Evaluating introductory seminars on observational astronomy, using the Europlanet Evaluation Toolkit

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Abstract

During December 2018 - February 2019, the Hellenic Amateur Astronomy Association coordinated a series of seminars entitled “Introduction to Observational Astronomy”. The goal of this series was to introduce interested individuals to the aspects of the observational techniques for scientifically useful observations. Using the Europlanet Evaluation Toolkit we implemented a number of evaluation methods to receive feedback. The results show the participation of a mainly young audience (~60% between 18-39), where females are represented more than equally (~52%). Using the “pebbles in a jar” method a 94% of satisfied attendees was measured, while by using post-event surveys (questionnaires) the lectures were perceived as “(very) explicit” and “(very) interesting” (94%), fulfilling the attendees’ expectations (92%). It is important to note that 88% considers that their interest in Astronomy increased and is willing to get involved in observations.

Introduction

A typical activity of the Hellenic Amateur Astronomy Association (HAAA) is to organise seminars (e.g. Voutyras et al. 2013) and hands-on workshops (e.g. Maravelias et al. 2018; Kardasis et al. 2015), using open standards, on the observational techniques that lead to observations/results that can contribute to the science of Astronomy (e.g. Kardasis et al. 2016). During the 2018-2019 winter period a series of seminars entitled “Introduction to Observational Astronomy” took place, targeting the general public, high schools and university students, and amateur astronomers. The seminars introduced tools and techniques for observations of the Sun, artificial satellites, the planets and the minor bodies of of our Solar system, and beyond that, stars and exoplanets, star clusters, nebulae, and galaxies. The speakers were experienced amateur and/or professional astronomers, with a deep knowledge and practical experience on their subject.

Europlanet Evaluation Toolkit

Pebbles in a jar
+ easiest implementation
+ visual and quick feedback
- not very detailed

Post-event surveys**
+ very detailed
+ informational
- more processing needed

3-words
+ easy to implement
+ more freedom of expressions
- limited informations
- some processing needed

****Post-event surveys**
included questions on: sex, age, membership status, previous experience with the HAAA, quality queastions regarding the speaker and the lecture, as well as an open question for future improvements.
(Additionally, we implemented the 3-word method into these questionnaires)
TIP: each complete questionnaire (per lecture) corresponded to a ticket for a lottery (Astronomy-related prizes) **at the end of the series**.

Results – Pebbles in a Jar

Pebbles in a jar					
Lesson	**Session**	**Green (liked it)**	**White (neutral)**	**Red (didn't liked it)**	**total**
1	1	43	4	0	**47**
	2	46	4	0	**50**
2	1	37	7	4	**48**
	2	32	7	1	**40**
3	1	40	3	0	**43**
	2	n/a	n/a	n/a	**n/a**
4	1	35	0	0	**35**
	2	n/a	n/a	n/a	**n/a**
5	1	n/a	n/a	n/a	**n/a**
	2	23	3	0	**26**
6	1	27	0	1	**28**
	2	28	0	0	**28**
TOTALS		**311**	**28**	**6**	**345**

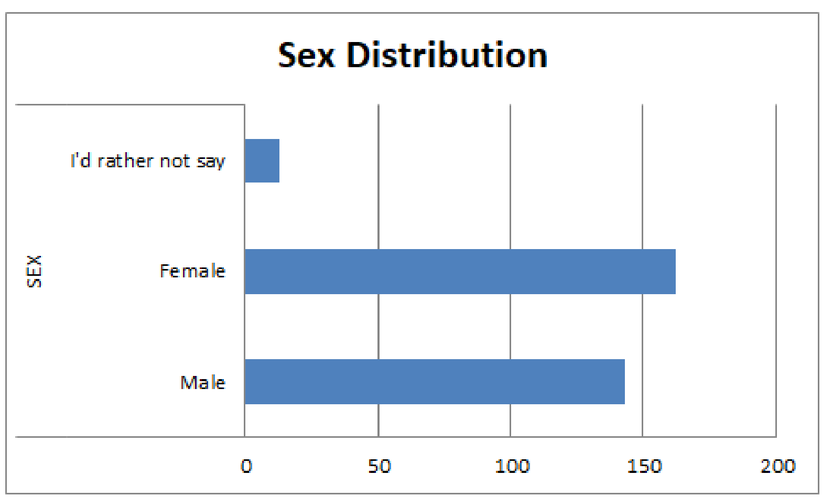
Almost 94% of the responders enjoyed our seminars.

Results – 3 words

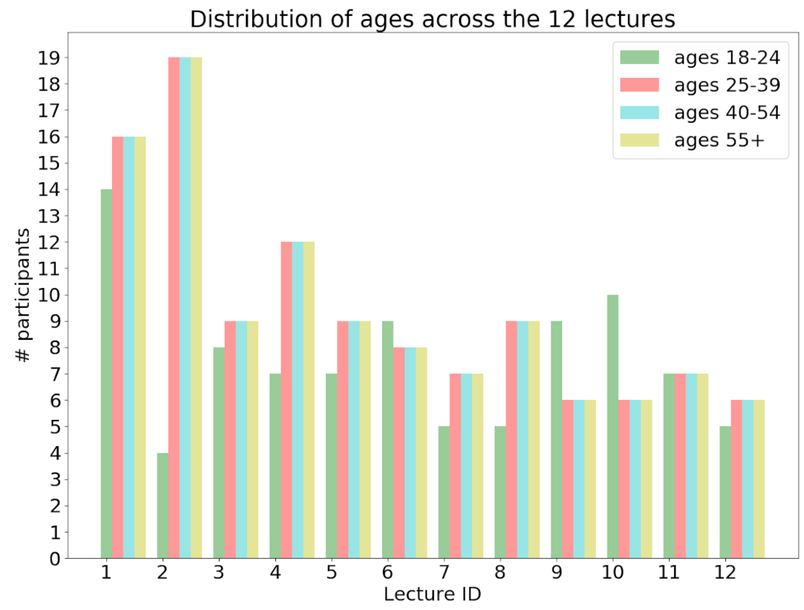
A word cloud visualization of 487 words collected by 343 responders. Out of the 93 unique words the word “Interesting” appeared 135 times. Other words mentioned were “clear”, “useful”, “understandable”, “detailed” and “educational”.

Results – Post-event surveys

Given the number of participants (~40-60 per seminar, 132 unique attendees) we collected 343 questionnaires, which accounts for 52-91% of the audience at any time. Thus, our results correspond to a represeantitve sample.



Sex distributions of the attendees in absoulute numbers. Males correspond to ~44% while women to ~52% female, which corresponds to a significant increased participation by females. The higher percentage of female is quite promising regarding the involvement of females in Science education.



Age distributions of the attendees per lecture (not showing ages <18 years, which in most cases were 0). We notice that we managed to attract a mainly young audience (~60% within the 18-39 age bin).

Although logging responses to paper surveys were time-consuming, and more demanding than expected, the preliminary analysis is rather promising regarding the quality of the content and the organization of our outreach activity.

Summary and conclusions

We employ several tools (a) “pebbles in a jar”, (b) “3 words”, (c) post-event surveys from the Europlanet Evaluation Toolkit to evaluate our outreach activity “Introduction to Observational Astronomy” seminars (2018-2019). We analyzed pebbles in a jar and 343 post event surveys to examine the quality of the seminars.
Our results show that:

- ✓ “pebbles in a jar” method measured 94% of satisfied attendees.
- ✓ The “3 word” tool resulted in 487 words (93 individuals), 135 of them being “interesting”.
- ✓ Positive feedback was given for the lectures, considered explicit, well-organized and motivational.
- ✓ The average participant stated that their interest in Astronomy strongly increased and would like to engage in future observations.
- ✓ Speakers received comments on the quality of their presentation to use as a future indice.
- ✓ Sex and age distribution is interesting diversity wise. The interest of young women in Science Education and in particular participating in Astronomy Seminars is promising.
- ✓ Receiving a targeted and constructive criticism when properly evaluated contributes to improving both communicative and organizational outreach activities.

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References

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