



The Art of Science Learning

Other General Recommendations

THE BIG VAN THEORY



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Other General Recommendations

After delivering all EW, some general recommendations emerged. These are shown in the following table:

GR: General recommendations
<p>To foster students' interaction:</p> <ul style="list-style-type: none"> ✓ To invite students to make questions or to give their opinion during/after the PERSEIA.
<p>To use Social Networks:</p> <ul style="list-style-type: none"> ✓ PERFORM has Twitter and Instagram accounts. Use them to generate dialogue between performers and students. ✓ Social network dialogue can take place during PERSEIA or promoted during PERSEIA to be made afterwards.
<p>To use videos:</p> <ul style="list-style-type: none"> ✓ To show a short video (3 to 5 minutes) talking about a scientific topic. ✓ Use the video to reinforce the scientific information or RRI values given in the PERSEIA.

How to apply these general recommendations

A good way to increase the interactivity of the PERSEIA is promoting students to ask questions about the scientific facts and concepts exposed during the show, but also invite them to ask about any doubts they may have related to the scientific careers, enabling an open question turn at the end of the show.

To promote the participation of the students in the open question turn, a good option is to enable a hashtag and allow them to use their mobile phones to send questions during the show using Twitter, taking into account specific school rules. At the end of the PERSEIA the questions are read and answered.

One way to catch students' attention and driving them to the use of the hashtag is to generate a Twitter survey during the PERSEIA. In the case of TBVT, the hook used was related with genetic engineering:

And now that you know that we have a technology that allows us to do it, would you change your genes? We have a Twitter survey that you can answer.

Would you change your genes? #performstem

Do not

Yes

Only due to illness

Nowadays, young people are fascinated with social platforms, like Instagram. In the PERFORM project we took advantage of this. During the open question turn we took a *selfie* with the audience and uploaded to the PERFORM Instagram account. As long as students wanted to be tagged in the picture, they started a connection with PERFORM social networks beyond the PERSEIA delivery (see figure 1).

A





Figure 1 Pictures taken by SMS (A) and TBVT (B) for the Instagram account of PERFORM project.

The use of volunteers is a fantastic way to maintain students engaged with the PERSEIA. In the Science Busking case it's easy: busk experiments are always performed with the assistance of one (or more) volunteers from the audience.

The use of volunteers in clown shows is also widely known. TRACES uses this tool in their PERSEIA by taking a volunteer from the public, tying him to a chair, removing his mobile phone and breaking it using a hammer. Actually, the phone is not destroyed, but the fact of including in the show not only a volunteer but also something as precious for adolescents as their phones, allows TRACES to capture their attention very intensely.

Finally, and always with the objective of engaging young students with science, it is possible to break all the laws of the stand-up comedy and include volunteers in the monologues. TBVT does more interactive PERSEIAs introducing in one of their scientific monologues an experiment: to light a fire using a bow, a rope, and a wood stick. The experiment is integrated into the scientific concepts showed during the monologue, and is performed by two volunteers from the audience recapturing the attention of the students (see figure 2).



Figure 2. TBVT performer with two volunteers