

## Examination of Relationship between High School Instructors' Familiarity with Learning Theories and Teaching Effectiveness (Arak City)

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**Abstract:** The present research aims to examine the relationship between high school instructors' familiarity with learning theories and teaching effectiveness. The research methodology is a type of evaluation and its population consists of all teachers are working at high schools of city Arak in academic years 2011-2012. By simple random sampling method, 75 teachers were selected as research study samples. Also, a questionnaire with 24 items designed based on Likert scale was used as research instrument. The obtained data were analyzed via  $X^2$  test. The findings indicate, therefore, that extent of the instructors' familiarity with philosophical, psychological and sociological foundations were above average, though the teachers' familiarity with new methods of teaching was lower than average.

**Keywords:** Basics of curriculum design, principles of learning, teaching and learning

### INTRODUCTION

According to Aston and Mallik (1998), the cognitive-social theory is rooted in the theory of social learning. The social learning theory was introduced for the first time by Miller and Dillard in 1941 after publication of the book "social learning and imitation". Then, Albert Bandura expanded it under the name of cognitive-social theory. According to cognitive-social theory, learning takes place in social context and peoples learn when they observe others' behavior (Ormrod, 1999). The main principle of the cognitive-social theory states that behavior is influenced by either internal or external factors, so it bridged the gap between behaviorism and cognitivism.

To teach efficiently, teachers require a broad understanding of learning and the way it happens. This perception includes knowledge of learning theories and their usages in the process of teaching. There are numerous learning theories that mutually contribute to understanding that "how does learning come about in children and adults?" This joint action, benefiting from different techniques, principles and ideas seems much handy rather use only one approach when curriculums are designed. Technologies of educational systems in recent years have regarded behaviorism as their basis for designing curriculums. But, today's cognitivism has made the front line of any curriculum design and directed the educational desires to insert the factor of cognition in their planning (Auvigne and Hery, 1997).

Artmer and Newbay (cited by Mergel, 1998) compared three theories of behaviorism, cognitivism and structuralism and said "one unique educational approach may not be stimulating enough for the beginner learner who has a relative familiarity with the

text." in fact, they do not prefer one specific theory over many, though Artmer and Newbay highlight that teaching methods and content depend on the learners' level. They, indeed, adjust the learning theories with content they are going to teach.

In spite of exclusion of mental processes in behaviorism, principles derived from this theory like reinforcement, punishment, silence, identical factors, shaping of behavior, correction of behavior and program learning have considerably contributed teachers.

Fritscher (2008) discussed that "understanding behaviorism is easy and we can trace its application in teaching classes". Auvigne and Hery (1997) believed that reinforcement plays a critical role in learning and acts as a feedback system. Since learning has an increasing entity for behaviorists, that is learning occurs in small steps not in big jumps, considering three issues adds to effectiveness of teaching. These principles are:

- Extinction is constructive for forgetting disfavored behaviors.
- Providing teachers with educational experiences besides favorite enthusiasms.
- Preparing a responsive environment for the requester students.

Considering the above points, the purpose of the present research is to examine the degree teachers are familiar with learning theories and their usage in the process of teaching via quantitative and statistical methods.

## REVIEW OF LITERATURE

### Theoretical basics:

- **Philosophical foundations of curriculum design:**

By physiological basics of curriculum design, we mean those philosophical factors and forces which affect on the process of development of curriculum objectives as well as determination of its educational aids. The dominant social philosophy, in fact, direct and specify major purposes of learning and teaching. The philosophy of learning and teaching besides curriculum design as one of related philosophical schools, can extremely transform curriculum direction.

Above all, philosophical basics function as a mediator of curriculum objectives and ends point, since philosophical believes and attitudes in a society filter the curriculum objectives of educational experts. Indeed, the philosophical basics authorize those educational objectives accord with the dominant philosophy and greatly assist in selection of approaches, designing and execution of educational programs.

- **Psychological foundations of curriculum design:**

Psychological basics of curriculum designs consist of that sort of attained knowledge and perception from psychology that relate to nature of learner and the process of learning. These perceptions considerably affect on content, organizing activities and learning experiences that are provided for the learner. Therefore, curriculum design has a very close relationship with psychological principles especially in field of "educational psychology". Treating humans and in general, expanding their level of knowledge, understanding and skills will be vain without having a deep understanding of different physical, mental, affective and social development stages are identified at different ages as well as knowing how motives are created and strengthened for learning. As such, a curriculum design in specific and an agent for execution of educational programs in general must have a broad and relatively deep knowledge about recent psychological, especially educational psychology principles and findings.

- **Sociological foundations of curriculum design:**

Sociological aspects of higher education include social peculiarities of the student in high school level (in this period the young adult is inclined toward his/her internal forces and seeks his/her unique personality) and the social role of young adult in the society (in this period the young adult considers himself/herself gradually as a part of the social system and gets ready to cooperate with others).

- **New teaching principles:** New principles and methods of teaching are compromised of conference method, learner centered, multi sensory (mixed), problem solving, educational projects, lecturing, retelling, question and answer, practice, discussion, role play, experiment, scientific tour, audio-video materials, exploration, self-control, drama, workshop, receiving perception, inductive reasoning and etc.

**Research background:** According to Huberman (2004), the concept of professional improvement of teachers has been emerged from mid 20<sup>th</sup> century in need for making some amendments in the educational system. Many different researches have been used in this field. These studies show that in doing educational modifications "teacher" has a reciprocal role (Tong and Han, 2005). In one hand, the teacher is subject of educational amendments and on the other hand the teacher is cause of educational corrections. Thus, the most common in training teachers as: professionalism (concentration on less qualified or over qualified teachers), expanding teachers' potential (preparing teachers for acceptance of new responsibilities or encouraging with any change in curriculum), updating teachers, their knowledge and teaching ability in accordance with new teaching conditions and methods (Samiei, 1986).

In a study, Abas Zadeh (1992) examined rate of higher schools instructors of Tehran familiarity with teaching. He found that teaching experience is one of the influential factors on rate of instructors' familiarity about teaching methods. Also, adding to teaching experience, level of education, participation in training short- periods lead to increase of the instructors' knowledge about teaching methods.

In his research, Ghaedi (2004) investigated on degree of teachers of Mazandaran province knowledge about teaching materials and their application in teaching situations. The results indicated that studied teachers had no significant familiarity with teaching objectives and are not efficient enough to utilize teaching technologies and materials. That is, 95% of teachers are not conscious about educational evaluations and their application in teaching process.

Abedi (2000) compared quality of teaching methods among faculty of behavioral sciences departments of Tehran universities. The findings indicated that 42% of the faculty members considered their rate of familiarity with principles and methods of teaching in high level. Moreover, they used different teaching methods like lecturing, question and answer and group discussion. Also, 66% of faculty members reported the effect of training periods very much on improvement of their teaching quality.

In a research was conducted by Kiamanesh (2002), technical information of teachers in Isfahan in field of

designing test items as well as their skills in students' assessment were studied. The results showed that, generally teachers knew less about scientific principles and, methods of educational assessment. Also, a meaningful difference was found between rate of teachers' awareness about educational degrees and training periods. That is, teachers with higher educational level participating in training short periods of assessment and data measurement possessed more knowledge about assessment test development. Considering familiarity with reliability characteristic of tests, trained female teachers were more conscious.

Sobhani (2003) investigation naming as "assessment from the third stage of holistic and participatory training program (second grade of secondary school), outcomes and prospects", found that in the process of teaching, teachers did not perform efficiently in areas of holistic training such as association of new learned materials to the previously learned information of students, connecting the educational practice to the global issues, welcoming innovation in performing tasks, discussing about class problems and joining past to present materials, lack of flexibility in unexpected situations, making challenges for students and accompanying them toward solutions and relating teacher's activity to everyday activities and experiences of students. In this regard, modifications of educational materials content (curriculums) as well as paying attention to the mentioned points seem necessary in holding any training periods for teachers.

In an investigation was conducted by Tajik (2004) the degree of familiarity of faculty members of humanities schools at different universities in Tehran about learning theories and their application in teaching was assessed. Besides, it was identified that rate of the faculty members' knowledge about the learning theories was above average and the faculty members of behavioral sciences and psychology schools members participated in training workshops performed much more successful than members of other subjects.

Another study examined 5<sup>th</sup> grade teachers' performance at primary schools of Tehran according to their rate of knowledge about teaching objectives, methods and skills as well as application of educational materials and assessment methods. The results indicated that rate of teachers' familiarity with teaching objectives was about average and most of teachers are not well-informed of scientific teaching methods, principles and assessment techniques plus designing test items.

Abyar (2005) in her research about the effective factors on teachers' teaching efficiency from school principals of Ilam city found put that a meaningful relationship exists between service training, job satisfaction, level of education, appropriate work place, welfare services and proper teaching and assessment methods of teachers' effectiveness.

Hong (1996) carried out an investigation on capabilities and limitations of teachers in active participation of curriculum design at primary schools of South Korea. The obtained findings indicated that efficiency of any curriculum design relies heavily on participation of professionals and specialized group as well as considering teachers' ideas as the main participants in the process of curriculum design not only cooperators of the program execution. Thus, increase of teachers' consciousness and other dependent factors on curriculum design is noticeably highlighted.

## METHODOLOGY

With regard to the research purposes and questions, a field method was used in order to measure rate of teachers' familiarity with philosophical, psychological and sociological foundations of curriculum design and learning principles. A survey based on the Linker scale was adapted to collect data. Also, to align the assessment test of teachers' knowledge about curriculum design and learning theories, linear transformation of scores was utilized. As the data were distributed normally, the Chi-square  $X^2$  in SPSS software was adapted.

**Population, sample and sampling method:** The present research population consisted of all teachers (93 subjects) working at high schools of Arak city in academic years 2011 and 2012. Through simple random sampling method and Cochran's formula 75 subjects were selected. However, 80 questionnaires were distributed and 78 complete surveys received:

$$n_{\text{cochran}} = \frac{\frac{P(1-p)Z^2_{1-\alpha/2}}{d^2}}{1 + \frac{1}{N} \left( \frac{P(1-p)Z^2_{1-\alpha/2}}{d^2} - 1 \right)}$$

$$= \frac{\frac{0.5 * 0.5 * (1.96)^2}{(0.05)^2}}{1 + \frac{1}{93} \left( \frac{0.5 * 0.5 * (1.96)^2}{(0.05)^2} - 1 \right)}$$

$$= \frac{384.16}{5.12} \cong 75.03$$

**Reliability and validity:** For intensifying exactness of obtained data and research findings validity, a 24 item

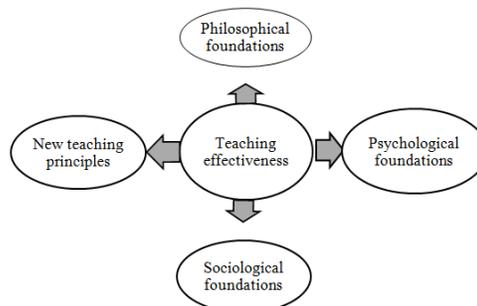


Fig. 1: The conceptual model

Table 1: Frequency of teachers' knowledge about the independent variables

	Scale	Strongly high	High	Average	Low	Strongly low	Total
Philosophical foundations of curriculum	Frequency	90.2100	76.2420	89.7832	14.2008	4.75300	194
	Percentage	4.65000	39.3000	46.2800	7.32000	2.45000	100
Psychological foundations of curriculum	Frequency	10.5730	81.7904	73.2350	23.8426	4.59780	194
	Percentage	5.45000	42.1600	37.7500	12.2900	2.37000	100
Sociological foundations of curriculum	Frequency	21.2624	87.3194	75.8346	16.7616	6.63480	194
	Percentage	3.84000	45.0100	39.0900	8.64000	3.42000	100
Rate of familiarity with new teaching principles	Frequency	12.2414	73.0216	55.8720	35.3640	17.8286	194
	Percentage	6.31000	37.6400	28.8000	18.0600	9.19000	100

Table 2: Results of Chi-square test for the independent variables

Independent variable	$\chi^2$	$\chi^2$ table	d.f	p-value
Philosophical foundations of curriculum	39.84	9.49	4	0.004
Psychological foundations of curriculum	44.35	9.49	4	0.002
Sociological foundations of curriculum	29.09	9.49	4	0.001
Rate of familiarity with new teaching principles	22.28	9.49	4	0.003

researcher-made questionnaire designed on the basis of closed questions with five options was used. The instrument reliability and validity was confirmed by experts. The Chronbach's alpha was achieved 0.86 that showed a reasonable reliability.

**Conceptual model:** The present study was an attempt to examine degree of high school teachers' knowledge about the learning theories and teaching effectiveness. Therefore, the independent variables are as follows:

- Philosophical foundations of curriculum design
- Psychological foundations of curriculum design
- Sociological foundations of curriculum design
- Rate of familiarity with new teaching principles

The dependent variable is teaching effectiveness. Figure 1 shows the conceptual model of the current research.

## RESULTS

After the questionnaires were collected, the following statistical calculations went on.

**The data distribution:** Table 1 shows frequency of teachers' knowledge about philosophical foundations of curriculum design.

**Chi-square  $\chi^2$ :** Table 2 indicates the results of Chi-square test.

Regarding the philosophical foundations of curriculum design, the calculated value 45.5 in level of confidence 95% is larger than the table value 9.49. the psychological foundations of curriculum design is obtained 26.89 in level of confidence 95% that is greater than  $\chi^2$  value 9.49. The sociological foundations of curriculum design value was achieved 34.96 in 95% level of confidence that is larger than  $\chi^2$  9.49. Rate of familiarity with new methods of teaching was obtained 21.53 in 95% levels of confidence and greater than  $\chi^2$  value 9.49. Accordingly, it can be concluded that the data distribution is actual and there

is a meaningful disparity between frequency of observed responses and expected frequencies. Also, it can be mentioned that:

- Rate of the high school teachers' knowledge about philosophical foundations of curriculum design is above average.
- Rate of the high school teachers' knowledge about psychological foundations of curriculum design is above average.
- Rate of the high school teachers' knowledge about sociological foundations of curriculum design is above average.
- Rate of the high school teachers' knowledge about new teaching principles is below average.

## CONCLUSION

In the current research, by use of statistical methods like Chi-square test the relationship between the independent variables with high school teachers' teaching effectiveness in city Arak was measured. Considering the obtained results, it could be concluded that the teachers' rate of familiarity with philosophical, psychological and sociological foundations of curriculum design was about average, though, their knowledge about the new teaching principles was below average.

These findings were in accordance with results achieved by Abas Zadeh (1992), Abedi (2000), Sofbahi (2003), Tajik (2004) and Abyar (2005). According to the mentioned studies' findings, most of teachers were not familiar enough with objectives of curriculum, educational technology, the learning and teaching principles and scientific assessment principles. The result of Samiei (1986), Ghaedi (2004), Sobhani (2003), Tajik (2004) and Abyar (2005) indicate that participation in short-term training periods and workshops augments teachers and instructors' professional knowledge and skills.

Therefore, setting up short-term and long-term approaches for training and empowerment of teachers

that is conducted with regard to precise studies, needs assessment and academic planning for maximization of the teachers' competence, potential and skills stand as some of fundamental issues in making the educational system more efficient.

### RECOMMENDATIONS

- Designing and holding training periods for acquaintance of philosophical basis of learning and teaching as well as training attitudes of philosophical schools of thought in a comparative form for development of teachers' educational skills.
- Periodical assessment of teachers and rating them the same as ranking procedures at universities that will stimulate teachers and raise their payment.
- For increase of effectiveness and efficiency of prepared training programs for the teachers, it is suggested that they take part in planning and holding processes of the training workshops.

#### Recommendations for future studies:

- Exploration of the relationship between personal variables (psychological) with teachers' teaching effectiveness.
- Examining the relationship between learned variables like experience and education after and before teaching with teaching effectiveness.
- Investigating the relationship between cultural variables such as family background, place of birth and place of education with teaching effectiveness.

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