

The effectiveness of self-directed learning vs. teacher-led learning on gifted and talented vs. non-gifted and talented students John Leddo, Bhavya Boddu, Srinidhi Krishnamurthy, Kelvin Yuan, Sravya Chippala John Leddo is director of research at MyEdmaster.Khan Academy – "Project: Recipe book"

Procedure There was a total of six separate one-day sessions that were advertised for the free web-design class. Each session represented the complete course, so students signed up for only one session. Sessions were conducted over three days with two sessions per day. Of these two sessions, one was randomly designated as the teacher-taught class and the other was designated as the student-learning class. Students attended the class they signed up for, not knowing ahead of time whether the class would be teacher-directed or self-directed. However, a teacher was present in both cases, as will be explained shortly. Each session lasted three hours and forty-five minutes. The first fifteen minutes were devoted to registration and to allow for late comers. The next hour and fifteen minutes was the instructional phase. In the teacher-led groups, the teacher taught the students, in a lecture format, how to create a basic website using both HTML and CSS. In the self-directed learning groups, students watched the 15 videos described in the previous section and in the order shown there on their own laptops. Upon completion of the instruction, the teacher spent five minutes telling students that their next task was to create a three-page website that described themselves that features a general page about themselves and one page each on their favorite animals and favorite foods. Students were instructed that their websites should include text, background colors, pictures and links. Students used their own laptops for this task. Students were given one hour and fifteen minutes to perform this task with no outside help. The role of the teacher at this point was to insure that each student worked independently and did not receive help from other students or other outside people (e.g., through phone calls). Upon completion of the programming task, the experiment was concluded from our perspective. The students were given a break while the teacher reviewed the programs the students wrote. When the students returned from their break, the teacher went over the programs the students had turned in and provided the students with feedback. Students did not make any changes to their programs. Rather, this last review process was to enhance the educational value of the experience for the students.

Results The participants' webpages were scored by experienced web designers according to a 27-point rubric. A total of two scorers were used. The rubric contained six dimensions. The dimensions and their maximum point values are as follows: ? Code Organization: 5 ? Proper Syntax: 2 19 International Journal of Advanced Educational Research ? Code Works: 5 ? Website Usability: 5 ? Website Prettiness: 5 ? Met the Requirement for the Assignment: 5 Table 1 shows the mean scores given to participants' work, broken out by condition. As can be seen from Table 1, the mean scores in the teacher-taught conditions as well as the gifted and talent self-taught condition were close to each other while the mean score in the non-gifted and talented self-taught condition was much lower. A two-way analysis of variance was performed on the data. The analysis showed no main effect for type of instruction (teacher-taught vs self-taught), $F(1, 29) = 1.03$, ns, or type of student (gifted and talented vs. non-gifted and talented), $F(1, 29) = 2.12$, ns. However, the type of instruction vs. type of student interaction was statistically significant, $F(1, 29) = 4.22$, p