



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

<b>Name(s)</b> Revere D. Schmidt	<b>Project Number</b> <b>J0716</b>
<b>Project Title</b> <b>A Prescription to React Faster: Combining Video Gaming with Extracurricular Activities</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this study is to determine what is the most effective way to improve reaction time. It assesses how experience playing video games, an instrument, or a competitive sport; working on multiple devices with multiple applications; or taking challenging honors math courses impact reaction time.</p> <p><b>Methods/Materials</b> Subjects completed a questionnaire to collect the number of hours per week spent on the following activities: playing video games, sports, and an instrument; taking advanced math classes; and working with computer and phone applications. Subjects then drove a remote control car twice around two different obstacle courses, once while looking at the car directly, and once while looking at it through an iPad camera. The total amount time in addition to the number of corrections and errors were collected for each subject on each of the four runs.</p> <p><b>Results</b> The results show that subjects with the best reaction time, measured by speed and accuracy on the obstacle courses, play a combination of video games and activities that require fast reaction time. Specifically, subjects with the best reaction time play more than 6 hours of video games a week, averaging 18.7 hours, and participate in 2 to 3 activities requiring quick reaction time, averaging 2.6 activities. Playing video games in combination with at least one activity will also improve reaction time, though less effectively. Finally, subjects with no video game experience have very poor reaction time and accuracy.</p> <p><b>Conclusions/Discussion</b> In conclusion, while playing video games improves reaction time and accuracy, playing games alone is not the most effective way to improve in these areas. Importantly, gaming for more than six hours a week in combination with doing three activities that require quick reaction time is the most effective way to improve reaction time. If time is limited, it is possible to improve reaction time, though not as effectively, by playing video games with one other activity. These activities are, from most to least effective, playing an instrument, taking advanced math classes, and doing sports. Additionally, never playing video games results in poor reaction time and accuracy. To be a skilled surgeon, a successful football receiver, or a quick and accurate SAT test taker, some video game play time every week is key.</p>	
<b>Summary Statement</b> As measured by driving a remote control car on two obstacle courses, reaction time is most improved by playing video games in combination with doing activities that require fast reaction time.	
<b>Help Received</b> My mother helped me to set up the obstacle courses, hold the iPad camera, and set up the Excel database. My dad helped with the charts and graphs. My teacher helped refine the study topic.	