Multiple Intelligences in Online, Hybrid, and Traditional Business Statistics Courses

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Abstract

According to Howard Garner, Professor of Cognition and Education at Harvard University, intelligence of humans cannot be measured with a single factor such as the IQ level. Instead, he and others have suggested that humans have different types of intelligence. This paper examines whether students registered in online or mostly online courses have a different type of intelligence from students registered in traditional face-to-face courses. At the beginning of the fall semester of 2011, a group of 128 students from four different courses in Business Statistics completed a survey to determine their types of intelligence. Our findings reveal surprising results with important consequences in terms of teaching styles that better fit our students.

INTRODUCTION

Learning styles, or the ways in which students process and retain information, should be a central focus of course design. The use of appropriate teaching techniques and activities can improve student performance and can potentially make the learning experience more enjoyable (see, e.g. Ziegert 1996, and Borg & Shapiro 2000). Furthermore, the realization of their weaknesses and strengths can help make students more independent (Coffield, Moseley, Hall & Ecclestone 2004 and Diaz-Lefebvre 2004). This is especially important in online environments where student-teacher interaction is limited, and where students have to rely heavily on self-teaching techniques.

In this paper we explore two questions with respect to learning styles: do the learning styles of students who take online courses when traditional courses are available differ from the learning styles of students who take traditional or hybrid courses? And if so, which kinds of teaching techniques should be used in online environments to take advantage of the students' learning styles?

There are over 70 different learning styles models (Coffield et al. 2004). These include the Myer-Briggs Type Indicator, the Learning Styles Inventory, and the Multiple Intelligences (MI) Theory of Howard Gardner. In this paper we concentrate on the latter (for applications of the Myer-Briggs and Learning Styles Inventory to college environments see Bisping & Patron 2008 and the literature cited therein).[1]

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[1] While MI theory is considered by some as a just a theory of abilities, not intelligences (Willingham, 2004), others like Prashing (2005) argue that MI theory only classifies people while learning styles reveal more information regarding how people prefer to process information. Whether MI theory is actually a theory of learning styles or not, the fact of the matter is that since its inception by Gardner, it has changed the way we perceive learning and teaching styles. A significant amount of research has instead

Over the last twenty years, the theory of Multiple Intelligences (MI) developed by Gardner has gained ground as a revolutionary way to approach learning in primary and secondary education, and in adult literacy education. Although the theory can be applied to college classrooms, in practice, the applications have been limited (see e.g., Kezar 2001). Howard Gardner (1983; 1993) developed the theory that individuals may have multiple intelligences. He classified those intelligences as linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, intrapersonal, and interpersonal. He has since extended the definitions to encompass two more intelligences: naturalistic and existential. Following Gardner's types, students with linguistic intelligence – those who learn better with learning materials – benefit from traditional lectures, debates, word games, and writing activities. Logical-Mathematical students - or those who have the ability to use logical methods - learn with problem-solving exercises, logic puzzles and games, quantifications and calculations. Spatial Intelligence is present in individuals who enjoy learning with charts, graphs, diagrams, slides, pictures, and videos. These are individuals who can manipulate space, such as architects or sculptors. Bodily-Kinesthetic intelligence refers to a person's ability to use its body. Individuals with this intelligence enjoy hands-on activities, role playing, crafts, and tactile materials and experiences. Students with musical intelligence can write, perform, and/or appreciate music. Their learning is enhanced by background music, or in general, with musically oriented activities. Intrapersonal intelligence refers to the capacity of understanding one's emotions. Interpersonally intelligent individuals work best by themselves, follow self-teaching programmed instructions, keep personal journals, and enroll in independent studies. Finally, interpersonal intelligence, or the ability of understanding others' emotions, is present in individuals who enjoy cooperative or group work, peer teaching, peer sharing, apprenticeships, and simulations.

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suggested that learning styles and MI theory should complement each other. See for example Denig (2004), Silver & et.al (1997), and Manner (2001).

Gardner believes that each person possesses all seven intelligences, but to a different degree. Furthermore, he believes that these intelligences can be developed with adequate instruction and coaching. (A thorough discussion of the different techniques that can be used to address the different intelligences can be found in Armstrong (1994), and in the following websites:

http://www.miresearch.org/mi_theory.html and

http://www.spannj.org/BasicRights/appendix_b.htm).

There are several tests used by different authors and educators to determine the presence of the various intelligences in students. We use the questionnaire found in Armstrong (1994) who is one of the pioneers in this field. (The survey is included at the end of this article as an Appendix. It can also be downloaded, along with several useful materials from

http://www.spannj.org/BasicRights/appendix_b.htm). This survey and others similar to it have been used extensively in education research. We believe that the simplicity and consistency of the questions make the results trustworthy and meaningful.

LITERATURE REVIEW: MI THEORY IN THE COLLEGE CLASSROOM

As discussed by Kezar (2001), the application of MI Theory to the college environment has been limited. Furthermore, while there are some studies that look at the impact of MI Theory on student engagement and learning in college, including Diaz-Lefebvre (2004), Dillon (2006), Natasa (2010), and Martinez (2011), there is little to no research on the application of the theory in online environments (Riha and Roble-Piña 2009).

The little research available suggests that MI Theory is well received by students and faculty. For instance, Diaz-Lefebvre (2004) reviews how the incorporation of MI theory in several courses at Glendale Community college, including Biology, Nursing, Math, Anthropology, Psychology, English,

and others, affected student engagement and learning. Students in these courses were given the opportunity to demonstrate understanding of the material studied in class and in reading assignments in non-traditional ways. "The learning options include[d] acting/role playing, creative dance, collage, mime, book report, poetry, drawing/sketching/painting, computer simulation, sculpture, interview, creative journal writing, musical/rhythmic application, and traditional tests" (52). Student and faculty responses to the MI learning options initiative proved positive. Both groups felt that students were more involved and motivated, and learned more in their classes.

Dillon (2006) applied MI theory to first year English composition courses. An example given in the study relates to a memoir writing lesson. In it, Dillon took students outdoors and asked them to "write from their senses" about what they were experiencing (naturalistic intelligence). Later, students were asked to share their sketches and merge their writings (interpersonal intelligence). Finally, students were asked to play an educational game in class in which they had to come up with a correct answer, run to the board, and write their answer on the board (bodily-kinesthetic intelligence). Students were also asked to discuss material among themselves while soft music played in the background (musical intelligence). Dillon evaluated the MI experiment by surveying students regularly. Students typically reported higher enjoyment and enhanced learning in the MI classes relative to traditional lectures. Similarly, Natasa (2010) reports that student learning of the English language at the University of Nis Medical School increased and student satisfaction improved since the implementation of MI Theory in the curriculum. Martinez (2011) studies MI in college Chemistry students using a sample of 855 students from a University in the Philippines. He finds that different students have different intelligences. Furthermore, students with strong interpersonal, intrapersonal, naturalistic, verbal, and logical intelligences performed better in the achievement test than other students. Finally, Gershkoff (2005) utilizes both Myers-Briggs

Personality Type Indicator (MBTI) and MI theory to target different student learning styles in a Quantitative Political Analysis course. She indicates that even minor or trivial things can make big impacts. For example, writing down on the board what you are saying aloud can reach an additional 62 to 70 percent of your students (p.301). She also provides a list of different learning styles and MI's that can be reached by using different methods of teaching some quantitative concepts.

The previously discussed papers emphasize how instructors can use different techniques in traditional settings to develop students' different intelligences and improve learning. Riha and Roble-Piña (2009) reviews the relationship between MI Theory and online learning. The question is whether or not instructors in online environments can offer students different ways to develop their intelligences. Unfortunately, the authors find that there is little research or evidence in this field. We hope to start rectifying this shortcoming by exploring the implications of MI theory in traditional, hybrid, and fully online courses. Furthermore, we work with students in Business Statistics, a discipline that, to our knowledge, has not been studied previously.

DATA AND RESULTS

We gave the MI test to four different classes of undergraduate Introductory Business Statistics during the Fall of 2011, for a total of 127 students. Most of the students are traditional students. The average age is 23.4 years (standard deviation 6.3 years). About half of the sample is made up of males (55.3%), and White/non-Hispanic students (49.6%). At the end of the test, there is a grading system which assigns values between 0 and 5 for the first five categories (linguistic, logical-mathematical, musical, spatial and bodily-kinesthetic), between 0 and 3 for the sixth (intrapersonal), and between 0 and 2 for the seventh (interpersonal). To facilitate analysis, we

classified those values as "weak", "moderate" and "strong". For the first five categories, scores of 0 and 1 are classified as "weak", 2 or 3 as "moderate" and 4 or 5 as "strong". For the sixth category, "weak" is assigned to scores equal to 0 or 1, "moderate" to scores equal to 2 and "strong" to scores equal to 3. Finally, for the last and seventh category, scores equal to zero are considered as "weak", scores equal to 1 as "moderate" and scores equal to 2 as "strong". The overall results for each type of intelligence are shown in Chart 1 and Table 1 below. The most dominant type of intelligence is interpersonal with approximately 80% of the students, followed by musical with 67% and logical-mat" with 56%. On the other hand, the two categories with the lowest "strong" percentages are linguistic and spatial. The categories are not mutually exclusive, so students may be "strong" (or "weak") in different types of intelligences.

According to the definition of interpersonal intelligence, most of our students think by bouncing ideas off other people. They enjoy leading, organizing, relating, manipulating, mediating, and partying, and they need friends, group games, community events, and clubs. Students with interpersonal intelligence learn better through interacting with others, peer teaching, group brainstorming sessions, peer sharing, community involvement, apprenticeships, simulations, academic clubs, and social gatherings for learning purposes. On the other hand, most of our students are weak thinking in images and pictures and learn less effectively by watching videos, slides, movies, charts, graphs, diagrams, and graphics software.

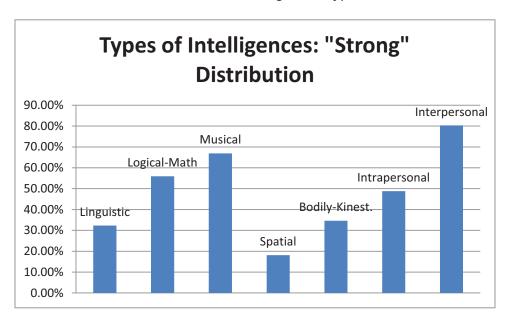*Chart 1. Overall Distribution of Intelligence Types*

Types of Intelligences: "Strong" Distribution

Table 1. Overall Results per Type of Intelligence.

Strength	Linguistic	Logical-Math	Musical	Spatial	Bodily-Kinesthetic	Intrapersonal	Interpersonal
Weak	17.32%	7.09%	6.3%	30.71%	17.32%	23.62%	3.94%
Moderate	50.39%	37.01%	26.77%	51.18%	48.03%	27.56%	15.75%
Strong	32.28%	55.91%	66.93%	18.11%	34.65%	48.82%	80.31%

Charts 2 and 3 below show the percent of "strong" types of intelligences by gender and ethnic group. As may be noticed, the distribution is about the same as it is for the overall results. Interpersonal intelligence is the most dominant type for males and females, and for whites and nonwhites. The musical type is in second place and logical-mathematical is in third place. The least dominant type of intelligence, again, is spatial. In fact, it is less dominant (16%) for females than it is for males (20%).

Chart 2. Intelligences by Gender

Intelligence Type Distribution by Gender
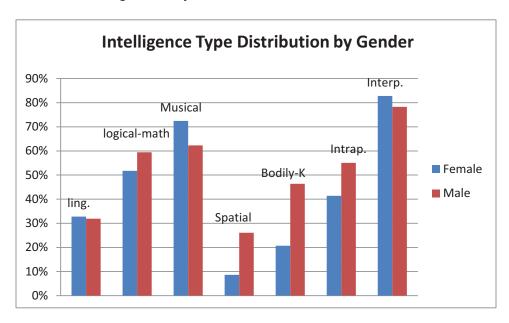
Chart 3. Intelligences by Ethnic Group

Intelligence Type Distribution by Ethnic Group

Other characteristics available in our dataset are the students' GPA and age. Charts 4 and 5 below

show the percent distribution of interpersonal intelligence across different levels of those two

variables. Although there is not much variation in the results, students with the lowest GPAs,

between 1.78 and 2.5, tend to be less interpersonal than the other students, and those in the 2.51-3.00 category tend to be the most interpersonal. On the other hand, students in the 21-22 age range are the least interpersonal while the 25-26 age range are the most interpersonal group.

Chart 4. GPA and Interpersonal Intelligence

Chart 5. Age and Interpersonal Intelligence

INTELLIGENCES BY CLASS TYPE

Of the four sections studied, two were traditional face-to-face courses, one was fully online, and one was a hybrid class (50% on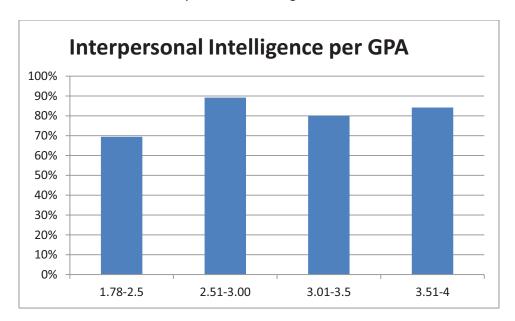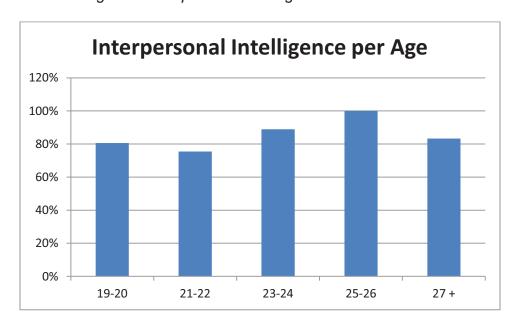line). Table 2 below summarizes the intelligences of our students by class type. In order to understand the results it is important to remember that linguistic, logical-mathematical, musical, spatial and bodily-kinesthetic intelligence scores can range from 0 to 5, intrapersonal can range from 0 to 2, and Interpersonal from 0 to 3.

Table 2: Summary statistics by class type

	Traditional				Hybrid				Online			
	Mean	Median	St. Dev	Obs	Mean	Median	St. Dev	Obs	Mean	Median	St. Dev	Obs
Linguist	2.89	3.00	1.33	83	3.13	3.00	1.45	24	2.46	3.00	1.42	26
Logical-Mathematical	3.36	3.00	1.28	83	3.54	3.50	1.25	24	4.27	5.00	1.04	26
Musical	3.67	4.00	1.19	83	3.92	4.00	1.06	24	3.35	4.00	1.50	26
Spatial	2.36	2.00	0.14	83	2.46	2.00	1.35	24	1.92	2.00	1.26	26
Bodily-Kinesthetic	2.78	3.00	1.33	83	3.04	3.00	1.37	24	3.08	3.00	0.89	26
Intrapersonal	1.18	1.00	0.80	83	1.54	2.00	0.59	24	1.50	2.00	0.65	26
Interpersonal	2.01	2.00	0.86	83	2.50	3.00	0.59	24	2.65	3.00	0.75	26

In order to formally determine whether students in the different courses had certain dominant traits, we performed one sample t tests of mean differences and one sample Wilcoxon tests of median differences. The t tests tell us if, on average, students in each of the classes have a dominant intelligence. For example, to have a dominant linguistic personality students have to score 4 or higher. The null hypothesis on this test is that the class average is less than or equal to 4, and the alternative hypothesis is that it is greater than 4. The tests for logical-mathematical, musical, spatial and bodily kinesthetic are formulated in the same way. For the intrapersonal and interpersonal categories, the null hypotheses are that the class averages are less than 1. The t tests are calculated according to the formula ——, where   is the sample mean, *s* is the sample standard deviation, *n* is the sample size, and   is the mean under the null hypothesis (4 for the first five

intelligence types and 1 for the last two types). To calculate the significance of the test (p value) we use a *t* distribution with n-1 degrees of freedom. Results from the t tests are summarized in table 3.

The Wilcoxon tests for medians tell us if the medians of the samples are significantly higher than 4 for the first five intelligence types, or higher than 1 for the latter two intelligencey types. To calculate the test, we first calculate the differences between each observation and the value of the median under the null hypothesis (4 for the first five intelligence types and 1 for the last two types). We then remove all zero differences so that only non-zero differences remain. We calculate the absoulte value of the differences, rank them, and add the ranks. The Wilcoxon test is the sum of these ranks. Results of Wilcoxon tests are summarized in Table 4.

Table 3: One sample t tests

	Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinesthetic		Intrapersonal		Interpersonal	
	Ho: Mean ≤ 4 Ha: Mean > 4		Ho: Mean ≤ 4 Ha: Mean > 4		Ho: Mean ≤ 4 Ha: Mean > 4		Ho: Mean ≤ 4 Ha: Mean > 4		Ho: Mean ≤ 4 Ha: Mean > 4		Ho: Mean ≤ 1 Ha: Mean > 1		Ho: Mean ≤ 1 Ha: Mean > 1	
Traditional	Stat	-8.49	t Stat	-4.53	Stat	-2.49	Stat	-11.7	Stat	-8.36	Stat	2.06	Stat	11.56
	P	1.00	p	1.00	P	0.99	p	1.00	p	1.00	P	0.02	p	0.00
Hybrid	Stat	-2.95	t Stat	-1.80	Stat	-0.39	Stat	-5.59	Stat	-3.44	Stat	4.51	Stat	12.46
	P	1.00	p	0.96	P	0.65	P	1.00	p	1.00	P	0.00	p	0.00
Online	Stat	-5.52	t Stat	1.32	Stat	-2.23	Stat	-8.39	Stat	-5.28	Stat	3.93	Stat	11.32
	P	1.00	p	0.10	P	0.98	P	1.00	p	1.00	P	0.00	p	0.00

Tables 3 and 4 show that on average students in Statiscs courses have strong intrapersonal and interpersonal intelligences. Students in fully online classes also show signs of strong logical-mathematical intelligences. This means that instructors need to employ intrapersonal and interpersonal techniques in all courses, including online courses. Online discussion and study

groups, and live online experiments are ways in which instructors can bring the interpersonal component to online courses.

Table 4: One sample Wilcoxon tests

	Linguist Ho: Median ≤ 4 Ha: Median > 4		Logical-Mathematical Ho: Median ≤ 4 Ha: Median > 4		Musical Ho: Median ≤ 4 Ha: Median > 4		Spatial Ho: Median ≤ 4 Ha: Median > 4		Bodily-Kinesthetic Ho: Median ≤ 4 Ha: Median > 4		Intrapersonal Ho: Median ≤ 1 Ha: Median > 1		Interpersonal Ho: Median ≤ 1 Ha: Median > 1	
Traditional	Stat	90.00	t Stat	410.00	Stat	294.50	t Stat	56.00	Stat	105.00	Stat	980.00	Stat	2094.0
	P	1.00	P	1.00	P	0.99	p	1.00	P	1.00	P	0.02	p	0.00
Hybrid	Stat	32.50	Stat	56.00	Stat	67.50	Stat	7.00	Stat	20.00	Stat	112.00	Stat	276.00
	P	1.00	P	0.95	P	0.69	p	1.00	P	1.00	P	0.00	p	0.00
Online	Stat	13.00	Stat	157.50	Stat	33.00	Stat	5.00	Stat	7.00	Stat	135.00	Stat	253.00
	P	1.00	P	0.05	P	0.98	p	1.00	P	1.00	P	0.00	p	0.00

In order to determine whether students registered in online and partially online (hybrid) courses have different intelligences from students registered in traditional courses, we performed t tests of differences in means and Wilcoxon tests of differences in medians. Results are summarized in tables 5 and 6. Tests show that students in the different classes are in fact different. Students in traditional courses are weaker than hybrid and online students in terms of in intrapersonal and interpersonal intelligences. There is no difference in these two domains between students in hybrid and online courses. Students in online courses are stronger in the logical-mathematical domain than students in traditional and hybrid courses.

Table 5: Two sample t tests of differences of means between sections

Ho: Difference between Traditional and Hybrid Means = 0 Ha: Difference between Traditional and Hybrid Means ≠ 0													
Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinesthetic		Intrapersonal		Interpersonal	
Stat	-0.72	Stat	-0.18	Stat	-0.96	Stat	-0.31	Stat	-0.82	Stat	-2.43	Stat	-2.63
P	0.48	p	0.54	p	0.34	P	0.76	p	0.42	P	0.02	p	0.01
Ho: Difference between Traditional and Online Means = 0													

		Ha: Difference between Traditional and Online Means ≠ 0											
Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinetic		Intrapersonal		Interpersonal	
Stat	1.40	Stat	-3.66	Stat	1.02	Stat	1.54	Stat	-1.29	Stat	-2.07	Stat	-3.20
P	0.17	p	0.00	p	0.31	P	0.13	p	0.20	P	0.04	p	0.00
		Ho: Difference between Hybrid and Online Means = 0											
		Ha: Difference between Hybrid and Online Means ≠ 0											
Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinetic		Intrapersonal		Interpersonal	
Stat	1.63	Stat	-2.23	Stat	1.57	Stat	1.44	Stat	-0.11	Stat	0.24	Stat	-0.81
P	0.11	p	0.03	P	0.12	P	0.16	p	0.92	P	0.81	p	0.42

Table 6: Two sample Wilcoxon tests of differences of medians between sections

		Ho: Difference between Traditional and Hybrid Medians = 0											
		Ha: Difference between Traditional and Hybrid Medians ≠ 0											
Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinesthetic		Intrapersonal		Interpersonal	
Stat	52.50	Stat	80.50	Stat	63.00	Stat	54.50	Stat	45.50	Stat	32.00	Stat	22.50
P	0.09	p	0.57	p	0.53	P	0.18	p	0.05	P	0.01	p	0.01
		Ho: Difference between Traditional and Online Medians = 0											
		Ha: Difference between Traditional and Online Medians ≠ 0											
Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinetic		Intrapersonal		Interpersonal	
Stat	149.00	Stat	24.00	Stat	96.00	Stat	87.00	Stat	58.00	Stat	39.00	Stat	8.00
P	0.99	p	0.01	p	0.36	P	0.96	p	0.02	p	0.07	p	0.00
		Ho: Difference between Hybrid and Online Medians = 0											
		Ha: Difference between Hybrid and Online Medians ≠ 0											
Linguist		Logical-Mathematical		Musical		Spatial		Bodily-Kinetic		Intrapersonal		Interpersonal	
Stat	154.00	Stat	26.50	Stat	121.00	Stat	122.50	Stat	82.00	Stat	27.00	Stat	37.00
P	0.18	p	0.03	p	0.12	P	0.11	p	0.61	p	0.61	p	0.55

CONCLUSIONS

The results obtained from our study show clear evidence that intepersonal is the most dominant type of intelligence of our students. In contrast, the least dominant type is the spatial. The good news, as Professor Gardner suggests, individuals possess all the seven intelligences and most people can develop each intelligence to an adequate level of competency if given the appropriate encouragement, enrichment, and instruction. However, according to our results, the two least dominant types of intelligence are spatial and linguistic, which are the ones we as instructors

typically appeal to as we emphasize lectures, memorization of names, words, concepts, and use powerpoint slides and charts. Our results indicate that we as instructors should assign our students more group work and encourage peer teaching. New teaching tools, like the clickers, should not be used for solving problems individually, but to create cooperation and interaction among the students. Furthermore, instructors of online Statistics courses need to use interpersonal techniques in their classes. These include online discussion groups, wikis, blogs, and online "live" activities.

RECOMMENDATIONS AND IMPROVEMENTS

Our study shows interesting results pointing at possible traits among students who are currently required to take a Businsess Statistics course. These results need to be further tested using a larger sample of students from a variety of majors and courses. On the other hand, the relevance of the types of intelligences might be further tested by analyzing their role in student performance on individual tests or final grades obtained in the different courses. Finally, intelligence type results can also be contrasted and compared with other related studies that use types of personality or other classifications of cognitive processes of students.

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Appendix A

The questionnaire and scoring sheet reproduced below is found in Armstrong (1994). It can also be downloaded from several websites, including http://www.spannj.org/BasicRights/appendix_b.htm

Where does your true intelligence lie? This quiz will tell you where you stand and what to do about it. Read each statement. If it expresses some characteristic of yours and sounds true for the most part, jot down a "T." If it doesn't, mark an "F." If the statement is sometimes true, sometimes false, leave it blank.

1. _____ I'd rather draw a map than give someone verbal directions.

2. _____ I can play (or used to play) a musical instrument.

3. _____ I can associate music with my moods.

4. _____ I can add or multiply in my head.

5. _____ I like to work with calculators and computers.

6. _____ I pick up new dance steps fast.

7. _____ It's easy for me to say what I think in an argument or debate.

8. _____ I enjoy a good lecture, speech or sermon.

9. _____ I always know north from south no matter where I am.

10. _____ Life seems empty without music.

11. _____ I always understand the directions that come with new gadgets or appliances.

12. _____ I like to work puzzles and play games.

13. _____ Learning to ride a bike (or skates) was easy.

14. _____ I am irritated when I hear an argument or statement that sounds illogical.

15. _____ My sense of balance and coordination is good.

16. _____ I often see patterns and relationships between numbers faster and easier than others.

17. _____ I enjoy building models (or sculpting).

18. _____ I'm good at finding the fine points of word meanings.

19. _____ I can look at an object one way and see it sideways or backwards just as easily.

20. _____ I often connect a piece of music with some event in my life.

21. _____ I like to work with numbers and figures.

22. _____ Just looking at shapes of buildings and structures is pleasurable to me.

23. _____ I like to hum, whistle and sing in the shower or when I'm alone.

24. _____ I'm good at athletics.

25. _____ I'd like to study the structure and logic of languages.

26. _____ I'm usually aware of the expression on my face.

27. _____ I'm sensitive to the expressions on other people's faces.

28. _____ I stay "in touch" with my moods.   I have no trouble identifying them.

29. _____ I am sensitive to the moods of others.

30. _____ I have a good sense of what others think of me.

_____

MULTIPLE INTELLIGENCES SCORING SHEET

Place a check mark by each item you marked as "true." Add your totals.   A total of four in any of the categories A through E indicates strong ability.   In categories F and G a score of one or more means you have abilities as well.

A Linguistic	B Logical-Mathematical	C Musical	D Spatial	E Bodily-Kinesthetic	F Intra-personal	G Inter-personal
7 ___	4 ___	2 ___	1 ___	6 ___	26 ___	27 ___
8 ___	5 ___	3 ___	9 ___	13 ___	28 ___	29 ___
14___	12 ___	10 ___	11___	15 ___		30 ___
18 ___	16 ___	20 ___	19___	17 ___		
25 ___	21 ___	23 ___	22___	24 ___		
Total ____	Total ____	Total ___	Total __	Total ____	Total ____	Total ____