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ACROSS THE OCEAN: contributions of inquiry-based learning in Brazilian and South African teachers' perceptions

CRUZANDO O OCEANO: contribuições da aprendizagem baseada no ensino por investigação na percepção de professores brasileiros e sul-africanos

CRUZANDO EL OCÉANO: contribuciones del aprendizaje basado en la enseñanza por investigación desde la percepción de los profesores brasileños y sudafricanos

TRAVERSER L'OCÉAN: contributions de l'apprentissage basé sur l'enseignement par l'investigation dans la perception des enseignants brésiliens et sud-africains

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Introduction

This research comes from a research project approved by the National Council for Scientific and Technological Development (CNPq) Universal Call from 2022, with the main objective of investigating the extent to which Inquiry-based Learning (IBL) can enhance the professional learning of science teachers in the early years of Elementary School and Early Childhood Education, both in Brazil and in South Africa. Duschl (2008), a researcher about IBL, brings possibilities of working with this approach, in three important dimensions in science education, which are the conceptual, epistemological, and social domains.

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However, the IBL approach is not something simple to be appropriated by teachers, Munford and Lima (2007) recognize this when they bring the need that "in teacher training processes it is necessary to establish a permanent space for investigation and exchanges of experiences between them about the implementation of this methodology in their work" (p. 89, our translation).

Despite this, we understand as a fruitful approach to bring to reflection the need for a "more interactive, dialogic and activity-based teaching capable of persuading students to admit scientific explanations beyond authoritarian, prescriptive and dogmatic discourses" (*ibidem*, p. 110, our translation).

The IBL approach presents challenges and possibilities, and understanding teachers' perceptions is fundamental for a possible implementation of the approach in their classes, especially when considering two different cultures in which, according to Carvalho (2014), it can broaden the understanding of different realities.

Thus, this research aims to bring answers, in a comparative study of two different cultures: *What are the main contributions of a course on the IBL in the perception of South African and Brazilian teachers?* This seeks to understand the common and divergent perceptions of two different cultures and realities.

Theoretical Reference

Teacher Education

Globally, teacher professional development is an essential spoke in the wheel for educational reform in education systems. Reforms informed by educating for the 21st Century necessitated a move from traditional approaches to 21st Century Teaching and Learning (BEDIR, 2019). This approach is student-centered, practical, inquiry-based, Information and Communications Technology (ICT) aligned, and focuses on the development of cognitive and affective competencies (MAPHOSA, 2021). The development of citizens who have these competencies is important for the economic growth of a country. So, teachers are expected to have the necessary knowledge, skills, values, and attitudes for the pedagogical transformation (DUBE; JITA, 2020).

Teacher professional development is a field of contestation related to the policies, understandings, and practices, including what the models, content, strategies, and assessment should be. If an effective program is concerned with enhancing teacher knowledge, practices, values, and attitudes for the improvement of student outcomes, then both the design and implementation of it must be considered (DARLING-HAMMOND *et al*., 2017). In this paper, we consider the design and implementation of a short course for pre-and in-service teachers in IBL, and we consider the aspects raised above.

Teacher professional development in Science Education in Higher Education Institutions in the South African context is focused on global, local science knowledge, including indigenous knowledge and contextual relevance, skills, values, and attitudes. Teachers are recognized as the drivers for change (SHULMAN, 1986).

Jones and Leagon (2014) state that it is high-quality teachers who are the most important factor in driving the quality of science education. Teachers engaging in professional development are expected to develop understandings and practices of inquiry-based teaching and learning, as this has been advocated as desirable for school science curricula to improve science teaching and learning (KIND, 2016).

In the South African context, this approach is rarely implemented in science classrooms (RAMNARAIN; HLATSWAYO, 2018; SONDLO; RAMNARAIN, 2021). So, for teachers in South Africa the professional development lies in the introduction of creativity with its social skills rather than just on cognitive learning, and thus in IBL, so teachers need training in new ways of teaching.

In the Brazilian context, Santana and Franzolin (2018) also point out difficulties in implementing IBL approach, specifically with teachers in the early grades. Such difficulties are concentrated in the fact that professors have a scarce repertoire of ideas, lack of help in the preparation of investigative activities, many students per classroom, in addition to the insecurity of the professor, who does not have solid education from the point of view of content and methodology.

Comparative study between two different cultures

The comparative study constitutes a fruitful instrument to analyze educational scenarios. According to Carvalho (2014), this methodology helps to identify similarities and differences between the compared contexts, expanding the understanding of realities, specifically about educational public policies. Still, according to the author, comparative education is a complex field, due to the approach of social issues that strongly affect the actors of the process.

From the historical point of view, studies that sought to compare educational contexts date back to the end of the 19th century; such a late development can be explained that national education systems, as representatives of countries and nations, emerged at the beginning of the same century. In this line, Goergen (1991) clarifies that the first studies of this nature did not have a strictly theoretical objective, but rather a more direct solution of concrete problems. In the twentieth century, Orth (1996) makes it clear that the systematization of comparative analyzes gained strength with the holding of several international conferences, which sought the socialization of educational practices in different countries.

In a more current observation, Sobrinho *et al*. (2015) enhances the use of comparative studies in the educational field, as long as there is a departure from older comparative analyzes, which aimed at purely quantitative aspects, mischaracterizing the specific contextual profiles of each nation. Thus, in this article, we also defend more modern views that characterize the educational comparative study in a line that does not aim at the enculturation of hegemonic models, nor the legitimization of a colonial imperialist policy (NÓVOA; CATANI, 2000).

Thus, Sobrinho *et al*. (2015, p.336, our translation), in defense of comparative studies, point out that such studies.

> (...) are organized around the perspective that knowing other realities helps us to understand the chapter of human history that we write with others, and helps us in the debate regarding the different control devices put into action by international bodies and organizations in the game that announces social inclusion (...)

By way of conclusion, Comparative Education, therefore, allows, in an investigative bias, the realization of reflective processes involving school contexts and their relations with society and the State. Specifically, in this article, comparative international research has the objective of contributing to new pedagogical constructions among the observed countries, emphasizing education as a historical-social process and, thus, influenced by specific cultures.

In the case of the Brazilian context, the educational system, in relation to basic education, is regulated by the current National Common Curricular Base (BRASIL, 2017), consisting of three basic cycles: Early Childhood Education, Elementary Education, and High School.

Early childhood education serves children from zero to five years of age, with the objective of promoting the child's physical, motor, cognitive, and social aspects, based on general experience fields. Elementary School constitutes the greatest stage of learning, comprising the age group from six to 14 years old, being the moment of insertion of knowledge historically constituted in specific disciplines such as Mathematics, Portuguese Language, Religious Education, Natural Sciences, History, and Geography. Finally, Secondary Education is the final educational phase, where the student deepens their knowledge of elementary education and prepares to enter higher education.

In the South African context, teaching and learning in the education system are guided by the National Curriculum Statement (NCS) and recognized in two sectors: Departments of Basic Education and Higher Education and Training. The Department of Basic Education (DBE) oversees primary and secondary education, i.e. the schooling sector from early childhood education to grade 12, including adult literacy programs (Department of Basic Education, 2021). Primary education is the General Education and Training (GET) and is compulsory for learners from seven until the end of Grade 9 or of the year in which the learner turns 15 (whichever comes first). GET has three phases: Foundation Phase (grade R to 3), Intermediate Phase (grades 4 to 6), and Senior Phase (grades 7 to 9).

The foundation phase focuses on literacy, numeracy, life skills, and in grade 3, learners start to learn an additional language. The Secondary phase is referred to as the Further Education and Training (FET) phase, grades 10-12.

At the end of grade 12 National Senior Certificate (NSC) Exams are taken and success provides access to higher education.

Inquiry-Based Learning (IBL)

Here, it is intended to bring just a few important elements and considerations about the IBL, since the subject is broad and has many aspects. We will rely on some references that we cite below.

First, Zômpero and Laburú (2011), bringing the problem of polysemy to IBL, gathered in their article some characteristics that are common to several researchers in IBL, which are:

> for an investigative proposal there must be a problem to be analyzed, the emission of hypotheses, a plan for carrying out the investigative process, aiming at obtaining new information, the interpretation of this new information and the subsequent communication of the same (*ibidem*, p.74-75)

For the course offered to teachers, we used these precepts that are common to several researchers, adding a characteristic that we consider fundamental and that is also brought by Zômpero and Laburú (2011) in their conclusions, which is the engagement of students. Thus, based on the cited authors (ZOMPERO; LABURÚ, 2011), we elaborated the 5 essential elements of the IBL:

1. Engagement - considering that students need to be motivated and engaged with the proposal;
2. Proposition of a problem to be solved by the students, for this purpose, among other things, balancing the level of demand of the task with the knowledge that the students have;
3. Time for raising and testing hypothesis, planning what will be done;
4. Interpretation and systematization of the information obtained according to the students' planning;
5. Communication of these ideas, a collective moment of knowledge construction.

From another perspective, Duschl (2008), considers 3 very important dimensions to be harmonized in the IBL approach, which are the conceptual, epistemological and social domains, with the aim of breaking a memoristic and meaningless teaching for the student (FRANCO; MUNFORD, 2020). According to Duschl (2008, p. 277):

> The incorporation and assessment of science learning in educational contexts should focus on three integrated domains: • the conceptual structures and cognitive processes used when reasoning scientifically, • the epistemic frameworks used when developing and evaluating scientific knowledge, and • the social processes and contexts that shape how knowledge is communicated, represented, argued, and debated.

We believe that, when we promote and develop the activity from the IBL perspective, we can have the 3 domains integrated to favor science learning.

In addition, classes from this perspective have the potential to motivate students to learn science, and there are studies that show an improvement in the attitude towards science for students participating in IBL activities, according to Ramnarain (2016) in a study in the context of Township Schools in South Africa. The same author identified that, despite the advantages, we also have several limitations and challenges to be overcome in relation to the IBL:

> The findings highlight a lack of professional science knowledge (content knowledge, pedagogical content knowledge, pedagogical knowledge, knowledge of students, educational contexts, curricular knowledge, and educational purposes) that contributes toward teachers' uncertainty in inquiry-based teaching. Also, extrinsic factors such as school ethos, professional support, resource adequacy, and time serve as significant constraints in the implementation of inquiry-based education at the school (*ibidem*, p. 598).

Brazilian authors (ZÔMPERO; FIGUEIREDO, 2013; SANTANA; FRANZOLIN, 2016) also identified difficulties in implementing and carrying out this type of approach with their students, such as promoting student engagement, conducting and mediating investigative activities in the classroom, gaps in initial training of pedagogues in this regard (ZÔMPERO; FIGUEIREDO, 2013), which leads to less use of IBL by pedagogues in the classroom (SANTANA; FRANZOLIN, 2013).

This seems to bring evidence that the difficulty in implementing and mediating IBL in science classes is a challenge to be faced in both countries, both South Africa and Brazil.

Methodology

This paper presents part of a larger research project approved in 2022 under the CNPq Universal Call. There are six Ph.D. professors from three different universities and three undergraduate and three graduate students participating in the project. Regarding course participants, 32 teachers come from the early years and early childhood education, 16 from each country.

With a view to understanding how IBL can contribute to teacher practice, a course was organized for teachers in both countries, in two stages. In the first stage, they were asked to fill out a questionnaire to establish their previous ideas, and the teachers were invited to prepare a class on the subject for their students. Next, the assumptions of IBL were discussed with examples of application in the classroom. In the second stage, the assumptions of the IBL were resumed, where it was possible to experience (hands-on activities) two classes planned for students, aged 7-8 years, one on chemistry and the other on physics.

In this present research, we will evaluate the question asked at the end of the workshop, which was: *What did you learn today?*

The question was answered by 18 South African teachers ("As", named A1, A2, etc.) and 38 Brazilian teachers ("Bs", named B1, B2, etc.). Answers with no names, with illegible handwriting, were not considered for the research, resulting in 16 responses from South African teachers. In addition to the exclusion criteria already described, for the Brazilian sample, 16 responses from Brazilian teachers were chosen who had adequate handwriting and level of completeness for the purposes of this research.

Thus, to compose this research, 32 responses were analyzed, half from each country. Of the 16 As, ages ranged from 27 to 66 years, with a mean of approximately 46 years, and for the Bs, the range was 35 to 50 years, with a mean of 41 years. Such information converges with data collected in the same questionnaire about the didactic experience of the teachers involved in the research.

The answers were delivered in writing, in the form of a text, therefore, we chose to analyze the data using Textual Discourse Analysis (TDA) (MORAES; GALIAZZI, 2016) for the understanding of these texts.

Basically, DTA is a technique organized in three stages, according to Moraes and Galiazzi (ibidem): (1) the disassembly of texts - we understand it as the process in which the units of analysis (UA) will be created, which correspond to the main idea brought in each part of the text, what each paragraph/sentence brought as a key idea; (2) establishing relationships - we understand how to group the established UAs, comparing and joining close ideas, this is the categorization phase; (3) "capture of the new emergent: expression of understandings achieved[...] which aims at the construction of analytical metatexts that express the meanings elaborated from a set of texts" (*ibidem*, p. 53, our translation).

The adoption of the DTA methodology and, therefore, the creation of the UAs is justified, since Locatelli (2020), using the DTA in his research, considers it an interesting methodological option so that a part of the text can be read, interpreted, and considered since the option was to "not only analyze the content but the main meaning that the paragraph denotes about the explanation proposed by the student [in our case, the teacher]" *(ibidem*, p. 1610, our translation).

Still, in the methodological line, it is emphasized that, in the investigation on screen, the units of analysis located, through the Textual Discourse Analysis, focused on the teaching perceptions, characterized here as speech episodes, which contributed to the objectives of the present research (BRITO; COSTA, 2010; GOUW; BIZZO, 2016; MARTINS; MACHADO, 2016).

Results and discussion

Regarding the emerging categories, we separated them into two groups first: (i) Group 1 - contribution for teacher, which refers to the contribution that the course brought to the teacher, in their perception, and (ii) Group 2 - IBL's contribution to school students, referring to the contributions that IBL can have for these learners according to the teachers' perceptions.

Group 1 - Contribution of teachers

The discussion starts with considering group 1, from which 8 categories emerged in both countries, Table 1:

Table 1 – Group 1 and 8 categories emerged from data, about the question: **"***What did you learn today?"*

Categories	As's answers	Bs's answers
1. to learn new things	10	2
2. consciousness	7	-
3. entertaining	11	8
4. motivation	4	3
5. physics/chemistry	4	10
6. deal with students	3	2
7. teacher education	1	-
8. rethinking concepts	-	1

("As" refers to South African teachers and "Bs" refers to Brazilian teachers)

In general, the categories "entertaining, motivation and dealing with students" are cited in a similar way in both countries, these being the points of greatest convergence. Regarding the first two (categories 3 and 4, table 1), the teachers seem to have felt very good and enjoyed the activity a lot, as can be seen in some statements:

> It was really interesting. Really helped me and got me stimulated[...] (A2).
>
> Today I learned that studying science can be wonderful! (B15).

The category "deal with students" (category 6, table 1) brings the concern of teachers to engage their students in science learning, making this science interesting to students, enabling them to think and explore the scientific concepts that are being taught:

> I've learned more about how to be(ing) engaged in class with learners, with learners in science (A14).
>
> I learned how to make science interesting for my children (A16).

> [I learned] that it is important to let children think during the activity (B8).
>
> We should let children explore and try to raise questions and hypotheses on their own (B12).

When considering IBL, this is one of the important characteristics, which has been considered fundamental by most researchers in the area. Bringing up issues that are part of the students' daily lives or that are somehow significant to them can help with engagement in the task (ZÔMPERO; LABURÚ, 2011).

The "physics/chemistry" category was also mentioned by teachers in both countries, with a slightly higher number in Brazil, where teachers were surprised at the possibility of learning these contents in the initial series or even that chemistry and physics are present in our daily lives, as can be seen in some statements:

> it made us realise that everything around us involves chemistry and science (A10).
>
> I learned that it is possible to work on concepts of physics and chemistry with young children (B2).

In this sense, many researchers, such as, for example, Gonçalves, Miranda and Muniz (2015) point out that teachers of the initial series use biology more in their classes because it is more familiar to them and because they consider that it will be of greater interest to the students.

With regard to the "learn new things" category (category 1, table 1), it is observed that the prevalence was much higher with South African teachers, although it was cited by 2 Brazilian teachers, here are some statements about it:

> I learned about how to introduce the Inquiry-based learning (A13)
>
> I learned about the affordance of material, scientific concepts, myths, misunderstandings, inquiry-based learning , etc. (A14)
>
> Today I learned to teach my students in practice that air exists! (B16)

In a survey of South African (As) teachers, Ramnarain (2016) points out that "The teachers strongly made the point that the anticipated support in inquiry-based teaching was not forthcoming, and that the support from the

Department of Basic Education was inadequate (p .612), which may partly explain why this item was much more cited among As.

A significant difference observed was in relation to the awareness category (category 2, table 1), having been identified in more than half of the As and by no B, which brings more elements to Ramnarain's speech (2016) previously placed. Some speeches of the As can be observed, in which the teachers become aware that they already dealt with physics or chemistry in their classes, but without knowing it:

> I learned things and some are things I do everyday but I didn't realize that was chemistry or physics [...] (A3).

> I didn't know I was doing science, chemistry, everyday(A4).

Awareness is considered one of the basic aspects of metacognition (MAYOR; SUENGAS; MARQUÉS, 1995), we understand it as something very important to consider in teacher training, since Brojato and Portilho (2023) bring that "the understanding of the participants about their own awareness-raising process was closer to their perception of the importance of thinking about their own attitudes in order to plan change based on that" (p.13, our translation). Regarding this, we consider a desirable attitude for teachers to improve their practices, in our case, to consider all sciences in their pedagogical practices, including physics and chemistry.

Additionally, the difficulty regarding the recognition of chemistry and physics contents may be due to gaps in the training of pedagogical teachers in relation to these specific areas of knowledge.

The category "teacher education" (category 7, table 1) refers to a teacher who acts as a coordinator, training teachers, and one of the contributions of the activity experienced, in her perception, is to help her teachers, as can be seen when she speaks:

> I also learned how to motivate the teachers by doing it practically with them, and to watch out for continuum of teachers students degrees of engagement (A12).

Emphasizing the motivating component attributed to this type of approach, the category being manifested by only one South African teacher.

Finally, the last category rethinks concepts (category 8, table 1), again refers to an important metacognitive aspect, which refers to self-control (MAYOR; SUENGAS; MARQUÉS, 1995), in which the teacher can revise content differently, promoting an improvement of their ideas, conceptions, as can be seen in the teacher's speech:

> Today I learned that revisiting content that we are already familiar with, from other perspectives, contributes to the expansion of new perspectives (B14).

This category was manifested by a single Brazilian teacher. Metacognition should be intentionally taught in the classroom since it is fundamental for the construction of knowledge (LOCATELLI; DAVIDOWITZ, 2021), so we understand that investing in teacher training in relation to this topic should be considered, since our data point to a lack in this regard.

Group 2 - IBL's Contribution to school students

In Group 2, there were 3 emerging categories, table 2:

Table 2 – Group 2 and 3 categories emerged from data, about the question: **"***What did you learn today?"*

Categories	SAT's answers	BT's answers
1. to learn Science	3	-
2. collaborative work	2	4
3. IBL's aspects	5	7

Approaches were found in two categories: collaborative work and IBL's aspects (2 and 3, table 2).

The teachers considered collaborative work important, based on their own experiences in the proposed activity regarding IBL, as can be seen in their statements:

> I learned that engaging with team members makes everything easy and every team member works toward reaching the same goal of solving problem. (A10)

> Move ideas from other groups helped us (A11)

> The work and the team for exchanging ideas are very important (B8)
>
> I reinforced that working with peers and having problems to solve engage everyone (B2)

In fact, collaborative work is mentioned in the literature of the area as a fundamental factor for the success of investigative activities (CARVALHO; GIL-PÉREZ, 2011) which, together with the adequate preparation of materials and processes, enhances the socialization of experiences. In this line, Damiani (2008) also points us to the fact that collaborative work influences the way of acting, thinking, and solving problems, in addition to enabling transformations in the pedagogical practice by the teacher.

As for the more specific aspects of the IBL, we were able to verify proximity in the incidence of teachers, with little less than half of all of them, manifesting these elements as part of their learning, how to ask a question-problem and raising of hypotheses, engagement, elements constituents of the IBL according to Zômpero and Laburú (2011), as we can see in their statements:

> I also learned how they solving problems with the activity that you give them and how to explain or raising hypothesis. (A13).
>
> The engagement of learners in challenges. I've also learnt that learners do enjoy being in science class. (A14).
>
> We need to list problem situations that encourage investigation. (B1).
>
> That problematization, with the discussion of different hypotheses, collaborate to reach different results. (B6).

The class from the perspective of the IBL, can be conducive to working with students in the 3 dimensions: conceptual, epistemological, and social (DUSCHL, 2008; FRANCO; MUNFORD, 2020) which can enhance adequate science learning, and the fact that almost 40% of teachers (considering the two countries) mention this in their evaluations is quite relevant.

Thus, the importance of continuous teacher training is highlighted here, in this case with regard to considering new pedagogical practices in its didactic framework, considering the IBL with a didactic approach, for example. Along these lines, we agree with Guskey (2023), in the sense that the proposal based

on the IBL favors a more credible assessment of teacher learning, by allowing teachers to observe and record the knowledge mobilization process.

Finally, the category "to learn science", which refers to children's learning, was mentioned only by south africans teachers, bringing possibilities of application in the classroom for this purpose, as can be seen in their speeches:

> I can encourage my grandchildren to do [IBL] it because it's possible (A3).
>
> I can also teach my learners science (A4).

As previously mentioned, the IBL didactic approach can be very appropriate for learning science (RAMNARAIN, 2016), not only in terms of content but also considering the epistemological and social dimensions (DUSCHL, 2008; FRANCO; MUNFORD, 2020). Here it is important to emphasize this, since the teacher, sometimes, has the greatest concern in approaching the contents.

Final considerations

Returning to our guiding question, what are the main contributions of a course on Teaching by Investigation in the perception of South African and Brazilian teachers? and, considering our sample of 16 teachers from each country, it was possible to raise some common and divergent elements in these two cultures, which we expose below.

Regarding convergences, we could highlight that the course offered to teachers provided fun, pleasant and motivating moments, as well as an opportunity to learn how to deal with children in the classroom, including considering physics and chemistry content, when we consider the contributions of the course to teacher training (group 1 categories). It is important to emphasize that in both contexts, regarding the opportunity to work with children (group 2 categories), the teachers valued the possibility of collaborative work and the resumption/revision/improvement of essential aspects of the Inquiry-based learning approach, fundamental to learning science and about science.

Regarding divergences, we observed two categories that emerged only with the South African teachers, which was "awareness", in which teachers

realized that they already taught physics and chemistry, but without being aware of it; and the second was that the South African teachers considered teaching science to children with the approach.

Considering both convergences and divergences, the limitations inherent to this research are highlighted here, in which the analyzed sample is small and therefore, the findings here refer to the analyzed sample, but they bring indications of important aspects that can be considered for the understanding of different contextual realities.

As an implication in teacher training, we found that the appropriation of this approach was not easy for teachers, nor was it quick, as it is a process to be experienced by teachers over time, as well as the need to focus on metacognition with teachers. In this sense, we recommend more research that investigates this, as well as more training courses that offer the opportunity to rebuild/improve/enhance teachers, especially for the initial grades of school life, in the sense of public policies that value and focus on this, to improve the quality of science classes.

ACROSS THE OCEAN: contributions of inquiry-based learning in Brazilian and South African teachers' perceptions

Abstract: International comparative studies, in education, constitute a fruitful analysis methodology, which seeks to highlight the convergent and divergent sociocultural aspects regarding the educational phenomenon. In this line, within the specific vision of teaching natural sciences, inquiry-based learning has been established in the world context (cited as IBL), for decades, as an important strategy for teaching-learning processes of scientific concepts. Thus, this article sought to analyze the possible contributions of an extension course on the IBL in the perception of South African and Brazilian teachers. Therefore, from a theoretical point of view, the present investigation dialogues with the elements present in proposals based on IBL, already addressed, both in Brazil, by Zômpero and Laburú, and in South Africa, by Ramnarain. In a methodological approach, 32 South African and Brazilian teachers had their responses to a questionnaire analyzed using Discursive Textual Analysis. Among the results obtained, outstand: many common teaching perceptions between the two analyzed groups, among them, the appreciation of collaborative work, and motivation, in addition to the importance attributed to IBL for meaningful learning in science and about the Sciences.

Keywords: comparative study, South Africa, Brazil, Inquiry-based learning, Science Education.

CRUZANDO O OCEANO: contribuições da aprendizagem baseada no ensino por investigação na percepção de professores brasileiros e sul-africanos

Resumo: Estudos comparados internacionais, na área de educação, constituem-se como uma frutífera metodologia de análise, que busca evidenciar os aspectos socioculturais convergentes e divergentes no que se refere ao fenômeno educacional. Nessa linha, dentro da visão específica do ensino de ciências da natureza,

o ensino por investigação (EI) estabelece-se no contexto mundial (citado como *Inquiry-Based Learning*), há décadas, como importante estratégia para os processos de ensino-aprendizagem de conceitos científicos. Desse modo, o presente artigo buscou analisar possíveis contribuições de um curso de extensão sobre o EI na percepção de professores sul-africanos e brasileiros. Para tanto, em um viés teórico, a presente investigação dialoga com os elementos presentes em propostas baseadas no EI, já abordados, tanto no Brasil, por Zômpero e Laburú, como na África do Sul, por Ramnarain. Em uma vertente metodológica, 32 professores sul-africanos e brasileiros tiveram suas respostas a um questionário analisadas por meio da Análise Textual Discursiva. Dentre os resultados obtidos, infere-se acerca de muitas percepções docentes comuns entre os dois grupos analisados, entre elas, a valorização do trabalho colaborativo, a motivação, além da importância atribuída ao EI para uma aprendizagem significativa em Ciências e sobre as Ciências.

Palavras-chave: estudo comparado, África do Sul, Brasil, Ensino por Investigação, Ensino de Ciências.

CRUZANDO EL OCÉANO: contribuciones del aprendizaje basado en la enseñanza por investigación desde la percepción de los profesores brasileños y sudafricanos

Resumen: Los estudios internacionales comparados, en el área de la educación, constituyen una fructífera metodología de análisis, que busca resaltar los aspectos socioculturales convergentes y divergentes en torno al fenómeno educativo. En esta línea, dentro de la visión específica de la enseñanza de las ciencias naturales, la enseñanza por investigación se ha establecido en el contexto mundial (citado como *Inquiry-Based Learning*), desde hace décadas, como una estrategia importante para los procesos de enseñanza-aprendizaje de los conceptos científicos. Así, este artículo buscó analizar posibles contribuciones de un curso de extensión sobre el IBL en la percepción de profesores sudafricanos y brasileños. Por tanto, desde un punto de vista teórico, la presente investigación dialoga con los elementos presentes en propuestas basadas en la Enseñanza por Investigación, ya abordadas, tanto en Brasil, por Zômpero y Laburú, como en Sudáfrica, por Ramnarain. En un enfoque metodológico, 32 profesores sudafricanos y brasileños tuvieron sus respuestas a un cuestionario analizado utilizando el análisis textual discursiva. Entre los resultados obtenidos, se infiere acerca de muchas percepciones didácticas comunes entre los dos grupos analizados, entre ellas, la valoración del trabajo colaborativo, la motivación, además de la importancia atribuida al Aprendizaje Basado en la Indagación para el aprendizaje significativo en Ciencias y sobre las Ciencias.

Palabras clave: estudio comparativo, Sudáfrica, Brasil, Enseñanza por Investigación, Enseñanza de las Ciencias.

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