

# A Classroom Under the Stars: Reflections after a decade and expectations for the future.

## AUTHORS

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## 1. Introduction

A Classroom Under the Stars was born in 2013 as an initiative of the Explora Park - Planetarium and the Metropolitan Technological Institute (ITM) of Medellín - Colombia. Since its inception, the event has been aimed at students, astronomy enthusiasts and teachers who are interested in replicating what they learn in their communities through the discussion of various topics that change in each edition of the meeting. There have been 6 versions of the meeting being those of 2013, 2017 and 2019 face-to-face; and those of 2020, 2021 and 2022 virtual due to the COVID 2019 pandemic. Of the versions carried out, four have been regional in scope and the remaining two have been organized as Latin American meetings. Adding all the versions, an estimated 776 teachers, students and astronomy enthusiasts have participated. Speakers from Colombia, Brazil, Mexico, Chile, Argentina, Venezuela, Peru, Costa Rica, Panama, Bolivia, Uruguay, Ecuador and other countries of the region have also participated. We consider that this event has facilitated the access of more people to the current contents of astronomy.

## 2. Objective

To analyze the impact of "A Classroom under the Stars" in order to consolidate it as a multidisciplinary space of knowledge among teachers, students and astronomy disseminators.

### 2.1 Specific Objective

Evaluate the results of "Classroom Under the Stars" based on the perception surveys filled out by attendees who have participated in the event of 2020 and 2022.

## 3. Methodology

Classroom Under the Stars is an event of Latin American scope that is registered as a formal course at the ITM's Academic Extension Center. Therefore, at the end of each version of the event, the organizing team sends an evaluation survey to the participants in which they measure the general perception and logistics of the event, the quality of the presentations according to their type and four criteria (1) Attention and response to questions, (2) motivation capacity, (3) punctuality and time management and (4) thematic domain and the probability that the participants give feedback to their students or other groups on the thematic content addressed. Finally, each participant is consulted on the topic he/she considers most relevant to carry out and the frequency of occurrence of the most recurrent topics is measured. For this purpose, a classification of terms was created to group the concepts given by the respondents.

To analyze the results, a descriptive statistical analysis was performed by correlating the criteria Attention and response to questions, motivation capacity, punctuality and time management and thematic mastery in a ribbon diagram. A bar chart was also made with the results to the question "How likely is it that you would use the following topics addressed in "Classroom under the stars" for your next courses?"

## 4. Results/Findings

From the data collected in the surveys conducted, we can see how "Classroom Under the Stars" has been consolidating among the academic community to which we direct the event, especially teachers, students and astronomy disseminators. We can highlight the following results:

1. A repository of topics for future editions of the event has been created.
2. There is a remarkable appropriation of the event among the participants, which is reflected in the number of registered participants and the results of the perception of the invited specialists.
3. There are a high probability that the topics taught at the event will be replicated by teachers in their own environments.

## 5. Analysis

For the question "Mention the quality or qualities that most stand out for you in the workshops, lecturers and speakers?"; an analysis was made of the average of each quality. As a result, it can be seen in the figure 1, that for some events the criterion (1) stands out more, for others. (2) is the highest and in only one short talk the most qualified criterion was (3), an aspect that should be considered for future versions. Figure 2 asks "How likely is it that you would use each of the topics addressed in the meeting in the area of knowledge that you teach? The results show that of the universe of respondents, around 60% consider that they would probably or highly likely replicate the topics seen among their students. In Figure 3, participants were asked to indicate a topic or concept that they would like to see addressed for the following encounters. The themes and concepts were normalized and a word cloud and concept occurrence frequency table were created. The larger words reflect that the concept was mentioned more times.

## 6. Conclusion

1. It is necessary to implement a follow-up model that allows us to assess whether teachers effectively share the concepts discussed in the meeting with their students after completing "Classroom under the stars".
2. Classroom under the stars is a training and didactic program in astronomy that is dynamic, which implies that in each version the topics are not the same, therefore, we will work on a metric that facilitates the standardized evaluation of the meetings and facilitates the extraction of accurate information from current and historical data.
3. The participation of the public suggests that the next versions of the meeting should be virtual, expanding the participation of the public to include English as a secondary language in order to link more people from all over the world.

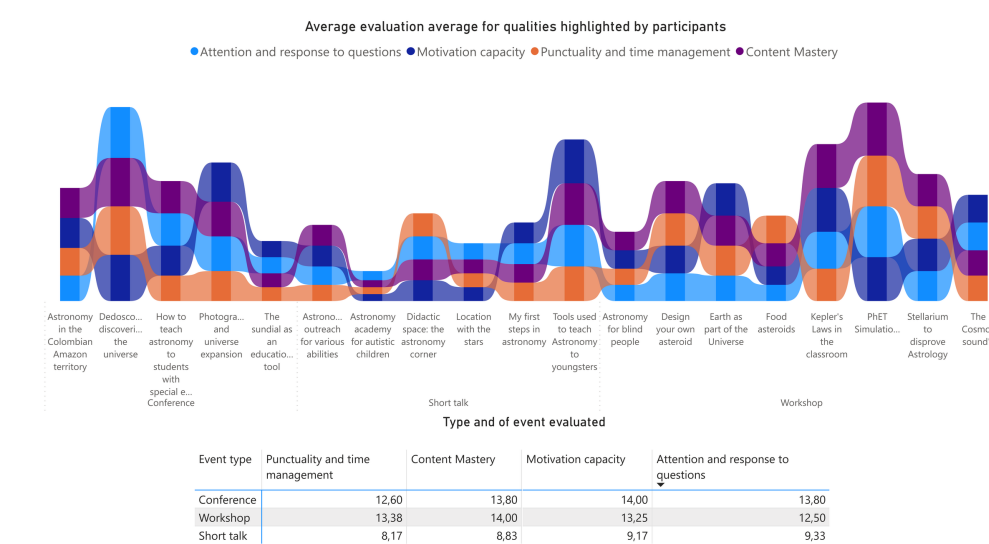


Figure (1)

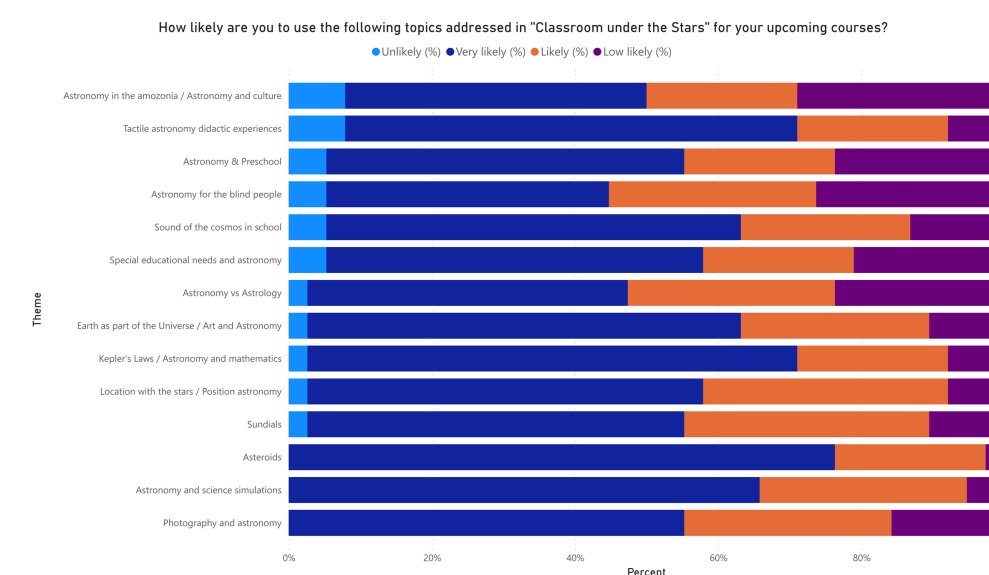


Figure (2)

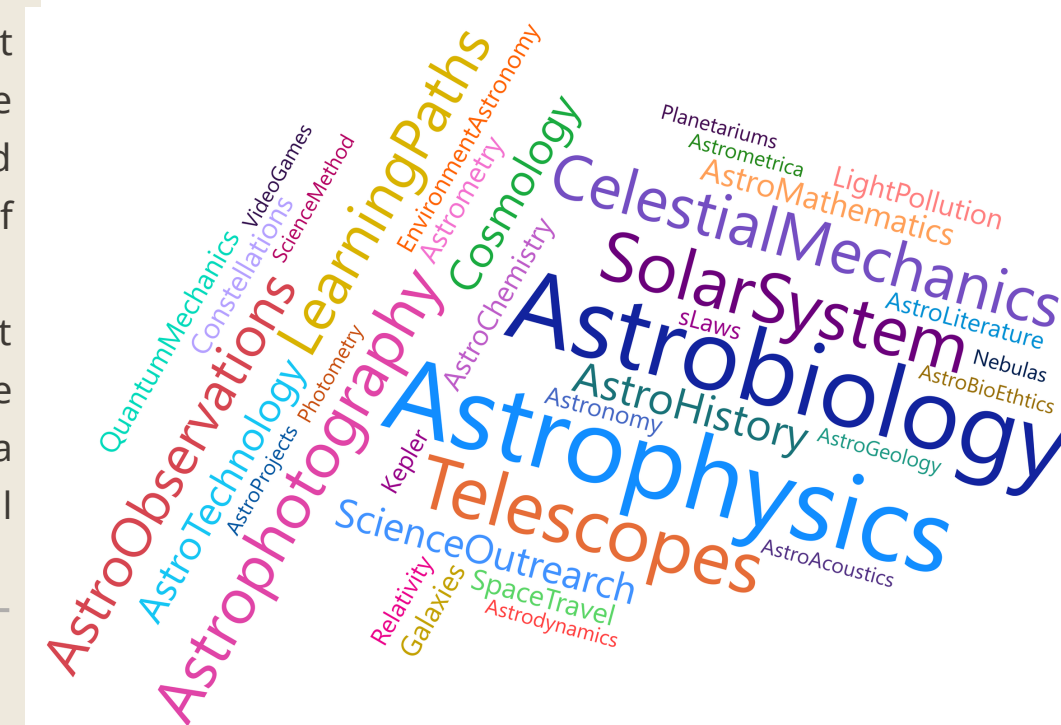


Figure (3)

## Related literature

Beginning statistics (no date) Beginning Statistics - Table of Contents. Available at: <https://2012books.lardbucket.org/books/beginning-statistics/> (Accessed: 08 May 2023).

[Museo de Ciencias Naturales de La Salle], [parque Explora]. (2020). Aula Bajo Las Estrellas. Memorias 2020. <https://www.parqueexplora.org/programate/aula-bajo-las-estrellas-2022>