A Study on the Relationship between Multiple Intelligence and Self-Efficacy of Student Teachers

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Abstract

The theory of multiple intelligence was first described by Howard Gardner in Frames of Mind (1983). Gardner defines intelligence as "an ability or set of abilities that allow a person to solve a problem that is valued in one or more cultures." He proposed in his book the existence of at least seven basic intelligences. More recently, he has discussed the possibility of nine if not eleven distinct forms of intelligence.

Introduction

Bandura has defined self-efficacy as "peoples' judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses." He has also affirmed that self-efficacy beliefs develop in response to four sources of information. These are enactive experience, vicarious experience, verbal persuasion, and physiological and affective states. Enactive experience implies that success in the performance of a given task will increase the self-efficacy of the person who has successfully performed the task. The vicarious experience involves experiences where other people are seen to succeed or fail and how that can affect one's own self-efficacy. Verbal persuasion, if realistic, can encourage efforts that are more likely to increase efficacy through success, while physiological and affective conditions such as stress can also affect self-efficacy.

Multiple intelligence theory makes its greatest contribution to education by suggesting that teachers need to expand their repertoire of techniques, tools and strategies beyond the typical linguistic and logical methods. In the multiple intelligence classroom the teacher continually shifts her method of presentation from linguistic to spatial, musical and so on, often combining various intelligences in creative ways. For this, teachers need to be well versed in the different intelligences possessed by students and how they may be used to, assist each student to optimize instruction in many fields of knowledge and skills. A teacher's sense of efficacy is a judgment about capabilities

to influence student engagement and learning, even among those students who may be difficult or unmotivated.

Need Significance of the Study

Teachers with a strong sense of efficacy tend to exhibit greater levels of planning, organization and enthusiasm and spend more time teaching in areas where their sense of self-efficacy is higher, whereas teachers tend to avoid subjects and topics when their self-efficacy is lower. The former tend to be more open to new ideas, more willing to experiment with new methods in order to meet the needs of their students. And they tend to be less critical of students who make errors; they also tend to work longer with a student who is struggling. Directly or indirectly teacher education programmes will benefit from higher self-efficacy of teachers. In order to develop self-efficacy, the prospective teachers have to develop multiple intelligence.

Objectives of the Study

The objectives of this study are as follows as regards secondary teacher education students:

1) To find out the level of multiple intelligence: verbal linguistic, logical mathematical, visual spatial, bodily kinesthetic, musical rhythmic, interpersonal, intrapersonal, and naturalistic.

2) To find out the level of self-efficacy: efficacy in teaching, class management, guidance, organizing extra curricular activity, preparing lesson plans, preparing teaching aids, using information and communication technology, creating favourable class room atmosphere, and pedagogic analysis.

3) To find out the relationship between multiple intelligence and self-efficacy.

Statement of the Problem

The problem of the present investigation is stated as "A Study on the Relationship between multiple Intelligence and self-efficacy of student-teachers".

Hypotheses of the Study

1) There is no significant difference between male and female second teachers in their multiple intelligence.

2) There is no significant difference between male and female students teachers in their level of self-efficacy.

3) There is no significant relationship between multiple intelligence and the level of self-

efficacy of students, teachers.

4) There is no significant relationship between multiple intelligence and the level of self-efficacy of male students, teachers

5) There is no significant relationship between multiple intelligence and the level of self-efficacy of female students, teachers.

Methodology

The survey method is adopted in the present study. The sample consists of 100 students, teachers (32 male, 68 female) studying in TMAE Society's college of Education affiliated to Mahatma Davanagere University, Davanagere. Karnataka. The following tools were used for data collection: Multiple Intelligence Inventory developed by Dr.Terry Amrstrong, and Self-efficacy Scale developed by the authors. The statistical techniques used are: Arithmetic Mean, Standard Deviation, 't' test, and Person's Product mean co-efficient of correlation.

Analysis and Interpretation of Data
Table 1: Level of Multiple Intelligence of Students, Teachers

Dimensions of Multiple Intelligence	Low		Moderate		High	
	No	%	No	%	No	%
Verbal linguistic intelligence	20	20	67	67	13	13
Logical mathematical intelligence	20	20	69	69	11	11
Visual spatial intelligence	13	13	75	75	12	12
Bodily kinesthetic intelligence	16	16	72	72	12	12
Musical rhythmic intelligence	21	21	67	67	12	12
Interpersonal intelligence	25	25	62	62	13	13
Intrapersonal intelligence	14	14	80	80	6	6
Naturalistic intelligence	20	20	65	65	15	15
Multiple intelligence	18	18	70	70	12	12

Table 1 shows that 18% of the students, teachers have low, 70% of them have moderate, and 12% of them have high levels of multiple intelligence.

Table 2: Difference between Male and Female Students, Teachers in their Multiple Intelligence

Dimensions of Multiple Intelligence	Male		Female		Calculated Value of "t"	Level of Significance
	Mean	SD	Mean	SD		
Verbal linguistic intelligence	26.81	5.75	24.62	4.81	1.87	NS
Logical mathematical intelligence	26.09	7.31	22.37	6.37	2.47	S
Visual spatial intelligence	24.50	4.79	23.91	7.55	0.47	NS
Bodily kinesthetic intelligence	26.81	6.09	22.44	4.88	3.56	S
Musical rhythmic intelligence	26.03	6.75	26.76	6.90	0.50	NS
Interpersonal intelligence	31.47	5.31	28.78	6.02	2.26	S
Intrapersonal intelligence	31.38	13.47	29.60	5.31	0.72	NS

Naturalistic intelligence	28.59	6.07	29.16	5.92	0.44	NS
Multiple intelligence	221.69	33.02	208.41	31.09	1.91	NS

(At 5% level of significance the table value of 't' is 1.96)

Table 2 indicates that there is no significant difference between male and female students, teachers in their verbal linguistic, visual spatial, musical rhythmic, intrapersonal, naturalistic and multiple intelligence, but that there is significant difference between male and female student teachers in their logical mathematical, bodily kinesthetic and interpersonal intelligence.

Table 3: Level of Multiple Self-efficacy of Students, Teachers education students

Dimensions of Multiple Intelligence	Low		Moderate		High	
	No	%	No	%	No	%
Self-efficacy in teaching	11	11	74	74	15	15
Self-efficacy in class management	17	17	67	67	16	16
Self-efficacy in guidance	15	15	72	72	13	13
Self-efficacy in organizing extra curricular activity	15	15	71	71	14	14
Self-efficacy in preparing lesson plans	9	9	80	80	11	11
Self-efficacy in preparing teaching aids	12	12	72	72	16	16
Self-efficacy in using ICT	19	19	68	68	13	13
Self-efficacy in creating favourable class room atmosphere	12	12	73	73	15	15
Self-efficacy in pedagogic analysis	14	14	77	77	9	9
Self-efficacy	14	14	74	74	12	12

Table 3 shows that 14% of secondary teacher education students have low, 74% of them have moderate, and 12% of them have high level of self-efficacy. Table 4 indicates that there is no significant difference between male and female student teachers in their level of self-efficacy in teaching, class management, guidance, preparing lesson plan, preparing teaching aid, using ICT, creating favourable class room atmosphere and pedagogic analysis, but that there is a significant difference between male and female secondary teacher education students in their level of self-efficacy in organizing extra curricular activity and self-efficacy.

Table 4: Difference between Male and Female Students, Teachers in their Self-efficacy.

Dimensions of Multiple Intelligence	Male		Female		Calculated Value of "t"	Significance
	Mean	SD	Mean	SD		
Self-efficacy in teaching	23.94	2.03	23.01	3.19	1.75	NS
Self-efficacy in class management	24.88	3.01	23.88	3.20	1.51	NS
Self-efficacy in guidance	23.88	3.01	23.19	3.72	1.03	NS

Self-efficacy in organizing extra curricular activity	20.34	3.67	17.94	3.95	2.98	S
Self-efficacy in preparing lesson plans	24.41	5.50	23.51	5.37	0.76	NS
Self-efficacy in preparing teaching aids	20.16	3.03	19.19	3.07	1.48	NS
Self-efficacy in using ICT	18.28	4.02	17.74	3.52	0.66	NS
Self-efficacy in creating favourable class room atmosphere	21.25	2.19	20.21	3.25	0.66	NS
Self-efficacy in pedagogic analysis	23.69	3.15	23.41	3.54	0.39	NS
Self-efficacy	201.47	19.12	192.38	24.57	2.02	S

(At 5% level of significance the table value of 't' is 1.96)

Table 5: Relationship between Multiple Intelligence and Self-efficacy of Student, Teachers

Dimensions of Multiple Intelligence	$\sum x$	$\sum x^2$	$\sum y$	$\sum y^2$	$\sum xy$	Calculated Value of 'y'	Table Value 'y'	Level of Significance
Verbal linguistic intelligence	19529	3868351	2532	66848	500613	0.502	0.195	S
Logical mathematical intelligence	19529	3868351	2356	60276	464208	0.255	0.195	S
Visual spatial intelligence	19529	3868351	2410	62698	476023	0.339	0.195	S
Bodily kinesthetic intelligence	19529	3868351	2384	60054	469809	0.320	0.195	S
Musical rhythmic intelligence	19529	3868351	2653	75095	522174	0.254	0.195	S
Interpersonal intelligence	19529	3868351	2964	91382	586343	0.541	0.195	S
Intrapersonal intelligence	19529	3868351	3017	98813	594465	0.256	0.195	S
Naturalistic intelligence	19529	3868351	2898	87552	572955	0.502	0.195	S
Multiple intelligence	19529	3868351	21266	4626890	4196522	0.576	0.195	S

Table 5 indicates that there is a significant relationship between verbal linguistic, logical mathematical, visual spatial, bodily kinesthetic, musical rhythmic, interpersonal, intrapersonal, naturalistic, multiple intelligence, and the level of self-efficacy of students, teachers.

Table 6: Relationship between Multiple Intelligence and Self-efficacy of Male teacher students

Dimensions of Multiple Intelligence	$\sum x$	$\sum x^2$	$\sum y$	$\sum y^2$	$\sum xy$	Calculated Value of 'y'	Table Value 'y'	Remarks at 5% Level
Verbal linguistic intelligence	6447	1310563	858	24064	174205	0.382	0.349	S
Logical mathematical intelligence	6447	1310563	835	23499	169159	0.209	0.349	NS
Visual spatial intelligence	6447	1310563	784	19942	158965	0.346	0.349	NS
Bodily kinesthetic intelligence	6447	1310563	858	24190	173134	0.074	0.349	NS
Musical rhythmic intelligence	6447	1310563	833	23143	168591	0.186	0.349	NS
Interpersonal intelligence	6447	1310563	1007	32593	203909	0.317	0.349	NS

Intrapersonal intelligence	6447	1310563	1004	37308	203392	0.136	0.349	NS
Naturalistic intelligence	6447	1310563	915	27343	186378	0.548	0.349	S
Multiple intelligence	6447	1310563	7094	1607540	1437733	0.421	0.349	S

Table 6 indicates that there is no significant relationship between logical mathematical, visual spatial, bodily kinesthetic, musical rhythmic, interpersonal, intrapersonal intelligence and self-efficacy of male students, teachers, but that there is a significant relationship between

Table 7: Relationship between Multiple Intelligence and Self-efficacy of female teacher students

Dimensions of Multiple Intelligence	$\sum x$	$\sum x^2$	$\sum y$	$\sum y^2$	$\sum xy$	Calculated Value of 'y'	Table Value 'y'	Level of significance
Verbal linguistic intelligence	13082	2557788	1674	42784	326408	0.542	0.233	S
Logical mathematical intelligence	13082	2557788	1521	36777	295049	0.337	0.233	S
Visual spatial intelligence	13082	2557788	1626	422756	317058	0.337	0.233	S
Bodily kinesthetic intelligence	13082	2557788	1526	35864	296675	0.380	0.233	S
Musical rhythmic intelligence	13082	2557788	1820	51952	353583	0.299	0.233	S
Interpersonal intelligence	13082	2557788	1957	58789	382434	0.590	0.233	S
Intrapersonal intelligence	13082	2557788	2013	61505	391073	0.430	0.233	S
Naturalistic intelligence	13082	2557788	1983	60209	386577	0.514	0.233	S
Multiple intelligence	13082	2557788	14172	3019350	2758789	0.623	0.233	S

Naturalistic, intelligence and multiple intelligence, and the level of self-efficacy of male teacher, students. Table 7 indicates that there is a significant relationship between verbal linguistic, logical mathematical, visual spatial, bodily kinesthetic, musical rhythmic, interpersonal, intrapersonal, naturalistic, multiple intelligence, and the level of self-efficacy of female secondary teacher education students. In sum we can conclude that the present study shows that there is a significant relationship between multiple intelligence and the level of self-efficacy of students, teachers.

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