

Searching for Correlations Between Fluency Building Activities and State Testing Performance

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This study will look at how completing fluency building activities impacts participants' performance on state testing, specifically in History. Participants are all required to complete and pass New York state testing, either the Regents exam or the Regents Competency Test to earn their high school diploma. These tests are comprised of multiple choice questions, short answer questions and an essay. Participants in this study worked on fluency building activities for several weeks before the exam, building fluency in the areas of vocabulary, dates and general concepts. Timings are completed daily, with the material, presented in a randomized sequence. Immediate feedback is given, goals are set and data is plotted on a standard celeration chart. Once a pre-determined mastery is achieved, new material is presented. We will be looking at participants' scores on the state tests and also the effect the fluency building activities had on the participants' overall experience in completing the tests.

METHOD

Participants and Setting

There were seven participants in this study; six were male and one was female. Their ages ranged from 16.9 to 21.7. Diagnosis included ADHD, Mood Disorder NOS, Oppositional Defiant Disorder, Impulse Control Disorder NOS, PTSD, and Bipolar Disorder. All participants were enrolled at the Judge Rotenberg Center in Massachusetts, where they attended school and lived at one of the Center's local residences. All participants were from New York and required to complete New York state testing, the Regents exam. To earn a Regents diploma, they were required to pass exams in specific subject areas. For History, they needed to score a 65 or above in either U.S. History or Global History and Geography.

Measures

All participants worked with the History tutor daily, studying either U.S. History or Global History and Geography. Fluency building activities were completed daily, utilizing practice sheets created in Excel which were developed by Dr. Bob Worsham. An example of a practice sheet is shown in Exhibit 1. The practice sheets had randomized information on them, which was pulled from a bank of approximately 20-25 terms and concepts. These terms and concepts were related to the unit of instruction that was being reviewed during tutoring sessions. Concepts covered included vocabulary, dates and general concepts. Each set of practice sheets focused on a specific subject. Examples include Jacksonian Era, Manifest Destiny, Religion and Philosophies, Empires and Trading Kingdoms and several others. Practice sheets each consisted of 36 boxes. Within each box a student will see a question or phrase significant to the test material. The student then selects between two choices of related terms or concepts that best answer the question. Participants completed three, one minute timings, using the practice sheets, during a session. Daily charted data reflects the highest score of the three timings for that student. After each timing, the teacher provided direct feedback indicating corrects and incorrects before the student completed the next timing. Participants were required to get thirty six correct answers, with zero incorrect answers in one minute to move to the next set of practice sheets. Rewards were given for participation measured by completed timings and meeting mastery goals. Rewards consisted of tickets to be exchanged for rewards, using the academic money system and verbal praise. Academic money could be used to purchase items in the school contract store, purchase food from local restaurants or for online shopping. Timings were plotted on the standard celeration chart. Two standard celeration charts are shown in Exhibits 2-3.

RESULTS

All participants improved their Regents exam scores. Before this fluency building activity was used, scores on the Regents exam ranged from eighteen to forty-six. After working on the fluency building activities for approximately three weeks, scores on the Regents exam ranged from twenty-eight to sixty-eight. One participant earned a passing score of sixty-eight. Score improvements ranged from nine points to thirty-one points. Regents' exam scores before and after working on the fluency building activities are shown in Exhibit 4.

DISCUSSION

These interventions were effective in improving Regents exam scores. It is too soon to determine correlations. The sample size was too small. Also, the participants had completed extensive test preparation before the first time they completed the Regents exam and extensive test preparation before the second time they completed the Regents exam. The difference was the addition of the fluency building activities.

It is important to note that these activities helped the participants feel more prepared for the exams. By completing the timings, participants had a concrete way to study, instead of the more nebulous idea of reviewing notes or re-reading the textbook. The concise plan appeared to improve the participants' attitude towards taking the Regents exam. The effects of the fluency building activities were seen in the multiple choice and short answer portion of the exam, but not in the essay portion of the exam. Further work will need to be done to develop an effective intervention for writing essays.

These fluency building activities will be useful in preparation for other state tests and other subject areas. This will be implemented in Science, Mathematics, and English Language Arts, for Regents exams and for the MCAS (Massachusetts Comprehensive Assessment System). With a larger sample size, different tests and subjects, we will continue to explore the correlation between fluency building activities and state testing performance.

Halton's History Hack						Industrial Age
NAME: _____ DATE: _____		Timing Interval: <-->		Correct/Min: <-->		Incorrect/Min: <-->
DIRECTIONS: Answer as accurately and as fast as you can.						
long hours, low wages	invention led to mass production	long hours, low wages	movement of people farms to cities	Result of Industrial Revolution	history is struggle of classes	capitalists / children
capitalists / children	showed / spinning jenny	capitalists / children	urbanization / economics	education / urbanization	Marx / Marx	
perfect society	led to population growth	long hours, low wages	led to population growth	history is struggle of classes	perfect society	
socialism / Utopia	disease / agricultural rev	capitalists / children	disease / agricultural rev	Marx / Marx	socialism / Utopia	
Laissez-Faire	Wealth of Nations	long hours, low wages	invention led to mass production	Result of Industrial Revolution	working class	
Marx / Smith	Smith / Malthus	capitalists / children	Byzty / shuttle / axe	education / urbanization	capitalists / proletariat	
long hours, low wages	invention led to mass production	Laissez-Faire	perfect society	history is struggle of classes	perfect society	
capitalists / children	Byzty / shuttle / axe	Marx / Smith	socialism / Utopia	Marx / Marx	socialism / Utopia	
Wealth of Nations	invention led to mass production	Laissez-Faire	Result of Industrial Revolution	long hours, low wages	long hours, low wages	
Smith / Malthus	showed / spinning jenny	Marx / Smith	education / urbanization	women / capitalists	capitalists / children	
working class	long hours, low wages	movement of people farms to cities	invention led to mass production	movement of people farms to cities	Karl Marx	
capitalists / proletariat	women / capitalists	urbanization / economics	showed / spinning jenny	urbanization / economics	socialism / capitalism	

Exhibit 1

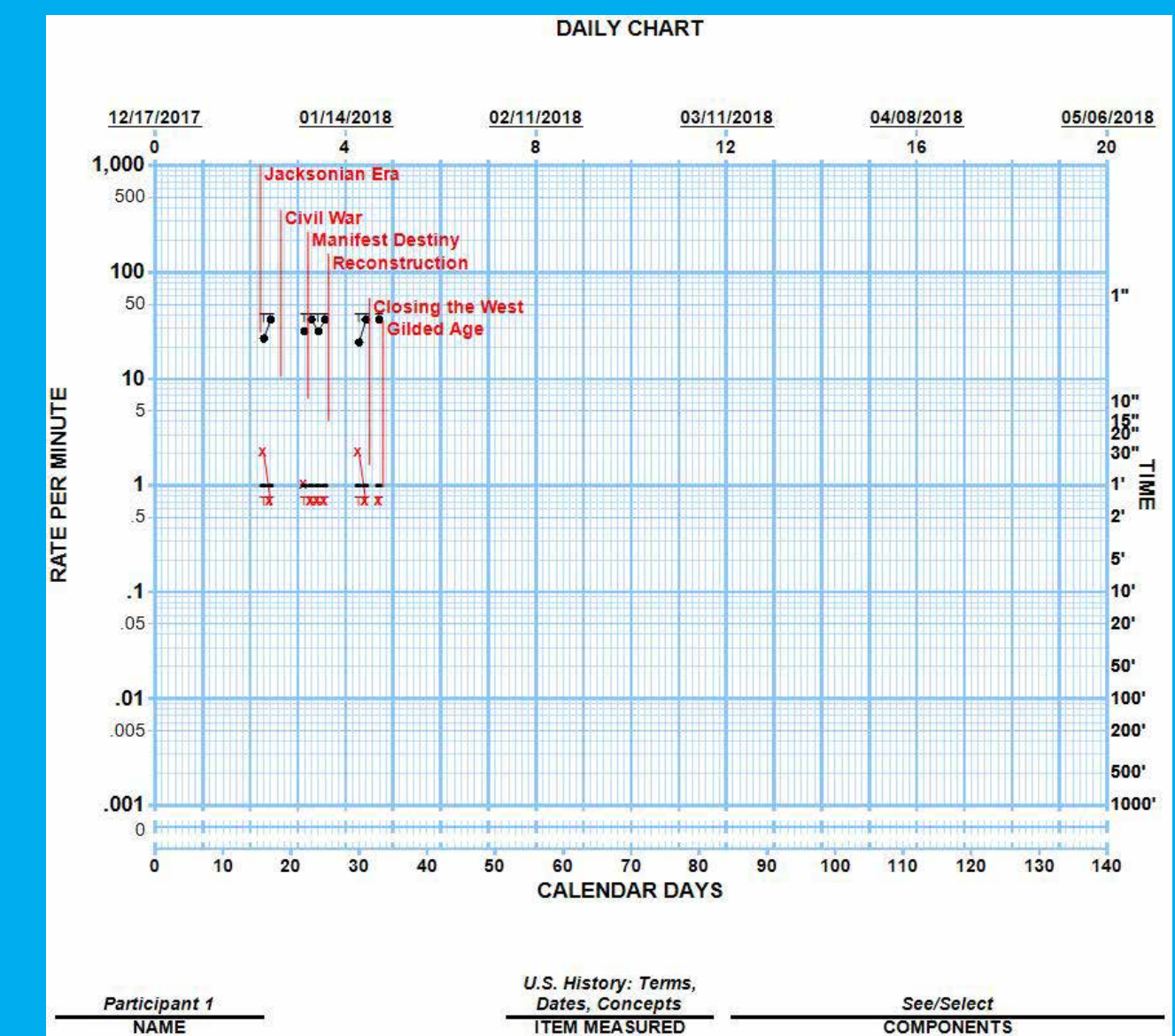


Exhibit 2

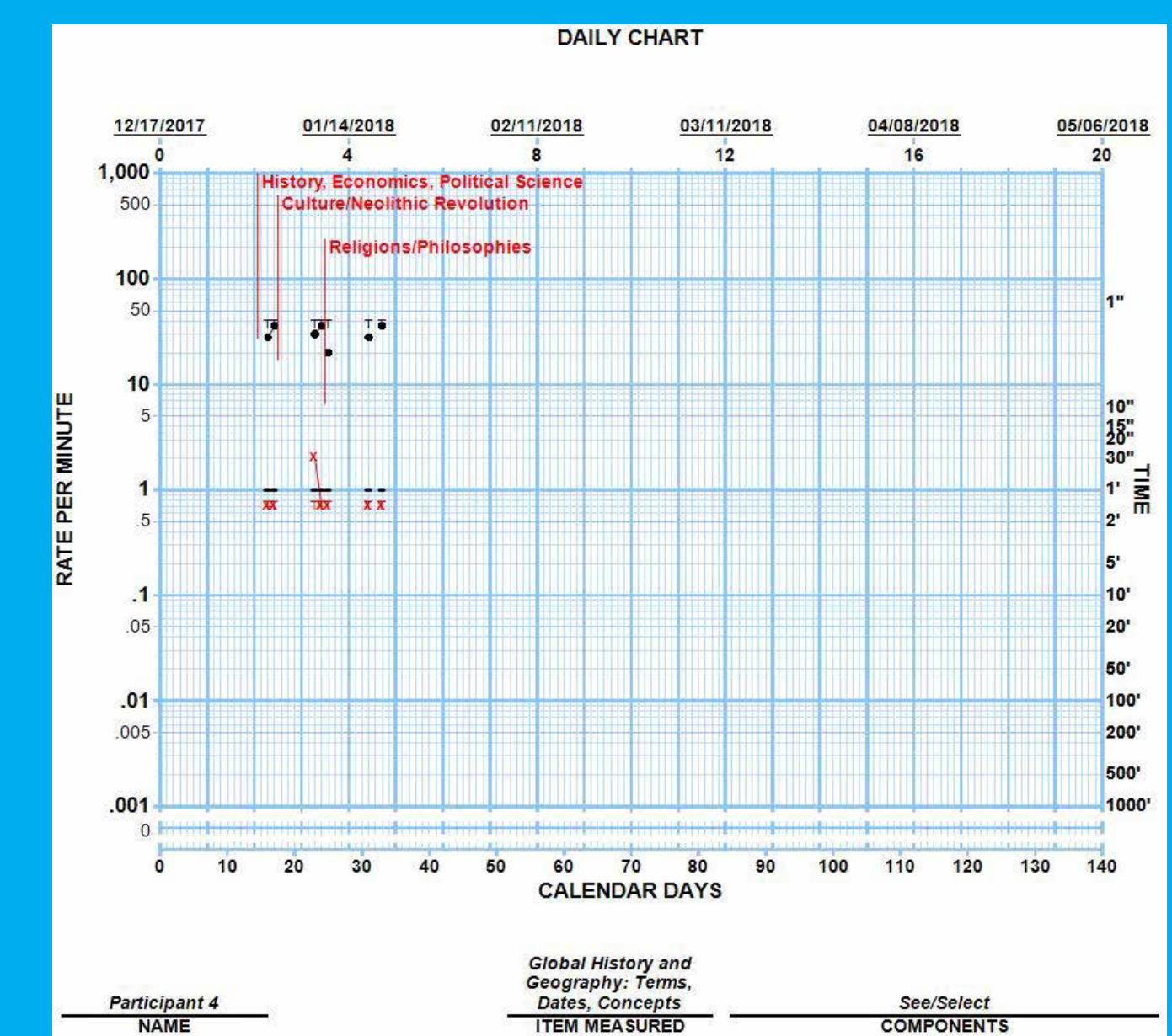


Exhibit 3

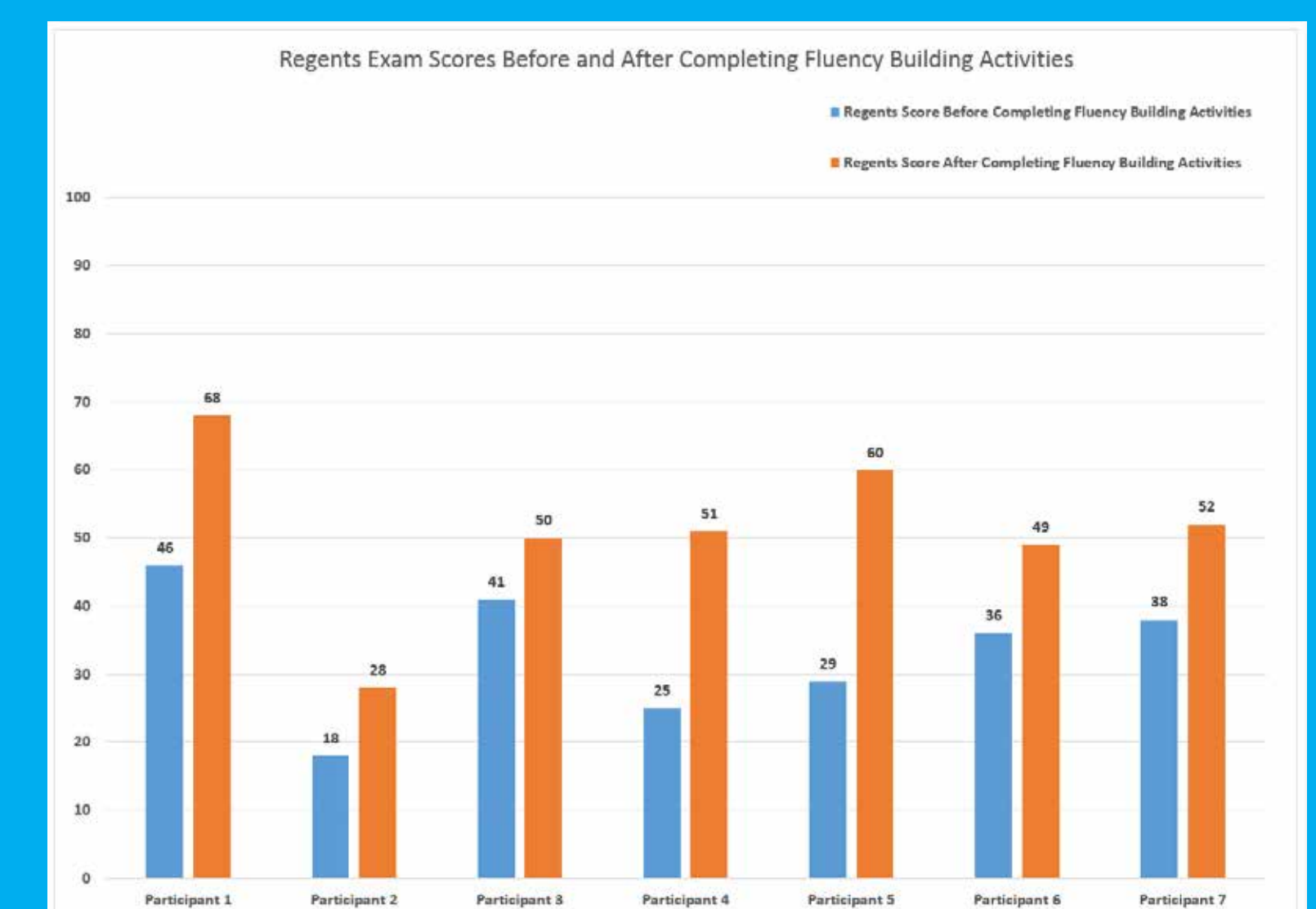


Exhibit 4

