



Teacher's Professional Competencies and Pupil's Thinking Competencies in Achieved and Implemented Curriculum of 6th Grade Thinking and Research

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Abstract: This study was intended to study the teacher's professional competencies in implemented curriculum and pupil's thinking competencies in achieved research and thinking curriculum among 6th grade students in 2012-2013 educational year in the city of Mahabad. The research method is applied, descriptive-analytical one. The statistical population consists of upstream documents, 6th grade teachers and students and research and thinking teacher guide. Sample volume consists of 100 teachers and 250 students as well as all pages of teaching guide book and 6th grade research and thinking workbook. Necessary data for implemented and achieved curriculum were collected through observation and questionnaire, respectively. Findings were significant in different sections of professional competencies, showing appropriate condition of teachers in prescriptive activities and their general weakness in designing, implementation and selectivity activities. In particular, teachers activities were extremely weak in semi-prescriptive and non-prescriptive research and thinking section. In achieved phase, the highest scores were related to knowledge section of the comprehensive test which was in line with student's final scores. The overall research results indicate teacher's weak skills in all three sections including implementation, selectivity and designing. Contribution of achieving the attitude and performance goals of students was also extremely low. Finally, some solutions are proposed for optimization.

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INTRODUCTION

Human and human resource has unique positions in development because they sometimes play the role of tool and sometimes as development goal in accordance with

their excellence and needs (Bakhtiary *et al.*, 2006). To this end, human resource development points out to all existential dimensions of people (intellectual, attitudinal, behavioral and skill dimension). With this description, progress and development of any society as a symbol of

development are not possible without human development. It is claimed that efficient human resource training is the basis of development in countries.

However, curriculum authorities believe that there is a noticeable gap between what curriculum designs and produces as intended curriculum, what is implemented by teachers and students in classes and what trainees achieve during curriculum implementation considered as their learnings.

Executive curriculum might severely differ from official curriculum because teachers are used to interpreting official curriculum based on their knowledge, beliefs and convictions and attitudes. In addition as many experts such as Pavel, etc., pointed out, students also have a significant impact on curriculum implementation. Teachers express curriculum more meaningfully in classes, present challenging assignments more simply in classes and sometimes convert critical thinking in to memorizing facts and performing non-thoughtful practices. Presence of extreme gap and inconsistency among three mentioned curricula is considered as fundamental weakness of each curriculum (Fathi, 2009).

Thus, curricula need to be designed and implemented in a way that they create necessary capability, competency and qualification to deal with life issues of students and trainees and they enjoy essential proportionality.

Fostering thinking programs in Iran was not followed according to codified curricula in previous grades and they follow certain objectives in four fields concerning the relationship between individual and himself, God, creatures and creation as following: the capability of inferring, reasoning and drawing conclusions, achieving thinking-based features and characteristics, acquiring correct attitudes toward scientific findings and capability of judgment about his own behaviors and others as well as awareness toward their results and consequences. Training structure is based on activity session in research and thinking curriculum (Daneshvar *et al.*, 2012).

Considering the fact that curriculum weakness and strength are determined during implementation phase, training good performers would cover main weaknesses of curriculum even in designing phase. In researcher's point of view, the top priority of current education system is not only to prepare and design good curriculum or to train legislators. On the contrary, nowadays, we need to train good performers who enjoy the capability of standard fulfillment along with knowing theoretical bases of plans and development of macro objectives and they take step to follow constitutive approach (process and result). The role of teachers and students is extremely valuable and important. Therefore, it is essential to study teacher's competencies in implemented curriculum as well as thinking and research competencies of students in achieved curriculum in order to optimize processes and

foster thoughtful pupils. This paper was intended to improve learning conditions and processes to review, modify and correct 6th grade research and thinking curriculum.

Theoretical principles and research literature:

Reasoning, judgment and distinction power enjoys undeniable importance in personal and collective life. The role of these skills cannot be ignored in understanding among human beings. If state men and cultural authorities want to guarantee the future of their countries, they need to think of teaching intellectual and mental capabilities to their new generations. Conducted studies and researches show that university school life is too late to teach reasoning and intellectual skills and this needs to be started in elementary school days (Marashi, 2006).

In this regard, Padro studies (2002) revealed that trained teachers have noticeable impact on creative performance, educational progress and cognitive development of students and this effect includes any group, both talented and non-talented students. In the past few years, there has been growing interest toward the role of thinking skills in education and literacy development in Britain. At the moment, thinking skills is the center stage of national curriculum objectives in England (Ministry of Education, 2000).

McGuinness researches show that although the status of teachers in England is often good to identify specific problems and defects in the children's ideas about language learning, most of them have less information about essential cognitive interventions for development of certain thinking skills (McGuinness, 1999).

Also, evaluating mathematics curriculum of mentally retarded students in Tehran showed the valuable role of teachers as the most important solution to remove math curriculum barriers of such schools (karami *et al.*, 2013). Studying effective factors of new primary curricula in Mozambique schools showed that leadership of a school is a basic factor to ensure the presence and maintain all necessary conditions for successful implementation of curriculum. Capacity building is also another essential factor for successful implementation of curriculum and it is considered as an important condition to create and keep teacher's self-confidence to meet expectations of new role. In this regard innovative teachers and class-management methods are known as important condition for successful implementation of new curriculum (Mucavele, 2009).

Research objectives: To study teacher's professional competencies and pupil's thinking competencies in implemented and achieved curriculum of 6th grade thinking and research.

Special and applied objectives:

- To study teacher's professional competencies implemented thinking and research curriculum of 6th grade in the city of Mahabad
- To study pupil's thinking competencies in achieved curriculum of 6th grade thinking and research in the city of Mahabad

MATERIALS AND METHODS

Research method: In terms of goal, the study is an applied and it is descriptive-analytical concerning the method. The statistical population consists of upstream documents, 6th grade teachers and students and research and thinking teacher guide. Sample volume consists of 100 teachers and 250 students who were equally selected by Morgan table to conduct the study. Content validity of questionnaires and checklists were confirmed by supervisors and advisors as well as some experts in this field. Some tools in previous studies such as those of Hadi Zare and Heidat Tavani were used. They have essential reliability and validity. To measure the confidence, Alpha cronbach method and SPSS software package were used. They were reported 0.88 and 0.823 for teacher's professional competency check list and research and thinking questionnaire, respectively, showing high reliability. After data collection, they were analyzed by SPSS Software package and one sample t test.

RESULTS AND DISCUSSION

Research findings

Data analysis for the first research question: How are teacher's professional competencies in implemented thinking and research curriculum of 6th grade in the city of Mahabad?

Effective implementation of curriculum depends on guaranteed competencies of teachers to identify pupil's features, capability of learning and teaching methods, identification and application of material and media and class management. In addition to implementation capabilities, the ability to choose activities among semi-prescriptive activities, story books, films, games, pictures, etc. which are suitable for students' needs is one of essential teacher's competencies. The best collection of competencies for teachers include their ability to design free or optional activities of research and thinking (Teacher book, meditation and investigation, 2012).

According to Table 1-6 out of 100 teachers, 62% had working experience of 5-20 years old and 38% had >20 years of working experience. As much as 87% had related and semi-related majors, however, 13% had non-related majors to their jobs. Out of this number, 16% had not passed in-service training while 84% passed related

training to the 6th grade prior to going to classes. Those who passed this course were not satisfied with training quality. As much as 26% of teachers did not receive and see teaching guide but 74% received and studied 6th grade research and thinking teaching guide.

According to Table 1 utility level scored good for teacher's executive skills in prescriptive activities and they were medium and extremely bad in semi-prescriptive and non-prescriptive, respectively. Utility level was reported medium to good in prescriptive activities and extremely bad in both semi-prescriptive and non-prescriptive sections.

Implementation skills of teachers accounted for the highest utility and both selectivity and designing were medium to bad. According to overall conclusion, all three sections of teacher's skills were weak and they were only 19% in good condition. Inferential statistical results taken from Table 2 show that calculated T is more than critical table values and it is statistically significant at 5% Alpha level with freedom degree of 99. It is statistically significant according to freedom degree of 99.

Data analysis for the second research question:

Thinking competencies of students in achieved curriculum of thinking and research in 6th grade in the city of Mahabad?

According to Table 7, thinking and research competencies of 200 students were evaluated according to comprehensive thinking and research test in three sections (knowledge, attitude and skills). The highest average level for reliability final scores was reported for their knowledge scores and the lowest was reported for skill section of thinking. In this regard, the highest dispersion was related to final scores at the end of educational year and for thinking skill in comprehensive test.

According to Table 8, the minimum and maximum scores were reported 7 and 17 in knowledge section of comprehensive test, respectively. The range of change is 10 and the highest frequency was between 7 and 12 in this section and only 24% of students got 14-17. Extremely low percentage of students got excellent scores in knowledge section and 50% got 8, 9 and 15 out of 17. Compared to comprehensive test, the highest scores were for knowledge section of test which was 11.

In research and thinking comprehensive test, the minimum and maximum were reported 5 and 18 with range of change of 13. The highest frequency, 56%, was between 9 and 13. As much as 19% got 11-18 and 67% did 5-11. Thus, high percentage of students were not able to achieve excellent scores in comprehensive test. The highest frequency was 11 with 22% and average research and thinking comprehensive test in three sections equals with averages of attitude section, lower than knowledge

Table 1: Teacher's characteristics based on gender, working experience, major, period, teaching guide and mean comparison

Components	a-Gender		b-Working experience			c-Major		
	Female	Male	50-10 years	10-20 years	20-30 years	Related	Semi-related	Non-related
Number	50	50	35	27	38	38	51	13
Percentage	50%	50%	35%	27%	38%	38%	51%	13%
Total	100%	100%	100%					

Table 2: f- Mean comparison of selected teacher members in implemented curriculum according the following components

Components	d-Passed in-service training?		e-Received teaching guide?	
	No	Yes	No	Yes
Number	16	84	26	74
Percentage	16%	84%	26%	74%
Total	100%		100%	

Table 3: f- Mean comparison of selected teacher members in implemented curriculum according the following components

Teaching guide	In-service training	Major	Working experience	Gender	Mean comparison
100	100	100	100	100	Valid N
0	0	0	0	0	Missing
1	1	1	20.03	1	Mean
0	0	0	0	0	SD
0	0	0	0	0	Variance

Table 4: Describing and comparing means for teacher's professional skills in implemented curriculum for 6th grade research and thinking

Competency/triple activity components	Extremely high				Extremely low				Conclusion
	high	High	Medium	Low	low	Percentage	Percentage		
Implementation									
Teacher's skills to implement 20-section prescriptive activity	39	16	20	20	5	55	25	Good condition	
Teacher's skills to implement three of 12-section semi-prescriptive activity	5	19	39	9	28	24	37	Medium	
Teacher's skills to implement triple non-prescriptive activity	3	13	9	44	31	16	75	Extremely bad	
Selectivity									
Teacher's skills to select 20-section prescriptive activity	3	16	20	25	6	49	31	Medium to good	
Teacher's skills to select three of 12-section semi-prescriptive activity	6	15	19	43	17	21	60	Bad	
Teacher's skills to select triple non-prescriptive activity	3	16	8	14	59	19	73	Extremely bad	
Teacher's skills to design 20-section prescriptive activity	3	44	16	32	5	47	37	Medium to good	
Designing									
Teacher's skills to design three of 12-section semi-prescriptive activity	3	16	14	20	47	19	67	Extremely bad	
Teacher's skills to design triple non-prescriptive activity	2	5	8	16	59	7	75	Extremely bad	

Table 6: General description and analysis of teacher's professional competencies in implemented curriculum for 6th grade research and thinking

General condition (conclusion)	Non-utility percentage	Utility percentage	Extremely low	Low	Medium	High	Extremely high	Competency
Good	42	19	20	22	39	16	3	Implementation
Medium to bad	59	19	20	39	22	16	3	Selectivity
Medium to bad	61	19	20	41	20	16	3	Designing
Medium to bad	54	19	20	34	27	16	3	Mean of three

section and higher than skill section. Data analysis in Table 7-11 shows that averages in different sections of research and thinking comprehensive test were lower than total average and research and thinking final scores. This gap is far more in attitude and skill sections of comprehensive test, however, this gap is less in knowledge section of the test concerning dispersion. A significant relationship was observed among different

sections of test and final scores. The results in inferential section about achieved curriculum show that because (Sig. (2-tailed) = 0) is less than 5% of Alpha level and equals zero and calculated T is not between 1.96 and -1.96, there are sufficient number of reasons to reject zero hypothesis. Therefore, average knowledge scores and total average were 11 in comprehensive test and average of reliability scores were 12 which were higher than total average and

Table 7: Activities skill in prescriptive activities

Skill	Skill to design in the following activities				Selectivity skill in the following activities				Skills to implement in the following activities			
	Designing	Non-prescriptive	Semi-prescriptive	Prescriptive	Non-selectivity	Semi-prescriptive	Prescriptive	Non-prescriptive	Implementation	Prescriptive	Prescriptive	Semi-prescriptive
N	100	100	100	100	100	100	100	100	100	100	100	100
Valid	100	100	100	100	100	100	100	100	100	100	100	100
Missing	0	0	0	0	0	0	0	0	0	0	0	0
Mean	2	1	2.08	3.08	2	1	2	3	2	2	2	3
SD	1.074	1.05	1	1.04	1.074	1	1	1.03	1.073	1.09	1	1
Variance	1.153	1.1	1	1.08	1.153	1	1	1.06	1.151	1	1	1
Minimum	1	1	1	1	1	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5	5	5	5	5	5

Table 8: Inferential analysis of teacher's professional competencies in implemented research and thinking curriculum

Teacher's professional competencies	t-values	df	Sig. (2-tailed)	Mean difference	95% confidence interval of the difference	
					Lower	Upper
Competencies 23.014	99.000	0	2.00	2.00		
Skill to implement	24.000	99	0.00	2.00	2	2
Implementation (prescriptive)	27.000	99	0.00	3.00	3	3
Implementation (semi-prescriptive)	21.000	99	0.00	2.00	2	2
Implementation (non-prescriptive)	19.000	99	0.00	2.00	1	2
Selectivity 22.000	99.000	0	2.00	2.00	2	
Selectivity (prescriptive)	30.000	99	0.00	3.00	2	3
Selectivity (semi-prescriptive)	22.000	99	0.00	2.00	2	2
Selectivity (non-prescriptive)	15.088	99	0.00	1.00	1	2
Designing 22.000	99.000	0	2.00	2.00	2	
Designing (prescriptive)	29.000	99	0.00	3.08	2	3
Designing (semi-prescriptive)	16.000	99	0.00	2.08	1	2
Designing (non-prescriptive)	16.000	99	0.00	1.00	1	1

Table 9: Mean, standard deviation of final scores and three sections of comprehensive research and thinking test among 6th grade students

Mean comparison	1. Gender	2. Knowledge	3. Attitude	4. Skill	5. Comprehensive thinking test	6. Final and continuous means of scores	7. Total mean
N							
Valid	250	250	250	250	250	250	250
Missing	0	0	0	0	0	0	0
Mean	1	11	10	9	10	12	11
SD	0	3.069	3	3	2.5	2	
Variance	0	9	11	11	6.32	4	
Minimum	1	7	2	1	5.0	0	
Maximum	2	17	17	16	18	20	18

Table 10: Frequency and scores obtained by students in triple sections of comprehensive research and thinking test

Research and thinking components	Frequency				Percent				Cumulative percent								
	Knowledge	Attitude	Skill	Comprehensive	Knowledge	Attitude	Skill	Comprehensive	Knowledge	Attitude	Skill	Comprehensive					
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
Total	Total	Total	Total	18	250	250	250	2	100	100	100	1	100	100	100	99	100

Table 11: Results of research and thinking test with final scores of students using t single test in achieved curriculum

Indicator	Number	Freedom degree	t-values	SD	Mean	Sig. level
Knowledge section	250	249	57.000	3.069	11	0.000
Attitude section	250	249	48.000	3.000	10	0.000
Skill section	250	249	44.058	3.000	9	0.000
Comprehensive thinking test	250	249	65.000	2.000	10	0.000
Final scores	250	249	34.000	5.000	12	0.000
Total	250	249	66.000	2.000	11	0.000

other sections: attitude (10), skill (19) and comprehensive test (10). As a result in addition to significant difference of averages, the results show that attitude (10) and skill (9) dimensions are lower than medium (total average of 11). According to overall evaluation of research and thinking comprehensive test, students were ranked medium in thinking knowledge. Other sections were lower than medium.

CONCLUSION

According to valuable role of teachers to implement curriculum, they are emphasized as the most important

appropriate solution to meet the curriculum problems and barriers. Trained and familiar teachers with diverse learning methods have highlighted role to accommodate educational expectations. This is because teachers interpret and explain official curriculum according to their knowledge, beliefs and attitudes. Effective implementation of a curriculum depends on competence assurance of teachers to identify student's features, capability of learning and teaching methods, identification and application of material and media and class management. Based on sensitivity of child's growth in elementary level, learning stability in this course and

formation of first impression toward lessons, school and teacher, the importance of training professional skills has doubled in order to meet consistency with curriculum and winning effective job satisfaction. Thus, partial quality of in-service courses, paying attention to working experience, its relationship with teacher's major, accessibility to timely teaching guide, encouraging teachers to study and perception of theoretical principles are emphasized.

RECOMMENDATIONS

Based on results, it is recommended that: Teachers with essential professional competencies need to be selected to teach in 6th grade and in particular teaching research and thinking. It is highly recommended that teachers with necessary qualifications be used, especially those with educational science, psychology and educational management degrees as well as higher commitment to research and thinking teaching with perception and importance of theoretical principles. Although, the center stage of teachers is emphasized for proper implementation of research and thinking curriculum, they should not be only focused. Underlying factors and all curriculum processes need to be systematically paid attention and all thinking skills (especially attitude and skill for research and thinking) must simultaneously and coordinately be grown among

trainees and acted accordingly. The research was only conducted in education system in the city of Mahabad. The same studies need to be conducted and analyzed in other cities and provinces. Also, results must be analyzed in national level.

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