

Science Scientific Knowledge and COVID 19 in the Chair of Scientific Research Methodology

Vivian Aurelia Minnaard¹ 

¹Investigation methodology / Didactic of Sciences, Universidad de Fraternidad de Agrupaciones Santo Tomás de Aquino, Mar del Plata, Argentina

*Corresponding Author: Vivian Aurelia Minnaard

Email: minnaard@ufasta.edu.ar



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Abstract

The objective of this work was: To investigate the degree of participation of medical students from a privately managed university in the city of Mar del Plata, Argentina, in the recovery activity in October 2021 and the associations they make between the topics. Descriptive investigation with a non-experimental design. The practical work was proposed for the students to do it asynchronously within a week, with daily monitoring by the teaching team. The sample selected in a non-probabilistic way for convenience is 16 fourth-year students studying Methodology. The most frequent characteristics of the scientific knowledge identified by the students were descriptive, explanatory and predictive. It is striking that none recognized the provisional nature of the knowledge that flowed permanently with the information provided by the sources consulted. It is interesting to note that the number of views was 200, therefore if an average per student of 12.5 views of this resource available on the web offers the possibility of a truly enriching exchange. As heads of chairs such as Methodology where students begin to go through the steps of an investigation, it is necessary to look for alternatives within the available resources that motivate students, generating curiosity, synergy and proactivity. Promoting spaces for the exchange of opinions, information transfer is key to strengthen skills associated with critical thinking and communication. New technologies by providing the possibility of asynchrony and synchrony allow a fluidity in the exchanges between the teaching body and the students.

Introduction

Juanes et al, (2020) refer in their article that ICT Information and Communication Technologies allowed communication between students and teachers in times of pandemic. Communication is favored by the rapidity in the fluency of shared information, to which is added the advantage that ubiquity provides, highlights Gomez (2019). Dabbagh et al (2019) identify among the results obtained from the survey of higher-level students recognize important what collaboration and interactions entail and resources enable them. Although it is necessary to optimize strategies that promote collaborative learning using technologies. Elizondo et al. (2010) allow us to reflect on the cognitive skills that come into play when solving a certain activity. In this opportunity, higher cognitive skills related to decision-making and critical and creative thinking are of interest.

Moral et al, (2004) point out that the monitoring of students in the virtual context can be carried out individually and / or in groups, depending on the selected strategies. The matter of Methodology of Scientific Research of the careers of the Faculty of Medical Sciences of a privately managed university of the city of Mar del Plata, Argentina, is located and in its fourth year in the Medicine career. Some of the contents presented in Unit 1 of the program are about

Science, scientific knowledge stand out Discovery and validation contexts, Basic Science, Applied Science, Research and Innovation, Research training, The vocation of service in a researcher, Characteristics of an Investigator, Ways of developing knowledge, Ethical dimension of the investigation.

In Unit 2 the stages of a research project are presented combining a theoretical and practical look. At the beginning of the annual course of the subject, at the end of March 2021, it was decided that the students form groups of 5 to 6 people, They chose a country of their interest to follow the observed changes associated with the pandemic COVID-19. It was a daily record of cases of infection, recovered, deaths, first and second vaccinations, and health measures for 180 days. The different groups made weekly reports that they exposed in the synchronous meetings carried out in virtual form thanks to free programs available on the web. Of the 63 students who were studying Methodology in Medicine, 16 of them could not carry out the practical work on this topic for personal reasons, which is why they designed the activity that is shared on this occasion. It is decided to work with a site that presents the possibility of debates, arguments, allowing teachers to monitor student participation. The objective of this work was: To investigate the degree of participation of medical students from a privately managed university in the city of Mar del Plata, Argentina, in the recovery activity in October 2021 and the associations they make between the topics presented.

Methods

The research is developed in a descriptive way with a non-experimental design. The practical work was proposed for the students to do it asynchronously within a week, with daily monitoring by the teaching team. The sample selected in a non-probabilistic way for convenience is 16 fourth-year students studying Methodology (Hernández-Sampieri et al., 2014).

Results and Discussion

Diaz(2010) is a renowned epistemologist from Argentina and presents in one of her books what is understood as Science, and the relationship with scientific knowledge. When referring to it, it lists among its characteristics being: “descriptive, explanatory, predictive, methodical, systematic, critical, analytical, controllable, unified, logically consistent, provisional, communicable through precise language”(p:15)

The premise that will act as a trigger in the virtual exchange in which the students participate is presented.

Premise:

Since February 2020 we have traveled an unexpected path in the face of an emerging disease. This year as a student of the Chair of Methodology, you systematically monitored the data associated with COVID in terms of the number of infected, hospitalized, deaths, first and second doses of vaccination with respect to the country that your working group selected. If we go back to the first meetings of this year, we address the topic Science and Scientific knowledge under the eyes of the specialist Esther Diaz.

Can a relationship be established between the activity carried out during the year and the characteristics of Scientific knowledge ?

In addition to it, the participation guidelines are indicated.

To accredit the practical work you must make at least two arguments, you will give your opinion in favor or against the contributions made, In addition, you will vote on the arguments

that you perceive as most significant, with a scale provided by the tool that ranges from 0 to 4 points

Figure 1 shows which are the characteristics of the scientific knowledge that the students recognize in this daily monitoring of the pandemic situation in the countries subject to study

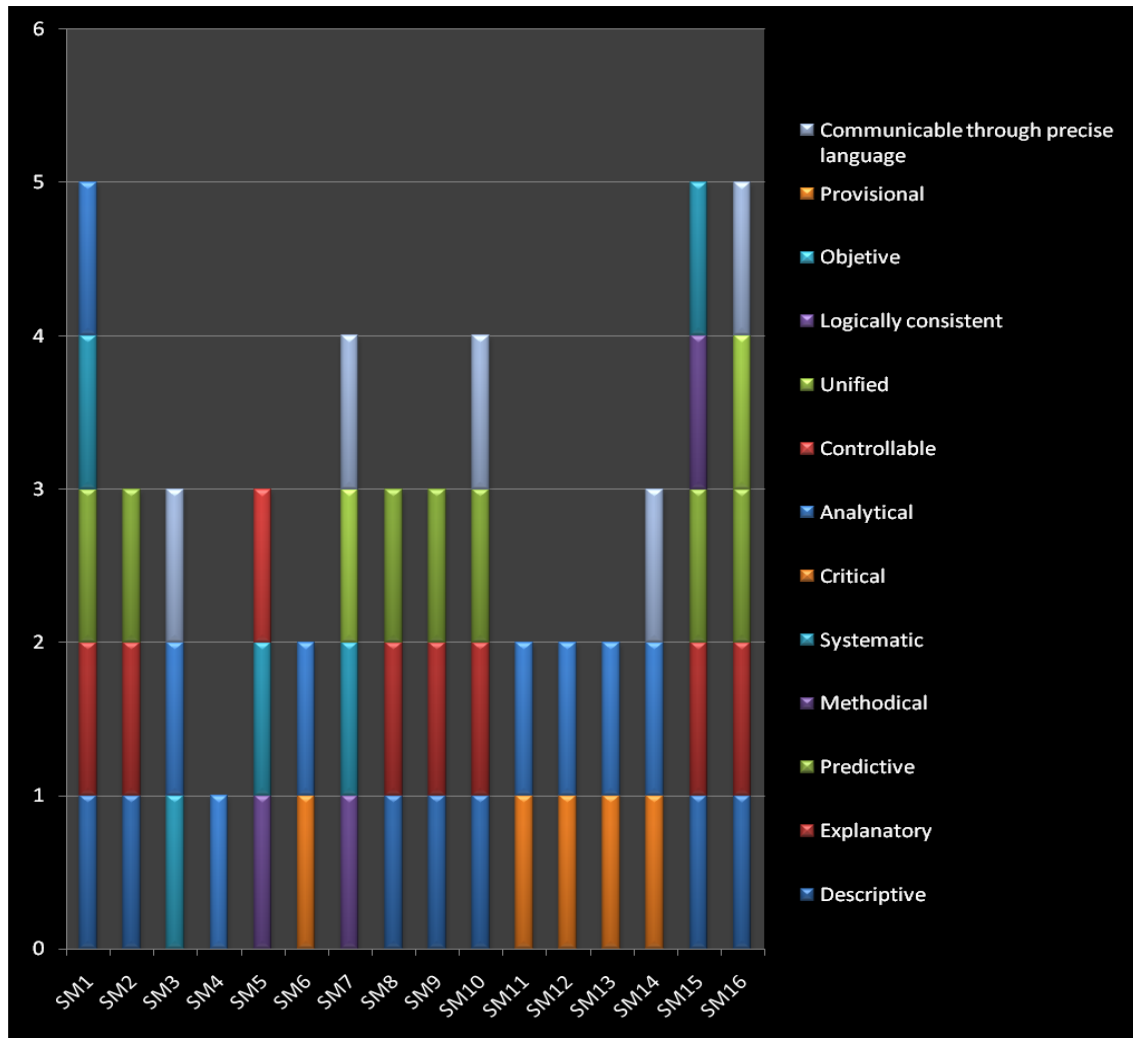


Figure 1. Characteristics of scientific knowledge associated with COVID-19 activity according to students

Some contributions of the students are transcribed verbatim, highlighting advantages and disadvantages.

Strengths they recognize

EM 1 : The systemic monitoring of the data on a daily basis associated with the countries that touched us was really useful, we collected specific data, describing and explaining the situation in each country and trying to predict the changes that would occur in the following month.

EM 7 ; It was approached in a descriptive, explanatory and predictive way, since we collected data, gave them an explanation (what that data variation meant) and tried to predict what would happen based on the observed behavior

EM 15:With the arguments presented, I can agree that there is a direct

relationship between the scientific knowledge raised by Díaz and the work developed on COVID 19, since we carry out a systematic survey of data, with descriptive, explanatory and predictive purposes, despite the fact that my ability to hypothesize and predict based on these data was limited.

EM 16: It was observed, for example, that the increase in the number of vaccinated population allowed a decrease in the number of intensive care beds, which can be demonstrated both in the work carried out by the group of which it is part, and in all the follow-ups carried out. , thus being able to generate a unified about the effectiveness of vaccination campaigns.

Identified weaknesses

EM 4: Regarding the negative aspects, I think that at the beginning the data collection was difficult for us; As there is so much information from various sources and they are constantly being updated, it was a very dynamic process to which it cost us to adapt and find those sources or platforms in which we felt more comfortable to be able to collect the information.

EM 6: A negative aspect about this research work could be the amount of information sources available, which carries a greater risk of bias in the presence of unreliable sources of information, especially since it is a current topic and that presents a high degree of concern globally.

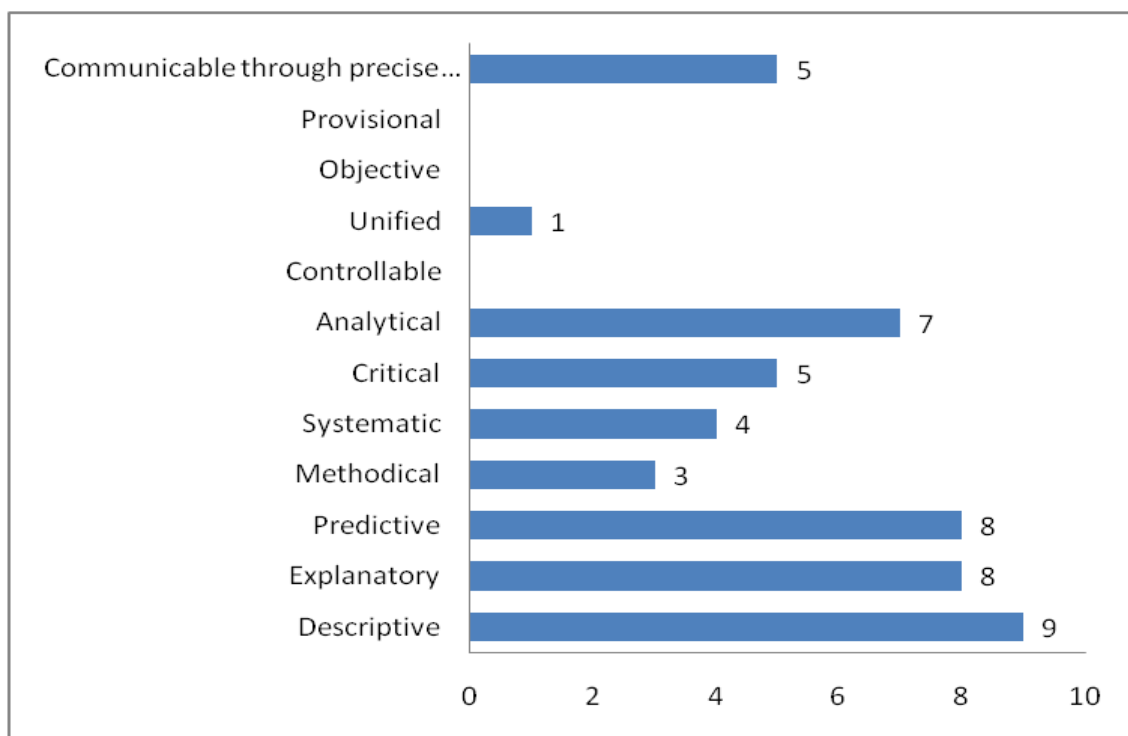


Figure 2. Most frequently identified characteristics

Figure 2 identifies the most frequent characteristics identified by the students. It is striking that none recognized the provisional nature of the knowledge that flowed permanently with the information provided by the sources consulted.

In the work that was carried out in a group with the systematic registration twice during the course, predictions were made, some of which were confirmed over the months, for example that when the number of vaccinated increased, the infected decreased.

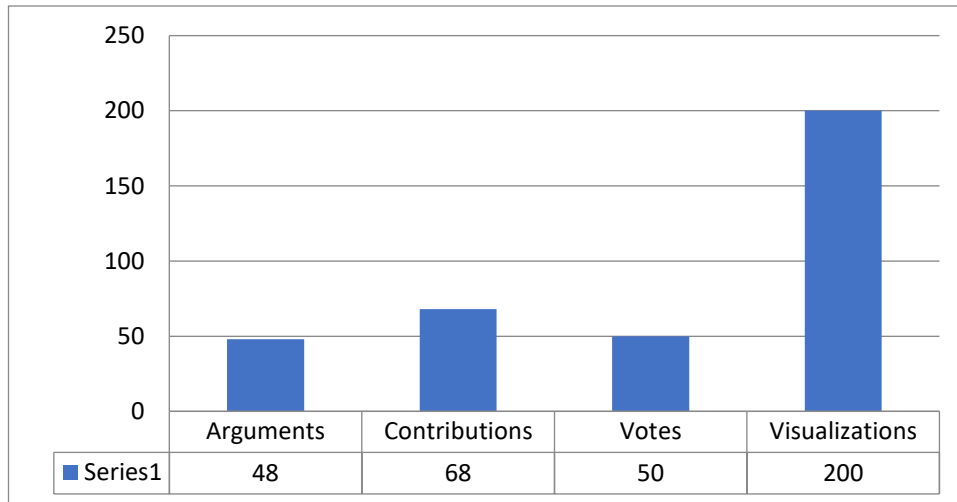


Figure 3. Types of participations in exchange activity

The 16 students have made 48 arguments, 68 contributions, 50 votes ..It is interesting to note that the number of views was 200, therefore if an average per student of 12.5 views of this resource available on the web is calculated, it allows not only participation in debates but also offers the possibility of a truly enriching exchange. Voting is also an aspect to analyze since each of the participants qualifies with the available scale selecting the arguments they consider most significant. In turn, the tool allows contributions to be made for or against.

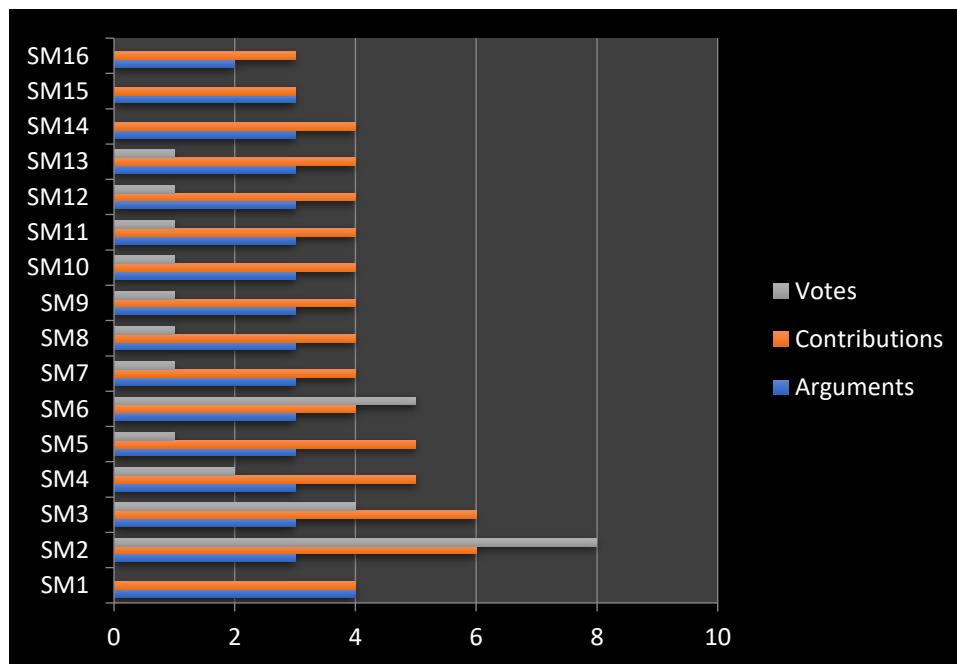


Figure 4. Arguments, contributions and votes according to student

Students 1, 14, 15 and 16 did not vote on the arguments presented. While student 2 is the one that has made the most votes with a total of eight. Although all the students made arguments and contributions, in the case of SM1 they elaborated arguments four times, while SM2 and 3 stood out with six contributions.

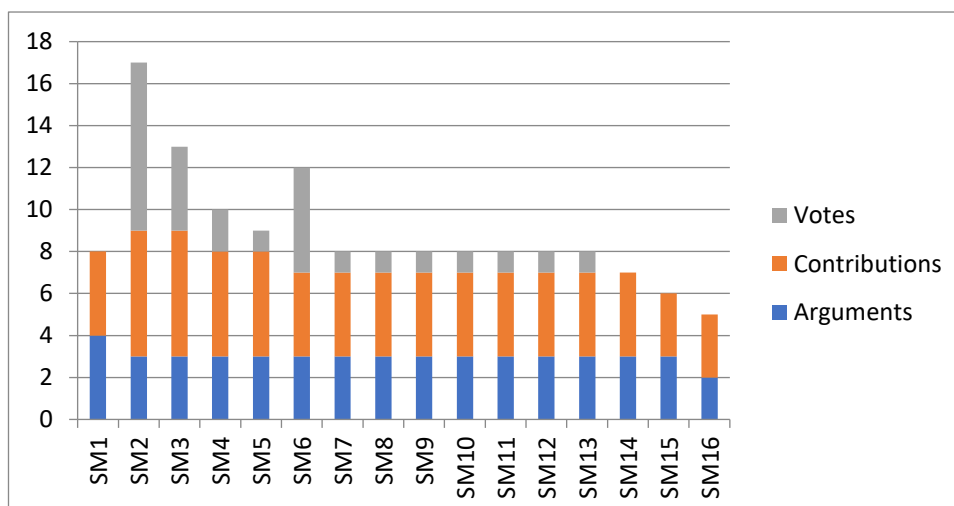


Figure 5. Total number of entries per student

The average number of participations in the proposed activity was 8.9. SM 2 made 17 participations, either in arguments, contributions and voting. Following SM 6 with 12.

Conclusion

As heads of chairs such as Methodology where students begin to go through the steps of an investigation, it is necessary to look for alternatives within the available resources that motivate students, generating curiosity, synergy and proactivity. Promoting spaces for the exchange of opinions, information transfer is key to strengthen skills associated with critical thinking and communication. New technologies by providing the possibility of asynchrony and synchrony allow a fluidity in the exchanges between the teaching body and the students. Virtuality has allowed us to move forward in this complex and fluctuating time, however we must continue to train ourselves as teachers to be up to the task.

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