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## Appendix -I

### Distribution of sample among various schools of Coimbatore city

S.No	Name of the schools	No .of school children			Total	No of Teachers
		6 <sup>th</sup> std	7 <sup>th</sup> std	8 <sup>th</sup> std		
<b>Government schools</b>						
1	RCGHSS	42	51	54	147	8
2	SCBHSS	46	32	40	118	7
3	SRPAAGHSS	58	39	75	172	8
4	SRMHSS	22	89	52	163	5
<b>Government Aided schools</b>						
5	BVB	39	23	115	177	15
6	CSIGHSS	24	107	23	154	17
7	JMHSS	42	45	96	183	16
8	SAIMHSS	123	42	47	212	14
9	SKRNHSS	32	70	41	143	15
10	SNVMHSS	46	86	125	257	17
11	THMSS	33	33	40	106	16
<b>Private schools</b>						
12	IMHSS	58	91	21	88	12
13	AGMHSS	61	51	65	177	10
14	AMHSS	47	43	79	169	11
15	GKNMHSS	47	74	67	188	10
16	PMMHSS	83	35	20	138	11
17	SPMMHSS	90	60	40	190	11
18	YWCMHSS	87	35	40	162	12
<b>Total</b>					<b>3026</b>	<b>215</b>

## Appendix – II

### Institutional Human Ethical Committees (IHEC) Approval Form

#### INSTITUTIONAL HUMAN ETHICS COMMITTEE



*Avinashilingam*

Institute for Home Sciences and Higher Education for Women

*University*

(Estd. u/s 3 of UCC Act, 1956)

**Chairman**

Dr. S. Ramalingam  
Principal, PSC Institute  
of Medical Sciences  
& Research, Coimbatore

**Member Secretary**

Dr. S. Uma Mageswari  
Associate Professor,  
Department of Food Service  
Management & Dietetics

**Members**

Dr. S. Kowsalya  
Dr. P.R. Padma  
Mr. K. Anilnelli (Legal Expert)  
Dr. K.S. Rohini  
Dr. A. Sarawathy  
Mrs. V. Mangayarkarasi  
Dr. Subhasini K. Sripathi  
Mrs. S. Radha Devi  
Dr. G. Victoria Naamini  
Dr. Judith Justin  
Dr. Anitha Sivasubramanian

19<sup>th</sup> March 2018

To

Ms. G. Vijaya Lakshmi  
Department of Human Development,  
Avinashilingam Institute for Home Science and  
Higher Education for Women  
Coimbatore – 641 043

Dear Vijaya Lakshmi,

Ref: Your proposal No. IHEC/17-18/HD/30 entitled  
"Interrelationship between Multiple Intelligence, Learning  
Approach and Academic Achievement of School going  
Adolescents" submitted for approval of the IHEC on 14<sup>th</sup>  
December.

The Institutional Human Ethics Committee of our University hereby  
grants approval to your research proposal No. IHEC/17-18/HD/30  
entitled "Interrelationship between Multiple Intelligence, Learning  
Approach and Academic Achievement of School going Adolescents"  
submitted by you. The Approval number for the same is AUW/  
IHEC/HD-17-18/XPD/30.

We wish you all the best in your research endeavours.

Regards,

*Dr. S. Uma Mageswari*  
Dr. S. Uma Mageswari  
Member Secretary



### Appendix- III

#### General background Questionnaire

1.Name					
2. Class	VI Std	VII std	VIII std		
3. Age	11 yrs	12 yrs	13 yrs	14 yrs	More than 14 yrs
4. Gender	Female	Male			
5.Father's Education	10 <sup>th</sup>	12 <sup>th</sup>	UG	PG	
6. Mother's education	10 <sup>th</sup>	12 <sup>th</sup>	UG	PG	
7.Type of family	Nuclear		Joint	Extended	
8. Type of school	Government		Aided	Private	
9. School located Area	Urban	Rural		Semi-urban	
10.Birth order	I <sup>st</sup>	II <sup>nd</sup>	III <sup>rd</sup>	Any other	
11. Locality of Residency	Urban	Rural		Semi-urban	

### Appendix- IV

#### Multiple Intelligence Inventory (MII)

S.No	Statements	Always	Mostly	Often	Rarely	Never
1.	You search for words to communicate					
2	If it easy to complete mathematical operations					
3	You take interest in playing physical games					
4	You use leisure time in drawing three- dimensional images					
5	You recognize music patterns after hearing them					
6	You have interest in plant and animal species of the world					
7	You love to express good feelings on face					
8	You understand yourself thoroughly					
9	Does life put many challenges to you?					
10	Do public speakers impress you very much?					
11	You keep yourself busy in calculations and quantification					
12	You prefer yoga exercises					
13	It is easy to point out the pattern and shape as soon as you look at the pictorial theme					
14	You enjoy playing musical instrument yourself					
15	You are fascinated by changes in weather, changing leaves in the fall, the sound of wind and warm sun					
16	You like to communicate to people on your personal interests					
17	Are your life values, beliefs and emotions not important to you?					
18	You know your strengths and weaknesses					
19	Is reading book your hobby?					
20	Do you prefer to analyse problems logically?					
21	You enjoy playing cricket					
22	You like the subject 'Zoology'					
23	You try to manipulate musical pattern yourself					
24	Collection of flowers and leaves give you pleasure					
25	You love to make friends					
26	You have a hobby of reading philosophical books					
27	Do you strive for self-fulfillment?					
28	You like to participate in debates and extempore speech					
29	You like to read about mathematicians					
30	Does performing gymnastics attract you?					
31	You are able to represent or draw all the images present in one's mind?					
32	Do you attend musical concerts if organized in your town?					
33	Are you interested in studying the species of different animals?					

34	Do you like to work in a team as a good team member?					
35	Are you inspired by the life history of great people?					
36	Are you interested in studying courses relating to humans and their behavior?					
37	You like reading novels					
38	You want to become a computer programmer					
39	You play foot ball and volley ball					
40	You use colour markers in your drawing					
41	You imitate sound and language patterns of others					
42	Have interest to study geography and biology					
43	Are you sensitive to other people's feeling and ideas?					
44	You have a strong sense of identity and purpose					
45	You very often anticipate the events that are likely to happen in future					
46	Are you interested in writing stories, poem, jokes for your school magazine?					
47	You cooperate with unsystematic way of doing things					
48	Given the opportunity, would you like to choose acting or dancing as profession?					
49	It is easy understand 3D geometry and mensuration in mathematics					
50	Are you interested in making music as your career?					
51	You like to know about the evolution of mountains, rivers and their deltas					
52	You convince others with your ideas and thoughts					
53	Do you like psychology?					
54	You don't like people with qualities namely truth, beauty and goodness					
55	You love to learn a new language					
56	You prefer specific answers in the class room discussion					
57	You like to become a sports coach					
58	You don't like photography					
59	You respect poets, musicians and popular composers					
60	You find studying of storms, waves and seas interesting					
61	You don't care to solve the conflict between people					
62	You feel yourself internally motivated and strong-minded					
63	You are attracted by the cultural peculiarities of different cultures					
64	You like people who speak fluently					
65	You don't like logical and national thinkers as your friend?					
66	You have lot of physical energy					
67	You identify and describe objects, shapes, colours easily					
68	Music does not easily improve your sense of spirituality					
69	You like to draw or videotape natural phenomenon					
70	You are effective in convincing people					
71	You are not able to assess you					
72	You meditate and relax for any problem					
73	You use at least one new word in your conversation					
74	You have interest in making mathematical models					
75	You don't like swimming					
76	You learn through shapes, patterns, designs and images					
77	You act out or make a new song with the tune of your favorite song					
78	You don't want to become a botanist					
79	You like to organize an event					
80	You make wise decisions?					
81	You are not worried about your self- image					
82	It is difficult to remember and reproduce your favorite song					
83	You understand the basic concept of idea					
84	You want to become a famous athlete					
85	You learn images and patterns very easily					
86	You can name all musical instruments					
87	You love to visit botanical garden					
88	You are referred as a philosopher					
89	You stop the work in between					
90	You strive for self –understanding					

## Appendix -V

### Learning Style Inventory (LSI)

S.No	Statements	Very much	Much	Average	Less	Very less
1	Understand the lessons taught by listening to tapes					
2	Viewing figures on the computer					
3	Explaining graphs in words					
4	Memorizing by listening to others					
5	Coping figures given in books with the help of carbon paper					
6	Write self-experience related to various activities in one's own words					
7	Reading loudly					
8	Making diagrams given in books by tracing with the help of a pointed object					
9	Asking teacher about the best solution from the many answer					
10	Reading self-written answers of various questions again and again.					
11	Making the figure given in books in mind					
12	Writing the method of doing any work step by step					
13	Memorizing the relevant subject matter by writing it					
14	Draw the figures by looking at the figures given in book					
15	Memorizing similarities in almost similar things					
16	Memorizing by silently telling it to oneself					
17	Drawing any figure again and again					
18	Memorizing difference in almost similar things					
19	Recalling things learnt to check how many of them have been memorized					
20	Seeing many figures related to a lesson					
21	Understanding explanations given in books					
22	Using equipment again and again					
23	Drawing diagrams related to any activity					
24	Relating content given in books to self-experience					
25	Performing activities given in books					
26	Find out similarities between two or more figures					
27	Relating thing to be learnt to one another					
28	Participating in activities related to learning a subject					
29	Find out difference between two or more figures					
30	Comparing two or more verbal descriptions					
31	Handling things while learning					
32	Draw graphs on the basis of data					
33	Considering any problem on the basis of various view-point					
34	Make self-efforts to make a model					
35	Draw diagram of organisms seen					
36	Reorganize information received from various sources					
37	Compare one's own new and old experiences					
38	Make diagrams of things seen by oneself					
39	Analyze the contents of many books while writing answer to questions					
40	Relate new experiences about activities done by oneself to one's old experiences					
41	Making main parts of every figure more attractive					
42	Add new ideas while reading the subject matter of any lesson					

## Appendix - VI

### Teaching Style Scale (TSS)

#### PART A

Age

Gender

Educational Qualification UG PG UG with B.Ed PG with B.Ed PG with M.Ed

Subjects Handled

Professional experience <1year 1-5 yrs 6-10 yrs more than 10 yrs

Type of the school Govt Private Aided

School Located Area Rural Urban Semi-urban

#### PART B

S.No	Area- I Statements	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1	Being confident in a subject, I challenge other person's thinking					
2	I feel fatigue when I continuously teach for 2 or 3 periods.					
3	I always like to teach in classroom setting on a chair					
4	I always try to connect with different resources to make teaching effective.					
5	I always give priority to those activities in which there is a possibility of innovation					
6	I always try to arrange a remedial teaching according to need					
7	I continuously assess my teaching					
8	I do not disagree to leave class ( not completing the content) calling by principal/ director immediately					
9	I feel that student become disturbed when teacher teaches with a walk in classroom					
10	Try to solve students problems before starting to teach					
11	I don't agree to provide only knowledge of content to student					
12	I cannot elaborate /describe content according to need.					
13	I use phrases, examples and proverb during explanation					
14	I solve the problem of students related to subject only not other problems.					
15	I do not accept any suggestion by others for my lesson presentation because I feel that I can present my lesson with competency					
16	I feel comfortable to teach in formal environment					
17	I prepare the work which has a sequences order					
18	I teach based on pre-decided objectives					
19	I do not accept to restrict the teaching in time					
20	I always like well organized and disciplined class room					
21	I can teach in a silent environment					
22	I do not feel necessary to take attendance of student firstly in class room					
23	I do not accept the question raised by students during teaching					
24	I do not accept the change in seating arrangement of student daily.					
25	I always give importance to my gesture during teaching					
26	I feel it correct to share my family related talks during teaching in a class room					
27	I do not like to repeat the content that I already told					

28	I do not agree to use methods like discussion, workshop and demonstration in class.					
29	I do not like to teach more strength student in class room.					
30	I always like to share personal talk than content related in class.					
31	When I teach in a class I always ask questions and try to solve through black-board					
32	I always use demonstration in my subject.					
33	I feel comfortable to teach with computer than charts and model					
34	I do not express myself best in the tasks which are of short time period.					
35	I do not feel it necessary to explain or describe content before demonstration					
36	I have competition with my colleagues for doing demonstration best					
37	I like student participation in demonstration instead for doing demonstration myself.					
38	I include creative work in my teaching time to time					
39	I do not like to provide written or verbal notes to student during demonstration.					
40	It seems essential to solve numerical problems on black board by students.					
41	I always help students only in class not outside the class					
42	I do not agree to share every knowledge with students.					
43	I provide guidance to students during teaching					
44	I like to get help from students and colleagues					
45	I solve the problem of students on personal phone contact or social site					
46	I appreciate to prepare notes with the help of internet by students					
47	I always guide the student to study more					
48	I provide appropriate reference list to student during teaching.					
49	I feel it correct to give tuition at home on students desire.					
50	I put effort for developing interest towards study in students.					
51	I do not like criticism towards my teaching form my other colleagues.					
52	I prefer to do my work with myself without any other help.					
53	I feel comfortable to do the work of my choice.					
54	I prefer to do the work with my colleagues as a group.					
55	I do my work better when I am observed during teaching					
56	I accept my teaching objective to enhance learning of my students					
57	I feel necessary the development of capability of independent thinking and working in student					
58	In classroom I always solve those questions which are prepared by me.					
59	I always try to motivate students for learning by different techniques.					
60	I take help of parents for development of students.					
	Total Score					

## Appendix – VII

### District Educational Officers (DEO)

கோயம்புத்தூர் முதன்மைக் கல்வி அலுவலரின் செயல்முறைகள்  
பிறப்பிடம்: திரு. வெ. அப்பண்ணை, எம்.காம்., பி.எட்., வடமில்.

ஒ.மு.எண்.15608 /ச5/ 2018

நாள் 02.01.2019

பெயர்	கோயம்புத்தூர் மாவட்டம் – அலிபு சிலிங்கம் பெண்டர் மணையிடல் மற்றும் உயர்கல்வி நிறுவன ஆராய்ச்சி மாணவி திருமதி.ஜி. விஜயலக்ஷ்மி என்பார் நடுநிலைப்பள்ளி மாணவர்களிடம் சமீபத்தில் கல்வி குறித்த சர்வே நடத்த அனுமதி கோரியது அனுமதி வழங்குதல் – சார்பு.
டார்வை	கோயம்புத்தூர், அலிபு சிலிங்கம் பெண்டர் மணையிடல் மற்றும் உயர்கல்வி நிறுவன உதவி பேராசிரியை மற்றும் மனிதவள மேம்பாட்டுத் துறைத் தலைவரின் கடிதம்.

டார்வையில் காண்கடிதத்தில் கோரப்பட்டுள்ளபடி, அலிபு சிலிங்கம் பெண்டர் மணையிடல் மற்றும் உயர்கல்வி நிறுவனத்தில் பட்டும் ஆராய்ச்சி மாணவி திருமதி.ஜி. விஜயலக்ஷ்மி என்பார், பள்ளி மாணவர்களின் சமீபத்தில் முறைகள் மற்றும் கல்வியில் நாட்டம் காட்டுகிறதேனும் பெரியநடவடிக்கைமாணவரும் ஒன்றியங்களில் உள்ள நடுநிலைப்பள்ளிகளில் அட்டும் சர்வே நடத்த கடிதத்தைப் பிற்பகுதிகளின் அடிப்படையில் அனுமதி அளிக்கப்படுகிறது.

#### நிபந்தனைகள்

1. பள்ளிக்கு செல்லும் நேரம் சம்பந்தப்பட்ட பள்ளித் தலைமை ஆசிரியரிடம் முன் அனுமதி பெற்றுச் செல்லவேண்டும்.
2. பள்ளியின் சுற்றல்-கற்பித்தல் சொல்பாடுகள் பாதிக்கப்படக்கூடாது.
3. சர்வே குறித்து பள்ளி மாணவர்களிடம் தொகை ஏதும் வசூலிக்கக்கூடாது.
4. மாணவர்களை இது தொடர்பாக கட்டாயப்படுத்துக்கூடாது.
5. சர்வே நடக்கும்போது பெற்றுப்பாடன ஓர் ஆசிரியரின் கண்காணிப்பு இருந்தல் வேண்டும்.
6. கல்வித் துறைக்குள்ளும் இது பாதிக்கா வண்ணம் சர்வே நடத்தப்பட வேண்டும்.

இது தொடர்பாக மேற்படி ஆராய்ச்சி மாணவி தங்களை அனுமதி கோரி மேற்காண் நிபந்தனைகளின் அடிப்படையில் ஒத்துப்படி நடவடிக்கை சம்பந்தப்பட்ட நடுநிலைப்பள்ளித் தலைமை.டார்பர்கள் கேட்டுக் கொள்ளப்படுகிறார்கள்.

முதன்மைக் கல்வி அலுவலர்,  
கோயம்புத்தூர்.

பெயர்  
நடுநிலைப்பள்ளித் தலைமைபாசிரியர்கள்.  
சென்னை மற்றும் பெரியநடவடிக்கைமாணவரும் ஒன்றியங்கள்.

நாள்: உதவி பேராசிரியை மற்றும் மனிதவள மேம்பாட்டுத் துறைத் தலைவர், அலிபு சிலிங்கம் பெண்டர் மணையிடல் மற்றும் உயர்கல்வி நிறுவனம், கோயம்புத்தூர்.

நாள்: வட்டாரக் கல்வி அலுவலர்கள், பேரார் மற்றும் பெரியநடவடிக்கைமாணவரும் ஒன்றியங்கள்.

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## Appendix - VIII Collinearity Statistics

Language:

Model		Coefficients <sup>a</sup>									
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	57.604	2.235		25.774	.000					
	MIlinguistic	.036	.074	.013	.489	.625	.056	.009	.009	.492	2.032
	MIlogical	.041	.076	.014	.542	.588	.044	.010	.010	.461	2.171
	MIbodily	.036	.091	.013	.395	.693	.057	.007	.007	.322	3.110
	MISpatial	.069	.092	.020	.749	.454	.035	.014	.014	.450	2.220
	MIMusical	.087	.089	.035	.979	.328	.046	.018	.018	.264	3.787
	MINaturalistic	.190	.091	.077	2.077	.038	.064	.038	.038	.242	4.128
	MIInterpersonal	-.091	.090	-.029	-1.019	.308	.024	-.019	-.018	.398	2.515
	MIIntrapersonal	.046	.095	.019	.491	.623	.054	.009	.009	.223	4.480
MIExistential	-.236	.106	-.092	-2.229	.026	.028	-.041	-.040	.195	5.128	
2	(Constant)	57.632	2.915		19.771	.000					
	MIlinguistic	.041	.077	.014	.530	.596	.056	.010	.010	.465	2.151
	MIlogical	.024	.078	.009	.310	.757	.044	.006	.006	.435	2.299
	MIbodily	.022	.094	.008	.237	.813	.057	.004	.004	.299	3.347
	MISpatial	.048	.093	.014	.516	.606	.035	.009	.009	.436	2.293
	MIMusical	.092	.090	.036	1.028	.304	.046	.019	.019	.261	3.828
	MINaturalistic	.203	.092	.082	2.198	.028	.064	.040	.040	.238	4.204
	MIInterpersonal	-.072	.091	-.023	-.790	.429	.024	-.014	-.014	.390	2.562
	MIIntrapersonal	.059	.095	.024	.613	.540	.054	.011	.011	.219	4.556
	MIExistential	-.250	.108	-.097	-2.322	.020	.028	-.042	-.042	.189	5.292
	LSEnactiveReproducing	.058	.059	.022	.975	.330	.021	.018	.018	.631	1.584
	LSEnactiveconstructive	.040	.113	.015	.354	.723	.012	.006	.006	.175	5.726
	LSVerbalreproducing	-.053	.050	-.020	-1.061	.289	-.013	-.019	-.019	.949	1.054
	LSVerbalconstructive	.018	.049	.008	.370	.711	.016	.007	.007	.738	1.355
LSFiguralReproducing	-.062	.062	-.021	-.998	.319	-.009	-.018	-.018	.741	1.350	
LSFiguralconstructive	.011	.109	.004	.098	.922	.010	.002	.002	.187	5.344	
3	(Constant)	62.760	5.373		11.681	.000					
	MIlinguistic	.093	.078	.032	1.198	.231	.056	.022	.022	.450	2.222
	MIlogical	.020	.078	.007	.251	.802	.044	.005	.005	.433	2.307
	MIbodily	.016	.094	.006	.170	.865	.057	.003	.003	.298	3.356
	MISpatial	.041	.093	.012	.444	.657	.035	.008	.008	.435	2.299
	MIMusical	.093	.089	.037	1.037	.300	.046	.019	.019	.260	3.843
	MINaturalistic	.186	.092	.075	2.023	.043	.064	.037	.037	.237	4.213
	MIInterpersonal	-.083	.090	-.026	-.914	.361	.024	-.017	-.017	.389	2.569
	MIIntrapersonal	.043	.095	.018	.453	.651	.054	.008	.008	.218	4.577
	MIExistential	-.232	.108	-.090	-2.158	.031	.028	-.039	-.039	.188	5.333
	LSEnactiveReproducing	.032	.059	.012	.535	.592	.021	.010	.010	.624	1.603
	LSEnactiveconstructive	.056	.114	.021	.491	.623	.012	.009	.009	.173	5.787
	LSVerbalreproducing	-.067	.050	-.025	-1.330	.183	-.013	-.024	-.024	.922	1.084
	LSVerbalconstructive	.041	.049	.018	.834	.405	.016	.015	.015	.732	1.367
	LSFiguralReproducing	-.055	.062	-.019	-.885	.376	-.009	-.016	-.016	.739	1.353
	LSFiguralconstructive	-.015	.110	-.006	-.133	.894	.010	-.002	-.002	.184	5.424
	TamilExpert_score	.269	.066	.081	4.054	.000	.048	.074	.073	.812	1.231
	TamilFormalAuthority_score	-.099	.050	-.043	-1.971	.049	-.008	-.036	-.036	.694	1.441
TamilDemonstration_score	-.157	.054	-.059	-2.937	.003	-.052	-.054	-.053	.801	1.249	
TamilFacilitator_Score	-.151	.093	-.039	-1.629	.103	-.027	-.030	-.029	.570	1.753	
TamilDelegator_Score	-.125	.066	-.038	-1.905	.057	-.033	-.035	-.034	.835	1.198	

a. Dependent Variable: Language

**English:**

		Coefficients <sup>a</sup>									
		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	52.889	2.186		24.189	.000					
	MIlinguistic	.143	.073	.051	1.958	.050	.059	.036	.036	.492	2.032
	MIlogical	-.024	.074	-.009	-.327	.744	.023	-.006	-.006	.461	2.171
	MIbodily	-.088	.089	-.032	-.993	.321	.025	-.018	-.018	.322	3.110
	MISpatial	.077	.090	.023	.859	.390	.034	.016	.016	.450	2.220
	MIMusical	.107	.087	.043	1.229	.219	.036	.022	.022	.264	3.787
	MINaturalistic	.120	.089	.050	1.346	.178	.042	.025	.024	.242	4.128
	MIInterpersonal	.000	.088	.000	-.002	.999	.028	.000	.000	.398	2.515
	MIIntrapersonal	-.017	.093	-.007	-.182	.855	.032	-.003	-.003	.223	4.480
MIExistential	-.158	.104	-.063	-1.521	.128	.020	-.028	-.028	.195	5.128	
2	(Constant)	52.348	2.846		18.391	.000					
	MIlinguistic	.122	.075	.043	1.630	.103	.059	.030	.030	.465	2.151
	MIlogical	-.045	.076	-.016	-.592	.554	.023	-.011	-.011	.435	2.299
	MIbodily	-.098	.092	-.035	-1.058	.290	.025	-.019	-.019	.299	3.347
	MISpatial	.039	.091	.012	.433	.665	.034	.008	.008	.436	2.293
	MIMusical	.113	.088	.046	1.287	.198	.036	.023	.023	.261	3.828
	MINaturalistic	.139	.090	.057	1.544	.123	.042	.028	.028	.238	4.204
	MIInterpersonal	.036	.088	.012	.407	.684	.028	.007	.007	.390	2.562
	MIIntrapersonal	.015	.093	.006	.163	.871	.032	.003	.003	.219	4.556
	MIExistential	-.187	.105	-.074	-1.784	.075	.020	-.032	-.032	.189	5.292
	LSEnactiveReproducing	.074	.058	.029	1.286	.199	.015	.023	.023	.631	1.584
	LSEnactiveconstructive	.074	.111	.029	.672	.501	.019	.012	.012	.175	5.726
	LSVerbalreproducing	.035	.048	.013	.716	.474	.016	.013	.013	.949	1.054
	LSverbalconstructive	.031	.048	.013	.638	.523	.012	.012	.012	.738	1.355
LSFiguralReproducing	-.202	.061	-.070	-3.329	.001	-.050	-.061	-.060	.741	1.350	
LSFiguralconstructive	.032	.107	.012	.297	.767	.018	.005	.005	.187	5.344	
3	(Constant)	60.065	4.778		12.570	.000					
	MIlinguistic	.118	.075	.042	1.585	.113	.059	.029	.028	.459	2.176
	MIlogical	-.067	.076	-.024	-.882	.378	.023	-.016	-.016	.433	2.307
	MIbodily	-.099	.091	-.036	-1.088	.277	.025	-.020	-.020	.298	3.355
	MISpatial	.071	.090	.022	.789	.430	.034	.014	.014	.435	2.300
	MIMusical	.091	.087	.037	1.048	.295	.036	.019	.019	.261	3.836
	MINaturalistic	.130	.089	.054	1.457	.145	.042	.027	.026	.238	4.206
	MIInterpersonal	.067	.088	.022	.758	.449	.028	.014	.014	.389	2.569
	MIIntrapersonal	-.009	.093	-.004	-.101	.919	.032	-.002	-.002	.219	4.575
	MIExistential	-.133	.104	-.053	-1.276	.202	.020	-.023	-.023	.188	5.327
	LSEnactiveReproducing	.066	.057	.026	1.147	.252	.015	.021	.021	.629	1.590
	LSEnactiveconstructive	.051	.110	.020	.468	.640	.019	.009	.008	.174	5.739
	LSVerbalreproducing	.056	.048	.022	1.153	.249	.016	.021	.021	.927	1.079
	LSverbalconstructive	.045	.048	.020	.934	.351	.012	.017	.017	.732	1.367
	LSFiguralReproducing	-.163	.060	-.057	-2.700	.007	-.050	-.049	-.049	.734	1.362
	LSFiguralconstructive	.045	.106	.018	.425	.671	.018	.008	.008	.186	5.371
	EnglishExpert_score	-.233	.063	-.071	-3.698	.000	-.075	-.067	-.066	.874	1.144
	EnglishFormalAuthority_score	.120	.047	.047	2.552	.011	.035	.047	.046	.944	1.060
EnglishDemonstration_score	.095	.055	.034	1.726	.084	-.020	.031	.031	.850	1.177	
EnglishFacilitator_Score	.160	.082	.040	1.963	.050	-.008	.036	.035	.797	1.255	
EnglishDelegator_Score	-.366	.058	-.130	-6.306	.000	-.113	-.114	-.113	.759	1.318	

a. Dependent Variable: English

## Mathematics:

Coefficients <sup>a</sup>											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	50.032	1.935		25.860	.000					
	MIlinguistic	-.342	.064	-.137	-5.304	.000	-.031	-.096	-.096	.492	2.032
	MIlogical	.182	.066	.073	2.758	.006	.054	.050	.050	.461	2.171
	MIBodily	-.102	.079	-.041	-1.295	.196	.027	-.024	-.023	.322	3.110
	MISpatial	.170	.079	.058	2.139	.033	.043	.039	.039	.450	2.220
	MIMusical	-.032	.077	-.015	-.419	.675	.027	-.008	-.008	.264	3.787
	MINaturalistic	.104	.079	.048	1.319	.187	.039	.024	.024	.242	4.128
	MIInterpersonal	-.010	.078	-.004	-.133	.894	.037	-.002	-.002	.398	2.515
	MIIntrapersonal	.212	.082	.099	2.590	.010	.053	.047	.047	.223	4.480
MIExistential	-.105	.092	-.047	-1.144	.253	.041	-.021	-.021	.195	5.128	
2	(Constant)	47.885	2.518		19.017	.000					
	MIlinguistic	-.322	.066	-.129	-4.870	.000	-.031	-.088	-.088	.465	2.151
	MIlogical	.141	.068	.057	2.090	.037	.054	.038	.038	.435	2.299
	MIBodily	-.143	.082	-.058	-1.754	.080	.027	-.032	-.032	.299	3.347
	MISpatial	.146	.081	.050	1.816	.069	.043	.033	.033	.436	2.293
	MIMusical	-.012	.077	-.006	-.159	.873	.027	-.003	-.003	.261	3.828
	MINaturalistic	.129	.080	.060	1.622	.105	.039	.030	.029	.238	4.204
	MIInterpersonal	.028	.078	.011	.364	.716	.037	.007	.007	.390	2.562
	MIIntrapersonal	.235	.082	.110	2.850	.004	.053	.052	.051	.219	4.556
	MIExistential	-.149	.093	-.067	-1.604	.109	.041	-.029	-.029	.189	5.292
	LSEnactiveReproducing	.150	.051	.067	2.945	.003	.076	.054	.053	.631	1.584
	LSEnactiveconstructive	.007	.098	.003	.073	.942	.037	.001	.001	.175	5.726
	LSVerbalreproducing	-.003	.043	-.001	-.061	.952	.008	-.001	-.001	.949	1.054
	LSverbalconstructive	-.016	.043	-.008	-.384	.701	.014	-.007	-.007	.738	1.355
LSFiguralReproducing	-.103	.054	-.040	-1.929	.054	.002	-.035	-.035	.741	1.350	
LSFiguralconstructive	.082	.094	.036	.864	.388	.040	.016	.016	.187	5.344	
3	(Constant)	90.052	5.076		17.742	.000					
	MIlinguistic	-.151	.067	-.060	-2.259	.024	-.031	-.041	-.040	.430	2.327
	MIlogical	.140	.066	.057	2.127	.033	.054	.039	.037	.433	2.307
	MIBodily	-.167	.079	-.068	-2.108	.035	.027	-.038	-.037	.298	3.359
	MISpatial	.122	.078	.041	1.558	.119	.043	.028	.027	.435	2.297
	MIMusical	.010	.076	.005	.138	.890	.027	.003	.002	.259	3.855
	MINaturalistic	.090	.078	.042	1.162	.245	.039	.021	.020	.237	4.225
	MIInterpersonal	-.024	.076	-.009	-.316	.752	.037	-.006	-.006	.388	2.580
	MIIntrapersonal	.171	.080	.080	2.124	.034	.053	.039	.037	.218	4.593
	MIExistential	-.143	.091	-.064	-1.581	.114	.041	-.029	-.028	.187	5.338
	LSEnactiveReproducing	.118	.050	.053	2.378	.017	.076	.043	.042	.629	1.590
	LSEnactiveconstructive	-.042	.095	-.018	-.436	.663	.037	-.008	-.008	.174	5.747
	LSVerbalreproducing	-.022	.042	-.010	-.539	.590	.008	-.010	-.009	.943	1.060
	LSverbalconstructive	.004	.042	.002	.101	.920	.014	.002	.002	.734	1.361
	LSFiguralReproducing	-.106	.052	-.042	-2.028	.043	.002	-.037	-.036	.733	1.365
	LSFiguralconstructive	.119	.092	.052	1.290	.197	.040	.024	.023	.187	5.351
	MathsExpert_score	-.067	.049	-.028	-1.351	.177	-.114	-.025	-.024	.714	1.400
	MathsFormalAuthority_score	-.328	.051	-.129	-6.457	.000	-.082	-.117	-.113	.773	1.294
	MathsDemonstration_score	-.223	.057	-.079	-3.895	.000	-.064	-.071	-.068	.751	1.331
MathsFacilitator_Score	-.810	.073	-.222	-11.070	.000	-.179	-.198	-.194	.764	1.309	
MathsDelegator_Score	.285	.053	.117	5.374	.000	.028	.098	.094	.646	1.547	

a. Dependent Variable: mathematics

Science:

Coefficients <sup>a</sup>											
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	48.427	1.650		29.343	.000					
	MIlinguistic	-.556	.055	-.257	-10.110	.000	-.089	-.181	-.180	.492	2.032
	MIlogical	.183	.056	.086	3.265	.001	.053	.059	.058	.461	2.171
	MIbodily	.093	.067	.044	1.386	.166	.060	.025	.025	.322	3.110
	MIspatial	.215	.068	.084	3.168	.002	.055	.058	.057	.450	2.220
	MIMusical	-.039	.066	-.021	-.595	.552	.034	-.011	-.011	.264	3.787
	MINaturalistic	.091	.067	.049	1.349	.177	.041	.025	.024	.242	4.128
	MIInterpersonal	.004	.066	.002	.067	.947	.044	.001	.001	.398	2.515
	MIIntrapersonal	.172	.070	.093	2.465	.014	.062	.045	.044	.223	4.480
MIExistential	-.097	.078	-.050	-1.238	.216	.054	-.023	-.022	.195	5.128	
2	(Constant)	46.349	2.150		21.554	.000					
	MIlinguistic	-.542	.057	-.251	-9.592	.000	-.089	-.172	-.171	.465	2.151
	MIlogical	.163	.058	.077	2.829	.005	.053	.051	.050	.435	2.299
	MIbodily	.072	.070	.034	1.037	.300	.060	.019	.019	.299	3.347
	MIspatial	.195	.069	.076	2.830	.005	.055	.052	.050	.436	2.293
	MIMusical	-.023	.066	-.012	-.342	.733	.034	-.006	-.006	.261	3.828
	MINaturalistic	.104	.068	.056	1.529	.126	.041	.028	.027	.238	4.204
	MIInterpersonal	.029	.067	.012	.430	.667	.044	.008	.008	.390	2.562
	MIIntrapersonal	.180	.070	.097	2.556	.011	.062	.047	.046	.219	4.556
	MIExistential	-.115	.079	-.060	-1.453	.146	.054	-.026	-.026	.189	5.292
	LSEnactiveReproducing	.080	.044	.041	1.826	.068	.082	.033	.033	.631	1.584
	LSEnactiveconstructive	.055	.084	.028	.653	.514	.044	.012	.012	.175	5.726
	LSVerbalreproducing	.004	.037	.002	.112	.911	.010	.002	.002	.949	1.054
	LSverbalconstructive	-.033	.036	-.019	-.911	.362	.009	-.017	-.016	.738	1.355
LSFiguralReproducing	-.045	.046	-.021	-.990	.322	.033	-.018	-.018	.741	1.350	
LSFiguralconstructive	.030	.081	.016	.377	.706	.045	.007	.007	.187	5.344	
3	(Constant)	57.358	3.538		16.214	.000					
	MIlinguistic	-.371	.057	-.172	-6.475	.000	-.089	-.117	-.112	.427	2.340
	MIlogical	.157	.056	.074	2.796	.005	.053	.051	.048	.435	2.301
	MIbodily	.038	.068	.018	.560	.576	.060	.010	.010	.298	3.354
	MIspatial	.190	.067	.075	2.844	.004	.055	.052	.049	.436	2.295
	MIMusical	.027	.064	.014	.417	.677	.034	.008	.007	.260	3.848
	MINaturalistic	.070	.066	.037	1.052	.293	.041	.019	.018	.237	4.215
	MIInterpersonal	-.038	.065	-.016	-.586	.558	.044	-.011	-.010	.388	2.580
	MIIntrapersonal	.127	.069	.069	1.852	.064	.062	.034	.032	.217	4.600
	MIExistential	-.152	.077	-.079	-1.972	.049	.054	-.036	-.034	.188	5.310
	LSEnactiveReproducing	.044	.042	.023	1.047	.295	.082	.019	.018	.628	1.593
	LSEnactiveconstructive	.009	.081	.004	.106	.916	.044	.002	.002	.174	5.741
	LSVerbalreproducing	.023	.036	.012	.649	.516	.010	.012	.011	.929	1.077
	LSverbalconstructive	-.039	.036	-.022	-1.090	.276	.009	-.020	-.019	.734	1.362
	LSFiguralReproducing	-.040	.045	-.018	-.887	.375	.033	-.016	-.015	.729	1.371
	LSFiguralconstructive	.040	.079	.020	.506	.613	.045	.009	.009	.187	5.358
	ScienceExpert_score	.098	.036	.049	2.696	.007	.104	.049	.047	.893	1.120
	ScienceFormalAuthority_score	-.426	.039	-.201	-11.052	.000	-.248	-.198	-.192	.908	1.102
	ScienceDemonstration_score	.008	.039	.004	.203	.839	.054	.004	.004	.741	1.349
ScienceFacilitator_Score	.221	.046	.103	4.794	.000	.140	.087	.083	.657	1.522	
ScienceDelegator_Score	-.051	.044	-.026	-1.162	.245	.066	-.021	-.020	.579	1.727	

a. Dependent Variable: Science

**Social Science:**

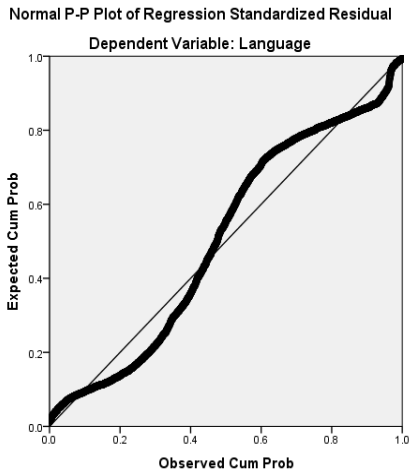
Coefficients <sup>a</sup>										
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	60.384	2.170		27.826	.000					
Mlinguistic	-.242	.072	-.087	-3.346	.001	-.039	-.061	-.061	.492	2.032
Mllogical	-.028	.074	-.010	-.376	.707	.004	-.007	-.007	.461	2.171
MIBodily	.051	.088	.018	.574	.566	.021	.010	.010	.322	3.110
MISpatial	-.105	.089	-.032	-1.180	.238	-.004	-.021	-.021	.450	2.220
MIMusical	-.149	.087	-.061	-1.722	.085	.003	-.031	-.031	.264	3.787
MINaturalistic	.015	.089	.006	.170	.865	.010	.003	.003	.242	4.128
MIInterpersonal	.063	.087	.021	.726	.468	.017	.013	.013	.398	2.515
MIIntrapersonal	.260	.092	.109	2.832	.005	.033	.052	.051	.223	4.480
MIExistential	.055	.103	.022	.537	.591	.017	.010	.010	.195	5.128
2 (Constant)	57.283	2.828		20.256	.000					
Mlinguistic	-.213	.074	-.076	-2.868	.004	-.039	-.052	-.052	.465	2.151
Mllogical	-.050	.076	-.018	-.653	.514	.004	-.012	-.012	.435	2.299
MIBodily	.024	.092	.009	.261	.794	.021	.005	.005	.299	3.347
MISpatial	-.121	.090	-.037	-1.337	.181	-.004	-.024	-.024	.436	2.293
MIMusical	-.125	.087	-.051	-1.432	.152	.003	-.026	-.026	.261	3.828
MINaturalistic	.027	.089	.011	.296	.767	.010	.005	.005	.238	4.204
MIInterpersonal	.086	.088	.028	.978	.328	.017	.018	.018	.390	2.562
MIIntrapersonal	.259	.093	.108	2.796	.005	.033	.051	.051	.219	4.556
MIExistential	.038	.104	.015	.367	.714	.017	.007	.007	.189	5.292
LSEnactiveReproducing	.096	.057	.038	1.680	.093	.046	.031	.030	.631	1.584
LSEnactiveconstructive	.096	.110	.038	.870	.384	.035	.016	.016	.175	5.726
LSVerbalreproducing	.007	.048	.003	.150	.881	.010	.003	.003	.949	1.054
LSverbalconstructive	-.074	.048	-.033	-1.545	.122	-.010	-.028	-.028	.738	1.355
LSFiguralReproducing	.008	.060	.003	.138	.890	.031	.003	.003	.741	1.350
LSFiguralconstructive	-.008	.106	-.003	-.079	.937	.033	-.001	-.001	.187	5.344
3 (Constant)	51.043	4.815		10.600	.000					
Mlinguistic	-.216	.076	-.077	-2.840	.005	-.039	-.052	-.051	.443	2.259
Mllogical	-.043	.076	-.015	-.562	.574	.004	-.010	-.010	.432	2.317
MIBodily	.016	.091	.006	.179	.858	.021	.003	.003	.298	3.358
MISpatial	-.121	.090	-.037	-1.336	.182	-.004	-.024	-.024	.435	2.298
MIMusical	-.118	.087	-.048	-1.353	.176	.003	-.025	-.024	.260	3.850
MINaturalistic	.041	.089	.017	.458	.647	.010	.008	.008	.237	4.217
MIInterpersonal	.076	.088	.025	.862	.389	.017	.016	.016	.389	2.570
MIIntrapersonal	.247	.093	.103	2.662	.008	.033	.048	.048	.217	4.601
MIExistential	.027	.104	.011	.259	.795	.017	.005	.005	.188	5.322
LSEnactiveReproducing	.102	.057	.040	1.777	.076	.046	.032	.032	.630	1.586
LSEnactiveconstructive	.116	.110	.046	1.056	.291	.035	.019	.019	.174	5.751
LSVerbalreproducing	- 3.906E- 5	.048	.000	-.001	.999	.010	.000	.000	.936	1.068
LSverbalconstructive	-.071	.048	-.031	-1.476	.140	-.010	-.027	-.027	.734	1.362
LSFiguralReproducing	-.006	.060	-.002	-.098	.922	.031	-.002	-.002	.732	1.367
LSFiguralconstructive	-.039	.106	-.015	-.363	.716	.033	-.007	-.007	.186	5.386
SocialExpert_score	.036	.063	.012	.564	.573	.032	.010	.010	.666	1.502
SocialFormalAuthority_score	.075	.040	.036	1.899	.058	.032	.035	.034	.914	1.095
SocialDemonstration_score	-.141	.060	-.048	-2.340	.019	-.035	-.043	-.042	.766	1.306
SocialFacilitator_Score	.244	.071	.087	3.424	.001	.067	.062	.062	.503	1.988
SocialDelegator_Score	-.048	.051	-.021	-.935	.350	.008	-.017	-.017	.621	1.611

a. Dependent Variable: social

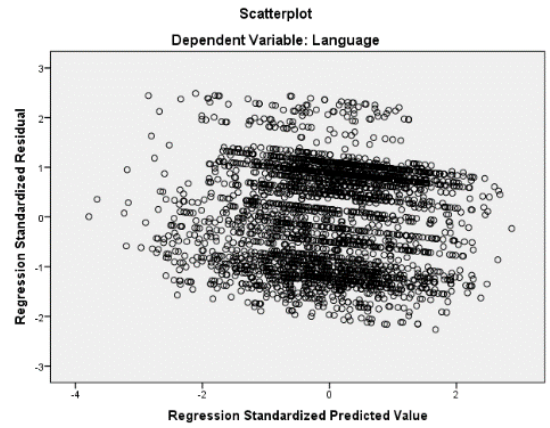
# Appendix - IX

## Residual and Scatter Plots

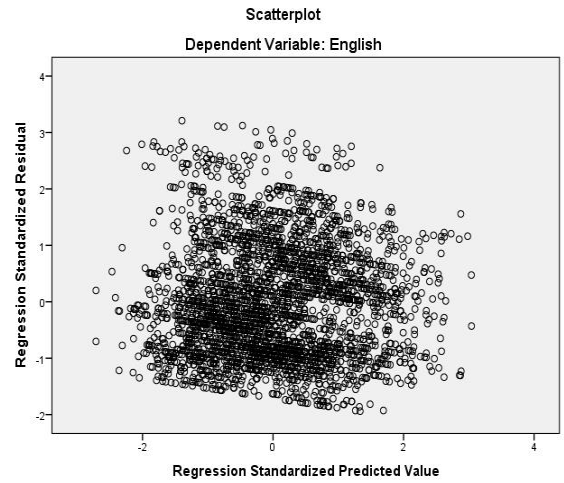
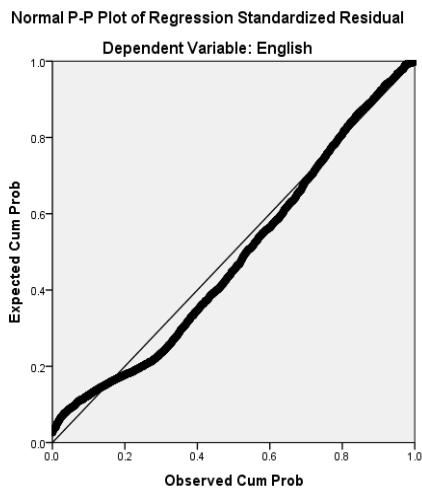
Language:



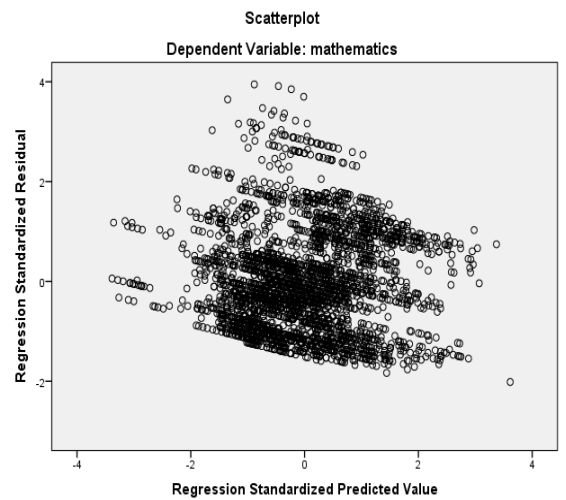
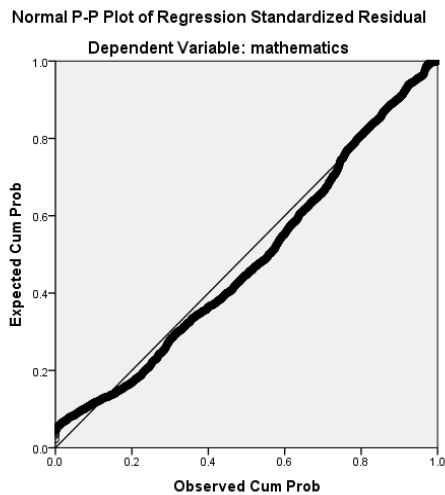
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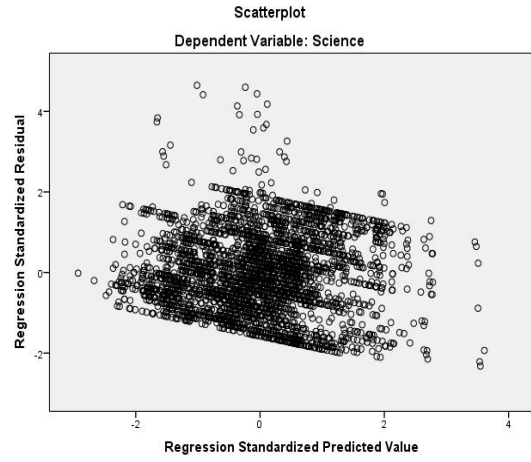
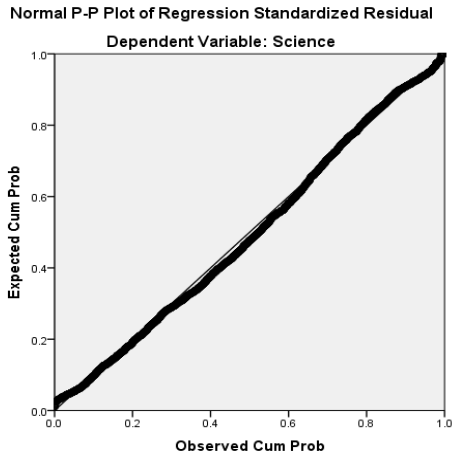
English



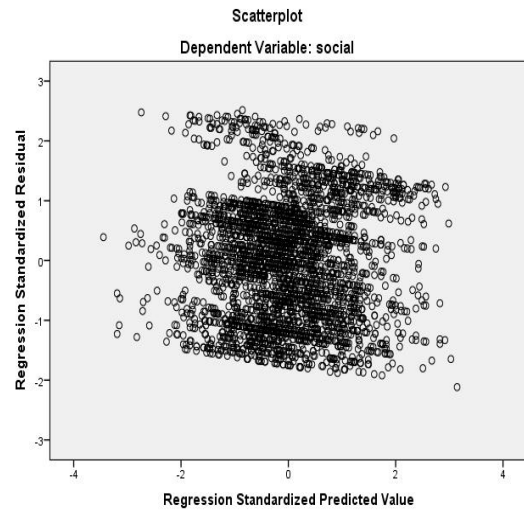
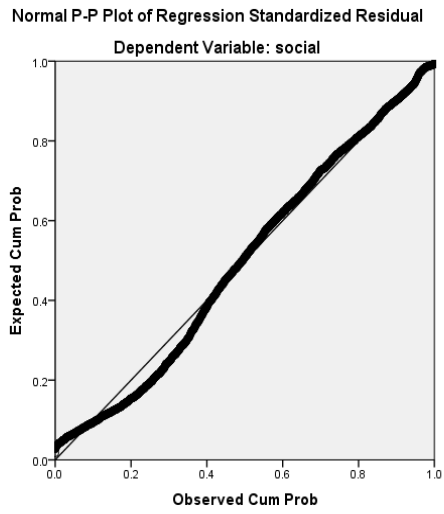
Mathematics:



## Science:



## Social Science:





## Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD  
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC  
Coimbatore - 641 043, Tamil Nadu, India

### Appendix L2 (Item No 5 of check List) Details of Research Publications

S.No	Article	Journal	Other Details Vol/No/Page No/ Year	Published in UGC-CARE / Scopus Indexed/ Web of Science
1	Learning Styles of School-going children	Research and Reflections on Education	Vol.20, Page no 2-7 July - September 2022	Published in UGC care Group -I
2	Learning Styles and Academic Achievement of school children - An exploratory study	THE JOURNAL OF RESEARCH ANGRAU	Vol.51(1), Page no 121- 128 January - March 2023	Published in UGC care Group -I

\*Proof of list of Journals from Internet to be attached along with copies of reprints.

Scholar

A. Lakshmi  
13/6/2023

Supervisor

Anvika Narasimhan  
13/6/23

Checked By:

[Signature] 13/6/23  
[Signature] 13/6/23  
HoD/Dean of Respective School

The scholar Miss. Vijaya Lakshmi, G<sub>1</sub> (17PHHDPO02) has published her article in "Research and Reflections on Education" Vol. 20, No. 3, July-Sep. 2022 which is indexed in UGC care Group I and

2. The research journal of ANGRAU, Vol. 51  
2. The Journal of Research ANGRAU, Vol. 51, No. 1, Jan-Mar. 2023 - which is indexed in UGC Care Group I.

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14.06.23

**ABSTRACT**

*Learning Style (LS) is the way that the learner children use to learn, observe, process, comprehend and retain information. Individualized learning styles received popularity in the 1970s and have immensely influenced education. Interestingly, there have been mixed reactions from proponents regarding the learning style of students and likewise the classroom teaching methods. Intrigued by this, an attempt has been made by the researcher in getting to know more about the learning style adopted by the school-going children. Adopting a descriptive cross-sectional research design, a total of 3026 school children were selected as a sample in the age group of 11-15 years. Two tools namely a general profile questionnaire to get the socio-demographic details and a standardized Learning Style Inventory (LSI) tool developed by Misra (2012) to assess the learning styles of the respondents were used. The LS scale measures six dimensions of learning patterns and each dimension has seven statements with a five-point Likert scale. The minimum to the maximum range of scores was 42 to 210. The key findings are as follows -A great majority of the target respondents preferred a single learning style and the Constructive type of learning is preferred over reproducing learning style among the school children. Enactive constructive, figural reproducing, and verbal reproducing learning styles were significantly influenced by one or more socio-demographic predictors. The significant predictors were the type of school, area of residence, mother's education, and a class of study. However, the enactive reproducing and verbal constructive types of learning are observed to be completely independent of the socio-demographic factors when put together as well as when considered as individual factors. The figural constructive type of learning though not dependent on socio-demographic factors as a total, the type of school was found to influence the figural constructive patterns of learning. The present study would aid the school children's awareness of learning style and its importance in uplifting their overall performance. It would also help in giving valuable inputs to their teachers in understanding the relevance and significance of learning style in improving the all-around performance of school-going children.*

**Key Words :** Learning Style, Enactive Constructive, Enactive Reproducing, Figural Constructive, Figural Reproducing, Verbal constructive, Verbal Reproducing

**Introduction**

Although learning style benefits all aspects of one's life - personal, academic, and professional - it is considered as the stepping stone as far as academics is concerned as academics form the base for the rest to blossom. Hence, school children, in particular, can be considered as the main beneficiaries as it aids in laying a sound foundation for them that would help them in the long run. Many educationists too have talked about the importance of learning style. Ellington and Benders (2012) have discussed this and mentioned that learning style has a crucial role in the lives of school-going children as it helps them in self-assessment and self-improvement. Hence, by realizing the importance of learning styles of school children specifically, the current study was carried out to not only understand their learning

styles but go one step further and try to understand the effect of certain socio-demographic variables on the various learning styles of the selected sect of children.

**Significance of the study**

Learning Style (LS) is the way that the learner children use to learn, observe, process, comprehend and retain

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information. The study's key findings would aid the educationists in better understanding the predictor variable(s) for each type of learning style adopted by the children, and thereby it could act as a base to better stimulate the necessary learning styles that would further trigger the children to perform better academically.

**Objectives**

1. To identify the preferred Learning Style (LS) of the selected school children
2. To find out the effect of socio-demographic variables on each of the Learning Styles (LS)

**Methodology**

School-based descriptive cross-sectional research design was adopted with specific inclusion criteria to identify the schools as well as the sample of the study. 3026 school children were selected from the 6th, 7th, and 8th classes. Two tools namely a general background questionnaire to elicit the socio-demographic profile and a Learning Style Inventory (LSI) by Misra (2012) were used. The two major domains and their dimensions of LSI are 1. Reproducing domain - Enactive Reproducing, Figural Reproducing, and Verbal Reproducing 2. Constructive domain - Enactive Constructive, Figural Constructive, and Verbal Constructive. Seven statements in each of the six dimensions were scored based on the target respondents' preference pattern (very much-5, much-4, average-3, less-2, very less-1). The maximum time allowed to fill in the LS inventory was 15 minutes. The score ranged between 42 and 210. The data were subjected to statistical analysis through SPSS and multiple regression analysis was carried out to find out the effect of socio-demographic factors on learning styles. The key findings of the study are discussed below

**Results and Discussion**

**Socio-demographic profile of selected school-going children**

Class-wise distribution: 34% were in the 7th class, closely followed by 8th and class 6.

Gender-wise distribution: Girls had a higher representation of 52% when compared to their counterparts.

Distribution based on the educational status of parents: 34% of the fathers and 36.3% of the mothers of the

respondents have completed their secondary level of education, 31%, and 28% were graduate fathers and mothers respectively, and only 13.5% and 10.5% were postgraduates' fathers and mothers.

Distribution based on occupational status of parents: Fathers involved in business were nearly three times greater than mothers doing business. An equal percentage of parents (13.6%) were found to be government employees, whereas there is a wide difference between the fathers (33%) and mothers (44.5%) employed in the private sector. More than 1/4th of the mothers were house-wives.

Distribution based on the structure of the family : Just above 1/4th of the children hail from joint families (27.9%) and around 64% belong to nuclear families.

Distribution based on the type of school : Only 15% are enrolled in government schools. However, the enrolment in aided schools was higher (45.5%), followed by private schools (39.4%).

Birth order-based distribution : Around 52% of the children under study are firstborn.

Distribution based on the locale of residence : 45% of them hail from semi-urban areas and 34.8% are from urban areas. The number of students residing in rural areas was only 20.6%.

**Objective 1:** Preferred Learning Style of the selected school children.

**Table 1**  
**Preferred Learning Style of the respondents**

Preferred Learning style	N	%	Preferred Domain of Learning Style	N	%
Enactive Reproducing	336	11.10	Reproducing learning	1200	40
Figural Reproducing	261	8.63			
Verbal Reproducing	603	19.93			
Enactive Constructive	713	23.56	Constructive Learning	1660	55
Figural Constructive	253	8.36			
Verbal Constructive	694	22.93			
Multiple Learning Style	166	5			
<b>Total</b>	<b>3026</b>	<b>100</b>			

The enactive constructive learning style tops the list with 23.56% of the respondents following it. The finding indicates the preference of school children to conceptualize their experiences based on learning. The verbal constructive style was not very far behind as 22.93% of the children were found using it. This style of learning states the preference for reflective, accommodative, and abstract thinking on a concept to advance the conceptualization. Nearly 20% of them preferred the verbal reproducing style. In other words, they prefer written or spoken information concerning the concept communicated with the help of words. The enactive reproducing learning style was adopted by just 11% of the children. These children preferred action-based concrete experiences in which the accent is on imitation and practice.

The figural reproducing style of learning is one's preference for visual experiences related to making diagrams, charts, pictures, maps, and photographs, and was preferred by 261 children. However, a more or less equal number of children have had (253) figural constructive process as their learning style as they learn through figural

experiences leading to conceptualizations. Very few children (166) use more than one learning style.

This finding poses the question of whether two or more learning style is beneficial for uplifting their performance.

Further, it can be inferred from the above table that the constructive type of learners (1660) is more than reproducing type of learners (1200). This suggests that the children prefer to conceptualize based on the processing of information received rather than reproducing by imitation and practice, which is a welcoming feature. Though it can be said that the education system and pattern have evolved with time, even today as far as the Samacheer syllabus is concerned a good reproduction of subject matter earns better grades academically. Hence, practically children need to be more oriented toward easy methods of reproducing the concepts so that they can perform well academically.

**Objective 2:** Effect of socio-demographic variables on each of the Learning Styles (LS)

**Table 2**  
**Influence of socio-demographic variables on the children's Learning Style**

Variables	Regression Coefficient B	Std. Error	Beta	T	R	R-Square	F df-11
<b>Enactive Reproducing type</b>							
<b>Constant</b>	<b>22.838</b>	<b>0.865</b>		<b>0.000</b>			
Class	0.235	0.121	0.04	1.941 <sup>ns</sup>	0.067	0.004	1.357 <sup>ns</sup>
Gender	0.074	0.198	0.01	.374 <sup>ns</sup>			
Father's Education	0.033	0.105	0.01	.314 <sup>ns</sup>			
Mother's Education	-0.156	0.108	-0.03	-1.442 <sup>ns</sup>			
Father's Occupation	0.046	0.058	-0.02	.811 <sup>ns</sup>			
Mother's Occupation	-0.03	0.067	-0.01	-.448 <sup>ns</sup>			
Type of family	0.085	0.153	0.01	.551 <sup>ns</sup>			
Type of School	-0.18	0.125	-0.03	-1.441 <sup>ns</sup>			
Birth order	-0.109	0.102	0.02	1.064 <sup>ns</sup>			
Area of residence	-0.207	0.15	-0.03	-1.449 <sup>ns</sup>			

<b>Enactive Constructive type</b>							
<b>Constant</b>	<b>25.731</b>	<b>0.856</b>		<b>30.058</b>			
Class	0.15	0.12	0.02	1.257 <sup>ns</sup>			
Gender	0.016	0.196	0.02	.081 <sup>ns</sup>			
Father's Education	-0.058	0.104	-0.01	-554 <sup>ns</sup>			
Mother's Education	-0.095	0.107	-0.02	-889 <sup>ns</sup>			
Father's Occupation	0.059	0.057	0.02	1.023 <sup>ns</sup>	0.078	0.006	<b>1.841*</b>
Mother's Occupation	-0.004	0.066	-0	-.062 <sup>ns</sup>			
Type of family	-0.167	0.152	-0.02	-1.099 <sup>ns</sup>			
Type of School	-0.421	0.123	-0.07	<b>-3.413**</b>			
Birth order	0.029	0.101	0.01	.290 <sup>ns</sup>			
Area of residence	-0.229	0.148	-0.03	-1.541 <sup>ns</sup>			
<b>Figural Reproducing type</b>							
Constant	22.367	0.758		29.496			
Class	-0.218	0.106	-0.04	<b>-2.053*</b>			
Gender	0.149	0.173	0.02	.861 <sup>ns</sup>	0.099	0.01	<b>2.966**</b>
Father's Education	0.115	0.092	0.03	1.244 <sup>ns</sup>			
Mother's Education	-0.393	0.095	-0.09	<b>-4.147**</b>			
Father's Occupation	0.022	0.051	0.01	.432 <sup>ns</sup>			
Mother's Occupation	-0.04	0.059	-0.01	-.674 <sup>ns</sup>			
Type of family	0.113	0.134	0.02	.843 <sup>ns</sup>			
Type of School	0.069	0.109	0.01	.628 <sup>ns</sup>			
Birth order	0.094	0.089	0.02	1.054 <sup>ns</sup>			
Area of residence	0.27	0.131	0.04	<b>2.051*</b>			
<b>Figural Constructive type</b>							
<b>Constant</b>	<b>25.201</b>	<b>0.859</b>		<b>29.323</b>			
Class	0.032	0.12	0.01	0.269			
Gender	0.062	0.197	0.01	0.316			
Father's Education	-0.017	0.105	-0	-0.162	0.064	0.004	1.245 <sup>ns</sup>
Mother's Education	-0.042	0.107	-0.01	-0.395			
Father's Occupation	0.099	0.057	0.03	1.729			

Mother's Occupation	0.066	0.067	0	0.091			
Type of family	-0.178	0.152	-0.02	-1.17			
Type of School	-0.335	0.124	-0.06	<b>-2.700**</b>			
Birth order	0.005	0.101	0	0.052			
Area of residence	-0.112	149	-0.02	-0.751			

<i>Verbal Reproducing type</i>							
<b>Constant</b>	<b>27.536</b>	<b>0.84</b>		<b>32.763</b>			
Class	0.278	0.118	0.04	<b>2.368**</b>			
Gender	-0.359	0.192	-0.04	-1.867 <sup>ns</sup>			
Father's Education	-0.094	0.102	-0.02	-.921 <sup>ns</sup>	0.118	0.014	<b>4.262**</b>
Mother's Education	0.057	0.105	0.01	.545 <sup>ns</sup>			
Father's Occupation	0.003	0.056	0	.060 <sup>ns</sup>			
Mother's Occupation	0.02	0.065	0.01	.305 <sup>ns</sup>			
Type of family	-0.18	0.149	-0.02	-1.210 <sup>ns</sup>			
Type of School	-0.377	0.121	-0.07	<b>-3.109**</b>			
Birth order	-0.188	0.099	-0.03	-1.864 <sup>ns</sup>			
Area of residence	-0.636	0.146	-0.09	<b>-4.368**</b>			

<i>Verbal Constructive type</i>							
<b>Constant</b>	<b>24.132</b>	<b>0.957</b>		<b>25.206</b>			
Class	-0.15	0.134	-0.02	-1.118 <sup>ns</sup>	0.054	0.003	.893 <sup>ns</sup>
Gender	0.002	0.219	0	.008 <sup>ns</sup>			
Father's Education	-0.143	0.117	-0.03	-1.228 <sup>ns</sup>			
Mother's Education	0.085	0.12	0.02	.713 <sup>ns</sup>			
Father's Occupation	-0.117	0.064	0.03	-1.823 <sup>ns</sup>			
Mother's Occupation	-0.03	0.074	-0.01	-.403 <sup>ns</sup>			
Type of family	0.197	0.17	0.02	1.158 <sup>ns</sup>			
Type of School	-0.008	0.138	-0	-.059 <sup>ns</sup>			
Birth order	-0.153	0.113	-0.03	-1.359 <sup>ns</sup>			
Area of residence	-0.019	0.166	-0	-.116 <sup>ns</sup>			

\*\* Significant at 1% level, \* Significant at 5% level, Ns –not significant

The results of multiple regression  $R^2=.010$ ,  $F=2.966$ ,  $p<.01$ , and  $R^2=.014$   $F$  value = 4.262,  $p<.01$  confirm that socio-demographic factors significantly influence the figural reproducing and verbal reproducing type of learning style among children. The  $R^2$  value further revealed that there was a 1.0%, and 1.4% variance in the children's figural reproducing and verbal reproducing type of learning style scores respectively and the selected independent variables have explained it. Moreover, the results of multiple regression demonstrate  $R^2=0.06$ ,  $F=1.841$ ,  $df=11$ ,  $p<.05$ , where  $R^2$  exposed that there was 0.6% variance in children's enactive constructive type of learning scores concerning various socio-demographic factors and showed significance at 5% level. The other learning styles namely enactive reproducing, verbal constructive, and figural constructive shows an insignificant variance and are not described by the selected demographic predictors.

At a glance at each predictor, the enactive reproducing style of learning adopted by children is completely independent of the socio-demographic factors. Nirjesh and Sharma (2018) mentioned that the term reproducing learning style means to produce the learned subject in the same manner as it was. Going by this, it can be said that the enactive reproducing type of learning involves more of an individual's efforts than being influenced by any other factor. The researcher perceives that this might be the reason for the socio-demographic variables not influencing the above-mentioned type of learning style. A study carried out by Singh et al. (2015) also revealed no significant effect of demographic variables on the learning style of school-going children.

For the enactive constructive type of learning, the  $t$  and  $p$ -value of each of the predictors specified that type of school ( $F=-3.413$ ,  $p<.01$ ) alone to be significant at a 1% level. The study done by Bhat and Govil (2014) reveals that the type of institution in which the learner studies (Government/Private) significantly affect the preference of learning style. This further reinforces the crucial role the teachers play in shaping the academic profile of school children.

By looking at each of the independent variables with that of the figural reproducing type of learning, it can be

stated that the educational status of mothers ( $-4.147$ ,  $p<.01$ ) alone was significant at a 1 percent level.

A study by Singh et al. (2015) too revealed that there was a significant impact of the mother's educational level on the learning style of school children. Two other variables namely class of study ( $-2.053$ ) and area of residence (2.051) were found to be significant at a 5% level.

Looking at the individual  $p$  and  $F$  value of figural constructive learning style, the predictor, the type of school ( $-2.700$ ) alone seems to play a significant influencing role in figural constructive type learning of the respondents. Going by the very definition of this type of learning style it requires the guidance and hand-holding of able school teachers.

Three out of ten factors showed a 1% level of significance in inducing the verbal reproducing learning style. They were class (2.368), type of school ( $-3.109$ ), and area of residence ( $-4.368$ ). Eighth standard students were found to have adopted the verbal reproducing type of learning style. Further research is needed to analyze the reason for these predictors.

From the  $t$  and  $p$ -value of each variable, it is evident that none of the predictors showed any significant difference in the school-going children's verbal constructive type of learning. A constructive learning style means that all the knowledge is constructed from the learner's previous knowledge, regardless of how one is taught (Misra, 2005). Hence, it can be concluded the constructive type of learning is just an attempt of the child and doesn't depend on socio-demographic predictors.

### Conclusion

The study revealed that a high majority of the target respondents prefer one single Learning Style (LS) as their predominant pattern of learning. Enactive reproducing and verbal constructive types of learning are observed to be completely independent of the socio-demographic factors when put together as well as when considered as individual factors. However, the figural constructive type of learning though not dependent on socio-demographic factors as a total, the type of school was found to influence the figural constructive patterns of learning. The other three types of learning namely enactive constructive, figural reproducing, and verbal reproducing learning styles were significantly

Continued on Page 14

integrates as one. The paper highlights how teachers are the sole torch-bearers of this integration in the CLIL approach and how a “hybrid” teacher comes into the forefront with the content and language teachers’ collaborative efforts. It also highlights the importance of teachers’ workshops to help with the approach. This study is limited in terms of respondents it reached and provided the scope for more research on the approach, making it more acceptable in the Indian educational system.

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influenced by one or more socio-demographic predictors. The significant predictors were the type of school, area of residence, mother’s education, and a class of study.

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## LEARNING STYLE AND ACADEMIC ACHIEVEMENT OF SCHOOL CHILDREN - AN EXPLORATORY STUDY

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### ABSTRACT

This study explored the interrelationship between Learning Style (LS) and Academic Achievement (AA) of students (11-15 years old) enrolled in schools following the Samacheer Kalvi syllabus (Unified Education Board of the state of Tamil Nadu) among a total of 3026 school-going children from the four zones of Coimbatore in the state of Tamil Nadu during November 2021 to March 2022. A cross-sectional research design was used. Misra's Learning Style Inventory (LSI) was administered to define the Learning Style of the children. AA was analysed using their yearly report card for five major exams. Subject-wise average marks scored (Tamil, English, Mathematics, Science, and Social Science) were computed and graded. Children's learning style was found to be significantly associated with all the subjects except the second language (Tamil). The enactive reproducing style had a positive impact on their academic achievement in English, Mathematics, and Science. Verbal constructive style affected their academic achievement negatively. Figural constructive and figural reproducing learning styles were found to have a positive impact on Mathematics, Science, and Social Science.

**Keywords:** Academic Achievement, Learning Style, School-going children

### INTRODUCTION

Learning Styles (LS) are how children learn, observe, process, and retain information and have immensely influenced education. Learning Style (LS) is a concept that can be traced back to as early as 334 BC when Aristotle opined that each child possesses a specific set of talents and skills. In the early 1900s, there were many theories relating to this but later on, research in this area

witnessed a downtrend as students' IQ and academic achievement garnered more attention comparatively. However, in the last half of the 1900s it again picked up momentum and a lot of research has been happening relating learning style to teaching and academic achievement of children (Sabnam and Usashi, 2022).

"Styles play a role in the way students learn. Each one of us is born with certain

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biological characteristics favouring a particular style which are later influenced by other factors such as culture, family, self-experience, etc.” (Tiwana, 2019). Educationist and Learning Style Inventory developer Karuna Shankar Misra defined “Learning style as how one internally represents experiences and recalls or processes information. He also categorized learning styles as Enactive Reproducing - Preferences towards processing action-based concrete experiences, and its emphasis is on imitation and practice, Enactive constructive - Preferences towards conceptualizing one’s experiences based on the processing of enactive information. Figural reproducing - Preferences for visual experiences related to making diagrams, charts, pictures, maps, and photographs. The emphasis is on imitation and practice. Figural constructive - Preferences to process the figural experiences and facilitates leading to conceptualization. Verbal reproducing - Preferences for written or spoken information related to the subject matter communicated through words. Verbal constructive - Preference for reflective, accommodative, and abstract thinking about the subject matter to develop conceptualizations”.

There is general acceptance of the perception that the manner in which an individual chooses a learning style has a direct impact on their Academic Achievement (AA). Many research studies have proved this fact. Nissei (2015) carried out a correlation study between learning styles and academic achievement among secondary school students in Kenya. The study’s findings revealed that there exists a positive correlation

between the LS and the AA of their target respondents.

Singh and Cutting’s (2018) study focused to determine the interrelationship between LS on AA of government and private secondary school students. The key findings stated that the kinesthetic learning style was found to be more used than the visual and auditory styles of learning. Though all three types of learning styles (visual, auditory, and kinesthetic) were found to be significant with respect to academic achievement, a strong positive correlation between kinesthetic learning style and academic achievement was observed.

Munir *et al.* (2018) carried out a study to identify secondary school children’s LS and AA. Learning Style Inventory (LSI) by Canfield (1992) was used to analyze the students’ learning styles and their previous academic year examination results were used to assess their academic achievement. This study revealed no remarkable relationship between LS and AA.

In line with the above, the researcher made an attempt to explore the association between the LS and AA of school-going children. The study was unique in two ways 1) Almost all studies on learning style focused on the influence of learning style with that of academic achievement as a whole except for a few on various subjects of learning 2) No study had been conducted with Samacheer Kalvi (Unified Education Board of Tamil Nadu). The objective of the study is to assess the relative contribution of the learning styles (predictors) over the subject-wise academic achievement (outcome).

## MATERIALS AND METHODS

A descriptive cross-sectional research design (with certain inclusion criteria) was used in identifying the 18 schools and the study sample. A total of 3026 school-going (11-15 years) children (Girls -1569, boys - 1457) participated from the schools following the Samacheer Syllabus in Coimbatore city of Tamil Nadu and the study was carried out during the period of November 2021 to March 2022.

Learning Style Inventory (LSI) tool developed by Karuna Shankar Misra (2012) was applied to define the learning style of the selected school children. "A total of 42 statements on this inventory assess the six types of learning styles, which are: enactive reproducing, enactive constructive, verbal reproducing, verbal constructive, figural reproducing, and figural constructive. Each domain had seven statements. Every statement was scored on a Likert Scale of Very much - 5, Much - 4, Average - 3, Less - 2, Very less - 1. The score ranged from 42 to 210. An average score had been calculated in determining the learning style of the children, dividing the scores received by the children from every seven statements in total for each style. According to the standard values identified in the LSI assessment guideline, the raw score of each inventory, based on the respondent's answer was taken into account for statistical analysis. A time limit of 15 minutes was provided to the target respondents to fill up the Inventory".

To appraise the Academic Achievement (AA) of the selected school children, their report/mark cards were procured. The

average marks of five major subjects (Tamil, English, Mathematics, Science, and Social science) in the five major exams conducted in an academic year were taken into account. The subject-wise average marks were categorized into six grades. The Likert Scale of grading system (a commonly used grading system by the schools of Tamil Nadu) was used, *i.e.* Outstanding (95%-100%), Excellent (81%-94%), Very good (61%-80%), Good (60%-41%), Average (40%-21%), and Poor (20%-1%).

Considering the six types of learning styles as predictor variables and each of the five academic subjects as outcome variables (separately) the concerned data was subjected to multiple linear regression analysis as this type of regression aids best in estimating the relationship between two or more independent variables and one dependent variable.

## RESULTS AND DISCUSSION

The results of multiple regression in terms of overall contribution to the subject-wise academic achievement ( $R^2=.019$ ,  $F=9.924$ ,  $p<.01$ ;  $R^2=.019$ ,  $F=9.649$ ,  $df =6$ ,  $p<.01$ ;  $R^2=.040$ ,  $F=20.708$ ,  $p<.01$  and  $R^2=.006$ ,  $F=3.157$ ,  $p<.01$ ) revealed that the academic achievement in English, Mathematics, Science, and Social Science were significantly influenced by the learning style adopted by the selected children. However, the second language – Tamil, the regional language of the State of Tamil Nadu was not predicted by the learning style adopted by the selected children.

The independent 't' and 'p' values denoting the relative contribution of the types of learning style with the academic achievement in the specified subjects were:

**Tamil:** Looking at the t and p-value of each predictor and the overall R-value of the academic achievement in the Tamil subject, it was confirmed that none of the learning styles was found to influence the learning of the subject Tamil (second language).

**English:** Enactive reproducing style of learning (5.607,  $p < .01$ ) and verbal constructive style of learning (-4.304,  $p < .01$ ) were the significant predictors of the academic achievement of children as far as the English Subject was concerned.

The enactive reproducing learning style emphasizes learning through imitation and practice. Hence, the selected set of children was said to learn English as a subject by just using the action-based concrete experience and hence, the positive regression weight. In other words, learning by imitation practice without conceptualizing or processing information facilitated their learning of English. The absence of just reproducing the learned vocabulary (verbal reproducing style) among these children has to be looked at as lacunae of academicians in bridging the gap towards learning a foreign language. The significant negative weight of the verbal constructive type of learning, vividly portrayed that, a child when using this constructive style, they do not perform well in their English subject. However, the reason was owed to the fact that these children do not use the verbal constructive style of learning appropriately as it necessitated the conceptualizing skills.

A study conducted by Anuradha and Rakhi (2021) found that the enactive type of learning style had a positive impact on the academic achievement of senior secondary

school students in English subject, which was in concordance with the study.

**Mathematics:** Figural constructive style (2.571,  $p < .01$ ) and enactive reproducing style (5.999,  $p < .01$ ) were significant at 1 percent level in impacting the school-going children's academic achievement in Mathematics. Figural constructive style of learning leading to better performance in Mathematics was well understood as the processing and conceptualizing of figural experiences was crucial to perform Mathematics.

The verbal constructive style of learning (-3.915,  $p < .01$ ) was found to be significant at a 1 percent level. The negative regression weight indicated an inversely proportional relationship between the LS and AA of children with respect to Mathematics. Higher was the level of verbal constructive style of learning lower was the level of their performance in Mathematics. A study carried out by Gopalakrishnan and Palanivelu (2018) was in accordance with the study which pointed out that enactive and figural types of learning played a significant role in influencing the academic achievement of children with respect to mathematics.

**Science:** The t and p-value of each independent variable for the Science subject showed that enactive reproducing (6.297,  $p < .01$ ), figural reproducing (5.968,  $p < .01$ ), verbal constructive (-3.885,  $p < .01$ ), and verbal reproducing (-4.036,  $p < .01$ ) style of learning were significant at a 1 percent level.

Compared to other academic subjects, science learning ideally requires the usage of multiple learning styles. The above table inferred that the enactive and figural

Table 1. Regression analysis predicting the relationship between the Predictors (LS) and the outcome (Subjects-wise AA)

S.No.	Predictors	Regression Coefficients (B)	Std. Error	Beta	T	Significance	R Square	F	Sig.	
<b>Tamil Learning</b>										
1	(Constant)	67.455	2.151		31.355	.000	.032	.001	.501ns	.808
2	Enactive reproducing	.007	.065	.002	.104ns	.917				
3	Enactive constructive	-.066	.130	-.022	-.508ns	.612				
4	Verbal reproducing	-.039	.058	-.013	-.681 ns	.496				
5	Verbal Constructive	.052	.057	.019	-.907 ns	.394				
6	Figural reproducing	.033	.071	.010	.462 ns	.644				
7	Figural Constructive	.095	.127	.031	.748 ns	.454				
<b>English Learning</b>										
1	(Constant)	34.668	3.564		9.729	.000	.139	.019	<b>9.924**</b>	<b>.000</b>
2	Enactive reproducing	.602	.107	.119	<b>5.607**</b>	<b>.000</b>				
3	Enactive constructive	.272	.216	.053	1.260ns	.208				
4	Verbal reproducing	.067	.096	.013	.699	.484				
5	Verbal Constructive	-.407	.095	-.089	<b>-4.304**</b>	<b>.000</b>				
6	Figural reproducing	-.053	.118	-.009	-.450ns	.653				
7	Figural Constructive	.075	.211	.015	.353ns	.724				
<b>Mathematics Learning</b>										
1	(Constant)	37.460	3.679		10.182	.000	.137	.019	<b>9.649**</b>	<b>.000</b>
2	Enactive reproducing	.665	.111	.127	<b>5.999**</b>	<b>.000</b>				

Table 1 Contd...

Table 1 Continued...

S.No.	Predictors	Regression Coefficients (B)	Std. Error	Beta	T	Significance	R Square	F	Sig.
3	Enactive constructive	-.327	.223	-.062	-1.466ns	.143			
4	Verbal reproducing	.113	.099	-.021	1.139 ns	.255			
5	Verbal Constructive	-.382	.098	-.081	<b>-3.915**</b>	<b>.000</b>			
6	Figural reproducing	-.093	.122	-.016	-.763ns	.446			
7	Figural Constructive	.560	.218	.106	<b>2.571**</b>	<b>.010</b>			
<b>Science Learning</b>									
1	(Constant)	15.863	3.527		4.495	<b>.000</b>	.199	.040	<b>20.708**</b>
2	Enactive reproducing	.670	.106	.132	<b>6.297**</b>	<b>.000</b>			
3	Enactive constructive	-.090	.214	-.018	-.421ns	.674			
4	Verbal reproducing	-.383	.095	-.074	<b>-4.036**</b>	<b>.000</b>			
5	Verbal Constructive	-.364	.094	-.079	<b>-3.889**</b>	<b>.000</b>			
6	Figural reproducing	.673	.117	.117	<b>5.768**</b>	<b>.000</b>			
7	Figural Constructive	.290	.209	.057	1.390ns	.165			
<b>Social Science</b>									
1	(Constant)	33.083	3.316		9.977	<b>.000</b>	.079	.006	<b>3.157**</b>
2	Enactive reproducing	.136	.100	.029	1.360ns	.174			
3	Enactive constructive	-.129	.201	-.027	-.640ns	.522			
4	Verbal reproducing	.000	.089	.000	.004ns	.997			
5	Verbal Constructive	.177	.088	.027	1.325ns	.185			
6	Figural reproducing	.241	.110	.045	<b>2.195*</b>	<b>.028</b>			
7	Figural Constructive	.147	.196	.031	.750ns	.453			

Note: \*\*Significant at 1 percent level, \*Significant at 5 percent level, NS- not significant

reproducing with their positive regression weight did play a positive role in influencing academic achievement in science. Whereas verbal style of learning with negative regression weight exerted a negative influence as far as the children's academic achievement in science was concerned. More scores in the verbal type of learning lower the academic scores in science, as science learning doesn't involve much word manipulation but involved the actual concept understanding that was based on the enactive and figural type of learning.

**Social Science:** Going by the t and p-value of each predictor of the academic achievement in the subject - Social science, figural reproducing (2.195,  $p < .05$ ) style of learning alone significantly influenced children's academic achievement in Social Science at a 5 percent level. A study done by Aasia Maqbool (2015) was in accordance with this study and stated that overall, the learning styles did play a role in influencing the scores of Social Science.

## CONCLUSIONS

The findings of this study reported that there existed a significant relationship between the LS and the AA of children (11-15 years of age). Except for Tamil (the regional language of Tamil Nadu). The academic results of the other four subjects namely English, Mathematics, Science, and Social Science were significantly influenced by the learning style adopted by the school children. The enactive reproducing style of learning emerged as the strongest positive predictor with respect to core subjects (Mathematics, Science, and English), whereas, the verbal constructive style

of learning exhibited a negative impact with respect to these subjects. The figural reproducing style of learning was found to influence significantly Academic Achievement with respect to core subjects alone (Mathematics and Science) and the figural constructive style of learning contributed positively to the academic outcome of Mathematics.

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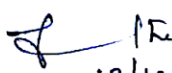
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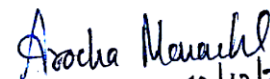
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### I. INTRODUCTION

Since eternity ago, India has made rich and creditable contributions to education. The education system in ancient India dates back to the Vedic period (1700 – 700 B.C.), which followed the Gurukul system. All learning was closely linked to nature and life and not confined to memorising some information. Teachers enjoyed high esteem and special status during this period and could choose their disciples (Chand, 2015). In the Buddhist period of education (600 B.C.), a new doctrine of religious education was practised. Monasteries were the place of education, and the overall development of students, i.e., physical, mental, and emotional development, was focused as the prime most crucial factor (Cabezón, 1995). The education system has seen many changes during the medieval period, from the 10th century A.D. to the middle of the 18th century (Maheshwari, 2012).

Though religion dominated, the period has seen many reforms such as establishing schools and universities, complete authority to the institutions, emphasis on discipline, and core subjects, namely mathematics, astronomy, grammar, polity and politics, arts and literature, vocational education, etc. Macaulay introduced the modern education system in the 20th century. Since then, the Indian education system has followed the propositions of the Macaulay system of education (Pandya, 2014).

The modern school system (including the English language) was brought to India originally by Lord Macaulay in the 1830s. The curriculum was restricted to "modern" subjects like science and mathematics. Subjects like metaphysics and philosophy were not considered necessary. Teaching was confined to classrooms, and there was no link with nature. Moreover, the close relationship between the teacher and the student was absent.

Only 150 years ago, most of the world's population was illiterate. Today, most people over fifteen have essential reading and writing skills, and 20% of the population attends higher education. It is also well-realised that the effects of the education revolution have transformed the world into a schooled society, that is, a society that is actively created and defined by education (Roser&Ortiz-Ospina, 2018).

# Predictive Models of Multiple Intelligence, Learning Style, Teaching Pedagogy for the Academic Achievement of School Children

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