

# Rethink: An Effective Way to Prevent Cyberbullying- Summary

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# Effects of Cyberbullying on Adolescents

Research shows that adolescents(ages 12-18) who are cyberbullied are more likely to:

- Use alcohol and drugs
- Skip school
- Experience in-person bullying
- Be unwilling to attend school
- Receive poor grades
- Have lower self-esteem
- Suffer from depression and suicidal thoughts

# Question/Proposal

I believed that a system may be considered effective in preventing cyber-bullying in adolescents if that system results in **reduced number of mean/hurtful messages** that the bully or potential bully will be willing to post on social media sites.

With this understanding of effectiveness, I came up with the question - **How could I create a more effective system to prevent cyber-bullying in adolescents on social media sites?**

# Hypothesis

I hypothesized that if adolescents(ages 12-18) were provided an alert mechanism that suggested them to re-think their decision if they expressed willingness to post a mean/hurtful message on social media, the number of mean/hurtful messages adolescents will be willing to post would be lesser than adolescents that are not provided with such an alert mechanism.

# Research: Adolescent's brain

According to American Academy of Child & Adolescent Psychiatry(cited in Bibliography/References), adolescents' (12-18) brains function differently than adults when decision-making and problem solving

- Based on the stage of their brain development, adolescents are more likely to act on impulse and are less likely to pause and think to consider the potential consequences of their actions before they act.
- Given the tremendous brain activity occurring during the teenage years, it's no wonder we find adolescents mystifying at this stage. Adolescents may have grown to the size of adults in body, but the interior infrastructure is far from complete.

# Research: Prefrontal Cortex

From early adolescence through their mid-20s, a teen's brain develops somewhat unevenly, from back to front. This may help explain their endearingly quirky behavior but also makes them prone to risk-taking.

- The parts of the adolescent brain which develop first are those which control physical coordination, emotion and motivation. However, the part of the brain which controls reasoning and impulses - known as the Prefrontal Cortex - is near the front of the brain and, therefore, develops last. This part of the brain does not fully mature until the age of 25.
- The delayed development of the prefrontal cortex means a lot of teenagers are simply not equipped to recognize the consequences of their actions. In adults, a fully developed frontal lobe curbs impulses coming from other parts of the brain. By contrast, the teen brain lacks brakes, and parents see the consequences.

# Effect of Adolescent's brain on Cyberbullying

According to [ikeepsafe.org](http://ikeepsafe.org) (cited in Bibliography/References) shows that although a teenager might understand, for example, the impact of a nasty text message upon its recipient, the part of their brain that should be warning...

*"Hey, hold on a minute, maybe I shouldn't hit send"* isn't fully operational yet.

- The adolescent brain is often likened to a car with a fully functioning gas pedal (the reward system) but weak brakes (the prefrontal cortex).
- Although we can't make adolescents' brains mature any faster than nature intended (and it's not likely we'll slow down their access to technology anytime soon) being proactive rather than reactive to incidences of cyberbullying seems like the logical thing to do.



# Existing Solutions - Ineffective

- Current solutions do not provide a way for the bully or potential bully to pause, rethink and refrain from posting before the hurtful messages are posted. Several social media sites offer “blocking” solutions after Cyber-bullying has occurred. These solutions block bullies from posting messages **after** it has been posted (after the damage is done)
- Research shows, while any future cyber-bullying may have been avoided in this instance from that bully to this victim on this social media site, it's only a matter of time it starts showing up in other social media sites against other potential victims. Thus, these features are ineffective as a long-term solutions to stop cyber-bullying.



# Research: Potential efficacy of “Rethink”

According to [deletocyberbullying.org](http://deletocyberbullying.org) (cited in Bibliography & References), one of the best ways to stop cyber-bullying is to "think before you post".

- As found in that research, the Prefrontal Cortex is not fully developed during adolescence and the best way to combat this issue is to teach adolescents four steps in decision making.

- The Situation

- Think

- Their decision

- Evaluate decision (Later)

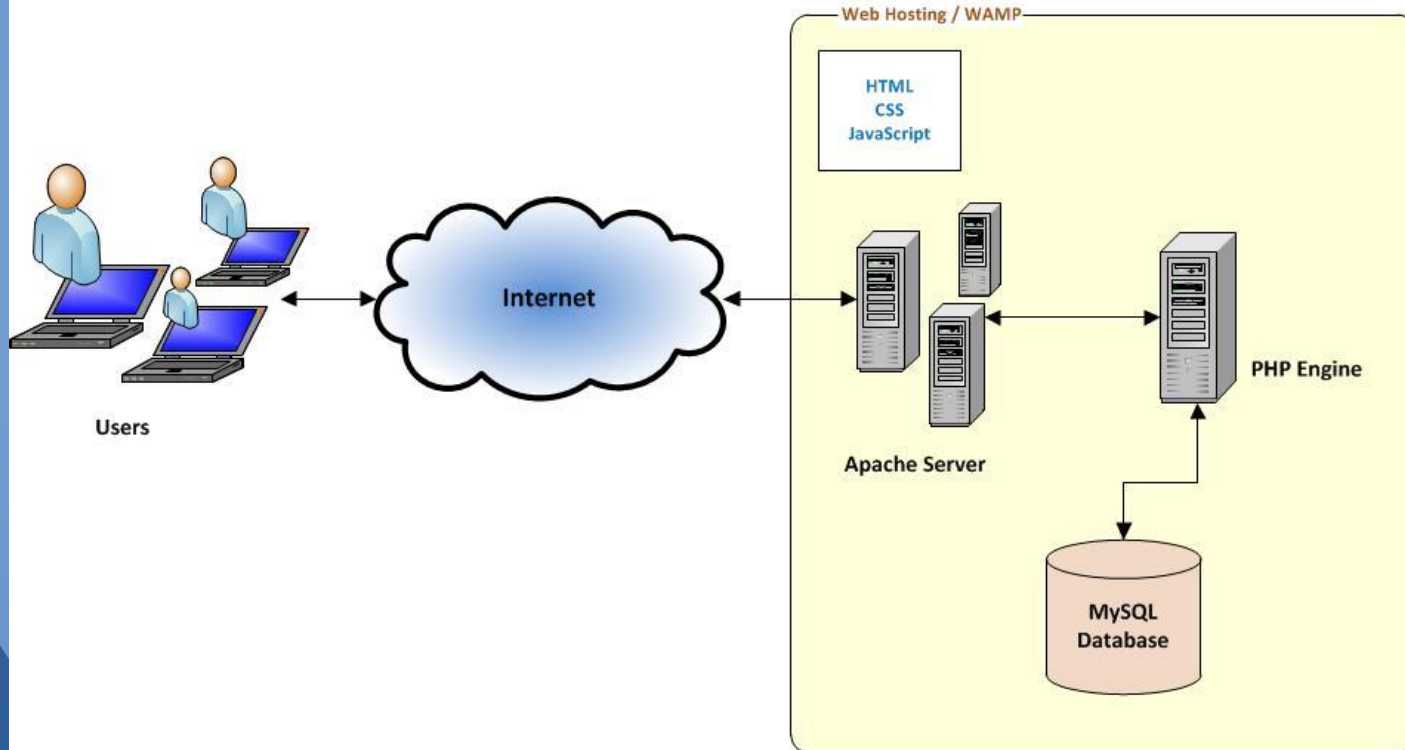
# Method, Testing & Redesign

Using my programming skills in HTML, JavaScript, JQuery, CSS, PHP and MYSQL Database (cited in Bibliography/references), I built the following two systems using “Software Design Process - Waterfall model” to test my hypothesis:

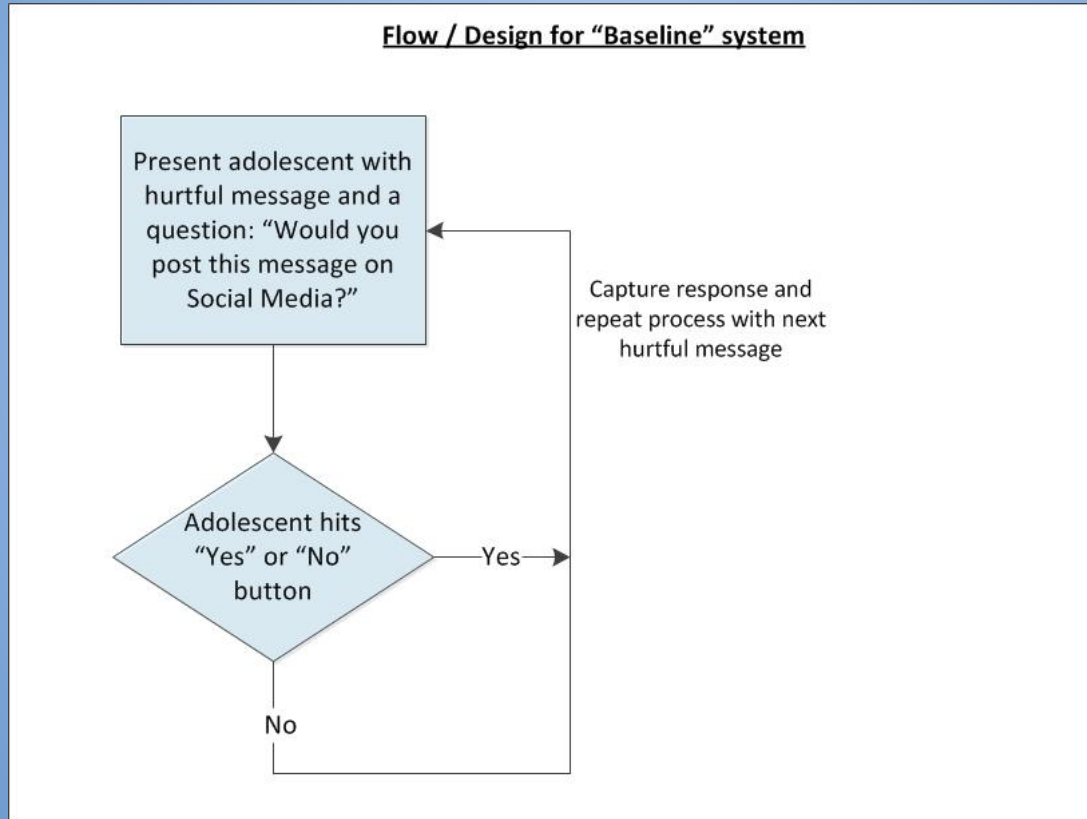
- 1) "Baseline" system that presents adolescents with hurtful messages one-by-one and measures whether or not they would be willing to post hurtful messages on Social media.
  - 2) “Rethink” system that presents adolescents with same hurtful messages one-by-one and measures willingness to post hurtful messages on Social media, however offers adolescents a second chance to pause, review and rethink their decision if they express willingness to post a hurtful message on Social media.
- Compare results from "Baseline" and "Rethink" to test my hypothesis.
  - **Both systems were anonymous, no personal data was collected. Subjects only put in their Age, gender, school and social media sites they most use .**

# “Baseline” and “Rethink” System Architecture

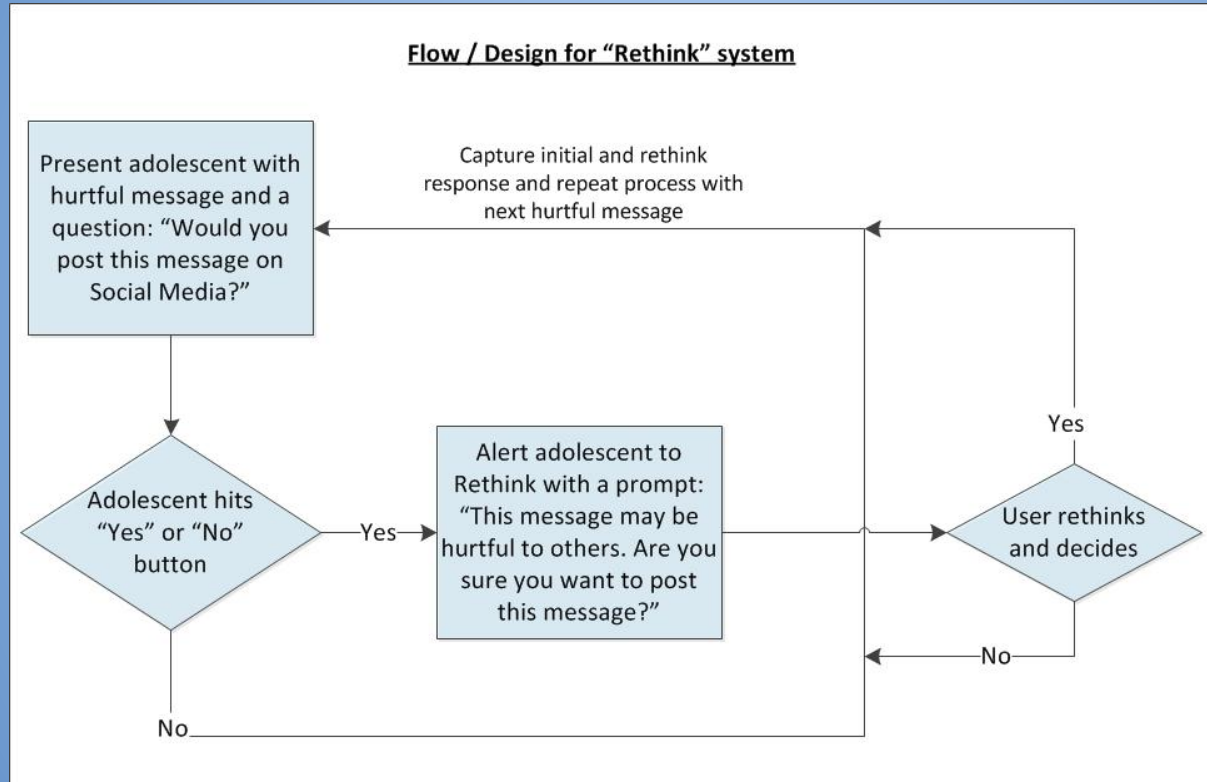
## System Architecture for “Baseline” and “Rethink” Systems



# “Baseline” system design/flow



# “Rethink” system design/flow



# Fairness & Control are key to accurate measurement in this project

- Controlled age-group of all test subjects - adolescents ( 12 - 18)
- Controlled number of subjects from either gender(150 girls, 150 boys).
- Controlled number of trials per subject (5)
- Controlled time available for response per question (25 seconds)
- Controlled by choosing same set of five mean and hurtful message examples from Government research agency cited in references and used the same set of messages for testing in both systems.
- All names used in example hurtful messages were kept generic to use @JohnSmith and @JillJone so as to ensure no real world coincidence.
- All tests were conducted with same laptop using same mouse device
- **Both systems were anonymous tests, no personal data was collected. Subjects only put in their Age, gender, school and social media sites they most use .**



# Testing Process

**A total of 1500 trials were conducted for this project. No personal data was collected.**

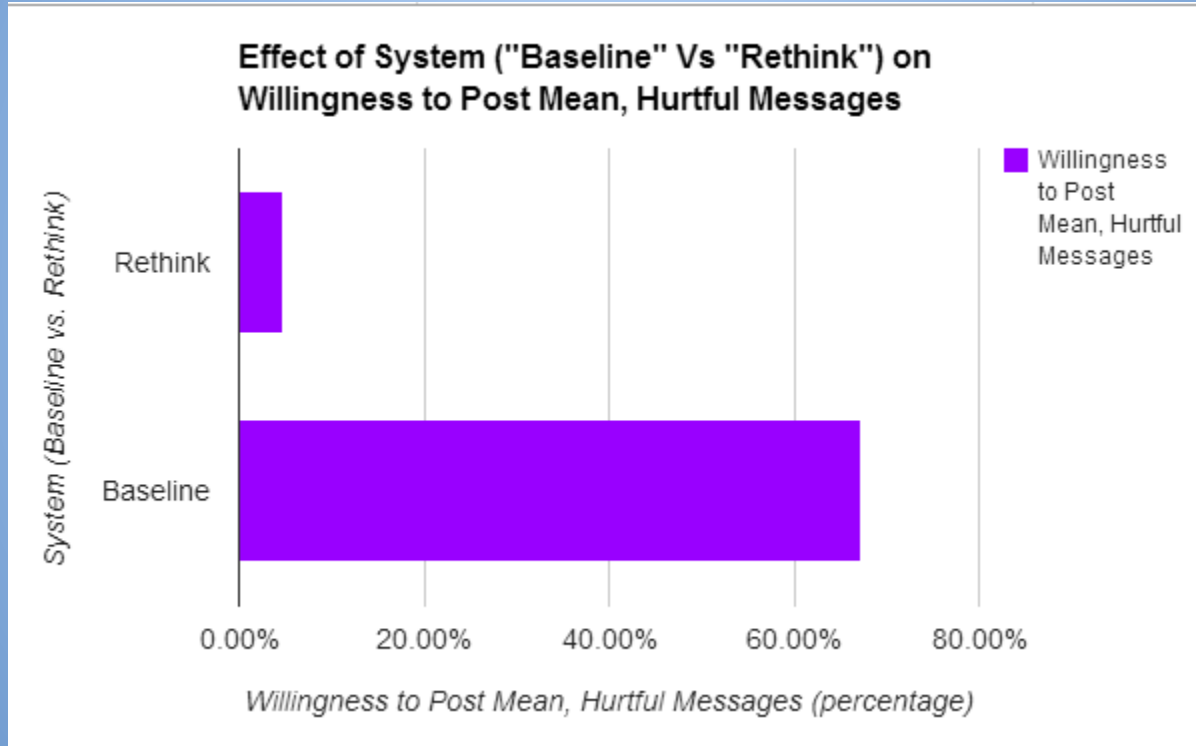
- Tests were conducted at my middle school (6th, 7th and 8th grade students, ages 12 – 14) and at the local library to test high school students (ages 14 – 18)

## Steps

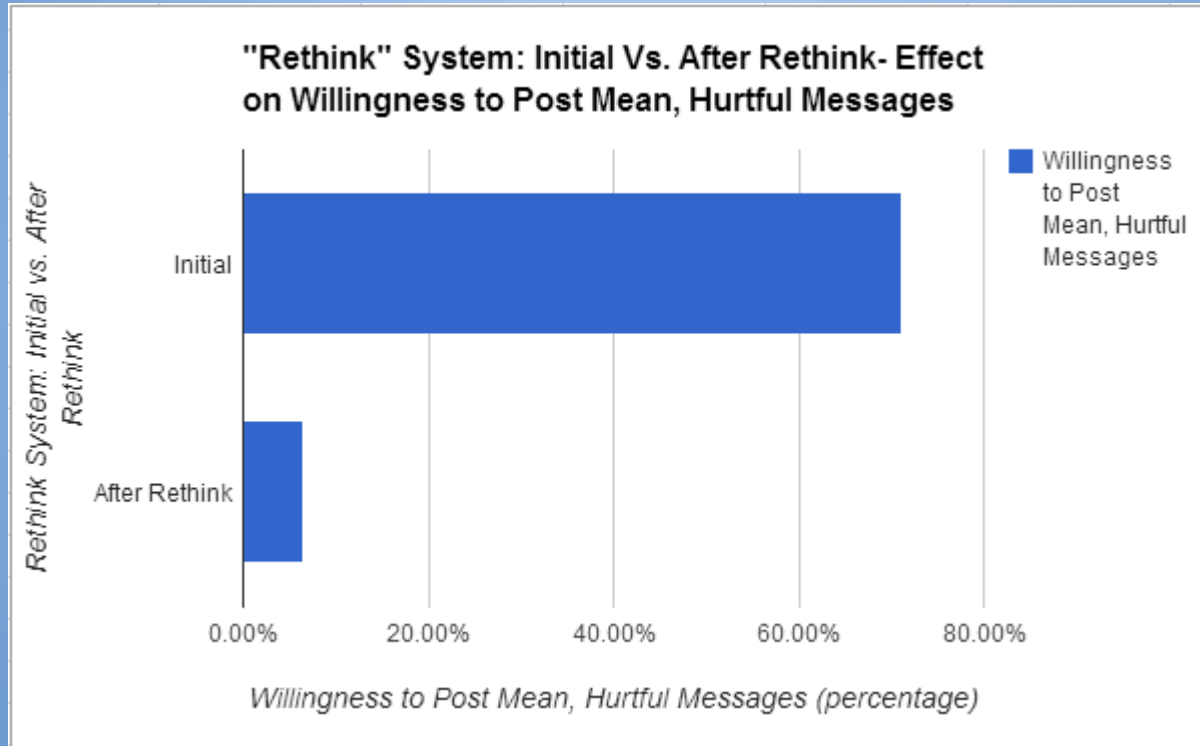
- Adolescent is invited to participate in the test
- Adolescent puts in their Gender, Age, School and select all Social media sites that they use most (**anonymous survey**)
- Adolescent is presented with either "Baseline" or "Rethink" system on a random basis.
- "Baseline" system - Adolescent is presented with the first hurtful message and presented with question "Would you post this on Social media site"? Adolescent clicks "Yes" or "No" radio button, then hits "Next" button, adolescent is presented with the next hurtful message and the process is repeated until all 5 messages are presented and the responses are recorded in the database.
- "Rethink" system - Adolescent is presented with the first hurtful message and presented with question "Would you post this on Social media site"? Adolescent has a chance to click "Yes" or "No". If adolescent clicks "Yes", they are provided an Alert message "This message may be hurtful to others. Would you like to pause, review and rethink before posting?". User's "initial" response as well as "Rethink" response both are captured and saved in the database. Adolescent hits "Next" button and is presented with the next hurtful message and process is repeated until all 5 messages are presented.



# Results-“Baseline” Vs “Rethink”



# Results - Percentage that changed their minds in “Rethink” system- Initial response Vs Rethink response



# Conclusion

- Hypothesis was proved to be correct. 67.2% showed willingness to post mean/hurtful messages in “Baseline” system compared with 4.67% that showed willingness to post mean/hurtful messages in “Rethink” system.
- About 93.43% changed their mind and decided to not post mean/hurtful messages after a “Rethink” opportunity.
- I have successfully proved that providing a “Rethink” opportunity for adolescents in Social media would help prevent Cyber-bullying in adolescents. Those 50% of students that are Cyber-bullied that suffer from anxiety, depression, low-self esteem and in rare cases Suicides - a majority of those problems with Cyber-bullying can be prevented.
- “Rethink” mechanism will have long term positive effect on adolescents as it improves their decision making skills.

# Future: Product Prototype

