Teaching Style vs. Student Learning Style and Performance
Does it Matter?

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Motivation

The motivation for this paper was to analyze the relationship between an instructor's learning style compared to their students and subsequently how the students perform in class. From the Index of Learning Styles (http://www.engr.ncsu.edu/learningstyles/ilsweb.html) and *Learning and Teaching Styles in Engineering Education*, Felder says that, "How much a given student learns in a class is governed in part by that student's native ability and prior preparation but also by the compatibility of his or her learning style and the instructor's teaching style."[1] Also, "Research supports the concept that most teachers teach the way they learn."[2] The initial hypothesis being that if teachers teach the way they learn and if students learn better from those whose teaching style more closely matches their learning style then students whose learning style matches the learning style of their instructors should, as a whole, perform better than those whose learning styles are more different. Performance in this case was based on the student's final grade in the course. So using the above survey three instructors and their associated students, 224 total, took the Index of Learning Styles survey. The hypothesis then was that those whose scores more closely matched those of their instructors would on average end up with a better grade in the class and vice-versa. The conclusion determined that as a whole no statistically significant correlation exists. In some cases and breakdowns of the population some interesting correlations do exist in which it is interesting to speculate why or really what is affecting them. Nevertheless, the bottom-line is that a good instructor should be able to vary his or her teaching style in a manner in which it caters to many learning styles by offering students more than one perspective or way of looking at a topic. This reinforces the learning taking place and also helps the students grow as learners for a future of life-long learning.

Study

Students used for the survey were from two different classes, 63 from EE 301 (junior and senior level core electrical engineering course for non-EE engineering majors) and 161 from IT 105 (freshman level introductory Information Technology Course). The students who took the survey received scores broken into four categories, see (1), ranging from -11 to 11 each for active/reflective learners, sensory/intuitive, visual/verbal, and sequential/global where -11 means highest to the left category and 11 means highest to the right category. The absolute value of the difference between each of their scores versus their respective instructor's score in the same category was then taken. Those four differences were then added. The final grade of that student in the class was then included. The students who had a lower total difference should, as

a whole, end up with the better grades and vice-versa based on the aforementioned hypothesis. Or, A grade students should have the lowest average difference, B's next lowest and so on.

Initially the grades (grouped together by letter grade; i.e. an A would include A+, A, and A-) among all 224 cadets ended up as:

Grade	Avg. Diff.
A's	20.6
B's	17.9
C's	21.3
D/F's	20.5

D's and F's were grouped together since out of 224 there were only 12 total. As seen there is no apparent trend to support the hypothesis that students with an overall lower average difference had better grades. The B's having a lower average than the rest is interesting.

Felder's subsequent paper (3), *Reaching the Second Tier, Learning and Teaching Styles in College Science Education*, discusses Tobias' study of college science instruction that defines the two tiers of entering college students. The first tier consists of those who go on to earn science degrees and the second consists of those who have the initial intention and ability but instead switch to nonscientific fields.[3] In the end her assertion relates to, "the poor quality of introductory college science instruction can be expressed directly as failures to address certain common learning styles."[3]

This assertion raised the question about what would happen if the IT 105 population, a course that could be placed into the introductory college science course category, and the EE 301 population, a course consisting of non-EE engineering majors, were analyzed separately. The results:

Grades	Avg. Diff.	IT 105 Avg Diff	EE 301 Avg Diff
A's	20.6	21.2	18.3
B's	17.9	17.9	17.8
C's	21.3	21.6	19.9
D/F's	20.5	21.5	20

As shown the trend appears to be about the same. B's continue to have the lowest average difference at almost the exact same value. A's are higher, more so for IT 105, and C's and D/F's are essentially deadlocked at higher average differences as well. The IT 105 averages have slightly more of a deviation between a low at the B range and the other grades all at about the same value. It is difficult at this point to ascertain why the lower average differences at the B range. A possible explanation might be simply that since 95% of the grades range from C's to A's then a B serves as a logical mean and median. Furthermore, as McKeatchie alludes to in (4), typically A students will get A's no matter what because they usually apply the extra effort necessary in order to learn the material and succeed. Of the 95% that get A's through C's, the majority (57%) got B's. That notwithstanding no trend can be seen considering the sample sizes with just B's and C's remaining. One of them has to be higher and one has to be lower and

therefore no trend to support or counter the hypothesis (not even including A's) can be made. At this point the original hypothesis cannot be supported or countered.

Further Analysis

As a result, the United States Military Academy Assistant Dean for Academic Assessment, Dr. Timothy Judd, a statistician, was consulted to determine if any statistically significant correlations exist between grades and these average differences in learning styles. His analysis is given with the tables and paraphrased comments below.

'The following looks at the relationship between cadet and faculty learning style differences and grades. *Gradenum* is the conversion of letter grade to number: A+= 1, A=2… F=11.' So the analysis here is determining the correlation, if any, between a lower gradenum (better grade) and a lower difference. Note the overall difference refers to the sum of all the differences, Δ Act/Ref refers to the difference in the active/reflective category, Δ Sen/Int to the sensing/intuition category, Δ Vis/Vrb to the visual/verbal category and finally Δ Seq/Glo to the sequential/global category. The relationship was then determined between each of these versus the grade (gradenum). The significance measure is depicted in **bold.** Levels below the threshold given by the asterisked comments are statistically significant. 'This shows no relationship between overall cadet and faculty learning style differences and grades, or between specific learning style differences and grades (see significance levels on line 2 in bold).' For the relationship between them the correlation is significant below the .05 level of which they are never close.

Table 1 – Overall: Learning Style Differences and Grade Correlations

		Grade num	Overall Diff	Δ Act/Ref	Δ Sen/Int	Δ Vis/Vrb	Δ Seq/Glo
gradenum	Pearson Correlation	1	.049	.058	.026	-.076	.095
	Sig. (2-tailed)		**.463**	**.385**	**.701**	**.253**	**.155**
Overall Diff	Pearson Correlation	.049	1	.337(**)	.684(**)	.411(**)	.524(**)
	Sig. (2-tailed)	.463		.000	.000	.000	.000
ΔAct/Ref	Pearson Correlation	.058	.337(**)	1	-.075	-.062	-.017
	Sig. (2-tailed)	.385	.000		.258	.351	.802
ΔSen/Int	Pearson Correlation	.026	.684(**)	-.075	1	-.013	.166(*)
	Sig. (2-tailed)	.701	.000	.258		.849	.012
ΔVis/Vrb	Pearson Correlation	-.076	.411(**)	-.062	-.013	1	-.024
	Sig. (2-tailed)	.253	.000	.351	.849		.721
	N	227	224	227	227	227	227

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The same analysis was done below for just the IT 105 population and once again there was no relationship between overall cadet and faculty learning style differences and the grades they

received.

Table 2 – IT 105: Learning Style Differences and Grade Correlations

		Grade num	Overall Diff	Δ Act/Ref	Δ Sen/Int	Δ Vis/Vrb	Δ Seq/Glo
Grade num	Pearson Correlation	1	.047	-.024	.054	-.035	.082
	Sig. (2-tailed)		**.558**	**.759**	**.493**	**.657**	**.294**
Overall Diff	Pearson Correlation	.047	1	.300(**)	.706(**)	.409(**)	.487(**)
	Sig. (2-tailed)	.558		.000	.000	.000	.000
ΔAct/Ref	Pearson Correlation	-.024	.300(**)	1	-.033	-.091	-.048
	Sig. (2-tailed)	.759	.000		.671	.244	.540
ΔSen/Int	Pearson Correlation	.054	.706(**)	-.033	1	-.058	.154(*)
	Sig. (2-tailed)	.493	.000	.671		.460	.048
ΔVis/Vrb	Pearson Correlation	-.035	.409(**)	-.091	-.058	1	-.021
	Sig. (2-tailed)	.657	.000	.244	.460		.785
	N	164	161	164	164	164	164

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

The following Table shows the same results again with just the EE 301 students.

Table 3 – EE 301: Learning Style Differences and Grade Correlations

		Grade num	Overall Diff	Δ Act/Ref	Δ Sen/Int	Δ Vis/Vrb	Δ Seq/Glo
Grade num	Pearson Correlation	1	.071	.034	.096	-.023	.022
	Sig. (2-tailed)		**.581**	**.794**	**.452**	**.858**	**.862**
Overall Diff	Pearson Correlation	.071	1	.444(**)	.647(**)	.464(**)	.622(**)
	Sig. (2-tailed)	.581		.000	.000	.000	.000
ΔAct/Ref	Pearson Correlation	.034	.444(**)	1	-.106	.153	-.034
	Sig. (2-tailed)	.794	.000		.407	.232	.789
ΔSen/Int	Pearson Correlation	.096	.647(**)	-.106	1	.094	.272(*)
	Sig. (2-tailed)	.452	.000	.407		.465	.031
ΔVis/Vrb	Pearson Correlation	-.023	.464(**)	.153	.094	1	.051
	Sig. (2-tailed)	.858	.000	.232	.465		.690
	N	63	63	63	63	63	63

** Correlation significant at .01 level (2-tailed). * Correlation significant at .05 level (2-tailed).

Now the same overall analysis was done for grades B+ and lower. 'Now we have low but significant correlations between grade and overall difference, and grade and Δ Seq/Glo.' So as can be seen here there is significance (that which is statistically significant) for the overall difference and this appears to be a result of statistically significant correlation for the Sequential/Global category (.003 with significance below the .01 level). 'The coding I used means that once you remove high performers, larger overall learning style differences are related to lower grades, as are large Δ Seq/Glo and grades.' So once again, as stated, it appears that once you remove the high performers, A students, then there does seem to be some correlation between learning styles and the grade they received in the course. It appears that it can be narrowed down to be a result of the Sequential/Global Category.

Table 4 – Overall: Learning Styles Differences and Grades B+ and Below Correlations

		Grade num	Overall Diff	Δ Act/Ref	Δ Sen/Int	Δ Vis/Vrb	Δ Seq/Glo
Grade num	Pearson Correlation	1	.147(*)	.059	.133	-.129	.216(**)
	Sig. (2-tailed)		**.045**	**.422**	**.071**	**.079**	**.003**
Overall Diff	Pearson Correlation	.147(*)	1	.376(**)	.668(**)	.380(**)	.551(**)
	Sig. (2-tailed)	.045		.000	.000	.000	.000
ΔAct/Ref	Pearson Correlation	.059	.376(**)	1	-.075	-.039	.027
	Sig. (2-tailed)	.422	.000		.310	.592	.714
ΔSen/Int	Pearson Correlation	.133	.668(**)	-.075	1	-.052	.195(**)
	Sig. (2-tailed)	.071	.000	.310		.478	.008
ΔVis/Vrb	Pearson Correlation	-.129	.380(**)	-.039	-.052	1	-.047
	Sig. (2-tailed)	.079	.000	.592	.478		.520
	N	187	187	187	187	187	187

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

The next question then is what happens if you, as before, separate out the IT 105 and EE 301 populations. The same analysis is done now with the IT 105 students and the high performers removed. 'Now we have significant but relatively low correlations between grades and overall, Δ Sen/Int and especially Δ Seq/Glo. Again, once you remove high performers in IT105, larger learning style differences are associated with lower grades.' So there is a more pronounced correlation here between the overall and the grades and it appears now a result of the sensing/intuitive category and even more so the sequential/global category.

Table 5 – IT 105: Learning Styles Differences and Grades B+ and Below Correlations

		Grade num	Overall Diff	Δ Act/Ref	Δ Sen/Int	Δ Vis/Vrb	Δ Seq/Glo
Grade num	Pearson Correlation	1	.180(*)	-.009	.190(*)	-.110	.269(**)
	Sig. (2-tailed)		**.039**	**.923**	**.030**	**.211**	**.002**
Overall Diff	Pearson Correlation	.180(*)	1	.318(**)	.687(**)	.398(**)	.528(**)
	Sig. (2-tailed)	.039		.000	.000	.000	.000
ΔAct/Ref	Pearson Correlation	-.009	.318(**)	1	-.043	-.075	-.018
	Sig. (2-tailed)	.923	.000		.627	.396	.838
ΔSen/Int	Pearson Correlation	.190(*)	.687(**)	-.043	1	-.093	.194(*)
	Sig. (2-tailed)	.030	.000	.627		.291	.026
ΔVis/Vrb	Pearson Correlation	-.110	.398(**)	-.075	-.093	1	-.015
	Sig. (2-tailed)	.211	.000	.396	.291		.863
	N	131	131	131	131	131	131

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Finally, doing the same analysis with the EE 301 students results in, 'no significant correlations.' That suggests that any correlation that existed overall is due to the IT 105 population. So there was no statistically significant correlation at all between grades and learning style differences for EE 301 overall or even after removing the high performers.

The results were intriguing and so the correlations that did exist between sensing/intuitive differences and particularly the sequential/global differences and the grades they received then begs the question if there was a correlation between the cadets' learning styles themselves and the grades they received in the class.

Dr. Judd: 'Here are the correlations for all cadets: grade with each learning style score. It's interesting that there are stronger correlations between different learning styles than between grades and learning styles.' This shows also that overall there are correlations between the cadets' learning styles and the grades they received in the course. In fact, this shows there was a statistically significant correlation between sequential learners and better grades. This also shows that there was an extremely high correlation between visual and active learners or between verbal and reflective learners as well as between sequential and sensing or global and intuitive. The latter two are well documented in (5) and (6).

Table 7 – Overall: Learning Styles and Grade Correlations

		gradenum	ACT/REF	SEN/INT	VIS/VRB	SEQ/GLO
Gradenum	**Pearson Correlation**	1	-.004	.068	-.106	**.169(**)**
	Sig. (2-tailed)		.952	.302	.106	**.010**
ACT/REF	Pearson Correlation	-.004	1	-.041	.255(**)	-.072
	Sig. (2-tailed)	.952		.530	**.000**	.274
SEN/INT	Pearson Correlation	.068	-.041	1	.019	.276(**)
	Sig. (2-tailed)	.302	.530		.776	**.000**
VIS/VRB	Pearson Correlation	-.106	.255(**)	.019	1	-.037
	Sig. (2-tailed)	.106	.000	.776		.570
	N	232	232	232	232	232

** Correlation is significant at the 0.01 level (2-tailed).

For just IT 105, once again sequential learners tended to do better.

Table 9 – IT 105: Learning Styles and Grade Correlations

		gradenum	ACT/REF	SEN/INT	VIS/VRB	SEQ/GLO
Gradenum	Pearson Correlation	1	-.128	.116	-.031	**.219(**)**
	Sig. (2-tailed)		.098	.133	.692	**.004**
ACT/REF	Pearson Correlation	-.128	1	-.036	.335(**)	-.114
	Sig. (2-tailed)	.098		.644	.000	.141
SEN/INT	Pearson Correlation	.116	-.036	1	-.024	.301(**)
	Sig. (2-tailed)	.133	.644		.759	.000
VIS/VRB	Pearson Correlation	-.031	.335(**)	-.024	1	-.094
	Sig. (2-tailed)	.692	.000	.759		.223
	N	169	169	169	169	169

** Correlation is significant at the 0.01 level (2-tailed).

In EE 301 overall, learning styles had no significant correlation to grades as was the case earlier between learning style differences and grades.

If you removed the high-performers then the overall results below show that not only did sequential learners tend to do better but also verbal learners as well.

Table 8 – Overall: Learning Styles and Grade (B+ and Below) Correlations

		gradenum	ACT/REF	SEN/INT	VIS/VRB	SEQ/GLO
Gradenum	**Pearson Correlation**	1	.027	.117	**-.184(*)**	**.181(*)**
	Sig. (2-tailed)		.713	.111	**.012**	**.013**
ACT/REF	Pearson Correlation	.027	1	-.020	.261(**)	-.048
	Sig. (2-tailed)	.713		.788	**.000**	.515
SEN/INT	Pearson Correlation	.117	-.020	1	-.021	.257(**)
	Sig. (2-tailed)	.111	.788		.773	**.000**
VIS/VRB	Pearson Correlation	-.184(*)	.261(**)	-.021	1	-.062
	Sig. (2-tailed)	.012	.000	.773		.396
	N	187	187	187	187	187

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

It remained about the same in IT 105 after you removed the high-performers..

Table 10 – IT 105: Learning Styles and Grade (B+ and Below) Correlations

		gradenum	ACT/REF	SEN/INT	VIS/VRB	SEQ/GLO
Gradenum	Pearson Correlation	1	-.106	.171	-.167	**.246(**)**
	Sig. (2-tailed)		.227	.050	.056	**.005**
ACT/REF	Pearson Correlation	-.106	1	.000	.353(**)	-.060
	Sig. (2-tailed)	.227		.999	.000	.499
SEN/INT	Pearson Correlation	.171	.000	1	-.070	.283(**)
	Sig. (2-tailed)	.050	.999		.427	.001
VIS/VRB	Pearson Correlation	-.167	.353(**)	-.070	1	-.112
	Sig. (2-tailed)	.056	.000	.427		.201
	N	131	131	131	131	131

** Correlation is significant at the 0.01 level (2-tailed).

In EE 301, see below, after you removed the high performers; sensing, verbal, and sequential learners tended to do better in the course.

Table 12 – EE 301: Learning Styles and Grade (B+ and Below) Correlations

		gradenum	ACT/REF	SEN/INT	VIS/VRB	SEQ/GLO
Gradenum	Pearson Correlation	1	.020	**.176(*)**	**-.192(*)**	**.241(**)**
	Sig. (2-tailed)		.820	**.041**	**.025**	**.005**
ACT/REF	Pearson Correlation	.020	1	-.013	.203(*)	-.012
	Sig. (2-tailed)	.820		.878	.018	.886
SEN/INT	Pearson Correlation	.176(*)	-.013	1	-.007	.273(**)
	Sig. (2-tailed)	.041	.878		.934	.001
VIS/VRB	Pearson Correlation	-.192(*)	.203(*)	-.007	1	-.019
	Sig. (2-tailed)	.025	.018	.934		.830
	N	136	136	136	136	136

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Results

Overall there was no statistically significant correlation or relationship between learning style differences and the final grades students ended up with in the courses. That was true both collectively and individually between two courses, IT 105 and EE 301. After removing the A grade students, some significant correlation did start to appear between the overall learning differences between the students and the teachers with respect to the grade the student ended up with in the class. This appeared to be a direct reflection of the Sequential/Global learning category. When the IT 105 and EE 301 populations were separated (still for the high performers) then there was a statistically significant correlation with regards to the sensing/intuitive differences and an even stronger one for the sequential/global differences. The EE 301 population by itself had no statistically significant correlations even with the high performers removed.

IT 105 is an introductory Information Technology course required to be taken by all students at the United States Military Academy. Related to the sequential/global and the sensing/intuitive categories, IT 105 teaches problem solving as a key part of the curriculum and reinforces how to take a large problem and break it down into individual sequential parts. A key vehicle for that is programming which is based on sequence, selection, and iteration. The students that struggle in the course are the ones that have a hard time doing that and vice-versa. It should also be noted though that the instructors had an average sequential learning style as well as having a much more sensing learning style and so it became a point to consider whether it was a result of the disparity between the student and the instructor, the student's learning style itself, or both.

The analysis then focused on the correlations that might exist between individual learning styles respectively and the final grades. Overall there was a statistically significant correlation between sequential learners ending up with better grades. When the IT 105 population was separated from the EE 301 population then this correlation became even more significant. For EE 301 overall there was no statistically significant correlation between learning styles and grades. If

you removed the high performers, A grades, then there appeared a statistically significant correlation between verbal learners and sequential learners performing better. As expected by just considering IT 105 for the high performers removed then there was a definite correlation between sequential learners performing better in class. For EE 301 with the high performers removed there was an equally strong correlation between sequential learners performing better as well as verbal and sensing students. As mentioned above there are correlations between learning styles but the significance of those is really not the purpose of this paper since many have already been discussed and/or documented as being recognized. A common one, as shown in (5) and (6), is that from Myers-Briggs assessment studies, sensors tend to want things and think things more sequential and intuitive people tend to think more globally.

More significance arose, for the non-high performers, from the correlations between learning styles and grades which might suggest that it is not so much a result of the difference between the student and the instructor but a result of the nature of the course itself. Furthermore it should be noted that all of the military instructors included in this study have all had almost ten years of experience in the regular Army before going to graduate school and ultimately coming here. In those ten years as platoon leaders, company commanders and so on these officers have developed as leaders to include ensuring that all of their soldiers, from all walks of life and educational background, are trained to do their individual jobs individually and collectively as a unit.

Conclusion

Overall there was no correlation between a student's learning style and that of their instructor and the student's final grade in the course. Once the population is broken down by removing the high performers and then considering different populations between a core freshman introductory information technology course and a core engineering course then some correlations started do arise. More correlations arose, however, between the individual learning styles and the final grades. This suggests that perhaps it is a result of the nature of the course itself versus the differences between the instructor and the student.

In the end it comes down to the sentiment expressed by McKeatchie in (4). It is important to understand that learning styles can have an effect on a student's ability to learn the material, as the data most recently shown here suggests. The effect a teacher's learning style has is difficult to determine but it does have an effect nonetheless. "Regardless of their validity, any of these methods may have heuristic value for faculty development by drawing attention to the fact that learners differ and that we need to take account of these differences in teaching. Too many teachers think of students as a featureless mass; too many rarely vary their teaching methods, thinking that the method by which they were taught is best for everyone." Furthermore understanding that a teacher's teaching style does matter it is also important to understand that, "Most of the attempts to match students with teachers have proved to have relatively little effect upon learning." This might be suggested here by the fact that overall there was no correlation between the differences of learning and teaching styles and the performance. Even after the high performers were removed it was difficult to determine if any correlations were a result of the difference between styles or a result of the material being taught for the course. Bottomline is that it is important for the instructor to understand that there are different learning styles and as with any diverse environment it is imperative for the instructor to vary his or her teaching to offer different perspectives and to teach in different ways in order to embrace those differences.

At the same time it will help improve the instructor and his or her mastery of the topic and the ability to teach it. Furthermore it is on the teacher to help the students understand that these differences exist and to embrace it not for the sake of using it as a crutch for any difficulty they may have but to, "help the students develop the skills and strategies needed for learning effectively from teachers who do not match the students' preferred learning 'style'."[4] As McKeatchie ends, "Good teaching involves more than communicating the content of one's discipline; a good teacher also needs both to motivate students to continue learning and to teach them the skills and strategies needed for continued learning."

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REFERENCES

[1]**Felder, Richard M.** (1988) *Learning and Teaching Styles in Engineering Education*. Engineering Education, 78(7), 674-681 w/ June 2002 preface.

[2]**Brown, Bettina Lankard**. (2003) *Teaching Style vs. Learning Style*. Myths and Realities, No. 26; Educational Resources Information Center (ERIC) – Clearinghouse on Adult, Career, and Vocational Education.

[3]**Felder, Richard M.** (1993) *Reaching the Second Tier: Learning and Teaching Styles in College Science Education.* J. College Science Teaching, 23(5), 286-290.

[4]**McKeachie, W.J.** (1995) *Learning Styles Can Become Learning Strategies*. The National Teaching and Learning Forum, Volume 4, Number 6, pp. 1-3.

[5]**Schroeder, Charles C.** (2004) *New Students – New Learning Styles*. Brad Cox, Ph.D. http://www.virtualschool.edu/mon/Academy/KierseyLearningStyles.html.

[6]**Brightman, Harvey J.** (http://www2.gsu.edu/~dschjb/wwwmbti.html accessed 4/6/2006) *GSU Master TeacherProgram: On Learning Styles*. Georgia State University.

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