Twitter Thread by Dr David Boyce

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If I finish all of the physics a lesson or two before the end of term, I like to use those spare lessons to do something fun. For the last 12 years I have done a boys vs girls engineering challenge and the girls nearly always win. Here is why...

So, my experience of this is normally allowing 5 or so classes do this activity in any given year, always with the same set up and always with me observing just how it goes. In total I must now have observed the experiment about 60 times.

To be clear I am all for students choosing their own teams and such and I am aware of the false dichotomy of the situation. But generally due to sports, boarding houses etc my crew are quite used to boys as one gang and girls as another.

The activity is bridge building. Two tables are set apart and each team must bridge the gap using only paper, string and 4 clamp stands. The bridge must have a roadway and each will be tested to destruction at the end with weights.



So, I split the class - girls vs boys. The rules are clear. They can't interfere with each other's bridges and they can't test their own bridge. They have about 45 minutes to build something. Let me tell you what then normally happens...

On the boys team, the task starts with a battle for power. One or two will try in the first 30 seconds to become leader. Some try being louder than everyone else. Some use pre-existing loyalties to gain support and become leader. However this leadership is vulnerable...

The boy leader engages his followers in tasks. You cut string. You fold paper. That sort of thing. But then one of the boys will have a great idea. Something non of the rest have thought about. And he will take it to the leader.

But the leader misunderstands the idea and thinks that this person is challenging his leadership and ignores the idea. The idea boy tries to sell the idea to the group triggering rejection. Idea boy then disengages from the task. All of the good engineers do. They all sit down

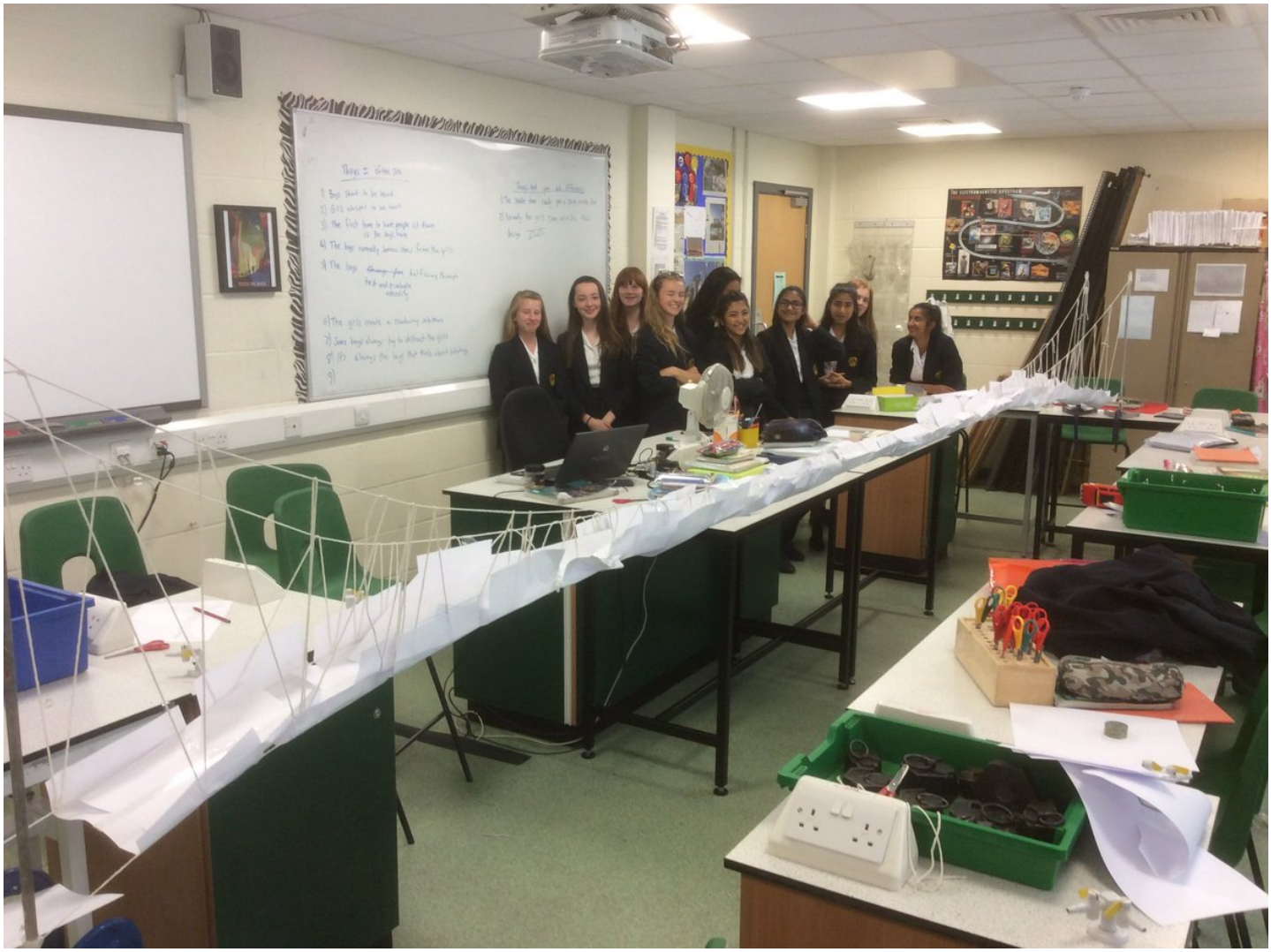
The leader chooses his friends to do the work, picking his favourites to do the best jobs and ignoring those he doesn't know very well. They get disenfranchised. They don't know what to do and feel left out. So they disengage as well.

So what starts with 15 or so boys ends up being about 5 boys actually contributing and 10 boys feeling pushed out.

But the girls are different. A leader will emerge quickly. Some pre-existing understanding of who would be leader already exists. Either this or that more of the girls are quite happy not being the leader. But then, with the leader established, she does something remarkable....

She looks around and spots engineering girl and brings her right into the middle. "What should we do?". The leader platforms the idea girl and draws out of her a plan they can all follow. The leader silences everyone, makes everyone listen and they listen. And the plan is good.

Teams appear. The string team. The roadway team. The leader sets up production lines. Everyone is involved. And quickly a bridge emerges and normally the girls win. Probably 9 times out of 10.



But occasionally the boys win, and the pattern of their win usually goes like this. Their bridge looks like a shambles. Someone cuts the string and it all collapses and in frustration one of the boys will look at what the girls are doing.

He will only notice the outcome- the bridge itself and not notice the process by which the girls are producing it. He will say, we should do it like theirs. Then they copy the idea. Normally they have wasted too much time and don't have full team participation to pull it back.

Nearly always the boys lose. And they always complain. It's unfair. They had more paper etc. Some excuse. But the girls never complain about losing. It is what it is.

So what is the point of these thoughts? It is about leadership. The young women in my classroom make very good leaders and form successful teams. So if you have read all the way down to this - do consider what you might bring to leadership and go for it @WomenEd #10PercentBraver