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benefits, addressing the challenges, and staying ahead of emerging trends, businesses can create a future-ready work environment that drives long-term success.

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Chapter : 71

Development And Validation Of Criterion Test On Social Science Among IX Students In Tamil Nadu State Board Syllabus

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Abstract

This study presents the systematic development and validation of a criterion-referenced test (CRT) designed to evaluate academic achievement in Social Science among IX standard students under the Tamil Nadu State Board syllabus. Focusing on two content units - "Evolution of Humans and Society – Prehistoric Period" and "Lithosphere – II – Exogenic

Processes" - the test development followed rigorous steps including blueprinting, pilot testing, item analysis, and expert validation. Initially, a 94-item multiple-choice test was constructed. Item analysis based on difficulty and discrimination indexes led to the selection of 50 items for the final draft. The final test demonstrates strong content and face validity and is intended to serve as a reliable tool for assessing learning outcomes aligned with Bloom's cognitive domains. The study contributes to educational measurement by offering a curriculum-specific, empirically validated assessment tool suitable for classroom and research use.

Keywords: Social Science Criterion Test, CRT standardise, Item Analysis, IX Standard Social Science, social Science Tool Validating.

Introduction:

Assessment is an essential component of the teaching-learning process. In the context of Social Science education, precise and objective measurement tools are vital to gauge students' understanding of historical and geographical concepts. The present study aims to develop a Criterion-Referenced Test (CRT) to evaluate the academic achievement of IX standard students in Tamil Nadu State Board Syllabus on specific Social Science topics. CRTs are designed to measure student performance against a fixed set of learning standards rather than in comparison to other students. This test aligns with Bloom's Taxonomy - targeting knowledge, understanding, and application.
The selected content areas for test construction are:

- Evolution of Humans and Society – Prehistoric Period (History)
- Lithosphere – II – Exogenic Processes (Geography)

The test development involved comprehensive procedures including blueprint preparation, pilot testing, and psychometric validation to ensure content coverage and technical quality.

Methodology:

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Tool Construction: A preliminary 94-item multiple-choice test was developed based on the Tamil Nādu State Board curriculum and learning objectives. The blueprint ensured balanced representation across content areas and cognitive domains:

Table – 1

Weight To The Content Of The Preliminary Draft Of The Criterion Test Tool

Content	Total (Marks)
Evolution of Humans and Society – Pre historic Period	50
Lithosphere – II Exogenic Processes	44
Total	94

Table – 2

Preliminary Drafy Of The Criterion Test Tool (Bloom's Taxanomy)

OBJECTIVES	**MARKS**
Knowledge	19
Understanding	55
Application	20
Total	94

Table – 3

Blue Print - Two Dimentional Chart Of The Preliminary Drafy Of The Crt Test

Content	**Knowledge**	**Understanding**	**Application**	**Total (Marks)**
Evolution of Humans and Society - Prehistoric Period	10 (1)	29 (1)	11 (1)	**50** (1)
Lithosphere – II Exo-genetic Processes	9 (1)	26 (1)	9 (1)	**44** (1)
Total	**19** (1)	**55** (1)	**20** (1)	**94** (1)

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Pilot Study

The Preliminary Draft of the Criterion test Tool was prepared and it consists of 94 items. Specific instructions to the learners given and mentioning time limit, method of answering etc., were instructed. The items were presented to 50 students in IX Standard Social Science subject in the form of a test and the scores were computed. Each questions includes four responses (One response is correct and other three responses are wrong). One mark was given to each correct response and zero mark was given to each wrong response. Then, the scores were arranged in the decreasing order. Using the 50 answer sheets, item - wise analysis was done.

Item Analysis

The effectiveness of a test can be increased by the selection of items of suitable difficulty value and discrimination index. Item analysis included two different characteristics namely,

- Item difficulty and the
- Item discrimination.

Item difficulty refers to the percentage of students who answer the item correctly whereas the discrimination reflects the degree to which an item distinguishes between the High Scores and Low Scores. To select the good test items, a close analysis of all items was made. This made it possible for the elimination of certain items based on the results of the item analysis. The investigator selected items having difficulty value between 0.2 and 0.8 and discrimination index higher than 0.25. Accordingly, 50 items were selected from the 94 items. The total score of the achievement test of the final study was 50 marks.

Table-4

Diffecalty Level And Discriminative Index Of The Preliminary Draft

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No Items	Concept	Difficulty Index	Discrimination Index	Interpretation
		RH+RL/N*100	(RH-RL)/N/2	
Q1	History-Unit-1 Evolution of Human and Society in Prehistoric Period	61.53846154	0.769230769	Rejected
Q2	"	73.07692308	0.538461538	Accepted
Q3	"	61.53846154	0.615384615	Accepted
Q4	"	73.07692308	0.230769231	Rejected
Q5	"	65.38461538	0.538461538	Accepted
Q6	"	69.23076923	0.615384615	Accepted
Q7	"	73.07692308	0.230769231	Rejected
Q8	"	53.84615385	0.615384615	Accepted
Q9	"	61.53846154	0.769230769	Rejected
Q10	"	73.07692303	0.230769231	Rejected
Q11	"	46.15384615	0	Rejected
Q12	"	65.38461538	0.692307692	Accepted
Q13	"	88.46153846	0.230769231	Rejected
Q14	"	69.23076923	0.615384615	Accepted
Q15	"	57.69230769	0.692307692	Accepted
Q16	"	34.61538462	0.384615385	Accepted
Q17	"	53.84615385	0.769230769	Rejected
Q18	"	61.53846154	0.769230769	Rejected
Q19	"	53.84615385	0.307692308	Accepted
Q20	"	57.69230769	0.230769231	Rejected
Q21	"	65.38461538	0.538461538	Accepted

Q22	"	69.23076923	0.615384615	Accepted
Q23	"	73.07692308	0.538461538	Accepted
Q24	"	50	0.384615385	Accepted
Q25	"	53.84615385	0.923076923	Rejected
Q26	"	61.53846154	0.769230769	Rejected
Q27	"	65.38461538	0.692307692	Accepted
Q28	"	65.38461538	0.692307692	Accepted
Q29	"	42.30769231	-0.076923077	Rejected
Q30	"	61.53846154	0.461538462	Accepted
Q31	"	80.76923077	0.384615385	Accepted
Q32	"	73.07692308	0.538461538	Accepted
Q33	"	57.69230769	0.846153846	Rejected
Q34	"	130.7692308	2.153846154	Rejected
Q35	"	61.53846154	0.769230769	Rejected
Q36	"	76.92307692	0.307692308	Accepted
Q37	"	69.23076923	0.615384615	Accepted
Q38	"	57.69230769	0.230769231	Rejected
Q39	"	65.38461538	0.692307692	Accepted
Q40	"	57.69230769	0.692307692	Accepted
Q41	"	61.53846154	0	Rejected
Q42	"	76.92307692	0.461538462	Accepted
Q43	"	65.38461538	0.692307692	Accepted
Q44	"	46.15384615	0.153846154	Rejected
Q45	"	65.38461538	0.692307692	Accepted
Q46	"	61.53846154	0.769230769	Rejected

Q47	"	76.92307692	0.461538462	Accepted
Q48	"	42.30769231	0.230769231	Rejected
Q49	"	73.07692308	0.230769231	Rejected
Q50	"	53.84615385	0.923076923	Rejected
Q51	Geography Unit-II Lithosphere-II Exogenic	34.61538462	-0.230769231	Rejected
Q52	"	61.53846154	0.769230769	Rejected
Q53	"	57.69230769	0.846153846	Rejected
Q54	"	73.07692308	0.538461538	Accepted
Q55	"	80.76923077	0.384615385	Accepted
Q56	"	57.69230769	0.230769231	Rejected
Q57	"	46.15384615	0	Rejected
Q58	"	73.07692308	0.538461538	Accepted
Q59	"	96.15384615	1.461538462	Rejected
Q60	"	65.38461538	0.230769231	Rejected
Q61	"	73.07692308	0.538461538	Accepted
Q62	"	23.07692308	-0.307692308	Rejected
Q63	"	65.38461538	0.692307692	Accepted
Q64	"	65.38461538	0.692307692	Accepted
Q65	"	57.69230769	0.846153846	Rejected
Q66	"	69.23076923	0.615384615	Accepted
Q67	"	57.69230769	0.846153846	Rejected
Q68	"	53.84615385	0.769230769	Rejected
Q69	"	80.76923077	0.384615385	Accepted
Q70	"	57.69230769	0.846153846	Rejected

Q71	"	42.30769231	0.846153846	Rejected
Q72	"	65.38461538	0.692307692	Accepted
Q73	"	65.38461538	0.692307692	Accepted
Q74	"	65.38461538	0.538461538	Accepted
Q75	"	30.76923077	-0.461538462	Rejected
Q76	"	73.07692308	0.538461538	Accepted
Q77	"	23.07692308	-0.461538462	Rejected
Q78	"	53.84615385	0.615384615	Accepted
Q79	"	61.53846154	0.615384615	Accepted
Q80	"	65.38461538	0.692307692	Accepted
Q81	"	57.69230769	0.846153846	Rejected
Q82	"	61.53846154	0.615384615	Accepted
Q83	"	26.92307692	0.230769231	Rejected
Q84	"	65.38461538	0.538461538	Accepted
Q85	"	57.69230769	0.846153846	Rejected
Q86	"	76.92307692	0.461538462	Accepted
Q87	"	46.15384615	-0.307692308	Rejected
Q88	"	57.69230769	0.538461538	Accepted
Q89	"	73.07692308	0.538461538	Accepted
Q90	"	42.30769231	0.230769231	Rejected
Q91	"	57.69230769	0.846153846	Rejected
Q92	"	57.69230769	-0.076923077	Rejected
Q93	"	53.84615385	0.769230769	Rejected
Q94	"	69.23076923	0.615384615	Accepted

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Reliability And Validity Processof Achievement Test

The test items were evaluated by 3 Higher Secondary School PG Teachers and 7 High School Graduate Teachers in Social Science. Feedback was solicited on the following aspects:

- Relevance to learning outcomes/syllabus
- Clarity and language
- Content clarity
- Necessity of the item

Experts unanimously agreed on the test's alignment with these criteria, thereby establishing both content and face validity. All evaluators expressed satisfaction with the test items. Thus, face validity was confirmed. However, as there was no standardized test tool available for this specific content area, the investigator could not establish the concurrent validity of the test developed for this study.

Educational Significance

- Curriculum Alignment: The test is specifically designed for the Tamil Nādu State Board IX standard syllabus, ensuring relevance.
- Formative Assessment: Teachers can use the tool to identify learning gaps and plan remedial teaching.
- Research Utility: The validated tool can be used in future experimental and correlational studies in Social Science education.

The validity of a test refers to the degree to which measures what it is proposed to measure. The test items were prepared with reference to the instructional objectives relating to the content area. Thus, the content validity of the tool was established by giving the test for review to 5 Higher Secondary School PG Teachers and 5 High School Graduate teachers. All of them were satisfied with the items of the test. Thus, the face validity was established. Since, there was no standardized test tool based on this

specific area of the content, the investigator could not establish the concurrent validity of the test prepared for this study.

Tool For The Final Study

According the Item analysis Difficulty Index the Range of above 80 and below 35, and by the Discrimination Index the Range of above 0.75 to below 0.30 Items are Deleted. After Deleting 44 Items out of 94 the investigator select 50 Items and Finalized the Achievement Tool.

Table – 5

Blue Print Two Dimentional Chart Of The Final Drafy Of The Criterion Test Tool

Content	Knowledge	Understanding	Application	Total (Marks)
Evolution of Humans and Society - Prehistoric Period	9 (1)	15 (1)	5 (1)	**29** (1)
Lithosphere – II Exogenetic Processes	6 (1)	11 (1)	4 (1)	**21** (1)
Total	**15** (1)	**26** (1)	**9** (1)	**50** (1)

Conclusion

The study successfully developed and validated a criterion-referenced test in Social Science for IX standard students. Using a scientific approach to item selection and validation, the tool shows strong alignment with both curriculum and cognitive learning objectives. The final 50-item MCQ test provides a reliable and valid assessment instrument that educators can adopt for classroom evaluation and academic research.

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