Programmed Learning Model Of Communication Of Chemistry [Organic And Otherbranches] At Higher Secondary Andu.G. Levels

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ABSTRACT.

Programmed learning is one of newer technique of effective for Chemistry (Organic and other branches) Communication in class-room and laboratory. Programming of Chemistry content to be learned by the students is the process of arranging visualaids like Charts, Models, and Diagrams. This is proved by conducting Post-test for Controlled and Experimental groups by using Statistical methods. Testing by hypothesis usingt = $\frac{\bar{d}\sqrt{n}}{s}$ and applying ANOVA TABLE-***MODEL -1.***

KEYWORDS:

Standard deviation (σ), Meandeviation (d), Charts, Programme learning ($P.L$), Z score,CH_3COOH, KCN CH_4Observation, Hypothesis Graph, Diagrams, Class-room laboratory teaching, etc.

INTRODUCTION:

Programmed learning is the arrangement of materials to be learnt in presentation that it will result in the most efficient rate of understanding and retention by B.F. Skinner. Programming of Chemistry content tobe learnt by the students is the process of arranging visual aids, like Charts, Models, and Diagrams. The materials arranged in logical or Psychological Sequence and meaning from concrete to concepts related Chemistry (Organic and other branches). Programmed learning is primarily based on the principle of rein for cement. The guidance, satisfaction and assurance of knowing immediately will enable student to learn faster and retain better with the help of Visual aids.

TYPES OF PROGRAMMES:

Generally their-are two types of programmes are used in teaching in Classroom as well as in Laboratory namely

I) LINER OF PROGRAMMING

II) BRANCHING PROGRAMMING

(I) LINER OF PROGRAMMING [BY B.F. SKINNER] CHARACTERISTIC OF LINER PROGRAMMING:

- A stimulus in the form of a statement and question (S)
- A response by the student (R).
- Am answer against which the student matches his own answer and receives immediate feedback whether it is right or wrong 'A' and
- A linear sequence which everybody must follow the student must understand, the pre ceding frame in order to proceed next part adopted by B.F. Skinner Linear Programme in the class-room and laboratory Communication at Higher and Under graduate levels. The diagrammatically Liner-Programme is represented as :

Where $S_1 \longrightarrow R_1 \longrightarrow A_1 \longrightarrow S_2 \longrightarrow R_2 \longrightarrow A_2$ etc

$S_1 = S_2 = S_3 =$ S_n = 'n' Number of question.

$R_1 = R_2 = R_3 =$ ------ R_n = 'A' Students response.

$A_1 = A_2 = A_3 =$ A_n - = Stimulus in the form of statements (Answers)

This technique is proved by conducting the post test for paired groups and their marks scored and tables are given as follows;

A)

Number of Student	**Courses**	**Class**	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**	**09**	**10**
Post Test Marks controlled groups by Traditional Method.	H.S.C. Levels	XI Sci	11	14	12	15	17	18	19	20	25	19
		XII Sci	09	09	10	11	14	15	10	16	18	18
	U.G. Levels	B.Sc.I	30	32	18	19	34	36	21	24	35	30
		B.Sc.II	30	32	18	15	14	18	19	20	24	28

		B.sc.III	34	37	38	35	20	22	28	29	22	27
Experimental group by Linear Programming Model.	H.S.C. Level	XI Sci	18	17	14	15	12	09	14	18	29	25
		XII Sci	32	30	18	29	27	27	25	20	18	19
	U.G. Level	B.Sc.I	14	18	20	25	28	18	19	20	27	20
		B.Sc.II	18	15	20	28	25	27	14	14	09	29
		B.Sc.III	22	30	25	14	17	16	15	14	34	30

B) THE SUMMARY OF STATISTICAL RESULTS FOR XI Sc., XII Sc, B.Sc.I, B.Sc.II & B.Sc.III MARKSANDITS

Calculation of Deviation: Mean deviations, Standard Score and Z score as Follows;

COURSES	XI Sc. a &a^1	XII Sc. a &a^1	B.Sc.I a &a^1	B.Sc.II a &a^1	B.Sc.III a &a^1	Mean
Mean deviation 'd'	0.2575	0.5668	7.0268	0.4349	10.5349	1.5112
Standard div 'σ'	6.3543	5.4847	8.3285	5.7278	9.921	7.2514
Standard div't'	30.7640	37.000	31.871	35.307	33.166	3.3166
Table value 5% ← 8.288 →						
Z Score	- 1.938	-2.2289	-1.9121	-1.893	-1.8712	-1.8710
a = 40 marks and $a^1 = 40$ students.						

C)

	COURSES a and a^1	Standard deviation	Standerd Score (σ^1)	Mean Division D	Z Score	Table Value
Post Test Controlled group	↓ a and a^1 ↑	6.654	-30.67	1.2	.9237	↑ 2.228 ↓
		6.4141	33.182	8	6.339	
		4.6701	33.513	-0.08	-0.6	
		7.014	30.737	-0.2	-0.6478	
		6.946	43.522	1	9	
Experimental group		4.5054	38.81	0	-1.1379	
		6.4141	34.4880	-0.4	1.5121	
		-0.4	0	2.4	-1.01380	
		6.1155	39.5662	-4	-0.532	
		6.137	43.154	0	-0.532	

a = XI & XII Sci, 10 students and 40 marks.

a^1 = B.Sc.I, B.Sc.II & B.Sc.III, 10 students & 40 marks.

D)SUMMARY OF APPLYING TESTING HYPOTHESIS GROUPS CALCULATED VALUES USING THE FORMULA $t = \frac{\bar{d}\sqrt{n}}{s}$

Post Test	Courses	Mean deviation. 'σ'	Standard deviationσ	t Test	Table Value
Experimental group	a ↕ a^1	13.5	9.6	↑ 3.7089 ↑	5% level ↑ 2.228 ↑
		2.84	8.5		
		9.6	8.24		
		6.3	3.655		
		9.2	2.655		
		Σd = 8.22	$\Sigma 6$ = 7.068		

E) SUMMARY OF APPLYING ANOVA TABLE FOR HIGHER SECONDARRY AND UNDER GRADUATE LEVELS.

Courses	Mean	Various Mean	Source of Deviation Between varieties	Square of Deviation within varieties
A	23.5 25	X =24.275	2 [24.275- 24.454]^2 =0.064080	(23.5-24.475)^2 =0.60025
a^1	24.85 25.15 23.19	X =24.653	3 [24.633- 24.454]^2 =0.160205	(25.05-24.275)^2 =0.600625 (24.85-24.633)^2 =0.0484 (25.15-24.636)^2 =0.26729 (23.9-24.63)^2 =0.537289 0.552979

a = XI & XII Sci,

a^1 = B.Sc.I, B.Sc.II & B.Sc.III,

F) ANOVA TABLE MODLE

Source of Variation	Sum of Square of Deviation	Degree of freedom	Variance
Between Varieties	0.160205	2-11=1	0.160205 ÷1 =0.160205
Within Verities	0.852979	3-1=2	0.852979÷2 = 0.42648
Table value at 5 % F → 1.85 ←			

F = $\frac{0.42648}{0.160205}$= 2.6622

Degree of freedom for Greater

Variance V_1 = 2-1 = 1

CONCLUSION

(I) Conclusion for Table No'sA,B,C,D,E & F are shows, value is less than 1, the table values of A,B,C,D, Calculated value. Therefore the Hypotheses is rejected. Hence linear Programming Model technique has been useful. Table E and F shows the degree of freedom smaller varianceV_2 = 3-1 = 2. The table value are V_1 = 1 V_2=2 and Table value at 5% level.

F 0.05 = 18.5.

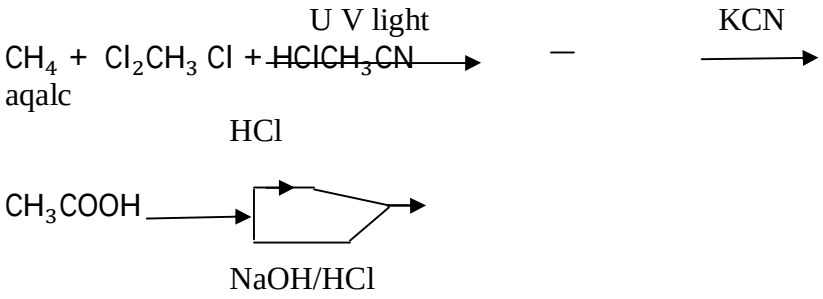
The calculated value of F ∠ table value and hence the difference in the mean value of the sample is not significant. The sample could have come from the same universe.

Hence the results of testing hypothesis and ANOVA table has given same result hence Communication through the programme learning techniques is more significant in Chemistry at Class room as well as teaching Practical's in laboratory.

(II) Students Creative the power of observation and judgment.

(III) Diagrammaticexplanation which could other-wise be completely dull for the students.

(IV) Students should shows interest & Curiosity in things otherwise it will be dull and dry. This is confirmed by the use of the synthesis of Aceticacid from methanol

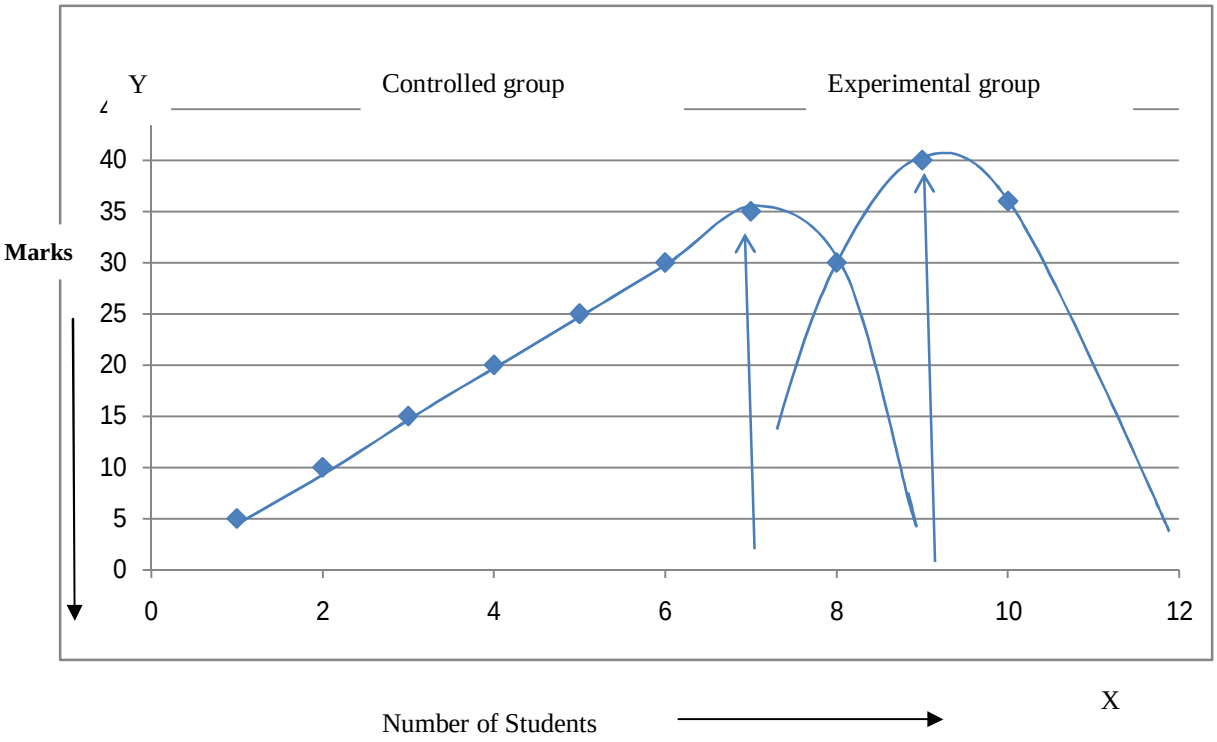


(V) While preparing the programme we should be kept in view the following.

a) Programme should be exactness & accuracy. This method is more burdening to teachers but more-effective for understanding to the students U.G.&higher secondary levels conclude by the graph.

Scale on X axis = 10cm = 5 marks

Y axis = 10 cms = 1 student



Programmed learning is more effective than traditional method similarly branching programme can be proved.

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