Comparing the Effectiveness of Problem-Solving Skills Training Based on Tolman and Gestalt Theories on Problem Solving Styles in High School Students

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ABSTRACT

Background and Aim: The purpose of this research is to compare the effectiveness of teaching problem solving skills based on Tolman and Gestalt theories on the problem solving styles of high school students. **Methods:** The current research is applied in terms of purpose and in terms of method, it is a hybrid type of research. The statistical population included all female students of the first year of high school in Hamedan city, the statistical sample size was 75 people (3 groups of 25 people), problem solving skills with the theory of Tolman (1932) and Gestalt (1986), who were selected through the purposeful sampling method. To collect data, the problem-solving questionnaire of Desorilla, Nezo, and Mead-Olivers (2000) was used, and for data analysis, multivariate covariance analysis and Sheffe's post hoc test were used. **Results:** There is a difference between the effect of teaching problem solving skills based on these theories on students' problem solving styles (i-j=-3.6, P=0.003). The effectiveness of education based on Tolman's theory is higher than Gestalt's theory in all students' problem solving styles (i-j = 1.4, P = 0.0001). **Conclusion:** These trainings increase the use of positive and rational orientation styles and reduce the use of two negative, avoidant and impulsive orientation styles in students. The effectiveness of education based on Tolman's theory is higher than Gestalt's in all problem solving styles of students.

Introduction

The World Health Organization has defined the quality of life as people's perception of their position in life, according to the cultural context and value systems of the society in which they live and related to their goals, expectations, criteria and interests (Magno, 2007). The family plays an important role in bearing the effects of an accident or illness of one of its members. Therefore, it is quite natural that the needs of the family are coordinated with the situation of the child who is under support, education and follow-up. One of the most stressful experiences for any family is managing a child with a disability or chronic illness (Kober, 2010). With the birth of a child suffering from isolation and awareness of his disorder, parents often experience shock, disbelief and then severe disappointments. They must come to terms with the fact that their child has a condition that will affect him for the rest of his life and adjust their expectations to fit his limitations (Bradford, 1997). Therefore, having a mentally retarded child and the resulting stress usually greatly affect the satisfaction of parents and their family relationships (McKennocky et al., 2008).

Problem solving skill is a basic skill for living in the present age and a skill that can be learned. Not having proper problem solving skills is related to a number of emotional and behavioral problems in adults such as depression, anxiety, because problem solving is defined as complex behavioral and cognitive processes with the aim of adapting to internal and external challenges (Wiltshire et al., 2018). Problem solving skills refer to a cognitive-behavioral process that provides a variety of alternative and potential responses to deal with problematic situations and increases the possibility of choosing the best and most effective alternative responses (Mayer, 1992).

Different educational theories and methods can be used to teach problem solving skills. Therefore, trainers and teachers should be familiar with different learning and educational theories as much as possible. Familiarity with learning theories teaches us how to analyze people's learning and facilitate learning by pointing out points that are important and should be paid attention to, as well as by pointing out our expectations. Tolman and Gestalt theories can be mentioned among the cognitive theories. (Du, Dai, Teng, Hog, Li and Zheng, 2022)

Like behaviorists, Tolman's learning theory did not value the introspective approach and thought that psychology should be completely objective. However, his major disagreement with behaviorists was over the unit of behavior to be examined, and unlike other behaviorists, Tolman did a systematic study of integrated behavior. Tolman was methodologically a behaviorist, but metaphysically he was considered a cognitive theorist. In other words, he studied behavior in order to discover cognitive processes (Miglino et al., 2007).

Gestalt psychologists believed that phenomenological experiences are obtained from sensory experience, but they cannot be understood by analyzing the phenomenological experience into its constituent parts, that is, phenomenological experience is different from its constituent parts. Therefore, Gestalts believed that the organism adds something to experience that is not present in sense data, and that thing is organization. Gestalt (a German term) means shape, image, or design. But this term means more than this for gestaltists. The meaning of gestalt in Gestalt psychology is that "the whole is greater than its constituent parts". That is, the whole has properties or characteristics that are not found in its constituent parts, and in many ways the whole determines the properties of the parts, not the other way around (Smith, 1988).

Gestalt theory is the leading cognitive theory of learning. For cognitive theorists, learning is the acquisition and reconstruction of cognitive structures through which information is processed and stored in memory. They believe that learning is an internal process that may not appear in the form of an immediate change in obvious behavior, but is created in the form of abilities in a person and stored in his memory, and he can use the abilities whenever he wants. (Gobet, 2017)

Studies by Chingshu (2009) have shown that people who take care of orphaned children experience a lot of depression and anxiety, their roles and activities are limited, and in terms of marital relations, physical health, and performance, they experience a severe decrease. Mohajeri, Pourahmadi, Shokri and Khoshabi (2012) found out in a research that the treatment focused on parent-child interaction causes weak to moderate improvement in parenting self-efficacy of mothers of orphaned children. Rabiei and Shahrivar (2011) investigated the

effectiveness of group training of 12 parents of orphaned children on their awareness, level of stress, anxiety and depression in Rouzbeh Hospital, Tehran. The results of their study indicated that the educational course increased the level of parents' awareness about the disease and ways to help their child. In a research, Janis et al. (2013) investigated the effectiveness of problem-solving training in caregivers of children with mental health problems and showed that problem-solving skills had an effect on reducing depression and increasing caregivers' personal control. Studies on parents of orphaned children in Iran show that most parents do not have enough information about the disease of orphanhood and its causes and lack official support and professional help (Samadi et al., 2012).

The findings of Kheir, Qoneim, Sandrig, Ismail, Haider and Al-Ravi (2012) research on the quality of life of caregivers of children left alone in Qatar showed the low quality of life of parents of children suffering from loneliness. Numerous researches worldwide show that weakness and inability in problem solving skills are related to health, social and cultural problems. The more a person has the ability to solve problems, the more successful and healthy he will be (Hosseinijad, 2009). The impact of mentally disabled children on the family system has attracted the attention of many experts as a problem for years, and in recent years, more comprehensive interactive perspectives have been proposed regarding families where one of their members is disabled (Afrosheh, 2009).

Considering the importance of problem solving skills in students and the role of various psychological theories, especially cognitive theories in helping to learn skills and improve students' behavior, conducting this research is of great importance. In addition, this study is important in better explaining the role of index theory in the field of learning psychology in teaching problem solving skills. The purpose of this research is to compare the effectiveness of teaching problem solving skills based on Gestalt and Tolman theories on the problem solving styles of high school students.

Method

The current research is applied in terms of purpose and in terms of method it is a type of mixed research. The current research is one of the semi-experimental researches, the statistical population of the research included all female students of the first year of high school in Hamedan city, whose number was 6000. The statistical sample size was 75 people (three groups of 25 people) who were selected through the purposeful sampling method. The first group was trained in problem solving skills based on Tolman's theory, the second group was trained in problem solving skills based on Gestalt theory, and the other group, as a control group, underwent their normal training. Before the implementation of the project, all three groups were tested on problem solving skills (pre-test). After comparing three groups of 25 people according to their problem solving skills, they were trained in problem solving skills based on Tolman and Gestalt theories in 8 sessions. Finally, the problem solving skills test plan was implemented from all three groups and the results were compared.

Materials

1. Short form of the revised social problem solving questionnaire: This questionnaire was created by Dzurila et al. (2000) to measure social problem solving styles. This questionnaire has 25 questions and is scored on a 5-point Likert scale from not at all (1) to very much (5). The two subscales of this questionnaire measure problem solving orientation; That is, the positive orientation of problem solving (by questions 5-7-14) and the negative orientation of problem solving (by questions 2-4-9-13-22). Its three subscales also measure the social problem solving style: logical style of problem solving (by questions 3-8-16-20-21-24-25); Avoidance style of problem solving (by questions 1-10-12-17-18); Impulsive style of inattention to solve the problem (by questions 6-11-15-19-23). Two subscales of positive orientation to the problem and logical style of problem solving are considered as efficient subscales of problem solving, and three subscales of negative orientation to the problem, avoidant style of problem solving, and impulsive style of problem solving are considered as ineffective subscales of problem solving. The construct validity of the questionnaire has been confirmed using exploratory factor analysis and correlation with other problem solving scales and overlapping psychological constructs. The retest reliability of the questionnaire has been reported between 0.68 and 0.91 and its alpha coefficient between 0.69 and 0.95 (Dozurila et al., 2000; quoted by Mokhbari et al., 2011).

2. Problem solving skill training package: This educational package is based on the educational package of Tolman and Gestalt theories to teach life skills and problem solving. Regarding their problem solving skills, they were trained in

problem solving skills based on Tolman and Gestalt theories during 8 sessions, and at the end of the problem solving skills test, all three groups were tested and the results were compared. The steps of teaching problem solving skills with Tolman and Gestalt theories are given below.

Training sessions with Gestalt theory: Training sessions with Gestalt theory were implemented based on the protocol derived from this theory.

The first session: introduction of the design and implementation of the pre-test: introduction of the whole Gestalt theory and the position of the holistic view compared to the detailed view in the problems; Introducing problem-solving styles and positive and negative problem-solving orientations; Expressing the characteristic of positive and negative orientation and logical, avoidant and impulsive style subscales.

The second session: Identifying the problem and determining the goals of solving the problem: - Identifying some issues and problems faced by teenagers; defining the problem according to its general relationship with the surrounding phenomena; Using field theory and phenomenology in defining problems; Paying attention to general, integrated, mental, instinctive and combined stimuli.

The third session: teaching problem solving skills (first stage); Teaching problem solving steps based on the agreed rules of Gestalt theory; Expressing the features of Pragnan's law or planning in the stages of problem solving (psychological organization should be as good as possible; simple, with symmetry and coordination). The law of closure: complete incomplete experiences and respond to the world around us in such a way as to maximize it in those circumstances.

The fourth session: teaching problem solving skills (second stage): expressing the stages of problem solving using other learning rules of Gestalt theory, including the law of similarity and proximity; The Law of Good Continuity and the Law of Simplicity.

The fifth session: expressing the importance of the situation of creating the problem and solutions and combining different methods; Using the theory of form and context in identifying the situation of the problem and discovering solutions; attention to the simplicity of the solutions according to the law of simplicity; Attention to good continuation in using effective and efficient solutions.

The sixth session: Strengthening internal motivations in choosing problem-solving styles: facilitating students' internal stimulation in identifying problems and solutions; The connection of the problem with the creation of cognitive disequilibrium, the use of the law of the Zygarnik effect in choosing solutions; The Zygarnik effect states that incomplete tasks are remembered better than complete tasks.

The seventh session (introducing the stages of gaining insight in problem solving): introducing the three stages of Gestalt problem solving, including: 1. Understanding the nature of the problem 2. Reconstructing the components of the problem including (attention, attitude, perception, intelligence) 3. Providing the background for creating insight in solving the problem.

The eighth session: summarizing the stages of problem solving according to Gestalt learning rules; post-test implementation; reviewing the stages of facing the problem and creating cognitive imbalance; The role of the brain in organizing and giving meaning to phenomena and combining the components of the problem and overview and integration in solving the problem; Post-test implementation.

Training sessions with Tolman's theory: Training sessions were implemented according to the protocol provided by Tolman (1932).

The first session: introduction of the plan and conditions of participation in the sessions: general introduction of Tolman's theory and the place of integrating issues and lessons from another element, the importance of behavioral purposefulness, formation of small groups of 5 people in the class, implementation of the pre-test.

Second session: Introduction of problem solving styles: Introduction of problem solving styles and positive and negative attitude towards the problem and introduction of problem solving subscales including logical, avoidant and impulsive style.

The third session: identifying the problem and determining the goals of solving the problem: teaching the methods of identifying and defining the problem according to the objective aspects of the problems and identifying large, complete and meaningful patterns in creating problems, paying attention to the connection of elements and creating a problem with a problem.

The fourth session: Problem solving steps: getting to know the methods of hypothesizing in problematic situations, using the strategy of eliminating wrong strategies and achieving the remaining correct

solutions, strengthening the internal motivation of students to solve the problem at hand.

The fifth session: Continuing the steps of problem solving: using the rules and principles of learning considered in Tolman's theory in solving problems; Introducing the principle of resourcefulness in identifying the solution specific to a situation and paying attention to the differences between the conditions of a problem and the solution; Using the allegory of each region's favorite food to drive hunger; Introducing the principle of learning, equivalent beliefs and expressing the importance of sub-goals equivalent to the main goal and the importance of solving social problems.

6th session: Continuing the stages of the problem according to the principles of Tolman's theory: teaching the use of the concept of field theory in identifying and choosing appropriate problem solving styles; Explaining the relationship between different components of a problem and expecting to see the dependent symptoms of a problem or the sequential effects of a solution on different aspects of problems.

Seventh session: Introducing learning patterns and confronting the problems of Tolman's theory: introducing the principle of pure driver learning and effort movement patterns to respond to the stimulus - teaching how to arrange the perceptual field in a specific plan.

Eighth session: Summarizing and implementing the post-test: summarizing the stages of facing problems and choosing solutions by reviewing the learning principles of Tolman's theory, including: integration of behaviors, finding power, equivalent beliefs, field expectations, cleaning the driver and removing wrong strategies and implementing the post-test.

Implementation

The ethical considerations of the present study were as follows: All people received written information about the study and participated in the study if they wished. The subjects were assured that all information is confidential and will be used for research purposes. Data analysis was done in two parts, descriptive and inferential. Descriptive statistics included frequency, percentage, average graph, and standard deviation. Inferential statistics include Kolmograph Smirnoff test to check the normality of the data, MANCOVA multivariate covariance analysis test and Scheffe's post hoc test to analyze the research hypotheses that have been used.

Results

In this research, 47% of the statistical sample studied were in the 10th grade and 53% were in the 11th grade. 32% of them were studying in mathematics, 34% in experimental field and 34% in humanities field. 54% of the fathers of the statistical sample studied had an undergraduate education, 23% a diploma, 7% an associate's degree, 5% a bachelor's degree, and 11% a master's degree. 59% of the mothers had an undergraduate education, 24% an associate's degree, 2% a bachelor's degree, 14% a master's degree, and 1% a doctorate. 54% of the fathers of the statistical sample studied were self-employed, 31% were employees and 15% were farmers. 80% of the mothers were housewives, 13% were employees and 7% were self-employed.

Table 1. Status of each of the compared groups in the pre-test				
Group	**Problem-solving style**	**N**	**Mean**	**SD**
Tolman	Positive orientation	25	12/88	2/02
	Negative orientation	25	13/76	3/34
	Logical style	25	28/92	3/29
	Avoidant style	25	10/08	3/88
	Impulsive style	25	13/24	3/46
Gestalt	Positive orientation	25	12/16	1/72
	Negative orientation	25	15/64	3/63
	Logical style	25	27/92	3/12
	Avoidant style	25	11/8	3/6
	Impulsive style	25	14/84	4/52
Control	Positive orientation	25	12	2/17
	Negative orientation	25	14/52	3/17
	Logical style	25	29/28	2/22
	Avoidant style	25	10/92	3/53
	Impulsive style	25	13/92	3/65

According to the data in Table 1, there was no significant difference between the average of the experimental groups and the control group in the problem solving style, positive orientation, negative orientation, logical style, avoidance style, and impulsive style in the pre-test.

Table 2. Status of each of the compared groups in the post-test				
Group	**Problem-solving style**	**N**	**Mean**	**SD**
Tolman	Positive orientation	25	14/68	0/47
	Negative orientation	25	7/16	2/17
	Logical style	25	33/48	1/5
	Avoidant style	25	4/92	2/3
	Impulsive style	25	6/88	2/36
Gestalt	Positive orientation	25	13/68	1/06
	Negative orientation	25	11/44	3/08
	Logical style	25	31/28	2/55
	Avoidant style	25	8/28	2/86
	Impulsive style	25	10/24	3/39
Control	Positive orientation	25	12/24	1/96
	Negative orientation	25	14/2	2/95
	Logical style	25	29/56	2/16
	Avoidant style	25	10/72	3/39
	Impulsive style	25	13/64	3/52

According to the data in Table 2, there is a difference between the average of the experimental and control groups in the post-test. To ensure the significance of the differences, the results of the analysis of covariance test should be used, as follows.

Using the covariance test, the difference between the use of Tolman and Gestalt theories on students' problem solving styles was investigated.

Table 3. Covariance analysis test							
Effect		Value	F	Df hyp.	Df err.	Sig.	Eta square
Group	Wilks' Lambda	0/29	9/36	15	254/37	0/0001	0/33

According to the data in table number 3, the value of Wilks's lambda is (f = 9.36 and sig = 0.0001), which indicates the effect of the group on the dependent variables. Therefore, it can be said that the grouping of students into two experimental groups with Tolman and Gestalt theories and the control group has had a significant effect in teaching students' problem solving styles.

The summary table of covariance analysis (Table 4) was used to determine the effect of the test groups on each of the five styles of problem solving, i.e., positive orientation, negative orientation, logical style, avoidance style, and impulsive style.

Table 4. Summary table of analysis of covariance for intergroup effect							
Source	Dependent Variable	SS	df	MS	F	Sig	Effect size
Group	Positive orientation	89/31	3	29/77	20/21	0/0001	0/39
		642/8	3	214/267	23/28	0/0001	0/42
	Negative orientation	236/36	3	78/787	18/16	0/0001	0/36
		497/04	3	165/68	22/66	0/0001	0/42
	Logical style	576/56	3	192/187	20/78	0/0001	0/39
	Avoidant style						
	Impulsive style						
Error	Positive orientation	141/44	96	1/473			
		883/36	96	9/202			
	Negative orientation	416/4	96	4/337			
		701/92	96	7/312			

	Logical style Avoidant style Impulsive style	888	96	9/25
Total	Positive orientation Negative orientation Logical style Avoidant style Impulsive style	19137 13018 101904 6794 11706	100 100 100 100 100	
Corrected Total	Positive orientation Negative orientation Logical style Avoidant style Impulsive style	230/75 1526/16 652/76 1198/96 1464/56	99 99 99 99 99	

According to the data in table number 5, the statistical values related to the effect of the group on: positive orientation (f = 20.21 and sig = 0.0001); negative orientation (f = 23.28 and sig = 0.0001); logical style (f = 18.16 and sig = 0.0001); Avoidant style (f=22.66 and sig=0.0001); Impulsive style (f = 20.78 and sig = 0.0001). The results show that the group had a significant effect on the dependent variables, so it can be said that the implementation of the experimental design, Tolman and Gestalt theories has an effect on the students' problem solving styles.

Given that problem solving styles include five styles (positive orientation, negative orientation, logical style, avoidance style, impulsive style). Scheffe's test was used to compare the post-test of positive orientation style, negative orientation style, logical style, avoidant style, and impulsive style between two test groups based on Tolman and Gestalt theory and the control group. The post-test average of the group under training based on Tolman and Gestalt theory in students' positive orientation is 2.44 points and 1.44 points higher than the control group, respectively. Therefore, it can be said that teaching problem solving skills based on Tolman and Gestalt theory has an effect on students' positive orientation and increases the students' positive orientation style in problem solving. (sig=0.0001, i-j=2.44 and i-j=1.44, Sig=0.001).

The average post-test of the group under the training of problem solving skills based on Gestalt theory: 1- The score is lower than the average post-test of the group under the training of problem solving skills based on Tolman's theory on the positive orientation of students. Therefore, it can be said that there is a difference between the effect of teaching problem solving skills based on Gestalt and Tolman theories on the positive orientation of students. Moreover, the effect of teaching problem-solving skills based on Gestalt theory on students' positive orientation is less than teaching problem-solving skills based on Tolman's theory (i-j=1, sig=0.043).

The post-test average of the group under training based on Tolman and Gestalt theory on students' negative orientation is 7.04 points and 2.76 points lower than the control group, respectively. Therefore, it can be said that teaching problem solving skills based on Tolman and Gestalt theory has an effect on students' negative orientation. In addition, it reduces the negative orientation style of students (i-j=-7.04, sig=0.0001 and i-j=-2.76, Sig=0.02, respectively). The post-test average of the group under the problem-solving skills training based on Gestalt theory is 4.28 points higher than the post-test average of the group under the problem-solving skills training based on Tolman's theory on the students' negative orientation. Therefore,

it can be said that there is a difference between the effect of teaching problem solving skills based on Gestalt and Tolman theories on students' negative orientation. The effect of teaching problem solving skills based on Tolman's theory on reducing students' negative orientation is more than teaching problem solving skills based on Gestalt theory (i-j=4.28, Sig=0.0001).

The average post-test of the group under training based on Tolman and Gestalt theory on students' logical style is 3.92 points and 1.72 points more than the control group. Therefore, it can be said that teaching problem solving skills based on Tolman and Gestalt theory has an effect on the logical style of students and has improved the logical style of students. (i-j=3.92, sig=0.0001=i-j=1.72, Sig=0.042 respectively). The average score of the post-test group under the training of problem-solving skills based on Gestalt theory is 2.2-2, lower than the average post-test of the group under the training of problem-solving skills based on Tolman's theory on the students' logical style. The results show that there is a difference between the effect of teaching problem solving skills based on Gestalt and Tolman theories on students' logical style. The effect of teaching problem solving skills based on Gestalt theory on the logical style of students is less than teaching problem solving skills based on Tolman theory (i-j=-2.2, sig=0.004).

The average post-test of the group under training based on Tolman and Gestalt theory on students' avoidance style is 5.8 points and 2.44 less than the control group, respectively. Therefore, it can be said that teaching problem solving skills based on Tolman's theory has an effect on students' avoidance style and has reduced students' avoidance style. (i-j = 5.8, sig = 0.0001 and i-j = 2.44, sig = 0.021). The post-test average of the group under the training of problem solving skills based on Gestalt theory is 3.36 points higher than the post-test average of the group under the training of problem solving skills based on Tolman's theory on students' avoidance style. Therefore, it can be said: There is a difference between the effect of teaching

problem solving skills based on Gestalt and Tolman theories on students' avoidance style. Moreover, the effect of teaching problem solving skills based on Gestalt theory on students' avoidance style is lower than the effect of teaching problem solving skills based on Tolman theory (i-j=3.36, sig=0.001).

The average post-test of the group under training based on Tolman and Gestalt theory on students' impulsive style is 6.7 points and 3.4 points lower than the control group, respectively. Therefore, it can be said that teaching problem solving skills based on Tolman and Gestalt theory has an effect on the impulsive style of students and has reduced the impulsive style of students. (respectively, i-j = 6.7, sig = 0.0001 and i-j = 4.3, sig = 0.002). The post-test average of the group under the training of problem-solving skills based on Gestalt theory is 3.36 points higher than the post-test average of the group under the training of problem-solving skills based on Tolman's theory on the impulsive style of students. Therefore, it can be said that there is a difference between the effect of teaching problem solving skills based on Gestalt and Tolman theories on students' impulsive style. The effect of teaching problem solving skills based on Gestalt theory on students' impulsive style is less than the effect of teaching problem solving skills based on Tolman theory (i-j=3.36, sig=0.003).

Conclusion

In this research, it was shown that there is a difference between the effectiveness of teaching problem solving skills based on Tolman and Gestalt theories on positive and negative orientation styles, logical style, avoidant and impulsive problem solving styles of high school students. The results of this research are in line with the previous studies of researchers. These researchers reached these results, there is a relationship between learning strategies and their dimensions and problem solving styles. In addition, cognitive styles and its dimensions play a mediating role in the relationship between learning strategies and problem solving styles (Kuzknikov, 2007).

The training of social-cognitive problem-solving skills caused a decrease in physicalizing and emotion-focused strategies and an increase in cognitive strategies, understanding social support and problem solving, and caused a decrease in internal and external failure of adolescent girls with high-risk behaviors. Teaching social-cognitive problem solving skills increases the use of positive coping strategies and decreases negative ones (Khakpour et al., 2020). Teaching cognitive and metacognitive strategies is effective in increasing students' problem-solving skills and self-esteem (Pourhossein, Nabizadeh, and Ehsani, 2020). Students' behaviors are powerful predictors of their cognitive engagement states. High-performing individuals showed a significantly higher level of cognitive engagement than low-performing individuals when performing deep learning behaviors (Lee et al., 2021). Students who were aware of their thinking process when faced with problems and learning tasks and had confidence in their ability to solve problems. Students who review and correct their performance when dealing with learning issues and use less avoidance style, felt more mentally healthy and had a higher level of adaptability in dealing with their assignments (Klopp & Stark, 2020). Teaching problem solving skills to students in schools allows them to improve their communication and increase their skills (Rogers et al., 2019). Teaching problem solving improves problem solving skills and self-reliance in students (Ismovardani, Nouriatin and Doyin, 2019). Teaching problem-solving skills and effective communication increases the ability of adolescents to solve problems and effectively use social support (Dzorilla and Nezo, 1990).

Teaching problem solving skills based on Tolman's theory has increased the use of positive and logical orientation styles more than the group based on Gestalt theory and has reduced the use of three negative, avoidant and impulsive orientation styles in students to a greater extent. These findings are consistent with the results of Tanbad (2019), Ahmadi Darani et al. (2017) and Athari and Atharzadeh (2014).

Gestalt psychology means the whole and it is a partial perspective. Gestalt considers all elements together and the combination of those elements. Behaviorism, in contrast to Gestalt, emphasizes stimulus-response. Gestalt's emphasis is on positiveness in relationships, the characteristics of its parts are related to space and time, the role and action of parts in the whole (Hosseini, 2011, Tanbad, 2019). Ahmadi Darani et al. (2017) showed; The two schools of functionalism and associationism are both sub-branches of behaviorism. The functionalism paradigm tries to form its theories based on the hypothesis of a two-way relationship between the environment and the organism for survival. Associationists also emphasize the association and connection of response and stimuli. In Gestalt theory, the rules of smoothing, clarifying and normalizing are important. The results of Athari and Atharzadeh (2014) indicate that Tolman's learning theory is a mixture of Gestalt theory and behaviorism. Tolman has addressed the issue that there is more than one type of learning. In this regard, he has mentioned six types of learning: finding power, equivalent beliefs, field expectations, field cognitive state, driver awareness and movement patterns.

In this research, five styles of positive orientation, negative orientation, logical style, avoidance style and impulsive style have been examined. People who have a positive problem solving orientation do not give up if their first attempt to solve a problem fails. When they face a problem, they believe that it can be solved and they solve the problem as soon as it is possible. People with a negative problem solving orientation feel fearful when they have a problem to solve. When they have to make an important decision, they are angry and uncertain, if they fail in the first attempt to solve a problem, they feel helpless and frustrated. Dealing with a problem or a difficult issue makes them upset and confused. In dealing with my issues and problems, they become depressed and inactive. People with a logical problem solving style think about different solutions when dealing with a problem. When dealing with problems, they examine their details and consider obstacles to solving them. When dealing with problems, they test their feelings and examine how they can be improved. When solving problems, they evaluate

if the situation is improving. (Hosseinijad, 2009, Tanbad, 2019). When they have several solutions to solve problems, they check and compare the results of each solution. To compare different solutions to solve a problem, they use a regular method. When facing obstacles, they always have the goal in mind. People with an avoidant problem-solving style avoid thinking about problems when faced with them. When faced with problems, they try as much as possible to stop trying. When they refuse to solve a problem, they ask others to get out of their way. They delay solving problems until it is too late to solve them. When faced with issues and problems, they spend a lot of time trying to avoid solving them. People with impulsive problem solving style act on the first good idea that comes to their mind in solving problems and issues (Afrosheh, 2001, Akbari & Atharzadeh, 2014). They don't take much time to accurately evaluate the possible results of a solution to a problem. When solving problems and issues, they focus on the first thought that comes to their mind. They don't take much time to consider the positive or negative results of a solution. When they choose a solution, they go ahead with it boldly without thinking about the consequences. Tolman's learning theory is a mixture of Gestalt theory and behaviorism, he did not value the introspective approach and thought that psychology should be completely objective.

According to Tolman's theory, learning is an ongoing process that does not require motivation. Motivation is important because it determines what aspects of the environment are of interest to the organism. Motivation acts as a perceptual reinforcer. A cognitive map helps a person to know what is where. In the environment of the principle of least effort, the organism always chooses the shortest path or the path that requires the least effort. Cognitive dissonance is a negative driver state, and the person experiencing it seeks ways to reduce this driver. Six learnings: finding power, equivalent belief, field expectations, field cognition mode, driver recognition and movement patterns are some of the highlights of Tolman's theory. (Isaacson, Dorval, and Trifinger, 2010).

Teaching problem solving skills based on Tolman and Gestalt theories has an effect on students' five problem solving styles. These trainings increase the use of positive and rational orientation styles and reduce the use of negative, avoidant and impulsive orientation styles in students. The effectiveness of education based on Tolman's theory is higher than Gestalt's theory in all students' problem solving styles. The breadth and comprehensiveness of Tolman's theory and the tendency towards behaviorism while adhering to cognitive patterns have caused Tolman's theory to be used as a comprehensive and efficient theory in teaching problem solving skills. In addition, it has made it more effective than Gestalt theory in improving students' problem solving styles.

The current research was limited due to the problems related to students' participation and issues caused by the Corona virus, and it was difficult to access some of the users present in the meeting. Considering the advantages of each of Tolman's and Gestalt's learning theories in teaching problem solving skills, it is suggested to conduct research on the design of life skills training model by integrating the two mentioned theories.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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