, o empreendedorismo, a competitividade e a inovação.