Problem/Question

This is my question for this experiment.
How far will sound travel through string?

Hypothesis

I think that the string will go about 40ft before you can't hear your friend. If the string goes longer than that then I think it won't work.
Materials

These are the following materials needed for this experiment.

- 2 paper cups or cans

- String or thread

- Sharpened pencil, paper clip, nail, or any sharp thing.

- Science Notebook and Pencil to record data.
**Procedure**

This is the order I will need to do my experiment in.

1. Get two cups or cans and poke a hole through the bottom of the cup in the outside of the cup. Don't make the holes too big! You should make the hole about the size of the string or thread. A sharp pencil or paper clip would work best.

2. Poke each end of the string or thread outside of the bottom of the cup through the hole.

3. Make the string as long as you want.

4. Tie the knot inside of the cup after you have poked the string from the outside of the cup.

5. Now you can talk in the cup like you are about to drink a glass of water while your friend is putting the cup up to your ear the same way and hear your friend.

6. Do the same experiment but a different length of a string.
Results/Observation

I observed that until 50 ft, you can actually hear your friend better than being closer to them. Also I noticed that if you let it bend just a little bit, you can still hear your friend. And that if you make your string too straight, your string will pop out.

Testing the distance of my String Telephone

<table>
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<th>Distance (ft.)</th>
<th>YES or NO</th>
<th></th>
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<td></td>
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<td>10</td>
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<tr>
<td>5</td>
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<td>x</td>
</tr>
<tr>
<td>YES or NO</td>
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</table>
Conclusion

I learned that you need to have your string at least 45 ft. or less to hear your friend. Also that when you are tying the string be very careful so make your knot big. And be careful of your tightness while tying the string don't make it too tight.
Research String Telephone

Sound

In this experiment sound is the biggest part of the project. It is a big part of our life too. Sound is a form of energy around us. It stimulates our sense of hearing. Sound travels through waves. It spreads outward from the source of sound. Sound travels good in air but much better through objects like cups, string, and cans. Sound is a type of energy made by vibration. When any object vibrates it makes sound or causes movement in the air particles. Sound is a big part of my experiment because you have to hear the person talking in the cup.

Source: www.sciencekids.co.nz/science_facts/physics.html

Vibration

Vibration for this experiment is pretty much the whole experiment other than sound. It makes you actually hear the person in the other cup. Vibration can sound like anything, for example, when you type on the computer, the vibration is making the sound of the keys click. If you talk in a string telephone the vibration on the string or thread will make you hear a voice on the other side of the string telephone. The vibration of the string will make your friend hear you in the other cup. Vibration is the reason we can hear everything. We wouldn’t be able to hear someone talk without vibration.

Source: www.sciencebuddies.org
**Sound Waves**

In this experiment, sound waves are a big part of how sound travels through objects. Speaking into a cup with string will create **sound waves** that travel to the other cup. Vibrations create sound waves so that is the sound travels through the string. A sound wave is a type of pressure wave caused by vibration of an object. Sound travels through all sorts of different objects like string, cups, cans, and even walls! Sound waves are amazing for hearing, for instance, if someone yells, the sound waves goes far to the other person to hear.

Source: [www.neok12.com/sound.htm](http://www.neok12.com/sound.htm)

**Distance**

Distance is a big part of this experiment, for example, you need to figure out the distance the string needs to be to make the experiment work. The minimum length of the string would be about 1 yard and straight to hear your friend. Distance is how long something is. If you bend the string in any way the string telephone won't work. The common length of the string should be about 2 yards long. The string can be any size from 1 yard to 66 feet! Distance is amazing to this experiment. You need distance to make this experiment work.
Variables

How long can the string go?

String v.s thread

Can I use different materials for this experiment?

Cups & cans

Paper cups v.s Styrofoam

Definitions

Particles: a minute portion, piece, fragment, or amount.

Stimulates: to create a simulation, likeness, or model.

Sound Waves: a longitude wave in an elastic medium.

Vibration: the act of vibrating.