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Unfortunate Outcomes of a “Funny” Physics Problem: Some Eye-Opening YouTube Comments

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Together with other scientists, physicists are socially imagined, at least, as uncommon persons. In his book *The Demon-Haunted World: Science as a Candle in the Dark*, Sagan adds more details of that alarming stereotypical perception:

“Scientists are nerds, socially inept, working on incomprehensible subjects that no normal person would find in any way interesting even if he was willing to invest the time required, which, again, no sensible person would.”¹

In addition, school physics is experienced and remembered by many students as a hard, boring and unimportant academic subject. Feeling necessity to improve bad image physicists and school physics have in public eye, many physics teachers explored different tools, from jokes to cartoon, to show that physics learning might be an interesting and even a funny experience.²⁻⁷ Tendency to use humor as a pedagogical strategy to foster learning is not exclusive feature of physics teaching, but it is noted in teaching other sciences, too.⁸⁻¹⁰

Although research results mixed are far from being conclusive, one can find some very optimistic statements about the relationship between humor and classroom-related feelings and learning:

“When properly used, humor can be an effective tool to make a class more enjoyable, reduce anxiety, and improve the learning setting. The “ha-ha” of humor in the classroom may indeed contribute to the “aha!” of learning from the student.”¹¹

“Humor appropriately used has the potential to humanize, illustrate, defuse, encourage, reduce anxiety, and keep people thinking.”¹²

“Funny” physics problems

Guided by such promising educational effects of humor, many textbook authors try to introduce it in physics learning, formulating supposedly funny contexts for physics problems.

A typical example of such class of problems might be the following one:

“... A student at a window on the second floor of a dorm sees his math professor walking on the sidewalk beside the building. He drops a water balloon from 18.0 m above the ground when the professor is 1.00 m from the point directly beneath the window. If the professor is 170 cm tall and walks at a rate of 0.450 m/s, does the balloon hit her? If not, how close does it come?”¹³

To add fine details to a potential definition of what is funny in the case of physics learning, it would be interesting to get some research-based answers on the questions:

- To how many students this problem looks funny and why?
- To how many students this problem does not look funny and why?
- In how many students does this problem change their negative image of physics?
- In how many students does this problem improve their physics learning?

In meantime, some indirect “data” can be found about affective impacts of another, supposedly funny problem:

“You lie on your back in a bathtub, without any water in it, and look at a cup resting on a soap dish. Now somebody fills up the tub with water so the water level is over your head, exactly at the top of the soap dish and the bottom of the cup. Sketch what your view of the cup and soap dish is after the water is added and before you drown.

To help you do this, you should draw a side view, showing how the rays from the cup and soap dish reach your eye.”¹⁴

Indirect “data”, presented in this article, are extracted from comments which provoked a video posted on YouTube.¹⁵ The video, called “*Real Word Problems From My Physics Book – PH17*” is, almost literally, a “reenactment” of the above problem situation. With a light touch of parody, the video makes its argument playing hard-ball on the fact that various elements of the situation described in the problem are, from the point of view of common culture and routine human behavior, highly abnormal, not to say senseless (**Figure 1** and **Figure 2**).

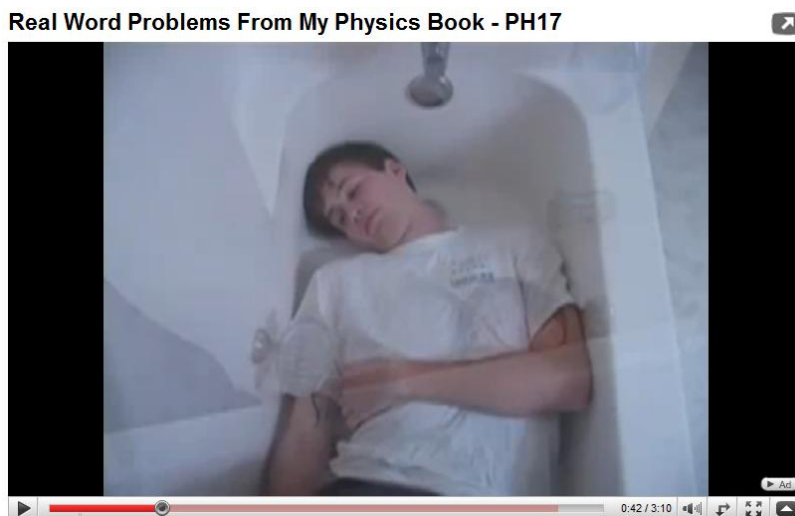


Figure 1. You lie on your back in a bathtub, without any water in it...



Figure 2. Sketch what your view of the cup and soap dish is...

A selection of YouTube comments

By now (February 2010), the video had more than 422,000 views and received almost 1,700 comments. As it is normal at freely-accessed forum of YouTube, they range from short and uninformative to sarcastic and aggressively obscene. Nevertheless, many of them are really eye-opening, expressing feelings, beliefs and memories which should be taken seriously into account by physics teaching community.

In what follows, we present selected examples of YouTube comments which describe:

- (1) feelings about school physics and its learning;
- (2) beliefs about textbook authors and physicists;
- (3) memories of school physics problems.

These examples are taken as they were posted and only a few of them are slightly edited.

Feelings about school physics and its learning

Well done! I was actually laughing out loud watching this! I've always hated physics and it's hypothetical, can't apply to real life, abstract problems.

If I was studying physics I think I'd have let myself drown in that tub from despair. That sort of stuff confused the hell out of me when I was in school...

That was interesting. I always knew that the educational system was trying to kill us. That's proof!

Nice I actually get it basically studying physics is killing yourself.

Dude! Who needs physics? Especially, when it involves layin' in a bathtub trying to draw.

I knew there was a reason why I hated physics!!! LOL wonderful!

God, I hate physics.

Beliefs about textbooks authors and physicists

If that physics question in that book is actually real, the author really needs mental therapy.

Ah, whoever writes text books these days needs to lay of the crazy pills...

Can you imagine what it's like for those poor physicists having to go through life with really weird stuff happening to them EVERY day? No wonder they are a bit whacky.

Physics books authors are all a bunch of potential murderers.

Why do physics books always have the strangest problems? Ha, ha. Physicists must be bored people or something.

It is a really stupid problem. Sometimes I wonder, the people who compose them... are they normal?

Memories of school physics problems

Anybody who has taken physics would understand this video. Sometimes the word problem scenarios are so STUPID you just tell yourself, "how and why would anyone ever do that?!"

This is hilarious. I took honors (AP book) physics last year and some problems were just absolutely absurd. This definitely tops cars driving off cliffs onto trampolines!

I got one once something about the velocity of an octopus thrown onto the ice rink during a hockey game that's hit by the puck.

I remember stupid problem from my physics book also. It was like this: "From what angle must this Indian boy shoot the fish in the water with his laser gun so he can hit it (fish)? Calculate and draw your results." LoL. Indian-boy with laser gun? Screw this.

That's exactly how I feel about physics problems! I don't CARE what Jamal's weight reads standing on a scale in an elevator!!

One of the questions in my mechanics paper was: "Jimmy is standing on a tower 160 meters tall. He falls over the edge. How long does Jimmy have to live?"

I had a bad one in physics not too long ago... You are driving in a car at 56 mph when you suddenly hit a giant spring in the middle of the road. Assuming you stretch the spring 3 feet, what is its spring constant?

My physics book was full of problems like this - only they all seemed to involve penguins in some way or another.

My physics book was riddled with penguins. Really, there must have been like 40 penguin problems.

On one of my assignments about the perception of gravity in an elevator, it said in the 8th or 9th problem that the elevator cable snapped and the elevator fell all the way to the bottom - and then said in the following problem that "the student repeated the experiment." "What was his/her observation?" "None - he/she is dead!"

My favorite problem is: A girl asks you to push her on a swing. You wish to give her a fright by making her do a full loop the loop but do not wish to harm her. What velocity do you need to give her from her starting position to ensure that the rope remains tight all the way around, give your answer in terms of r (length of the rope) and g (acceleration due to gravity).

Gotta love physics textbooks. I had a problem on a test once about a "jealous lover" trying to drop something off the top of a building onto his ex's head on the ground below moving at a certain velocity.

My favorite two from my old physics book:

1. "A person jumps off a cliff just for fun..."
2. "An angry bear escapes from the zoo and chases a tourist running for his car. The bear runs at 4.2 m/s, the tourist runs at 3.3 m/s. The tourist makes it to the car. What is the maximum distance the car can be away from the tourist?"

I study physics at the university. Nevertheless, I still get a few problems about frozen hot dog packages sliding on metal surfaces (someone's wicked idea of "friction = 0").

Conclusions

Many of these comments, and, much more, all of them taken together should warn physics teaching community about a simple fact: what is funny for physicists is not necessarily funny for ordinary people. Being so, the very concept of potentially humorous aspect of physics and physics problems should be more a question of research-based facts and less of intuitive personal tastes and criterions.

In addition, the comments cited above reveal feelings, beliefs and memories which are provoked by only one “funny” physics problem. It means that the negative phenomenon is potentially much wider and deeper. Namely, some of people’s memories of other physics problems, no matter if they are authentic or false, show that the problem in question is not even the most extravagant one invented with the aim to make school physics looks funny. If instead the contexts of some physics problems seem stupid, absurd and useless, then the time has come that physics teaching community consider seriously funny physics problems proposed by textbook authors and eliminate those which might provoke unwanted feelings and beliefs in students.

Equally as an inappropriate joke force some people to abandon the party, so carelessly formulated “funny” problems can make some students leave classroom, hating not only school physics but also the physicists and what they do. These unfortunate outcomes of “funny” problems should be a sign of alarm for textbook authors, physics teachers and a whole community of physicists.

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