Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:657
doi: 10.56294/sctconf2024657

Category: Education, Teaching, Learning and Assessment

ORIGINAL

Exploring attitude toward scientific research among Peruvian university students: A cross-sectional study

Explorando la actitud hacia la investigación científica en estudiantes universitarios peruanos: Un estudio transversal

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Cite as: Estrada-Araoz EG, Gallegos-Ramos NA, Paredes-Valverde Y, Quispe-Herrera R, Rivera-Mamani FA. Exploring attitude toward scientific research among Peruvian university students: A cross-sectional study. Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:657. https://doi.org/10.56294/sctconf2024657

Submitted: 14-11-2023 **Revised:** 22-01-2024 **Accepted:** 10-03-2024 **Published:** 11-03-2024

Editor: Dr. William Castillo-González

ABSTRACT

Introduction: the attitude of students towards scientific research is a crucial aspect in the academic sphere, as it influences their active participation in research activities, their willingness to explore new knowledge, and their future commitment to science and innovation.
Objective: to analyze the attitude towards scientific research among students of a private university in Peru.
Methods: a quantitative, non-experimental, and cross-sectional descriptive study was conducted. The sample consisted of 281 male and female students who were administered the Research Attitudes Scale, an instrument with adequate metric properties.
Results: it was found that 44,5 % of students rated their attitude towards scientific research at a medium level, 32,7 % at a low level, and 22,8 % at a high level. Similarly, it was determined that there was a statistically significant association between the year of study and the attitude towards scientific research ($p<0,05$).
Conclusions: the attitude towards scientific research among students of a private university in Peru is located at a medium level. Therefore, the implementation of research seedbeds, programs including opportunities for participation in research projects, academic mentorships, and specialized courses that promote the development of research competences from the first year of study is recommended. Additionally, a periodic evaluation of the effectiveness of these initiatives could be carried out to ensure a continuous stimulus and support for the development of a research culture among university students.

Keywords: Scientific Research; Investigative Culture; University Students; Attitude; Research Skills.

RESUMEN

Introducción: la actitud de los estudiantes hacia la investigación científica es un aspecto crucial en el ámbito académico, ya que influye en su participación activa en actividades de investigación, su disposición para explorar nuevos conocimientos y su futuro compromiso con la ciencia y la innovación.
Objetivo: analizar la actitud hacia la investigación científica en estudiantes de una universidad privada peruana.
Métodos: estudio cuantitativo, no experimental y descriptivo de corte transversal. La muestra estuvo conformada por 281 estudiantes de ambos sexos a quienes se les aplicó la Escala de Actitudes hacia la

Investigación, un instrumento con adecuadas propiedades métricas.
Resultados: se halló que el 44,5 % de estudiantes valoraron su actitud hacia la investigación científica en un nivel medio, el 32,7 % en un nivel bajo y el 22,8 % en un nivel alto. Del mismo modo, se determinó existía una asociación estadísticamente significativa entre el año de estudio y la actitud hacia la investigación científica ($p<0,05$).
Conclusiones: la actitud hacia la investigación científica de los estudiantes de una universidad privada peruana se ubica en el nivel medio. Por lo tanto, se recomienda la implementación de semilleros de investigación, programas que incluyan las oportunidades de participación en proyectos de investigación, mentorías académicas y cursos especializados que promuevan el desarrollo de competencias investigativas desde el primer año de estudio. Además, se podría llevar a cabo una evaluación periódica de la efectividad de estas iniciativas para garantizar un continuo estímulo y apoyo al desarrollo de una cultura de investigación entre los estudiantes universitarios.

Palabras clave: Investigación Científica; Cultura Investigativa; Estudiantes Universitarios; Actitud; Competencias Investigativas.

INTRODUCTION

Today, scientific research plays a fundamental role in universities.[1] It is considered an indispensable process aimed at addressing societal challenges and needs through the generation of knowledge and the creation of new technologies.[2] Through research, university institutions can develop innovative solutions that drive scientific progress and contribute to the welfare of society.[3] However, despite its importance, the promotion and development of research at the university level have been relatively discrete.[4] A critical indicator that allows visualizing this problem is the attitude of students toward scientific research.

Attitude towards scientific research is conceptualized as the predisposition that students have to act and participate in scientific research through the inherent capacities and characteristics they possess for its development.[5] On the other hand, it has been defined as a lasting and persistent organization of beliefs that include affective, cognitive, and behavioral dimensions, which predispose them to react preferentially in a certain way.[6] In this conceptualization, the affective refers to the emotions and feelings that research awakens in students; the cognitive relates to the knowledge or beliefs they have about research; and the behavioral encompasses the actions they perform or are willing to perform in relation to research.[7] This holistic understanding recognizes the complexity and multidimensionality of this construct, which goes beyond simple superficial opinions, encompassing emotional, cognitive, and behavioral aspects that influence the student's disposition towards research activity.

The attitude towards scientific research is also considered an indicator of the quality of education since fostering positive attitudes and aptitudes towards research implies the improvement of skills and abilities that are fundamental in the training of every future professional.[8,9] Moreover, it is not only limited to the acquisition of theoretical knowledge but also involves the development of practical skills, the capacity for critical analysis, and the willingness to explore new areas of knowledge, thus contributing to the personal and professional growth of the individual in the academic and scientific field.[10]

In this regard, social learning theory[11] suggests that human behavior is learned by observing others within a social context. This learning is reinforced through direct observation of the consequences of such behavior. In the context of scientific research, students can form their attitudes by observing the behavior of their professors, peers, and other role models in their academic environment. Suppose the university environment actively promotes participation in scientific research or provides sufficient opportunities for students to engage in research projects. In that case, they may develop a neutral or indifferent attitude toward research.

In the present research, three factors were considered that influence the attitude toward scientific research: vocation for research, interest in research, and valuing research.[12] *Vocation* for research is defined as an inclination toward this activity, which demands both innate and acquired skills to enter the academic and scientific field. My interest in researchundeinity and a genuine interest in the elements inherent to this process. On the other hand, valuing research implies recognizing this activity as a crucial factor for the progress of knowledge and the solution of problems involving unique characteristics of people, such as their attitudes.

Given the importance of scientific research in the progress of knowledge and the resolution of social, economic, and environmental problems, understanding how students perceive and relate to this activity in the Peruvian context is fundamental. This detailed analysis will provide information to design effective strategies to promote the active participation of students in academic research, thus strengthening both their academic and professional training and the scientific and technological development of the country. Ultimately, this study will contribute to filling a gap in the existing academic literature and will provide specific insights for the

Peruvian educational and scientific community, which can be used to improve educational programs, research training, and educational policies aimed at promoting a research culture in Peruvian universities.

Therefore, the objective of the present research was to analyze the attitude toward scientific research among students of a private Peruvian university.

METHODS

The research adopted a quantitative approach, focusing on data collection to identify patterns of behavior within the sample studied. In terms of its design, it was classified as non-experimental, given that it did not involve intentional manipulation of the study variable but was observed in its natural environment. In terms of its nature, it was descriptive and cross-sectional since the characteristics and properties of the study variable were explored at a single time point.[13]

The sample was composed of 281 undergraduate students enrolled in the branch of a private university located in the Peruvian Amazon. It is crucial to note that this sample size was determined using a probability sampling method, which ensured a confidence level of 95 % and a significance of 5 %. This approach guarantees the representativeness of the sample and the validity of the results obtained in the study.

The data collection technique was the survey, while the instrument was the Attitudes Toward Research Scale (EACIN-R).[12] This scale assesses aspects such as interest, perception of importance, confidence in research skills, and willingness to participate in research activities. It consists of 3 dimensions (vocation for research, interest in research, and valuing research) distributed in 28 Likert-type items. Previous research conducted in the Peruvian context[14] determined that the scale had adequate internal consistency (α= 0,898).

Data collection began after obtaining the pertinent permissions from the corresponding university authorities. With the aim of facilitating participation, effective means of communication were employed, such as the WhatsApp messaging application, through which students were invited to participate and provided with the survey link along with clear instructions for completing it. This process, which took approximately 20 minutes, culminated with the 281 students confirming their participation. Once data collection was completed, access to the survey was disabled.

As for data analysis, SPSS version 25 software was used to carry out the process. In the first phase, the percentage distribution of the variables and dimensions under study was calculated. Subsequently, inferential analysis was performed using the nonparametric Chi-Square test (X2). The objective of this analysis was to determine whether there was a significant association between the student's attitudes toward scientific research and the proposed sociodemographic and academic variables. This approach made it possible to rigorously evaluate the association between these variables and to provide a deeper understanding of the factors that could be associated with attitude toward scientific research in the context studied.

The research conducted complied with the ethical principles established in the Declaration of Helsinki, guaranteeing the protection of the rights and integrity of the participants. The university students received a detailed explanation of the purpose of the study and gave their consent voluntarily. In addition, the confidentiality of participation was assured, maintaining the anonymity of the students to protect their identities. Finally, the participants' right to withdraw at any time without adverse consequences was emphasized.

RESULTS

Table 1 shows the distribution of participants according to various sociodemographic and academic variables. According to the data, 54,8 % were women and 45,2 % were men. Regarding age, 63,3 % were between 16 and 25 years old, 29,2 % were between 26 and 35 years old, and 7,5 % were over 35 years old. In terms of professional career, 41,6 % were studying law, 33,1 % were studying administration and 25,3 % were studying accounting. Regarding the year of study, 29,5 % were in the first year of study, 26,3 % in the second year, 18,5 % in the third year, 16,7 % in the fourth year, and 8,9 % in the fifth year.

According to the data shown in figure 1, 44,5 % of students rated their attitude towards scientific research at a medium level, 32,7 % at a low level, and 22,8 % at a high level. When evaluating the dimension vocation for research, it was determined that the predominant level of 47 % of students was medium, 37,7 % was low, and 15,3 % was high. Regarding the research interest dimension, it was found that the predominant level of 45,6 % was medium, 34,5 % was low, and 19,9 % was high. Finally, the dimension valuing research was predominantly valued at a medium level by 40,9 % of students, followed by the high level, with 33,1 %, and the low level, with 26 %. It is necessary to highlight the preponderance of medium levels in the variable and all the dimensions evaluated, which suggests a lack of affinity on the part of the students toward research processes, a possible lack of the necessary skills to participate in the academic and scientific environment, as well as a limited perception of the relevance of research in problem-solving.

https://doi.org/10.56294/sctconf2024657

Table 1. Sociodemographic and academic characteristics of the sample

Variables	Sociodemographic and academic characteristics	n= 281	%
Sex	Male	127	45,2
	Female	154	54,8
Age	Between 16 and 25 years old	178	63,3
	Between 26 and 35 years old	82	29,2
	More than 35 years old	21	7,5
Professional Career	Administration	93	33,1
	Accounting	71	25,3
	Law	117	41,6
Year of study	First	83	29,5
	Second	74	26,3
	Third	52	18,5
	Fourth	47	16,7
	Fifth	25	8,9

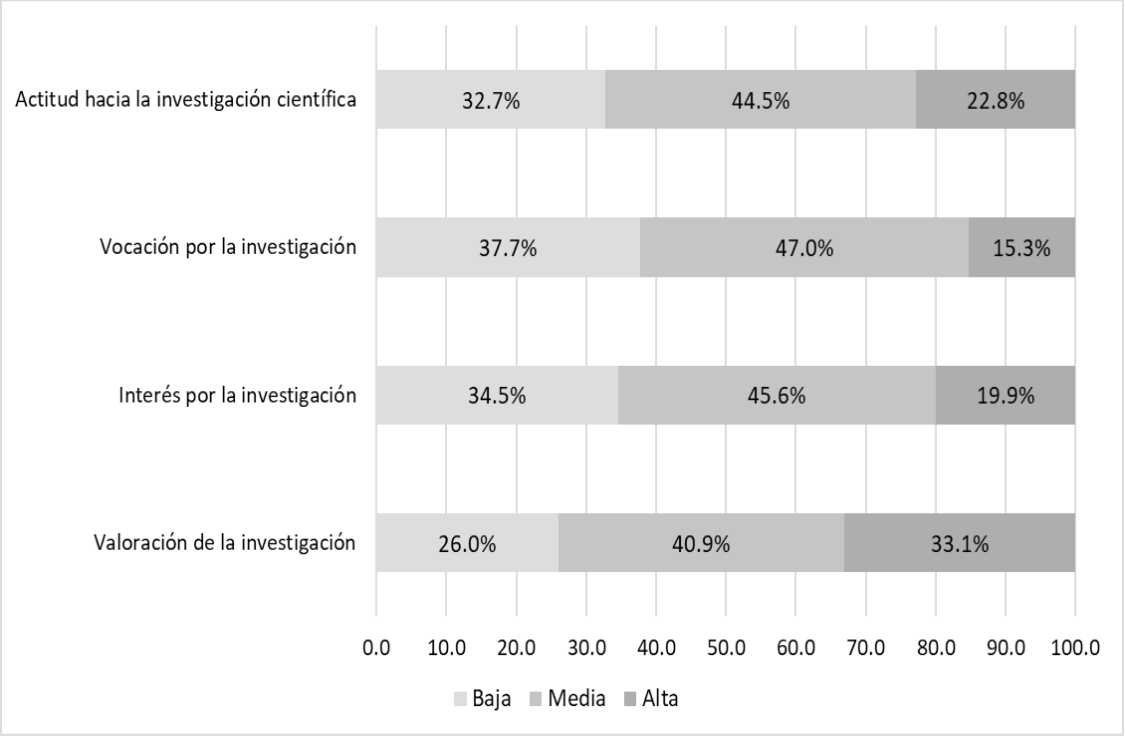

Figure 1. Distribution of percentages of the variable attitude towards scientific research and the dimensions
Source: Surveys.

Table 2 reveals significant associations between the year of study and students' attitudes toward scientific research ($p<0,05$). Students in their fourth and fifth years of study were found to have a more favorable attitude than students in their first years of study. This finding suggests a slight evolution in attitudes toward research as students advance in their academic training.

Table 3 shows that there is only a statistically significant association between the year of study and the vocation for research ($p<0,05$). This indicates that the year of study significantly influences students' willingness or inclination toward research. Specifically, it may mean that as students progress through their college career, their interest or commitment to research may undergo slight shifts.

Table 4 highlights that only one statistically significant association was found between the year of study and interest in research ($p<0,05$). This means that progress in the university trajectory may go hand in hand with an increase in interest in scientific research, which may have important implications for students' engagement and participation in research activities during their academic training.

https://doi.org/10.56294/sctconf2024657

Table 2. Association between attitude toward scientific research and sociodemographic and academic variables

Sociodemographic and academic variables		Attitude towards scientific research			p-value (X^2)
		Download	Media	High	
Sex	Male	42 (33,1 %)	59 (46,5 %)	26 (20,4 %)	p>0,05
	Female	50 (32,5 %)	66 (42,9 %)	38 (24,6 %)	
Age	Between 16 and 25 years old	59 (33,1 %)	78 (43,8 %)	41 (23,0 %)	p>0,05
	Between 26 and 35 years old	27 (32,9 %)	37 (45,1 %)	18 (22,0 %)	
	More than 35 years old	6 (28,6 %)	10 (47,6 %)	5 (23,8 %)	
Professional Career	Administration	31 (33,3 %)	42 (45,2 %)	20 (21,5 %)	p>0,05
	Accounting	24 (33,8 %)	31 (43,7 %)	16 (22,5 %)	
	Law	37 (31,6 %)	52 (44,4 %)	28 (23,9 %)	
Year of study	First	31 (37,3 %)	37 (44,6 %)	15 (18,1 %)	p<0,05
	Second	28 (37,8 %)	30 (40,5 %)	16 (21,6 %)	
	Third	15 (28,8 %)	24 (46,2 %)	13 (25,0 %)	
	Fourth	12 (25,5 %)	23 (48,9 %)	12 (25,5 %)	
	Fifth	6 (24,0 %)	11 (44,0 %)	8 (32,0 %)	

Source: Surveys.

Table 3. Association between vocation for research and sociodemographic and academic variables

Sociodemographic and academic variables		Vocation for research			p-value (X^2)
		Download	Media	High	
Sex	Male	47 (37,0 %)	61 (48,0 %)	19 (15,0 %)	p>0,05
	Female	59 (38,3 %)	71 (46,1 %)	24 (15,6 %)	
Age	Between 16 and 25 years old	65 (36,5 %)	85 (47,8 %)	28 (15,7 %)	p>0,05
	Between 26 and 35 years old	31 (37,8 %)	39 (47,6 %)	12 (14,6 %)	
	More than 35 years old	10 (47,6 %)	8 (38,1 %)	3 (14,3 %)	
Professional Career	Administration	36 (38,7 %)	43 (46,2 %)	14 (15,1 %)	p>0,05
	Accounting	27 (38,0 %)	33 (46,5 %)	11 (15,5 %)	
	Law	43 (36,8 %)	56 (47,9 %)	18 (15,3 %)	
Year of study	First	31 (37,3 %)	40 (48,2 %)	12 (14,5 %)	p<0,05
	Second	28 (37,8 %)	35 (47,3 %)	11 (14,9 %)	
	Third	20 (38,5 %)	24 (46,1 %)	8 (15,4 %)	
	Fourth	19 (40,4 %)	21 (44,6 %)	7 (14,9 %)	
	Fifth	8 (32,0 %)	12 (48,0 %)	5 (20,0 %)	

Source: Surveys.

Table 4. Association between interest in research and sociodemographic and academic variables

Sociodemographic and academic variables		Interest in research			p-value (X^2)
		Download	Media	High	
Sex	Male	43 (33,9 %)	58 (45,7 %)	26 (20,4 %)	p>0,05
	Female	54 (35,1 %)	70 (45,5 %)	30 (19,4 %)	
Age	Between 16 and 25 years old	62 (34,8 %)	80 (44,9 %)	36 (20,2 %)	p>0,05
	Between 26 and 35 years old	28 (34,1 %)	38 (46,3 %)	16 (19,5 %)	
	More than 35 years old	7 (33,3 %)	10 (47,6 %)	4 (19,1 %)	
Professional Career	Administration	32 (34,4 %)	42 (45,2 %)	19 (20,4 %)	p>0,05
	Accounting	25 (35,2 %)	32 (45,1 %)	14 (19,7 %)	
	Law	40 (34,2 %)	54 (46,2 %)	23 (19,6 %)	

https://doi.org/10.56294/sctconf2024657

Year of study	First	33 (39,8 %)	36 (43,4 %)	14 (16,8 %)	p<0,05
	Second	27 (36,5 %)	34 (45,9 %)	13 (17,6 %)	
	Third	19 (36,5 %)	23 (44,2 %)	10 (19,2 %)	
	Fourth	13 (27,7 %)	23 (48,9 %)	11 (23,4 %)	
	Fifth	5 (20,0 %)	12 (48,0 %)	8 (32,0 %)	

Source: Surveys.

Table 5 shows that no sociodemographic or academic variable was significantly associated with the valuation of research (p>0,05). This could indicate that aspects such as gender, age, professional career, or year of study did not significantly influence how students perceived the importance or value of scientific research.

Table 5. Association between evaluation of research and sociodemographic and academic variables

Sociodemographic and academic variables		Evaluation of the research			p-value (X^2)
		Download	Media	High	
Sex	Male	32 (25,2 %)	53 (41,7 %)	42 (33,1 %)	p>0,05
	Female	41 (26,6 %)	62 (40,3 %)	51 (33,1 %)	
Age	Between 16 and 25 years old	47 (26,4 %)	72 (40,5 %)	59 (33,1 %)	p>0,05
	Between 26 and 35 years old	21 (25,6 %)	34 (41,5 %)	27 (32,9 %)	
	More than 35 years old	5 (23,8 %)	9 (42,9 %)	7 (33,3 %)	
Professional Career	Administration	24 (25,8 %)	37 (39,8 %)	32 (34,4 %)	p>0,05
	Accounting	18 (25,3 %)	30 (42,3 %)	23 (32,4 %)	
	Law	31 (26,5 %)	48 (41,0 %)	38 (32,5 %)	
Year of study	First	21 (25,3 %)	34 (41,0 %)	28 (33,7 %)	p>0,05
	Second	18 (24,3 %)	31 (41,9 %)	25 (33,8 %)	
	Third	13 (25,0 %)	22 (42,3 %)	17 (32,7 %)	
	Fourth	12 (25,5 %)	20 (42,6 %)	15 (31,9 %)	
	Fifth	9 (36,0 %)	8 (32,0 %)	8 (32,0 %)	

Source: Surveys.

DISCUSSION

The attitude of students towards scientific research is a crucial component in the formation of future professionals and citizens committed to progress and innovation. In a world increasingly driven by scientific and technological progress, cultivating a positive attitude towards research among students is fundamental to fostering creativity, critical thinking, and the ability to solve problems in various areas of society. In this sense, the present research focused on analyzing the attitude toward scientific research in students of a private Peruvian university.

When evaluating the attitude towards research, it was found that the predominant level was medium. Similarly, the dimensions of vocation for research, interest in research, and valuing research were also evaluated at a medium level. This suggests a lack of affinity on the part of the students toward research processes, a lack of the necessary skills to participate in the academic and scientific environment, as well as a limited perception of the relevance of research in problem-solving.

Similar results were obtained in a previous investigation[15] in which it was reported that there was a neutral attitude towards scientific research in two Peruvian public universities. Similarly, it is related to research conducted in an initial teacher training institution,[16] where it was found that most students had an unfavorable attitude towards scientific research due to perceptions of lack of development of research skills, lack of scientific production by teachers, and little institutional impact on their research training. On the other hand, this coincides with what was reported in a study carried out in a Peruvian university[17] in which it was found that attitudes towards research were neutral in both women and men. This finding suggests that both genders may need to be adequately recognizing the importance of research.

In this regard, it is argued that attitudes toward research are closely related both to the skills and competencies of teachers and to the educational environment in which they find themselves. This environment includes aspects such as institutional culture, educational policies, and the availability of resources and support for research.[18] Therefore, the development of a positive attitude towards research in students depends not only

on the individual abilities of the teachers but also on the general conditions of the educational environment in which they are immersed.[19]

Another finding indicates that students in the fourth and fifth years of study showed a more positive attitude toward research compared to those in the first years of study. This finding indicates a possible transformation in attitudes toward research as students progress through their academic training, possibly due to greater exposure to the specialized courses and practices of scientific research during their progress through college. Similar results were obtained in previous research.[20]

It is essential to consider that scientific research is not only about discovering new phenomena or developing innovative technologies but also about cultivating a culture of inquiry and questioning that permeates all areas of life. University students who adopt a positive attitude towards research are better prepared to face the challenges of the future, contribute to collective knowledge, and generate creative and sustainable solutions to global challenges.

The present research is not without some limitations that should be taken into account when interpreting the results. The sample used was relatively small, which may affect the representativeness of the results and limit their generalizability to a broader population. In addition, the use of the self-administered data collection instrument could introduce social desirability biases. In view of the above, for future research, it is recommended that multicenter studies be conducted that include other universities so that the sample is more diverse and representative. In addition, it would be beneficial to complement quantitative data collection with qualitative methods to obtain a deeper and more holistic understanding of the variable studied.

CONCLUSIONS

Currently, the attitude towards scientific research in university students is a crucial factor that influences their academic and professional development, as well as the advancement of society as a whole. A positive attitude towards research not only encourages students to explore new knowledge and develop research skills but also fosters a critical, curious, and proactive mentality in the face of the challenges and problems of today's world.

In the present investigation it was concluded that the attitude towards scientific research that characterized the students of a private Peruvian university was located at the medium level. This implies the existence of a moderate disposition towards research, with a combination of interest and appreciation for research activity, but without a deep commitment or active participation in research projects. Similarly, students in their fourth and fifth years of study were found to have a more favorable attitude than students in their first years of study. This finding suggests a possible evolution in attitudes toward research as students advance in their academic training, which could reflect a process of maturation and growth in their appreciation and understanding of scientific research.

Therefore, the implementation of research seedbeds, programs that integrate opportunities for participation in research projects, academic mentoring, and specialized courses foster the development of research competencies from the first year of study and, therefore, a better attitude toward scientific research. On the other hand, the curricula should include various subjects that are linked to research. This comprehensive approach will not only strengthen their academic training. However, it will also contribute significantly to their preparation to face the challenges of the working world and promote more incredible innovation and progress in society.

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FINANCING

The authors received no funding for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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https://doi.org/10.56294/sctconf2024657