

ORIGINAL ARTICLE

Innovation management in the implementation of the PRONABEC program Beca 18, Metropolitan Lima, 2023

ABSTRACT

Innovation management is a fundamental pillar in the implementation of the Beca 18 program of the Programa Nacional de Becas y Crédito Educativo (PRONABEC). This educational-social program, designed to provide quality educational opportunities to young people with limited resources, faces a constantly changing educational environment and new challenges. In this context, managing innovation becomes an essential catalyst for maintaining the relevance and effectiveness of Beca 18, not only in terms of technology, but also in terms of structural changes, reinvention of processes, policies and strategies. For these reasons, the main objective of this study was to determine the relationship between the innovation management variable and the implementation variable of the Programa Beca 18. The sample consisted of 57 scholarship holders of the program. The results prove the direct and significant impact of innovation management through the Plataforma de Apoyo y Orientación (PAO) and its dimensions (career orientation, supply and educational preparation) on the implementation of the PRONABEC Programa Beca 18, analyzed by intellectual aptitudes and career preferences, information on educational institutions and educational preparation materials for the period 2023. These results would allow the future design of the proposed innovation management model, based on effective career guidance, as well as current educational supply and preparation.

Keywords: innovation management; career counseling; educational opportunities; Beca 18 program; PRONABEC.

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INTRODUCTION

The basis of the educational system is innovation, since the development of production responds to new social demands, global competition and the professional preparation necessary to face and solve the challenges that arise in the growing problems of the educational sector (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021; Nodira and Rashid, 2022). At the international level, there are several studies focused on solving the problem of innovation management in educational institutions (Chaparro *et al.*, 2020; Gárnica Estrada and Franco Calderón, 2020; Guevara Pezoa, 2020; Olivero Vega *et al.*, 2022; Angulo García, 2022), highlighting that it is a fundamental element for the long-term development of the educational sector, since it is necessary to resolve fundamental aspects such as the orientation towards continuous improvement, deficiencies in strategies and the lack of interinstitutional cooperation. In recent decades, Peru has experienced a multisectoral crisis, mainly in the area of educational innovation. This problem is evident in the low level of theoretical, ethical and technical knowledge of society, for example, among public officials and the private sector. The origin of the problem goes deeper, since it stems from the past decades, when different governments did not consider education as a priority for the country's development, causing more poverty and technological delays. In this sense, it is necessary to take action to prioritize the development of education with quality strategies, a highly qualified workforce and a new system oriented to the economic production required by the country (Mejías Sánchez, 2019; Ruiz, 2021). It is also necessary to implement changes in the organizational system, since management must direct plans to constant change according to key elements that generate economic growth, in addition to maintaining a high level of satisfaction among the beneficiaries of the educational system. (Luciano Alipio *et al.*, 2022; Peves Soto, 2021).

Thus, the importance of the research lies in the fact that it will establish a baseline of the level of innovation management of the Beca 18 program, from a correlational approach and through the opinion of its beneficiaries, to

determine the existing associations between the variables and establish a first basic input for the interpretation of the participants' perception. On this basis, it will be possible to propose a more complex and in-depth analysis in future research. In a complementary manner, an innovation management model for PRONABEC is proposed as a result of the review of extensive literature and successful experiences in other countries, based on the understanding of the context, the generation of new ideas and the validation and continuous improvement through a center for innovation and cultural transformation. It should be noted that the non-implementation of these changes leads to the perpetuation of the problem of the insufficient level of national education and the quality deficit that it generates, such as poverty, poorly qualified professionals, technological backwardness and major ethical problems in the daily activities of citizens.

The general objective is to determine the relationship between innovation management in the implementation of the Beca 18 Program of PRONABEC, Metropolitan Lima, 2023; based on this, the specific objectives are formulated as follows: To relate the dimensions of innovation management through career guidance and educational supply in terms of educational preparation to the implementation of the Beca 18 Program of PRONABEC.

In Latin America, there are support systems for higher education made up of educational programs aimed at continuing the education of students after they have completed secondary school, with the aim of acquiring skills in a specific field of study. In the region there are cases such as Argentina through international study scholarships or university discount vouchers, Chile with JUNAEB scholarships or Ecuador with SENESCYT scholarships (UNESCO, 2019). In this sense, the problems of innovation management are evident in the lack of flexible structures and resistance to change, which hinder the adoption of innovative practices. The disconnection between educational institutions and industrial sectors limits the relevance of scholarships; moreover, poor regional cooperation prevents the effective exchange of ideas and best practices. Addressing these issues requires a proactive approach

that fosters inter-institutional cooperation, promotes structural adaptability, and facilitates the integration of innovation in the Latin American education sector.

Similarly, the scholarship programs in Uruguay and Mexico face significant innovation management challenges. Lack of flexibility in administrative structures and resistance to change hinder the implementation of innovative approaches. The disconnection between educational institutions and labor market needs limits the relevance of scholarships, and limited international cooperation hinders the exchange of effective practices. Overcoming these problems requires a proactive approach that fosters structural adaptability, incentivizes interagency collaboration, and promotes the alignment of scholarship programs with the needs of the labor environment (United Nations Children's Fund [UNICEF], 2022).

On this basis, Latin American countries are trying to adapt to the constant changes in scholarship systems and the promotion of higher education for development. Innovation has become a fundamental factor in this process; however, many of these economies face difficulties in incorporating knowledge and technology into their productive processes due to obstacles stemming from the complexity of their social and economic contexts (Comisión Económica para América Latina y el Caribe [CEPAL], 2019). Innovations imply a significant change in the way education is managed, with the aim of making it more relevant to economic, social or environmental needs. In addition, it can influence policies and decision-makers, encouraging the adoption of strategies that promote innovation at the national or local level, as well as policies or systems of professional competencies based on effective examples (UNESCO, 2021).

According to UNESCO specialists (2019), higher education consists of educational programs aimed at continuing the education of students after the completion of secondary school, with the aim of acquiring skills in a specific field of study. For this reason, an International Standard Classification of Education (ISCED) is established. These include ISCED 5 short-cycle tertiary programs, which prepare people

to enter the world of work by developing skills for specific occupations. There is also ISCED 6 higher education, which is essentially theoretical rather than practical and is provided at universities and colleges. ISCED 7 covers master's degrees and specializations, which aim to develop skills in the field of research. Finally, ISCED 8 includes the doctoral level, which is oriented towards advanced research and requires the submission of a dissertation as a contribution to research. At the Latin American level, many social programs have been developed to support education, and Table 1 summarizes the most important ones:

Table 1 lists a number of programs and modalities of scholarships, university loans or credits, and financing for educational support that continue to promote the academic preparation of people with fewer resources throughout Latin America. In the following paragraphs, details of the most important programs in each country are presented.

At the national level, opportunities for innovation and its management are presented. Innovation in education has the responsibility of finding solutions and responses to the challenge of educating individuals in a holistic manner, offering the possibility of building a free, dignified and just society, based on respect for diversity and justice, through profound changes (Fondo Nacional de Desarrollo de la Educación Peruana [FONDEP], 2021).

Higher education is known to be an effective way of overcoming poverty, which is why the need for a program such as PRONABEC is argued or justified, whose objective is to provide opportunities for access, permanence and completion of higher education to a specific group of people with limited economic resources and outstanding academic performance, all with the aim of promoting equality of opportunity (PRONABEC, 202, 2022a).

The local problem focused on PRONABEC, where the need to innovate in the key activities of the processes related to Beca 18 Program scholarship recipients was observed. This meant exploring solutions, identifying factors and establishing beneficial relationships for the implementation of programs aimed at scholarship recipients. Therefore it was necessary

Table 1
Social programs to support education in Latin America

Scholarships	
Argentina	International study and research scholarships for Argentines abroad and for foreigners in Argentina, University Ticket. University students enjoy discounts on the regular fare of interurban passenger services,
Bolivia	Sovereign scholarships at postgraduate level,
Costa Rica	Loans from the Comisión Nacional de Préstamos para Educación (CONAPE), System of university scholarships and socioeconomic aid,
Chile	Scholarships from the Junta Nacional de Auxilio Escolar y Becas (JUNAEB), Scholarships of the Ministerio de Educación: Becas de arancel y Beca de alimentación (BAES),
Ecuador	Scholarships from the Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (SENESCYT), Scholarship Subprogram of the Vice-Ministry of Science and Technology,
El Salvador	Higher Education Scholarship Programs for sons and daughters of veterans and former combatants, FANTEL Scholarship Program for higher education, Education and Employment Scholarship Program,
Guatemala	Mi Beca Segura Program, Bienestar Estudiantil Universitario (BEU) scholarships for admission and re-admission, Presidential Scholarship System,
Honduras	Undergraduate and graduate scholarships offered by the university, SES Scholarships. Degree support, contingency assistance, training scholarships,
Mexico	Scholarships from the Instituto Mexicano de la Juventud (Mexican Youth Institute), Capacita-t program: offers SEP courses and scholarships,
Panama	National scholarships/International scholarships, Loans or credits to finance higher education studies, Program of Attention to People in Vulnerable Situations in Higher Education.
Paraguay	Project for the Insertion of Persons in Prison. Programa Nacional de Becas en el Exterior Don Carlos Antonio López (BECAL).
Peru	Programa Nacional de Becas y Crédito Educativo (PRONABEC) National and International Scholarship Program Agents of Change.
Dominican Republic	National and international scholarships. Financial aid from the Office of Integral Attention to University Education Students.
Colombia	Ser pilo paga Program.
Costa Rica	Credits granted by the Comisión Nacional de Préstamos para Educación (CONAPE).
Panama	Educational loans or credits to finance higher education studies.
Colombia	Jóvenes en Acción (Youth in Action).
Mexico	Youth with Prospera.
Dominican Republic	Progresando con Solidaridad, Incentive for Higher Education.

Note. Adapted from UNESCO, 2019; BEC.AR, undated; Becal, undated; Escuela de Gestión Pública Plurinacional (EGPP), undated; Becas Secretaría de Planificación y Programación de la Presidencia (SEGEPLAN), undated; Consejo Nacional de Préstamos para la Educación (CONAPE), undated; Instituto para la Formación y Aprovechamiento de Recursos Humanos (IFARHU), undated; H Educación - Gobierno de la República de Honduras, 2024; Juventud - Gobierno de la República Dominicana, undated; Secretaría de Educación Superior, Ciencia, Tecnología e Innovación (SENESCYT), undated; Secretaria de Educación Pública (SEP), undated; Ministerio de Educación Nacional de Colombia (MENC), undated; Oficina para América Latina y el Caribe del IPE UNESCO - Sistema de Información de Tendencias Educativas en América Latina (SITEAL), undated; PRONABEC, 2021.

to study them to find out if the efforts of PRONABEC in recent years to improve the quality of life of citizens by generating alternatives for improvement and achievement in the most vulnerable population, are related to

innovation and the training provided. Since social assistance programs represent a cost for all Peruvians, it is necessary to know their effectiveness and it is important to make changes in the management of innovation in the medi-

um and long term, in order to transform the productive apparatus and achieve the development that the country so desperately needs.

Innovation management

According to Solaimani *et al.* (2019), innovation is the process of generating and combining ideas and then transforming them into new/improved products, services or processes. For Sanz Blanco *et al.* (2020), innovation management is a pillar within business dynamics. The need to implement change comes from the awareness of companies that this is how they can differentiate themselves from the competition and stay in the market. Introducing innovation as part of the business strategy is a first step, so that specific activities and tasks to be carried out are defined.

Authors and experts, such as Seclén Luna and Barrutia Güenaga (2019), have developed the concept of innovation in business management. According to Caccamo *et al.* (2023), a key challenge in the field of innovation management is to achieve effective collaboration between experts across business functions and departments and, increasingly, across organizations. Castro Martínez and Fernández de Lucio (2020) point out the existence of types of innovation according to different parameters. On the side of innovations and according to their nature, one can speak of product or business process innovation. Product innovation is the change introduced by a new product or service offered by the company, which differs significantly from its previous products and which has been successfully introduced to the market.

Lazarus (2019) studies the importance of innovation and its management. To do so, he first defines that innovation is a change or alteration of something through the implementation of novelties. In this way, innovation is a concept that seeks a new way of doing something, so if things remain in a predetermined range despite working well, there is no innovation in that context. It is important to always think about innovation, because even if things work well now, they may not work well in the future, so it will be necessary to find new ways of doing things. According to Ocampo-López *et*

al. (2022), to achieve a successful innovation process, it is necessary to have an adequate plan that links capabilities, people, knowledge and objectives, which is called innovation management. In this way, the efforts of private and public institutions are combined to generate new ideas.

According to CEPAL (2019), they describe the challenges facing the incorporation of innovation management in Latin America and the Caribbean. To this end, they establish some concepts of innovation: The European Commission points out that it is the modification of a product, service or process through the application of acquired knowledge. Over time, the idea of technology is added to innovation, such as the technology push model, which starts from science to reach innovation. Similarly, the chain linkage model applies available information and knowledge to link the field of research, knowledge, and the core chain of a company to generate innovation (UNESCO, 2019). For Lobacz and Tylżanowski (2022), innovation management requires the correct execution of the individual stages of the innovation process, using a number of different management methods and tools, the aim of which is to evoke and consolidate innovative and creative attitudes among employees.

Programa Nacional de Becas y Crédito Educativo (PRONABEC)

PRONABEC (2023a) performs various functions, including proposing, designing, applying and monitoring guidelines, procedures and requirements for scholarships and educational loans. In addition, it is responsible for the management of the subsidy of the creditors of such benefits, guaranteeing that they go through an optimal process of selection, permanence and accompaniment, in such a way as to ensure the completion of their studies. It is also in charge of resolving situations related to the fulfillment of the obligations contained in the scholarship or credit granted. On the other hand, it seeks to use information and communication technology tools that allow the dissemination of its services and to promote the participation of both the public and private sectors to broaden the scope of donations and cooperation.

Beca 18 Program

According to PRONABEC (n.d.), the Beca 18 program, which was created in 2011 under Executive Order 017-2011-ED, has a social inclusion approach, with the objective of allowing students with low economic resources and good academic performance to access higher education in order to strengthen the country's development. Subsequently, in 2012, this program was incorporated into the Programa Nacional de Becas y Crédito Educativo (PRONABEC), which aims to design, manage and monitor scholarships and educational credits to ensure that beneficiaries have the opportunity to pursue and complete their studies.

According to PRONABEC (2022a), the Beca 18 provides benefits for access to higher education by financing the application phase of students to be pre-selected for the scholarship. For this reason, all these students are given access to the Support and Orientation Platform (PAO), which is a module that includes mock admission exams, information related to the educational institution, and career orientation. Rodríguez González (2018) points out that a strength of the Beca 18 holders is their good academic performance, because despite the problems that can arise in the first year of study, such as the demands of teachers, time organization, among others, they manage to be good or excellent students because their main motivation is to continue with the scholarship. In addition, students may receive courses on cultural adaptation, learning styles, and others. Those who receive the Beca 18 receive a grant for the continuation and completion of their studies, which covers tuition, stationery, mobility, etc.; it also covers support services in non-academic aspects, such as socio-emotional support and job placement assistance. The duration of this scholarship corresponds to the curriculum of the chosen profession.

Support and Orientation Platform (PAO)

Bustelo *et al.* (2021) mention that PRONABEC relies on the PAO, which is activated for students preselected for a scholarship, to provide them with information. The platform includes three main topics: career orientation, educational offers, and mock applications. The first

axis evaluates the professional interests, cognitive aptitude, personality, and learning styles of the beneficiary; the educational offer provides information on the admission process, the educational institution, among others, while the last axis provides the agenda of the exams and offers mock admission exams (PRONABEC, 2021).

Proposed innovation management model for PRONABEC

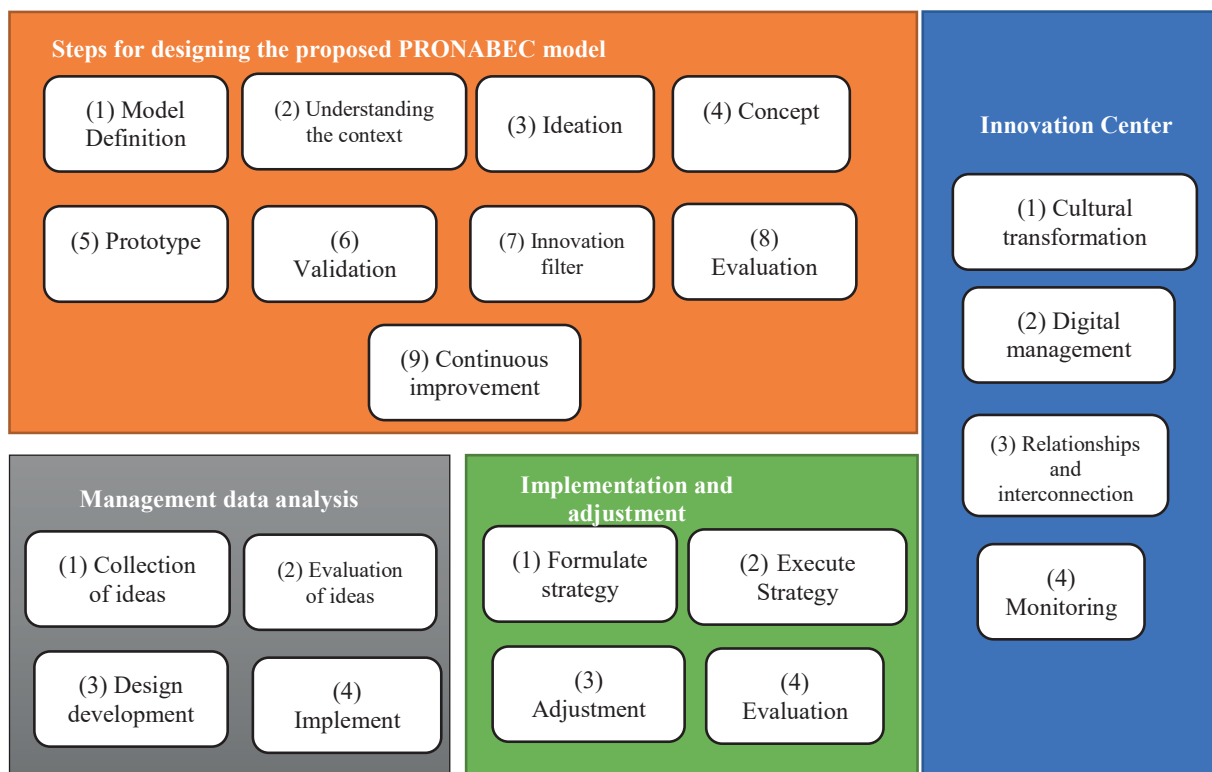
Through analysis, diagnosis and identification of areas for improvement, the objectives of the professional consultancy are reinforced and adapted to the specific needs of PRONABEC in the field of innovation. For this reason, it seeks to identify both the strengths and the limitations of PRONABEC's innovative approach, proposing an innovation management model to optimize processes and resources, thus promoting sustainable development. The formalization of innovation through this management is highlighted as essential to generate better ideas and superior services, as confirmed by various experts. Innovation management is presented as a critical strategic component for organizational survival.

Process models for managing innovation in higher education access were found in various theoretical sources reviewed. These models were evaluated in relation to the needs and opportunities for improvement identified in PRONABEC, such as equal opportunities, decentralization of education, among others. Innovation management models implemented by leading educational organizations were also reviewed to identify successful elements that could be applied to PRONABEC. However, no model was found that would simplify innovation management in a precise manner or that would contribute to sustainable development and sound knowledge generation and management, while at the same time providing the flexibility needed to foster innovation, which is what PRONABEC is striving for, given its current limited progress in terms of innovation. Figure 1 below shows some of the elements of innovation applicable to PRONABEC:

The figure above shows the steps of the design of the proposed model for PRONABEC,

Figure 1

Elements of the innovation management model proposed for PRONABEC



Note. Prepared by the authors, 2024.

which consists first of defining the model, analyzing the context, designing the program and defining its concept; then of developing a prototype, passing it through an innovation filter, evaluating it and proposing improvements. For the innovation center, issues such as cultural transformation, digital management, relationships and interconnections, and monitoring were considered. On the other hand, for the analysis of management data, it was considered first to collect ideas, evaluate them, design them and implement them. In terms of strategy implementation and adjustments, the strategy was formulated, implemented, adjusted, and finally evaluated.

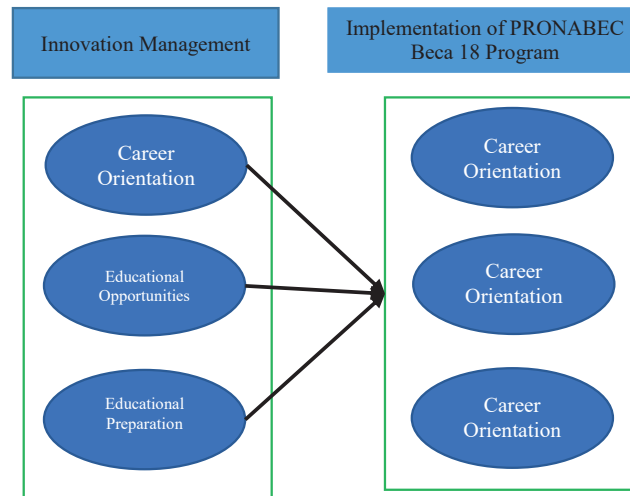
Based on these principles, supported by the evidence gathered in the different stages of the research, an innovation management model designed for PRONABEC is presented. This model aims to take advantage of several of the identified opportunities for improvement, adapting them appropriately to the organization's current level of innovation development.

It also seeks to provide a clear and flexible workflow that contributes to sustainable development and effective knowledge management. This model is presented as a flexible and natural structure that, although it has sequential stages, is not conceived as a completely linear or static model. Each phase can be varied and, if necessary, there can be interactions between them. If necessary, the model can be completely adapted according to the learner's need to stay in a certain stage, to go back to a previous stage in order to improve the process, among others. For this reason, these stages are not listed as numerical steps, but are considered as existing stages in an innovation process.

METHODS

The research carried out was quantitative, non-experimental, using a cross-sectional research design and the correlational level or scope. The unit of analysis was each scholarship holder of the Beca 18 program of PRONABEC. Figure 2 presents the research model:

Figure 2
Research model



Note. Prepared by the authors, 2024.

The sample consisted of 57 scholarship applicants from the Beca 18 2023 competition in metropolitan Lima. To collect data for each variable, a 31-question questionnaire was used with a Likert scale from 1 to 5, where 1 is totally disagree and 5 is totally agree. The data collection instrument was the questionnaire, which had to meet certain characteristics in order for the results to be reliable, relevant and truthful. In terms of content validity, it was obtained through the judgment of three experts in the field, and in terms of reliability of the questionnaire, it was measured with the Cronbach's Alpha statistical test, which was considered acceptable. With regard to research ethics, it should be noted that the respect of private and intellectual property was taken into account. In this sense, the authors of the sources of theoretical information obtained have been appropriately referenced, following the guidelines established by the norms of the American Psychological Association (APA), seventh edition. This methodology facilitates the identification of the authorship of sources from indexed scientific journals, books and any other material used in the study. It also complies with the regulations issued by the University Council of the Universidad Nacional Mayor de San Marcos (UNMSM). It is important to emphasize that all the information used is authentic and truthful, selected exclusively for academic purposes for the preparation of this

report. The confidentiality of the information and results obtained is guaranteed.

RESULTS

One of the most important aspects to consider when collecting data through a questionnaire is to determine the reliability or trustworthiness of the instrument, which is why the Cronbach's Alpha statistical test is presented. According to George and Mallery (2003), as a general rule, a reliable dimension or instrument is one that has a Cronbach's Alpha value above .70. Table 2 shows the ranges for the Cronbach's Alpha coefficient and its results:

Table 2 also analyzes the innovation management variable, which is composed of 16 elements or items; in this sense, the reliability of the questionnaire was 0.871, which represents a good level of reliability for the information collected on innovation management. In turn, the reliability analysis of the Innovation Management variable was carried out considering the 15 items that make up the questionnaire; thus, a reliability level of 0.785 was obtained, which is acceptable for the purposes of this research. In other words, the information collected on the variable Beca 18 Program is reliable and consistent. Finally, the information shown in the previous table refers to a high degree of reliability of the entire measurement instrument; specifically, the applied question-

naire, composed of 31 items, reached a reliability value of 0.904 on the scale from 0 to 1, which represents an excellent reliability of the elaborated instrument.

Now, the purpose of this research is to determine the relationship between innovation management and the Beca 18 program of PRONABEC, Metropolitan Lima, 2023; in this sense, a correlation analysis was carried out between both variables to determine if there is a significant relationship between them.

The research corresponds to the quantitative approach based on the numerical analysis of indicators; therefore, it is necessary to use inferential statistics based on Spearman's correlation coefficient and a previous step is the normality analysis. To contrast the possible relationship between these study variables, Spearman's Rho coefficient was used, which was 0.9, which shows that innovation management is significantly related to the implementation of the Beca 18 program in the year 2023 (see Table 3).

Table 3 shows the results of the Spearman's correlation test, a statistic that determines the level of correlation between the two study variables; this value is 0.900, which

represents a high positive correlation between the variable Innovation Management and the variable Beca 18 Program. In other words, an improvement based on innovation management favors the program. Similarly, a p-value of 0.000 was obtained, which is lower than the 0.05 significance level; therefore, it is confirmed that there is a relationship between innovation management and PRONABEC's Beca 18 Program.

DISCUSSION

The development of the research showed that there is a relationship between the career orientation of the PAO platform and the implementation of the Beca 18 program of PRONABEC, Metropolitan Lima, 2023. This was based on the inferential statistical analysis, since the Spearman correlation test calculated a Rho of 0.745 with a p-value of $0.000 < 0.05$, indicating a positive, significant and moderate correlation between the two. Along the same lines, at the international level, the study by Olivero Vega *et al.* (2022) studied 406 participants and the results showed that the management and structure of the processes are significantly and positively related to student satisfaction (p-value = $0.000 < 0.05$). Consequently, student satisfaction and its dimensions of trust and confidence,

Table 2
Instrument reliability

Instrument	Number of elements	Reliability by Cronbach's Alpha	Expert opinion
Innovation Management Questionnaire	16	0.871	Valid
PRONABEC Beca 18 Program Questionnaire	15	0.785	Valid
Complete instrument	31	0.904	Valid

Note. Prepared by the authors 2024.

Table 3
Correlation between Innovation Management and Beca 18 Program Implementation

		Innovation management	Beca 18 Program
Spearman's Rho	Innovation management	Correlation coefficient	1.000
		Sig. (two-tailed)	.
		N	57
	Implementation of the Beca 18 Program	Correlation coefficient	.900**
		Sig. (two-tailed)	.000
		N	57

** The correlation is significant at the 0.01 level (two-tailed).

Note. Prepared by the authors, 2024.

tangible elements and motivation to participate are positively influenced by innovation management, which proves the relationship with student support programs, as mentioned in Guevara Pezoa (2020).

The research of Garnica and Franco (2020) presents a convergent opinion, since it concludes the significant and positive relationship of innovation management models on educational support programs; however, the statistical correlation analysis is not used, but the analysis is carried out from the review of the problem and the qualitative approach. There is also a coincidence with the results of the work of Angulo García (2022), which refers to the need to improve the quality of education in higher education institutions in order to achieve high performance in students and thus improve the educational level of training of future professionals. At the international level, the importance of digital platforms as part of innovation management with higher education programs is highlighted. Chaparro Salinas *et al.* (2020) indicated that the pillars of educational innovation are collaboration, orientation, study circles, among others; and innovation management uses available technologies to optimize communication among academic actors and promote a teaching culture of continuous learning, which is obviously linked to the support programs for higher education. At the national level, similar results were observed in the work of Luciano Alipio *et al.* (2022), where a regular performance of 42.9% was obtained in organization and preparation, and a Spearman's Rho correlation coefficient of 0.663 was found between innovation management and competitiveness. In the study conducted by Ruiz Ruiz (2021), the perception of 34 PRONABEC beneficiaries was evaluated and it was found that 26% considered the level of educational processes to be deficient, while the level of satisfaction of the beneficiaries was good for only 32%. A correlation coefficient of 0.982 was also found between the educational processes and satisfaction. In conclusion, the analysis of the results and previous studies shows a convergence, since the relationship between innovation management and the development of social assistance programs is highlighted, and key recommendations for improving the guidance processes are also men-

tioned. Similar results have been obtained in several national studies (Luciano Alipio *et al.*, 2022; Peves Soto, 2021; Mejias Sánchez, 2019; Cotrina Cerdán and García Talledo, 2021).

Likewise, in the present research it has been established that there is a relationship between the educational offer of the PAO platform and the implementation of the Beca 18 program of PRONABEC, Metropolitan Lima, 2023, since based on the inferential statistical analysis of Spearman's correlation test a Rho of 0.603 with p-value of $0.000 < 0.05$ was calculated, which indicates a positive, significant and moderate correlation between the two. In the international scenario, similarities are observed especially in the problematic of the subject, as is the case of Guevara Pezoa (2020), who identified a total of 149 higher education institutions, of which 65% do not comply with the accreditation requirements of the country. In Cotrina Cerdán's (2020) analysis, a different perspective is observed in the analysis of PRONABEC's Beca 18 program, since it was noted that the program has a positive impact on students, promoting their academic performance; however, scholarship recipients have difficulties, which is manifested in a high dropout rate, so the implementation of technology and innovation in virtual communication channels is proposed, so that students can learn more about the educational offerings. In this sense, although it is true that there is no analysis similar to the one developed in this research, the conclusions and findings are convergent, given that the importance of innovation management through the educational offer is evident in the implementation of educational aid programs.

On the other hand, the research determined that there is a relationship between the educational preparation of the PAO platform and the implementation of the Beca 18 program of PRONABEC, since in the inferential statistical analysis of Spearman's correlation test was calculated a Rho of 0.741 with a p-value of $0.000 < 0.05$, indicating a positive, significant and moderate correlation between the two. From another perspective related to preparation as part of innovation management, Peves Soto (2021) found a Spearman's Rho coefficient of 0.714, determining a high and positive

level of correlation between leadership and innovation management, also highlighting that management leaders are not updated in innovation technologies applicable to their area. In this sense, it is concluded that the comparative analysis was convergent in indicating the relationship between innovation management and the development of support programs in higher education.

Finally, we discuss the design and implementation of educational policies from a public innovation management perspective, as they have important practical implications. First, an agile and flexible administrative structure is needed that encourages experimentation and continuous learning. In addition, it is crucial to establish collaborative mechanisms between different actors, such as educational institutions, businesses and the community, to foster the creation and implementation of innovative solutions. Teacher education and training in innovative methodologies will be essential to ensure the effectiveness of these policies, as will the provision of adequate incentives and resources to support research and development in education. Finally, continuous evaluation and adaptation of policies is needed to ensure their effectiveness and relevance in an ever-changing environment. In summary, the design and implementation of education policies for innovation management requires a combination of visionary leadership, strategic collaboration and institutional flexibility.

CONCLUSIONS

Based on the research results, it is concluded that there is a direct and significant relationship between the variable Innovation Management and its dimensions with respect to the implementation of the Beca 18 Program of PRONABEC, in the period 2023. Specifically, Spearman's correlation test was used to associate the categorical variable Implementation of the Beca 18 Program with the following: a Rho of 0.745 with p-value of $0.000 < 0.05$ was calculated with; a Rho of 0.603 with p-value of $0.000 < 0.05$ with the platform's educational offering; a Rho of 0.741 with p-value of $0.000 < 0.05$ with the platform's educational readiness; and finally a Rho of 0.900 with p-value of $0.000 < 0.05$ with innovation management. All results

showed a positive, significant and moderate statistical association or relationship between said variables and dimensions with the Beca 18 program.

Likewise, given the results shown, it is essential to manage digital channels, promote interaction and the use of the PAO platform, based on technological innovation management, in order to improve the career guidance and educational preparation received by the scholarship holders of the program.

RECOMMENDATIONS

Based on the results of this study, the following recommendations are presented for the exploration of more detailed or complex alternatives in future research, as well as for the implementation of best practices, given the proven interaction between the variables studied.

The implementation of technological innovation strategies in the management of digital channels is recommended to enrich the career guidance offered to PRONABEC Beca 18 beneficiaries. This measure is essential to facilitate the students' informed decision making regarding their professional careers.

In addition, it was relevant to design an ad hoc innovation management model based on the researcher's professional experience and on the successful experiences of other countries that have achieved an improvement in education; these aspects are based on career guidance, supply and educational preparation. It is also important to promote the interaction with the PAO platform in order to increase the knowledge of the educational offers available in the country. Through innovative management tactics, it is possible to promote an effective approach of the students to the different options, thus maximizing the benefits of the PRONABEC Beca 18. The diversification of educational preparation resources on the PAO platform is proposed to revitalize the learning process of PRONABEC Beca 18 beneficiaries, allowing them to better adapt to today's competitive and changing educational landscape.

Finally, the development of new approaches to innovation management, similar to the model highlighted in the impact section, is

encouraged. This will facilitate a continuous transformation within the institution and ensure an efficient use of resources, thus contributing to supporting a greater number of students to access the benefits of the PRONABEC Beca 18.

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Conflict of interest

The author has no conflicts of interest to declare.

Author contributions

Daisy Corina Guzmán Centeno (lead author): project management, research, methodology, validation, software, supervision, writing (original draft, review and editing).