

## Comparative Comparison of Lecture and Team Member Teaching Design Methods in Agricultural Higher Education System of Iran

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### ABSTRACT

At the colleges of agriculture in Iran, lecture is used as a dominated teaching method. Team learning is one of the most commonly used educational methods in the present area. The aim of this study was to compare the Team Member Teaching Design (TMTD) and the regular lecture method on the academic achievement and teamwork behavior of agricultural students. A within-subject design was followed for two courses in which students first attended a series of lectures and then participated in team teaching. Differences between lecture and team teaching methods were examined for their academic achievement and teamwork. The study samples were taken of Agricultural Extension and Education Department of the University of Tehran during the academic year of 2017-2018. The mean scores of academic achievement and the teamwork behavior of students were compared. In compared courses, the effect of TMTD method on the academic achievement of students was shown. The results of means comparison tests indicated a significant difference between the two methods of teaching in the field of academic achievement and the strengthening of the teamwork behavior of students. The paper further discusses team method implementation and its implication for teaching and proffers the way forward for an effective use of teaching methods for better results in the classroom teaching and learning process.

**Keywords:** Classroom teaching, Teamwork behavior, TMTD method.

### INTRODUCTION

One of the goals of education is to train qualified and efficient students and to tailor their capabilities to the evolution of society (Elyasi, 2010). One of the major goals of today's education systems is to develop and change teaching methods to provide the conditions for students to acquire information and knowledge through new methods rather than direct information transfer (Bayraktar, 2011). Obviously, agricultural science can be taught effectively and with high quality, if suitable and up-to-date teaching and learning methods are made use of. Learning through

participation and group interaction is one of the most useful and common approaches to education in advanced countries (Anthony *et al.*, 2010; Johnson *et al.*, 2006). Using this learning strategy within small groups, students work together to achieve a common goal to improve their learning ability (Cooper *et al.*, 2006) so that students work together to maximize their own and each other's learning" (Johnson and Johnson, 1999). Various studies show that university instructors over the world (Stitt-Gohdes, 2001) and Iran as well (Safavi, 2006; Hejazi, 2006; Taqipour *et al.*, 2016) use lecture as the predominant teaching method. Although the lecture method can be helpful for

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information acquisition, for the organization and transfer of knowledge, for the integration of information from multiple sources, and clarification of complex information (Matheson, 2008), it does not teach problem-solving strategies or attitude change. To improve the teaching methodology, many researchers have suggested the use of new and innovative methods (Weimer, 2002), among them the peer teaching and collaborative learning are increasingly used worldwide (Seidel and Godfrey, 2005). Among the methods of team teaching, the Team Member Teaching Design (TMTD) teaching method can be used as a combination of new collaborative methods.

### **Team Member Teaching Design (TMTD): A Combination of New Teaching Methods**

Team-based learning is an instructional strategy using learning teams to enhance the quality of student learning and facilitate their professional development (Moradi *et al.*, 2011; Rania *et al.*, 2015). The instructor assigns students with diverse skill sets and backgrounds to permanent groups of five to seven members. Students are individually accountable for homework assignments and for contributing to team efforts in class. Significant credit is given for inclass team activities and application exercises. These inclass activities are aimed to promote both academic learning and team development and are structured to give students frequent and timely feedback on their efforts (Hedjazi and Omid, 2008; Johnson *et al.*, 2006). The most successful methods as student team learning, topic classification into different parts, learning together, and group research, can be summarized within the TMTD approach (Abbasi Asl *et al.*, 2016). It seems, that methodology of TMTD is more relevant than other learning methods, such as the Team Effectiveness Design (TED), judging performance, judging the attitude, and solving problem, and is more attractive and practical which can create and increase learning

motivation in students (Mansoorian *et al.*, 2018). In TMTD, the teacher does not teach, but serves as a guide and only fixes the bugs. The task of teaching and learning is the responsibility of the students. This method must be accurate and complete; otherwise, it will not be effective (Barandeh, 2015). The formation of small groups of students in the classrooms will foster the effective interaction among them (Feingold *et al.*, 2008; Knight and Wood, 2005). It is, also, very helpful in improving critical thinking and problem-solving ability, changing attitude, and motivating for learning continuity (Cortright *et al.*, 2005) because the involvement of students in learning situations and activities is associated with academic achievement and student satisfaction (Rouhani *et al.*, 2014; Hedjazi and Omid, 2008). It can be concluded that the TMTD teaching method has a significant role in enhancing the teamwork behavior of students and their academic achievement.

### **Teaching in a Traditional and Team Way: Effects and Consequences**

The use of active and participatory teaching methods where students are directly involved and gain experience through direct participation is more appropriate for agriculture students (Parr and Edwards, 2004). Application of team teaching methods and interactive learning have several benefits including increased vitality in class, increased beliefs and expectations of students (Liaghatdar *et al.*, 2004), student participation in class management (Chanchalor and Chomphutong, 2004), more referral to other texts and increased persistence and reduced absenteeism from the classroom (Mortazavi *et al.*, 2004), dependence on group members, brainstorming, collective empowerment (Liaghatdar *et al.*, 2002), increased self-confidence (Asoodeh *et al.*, 2012) and learning satisfaction, attempts to adapt to the group (Chanchalor and Chomphutong, 2004; Asoodeh *et al.*, 2012). Also, it provides a

common understanding of learning materials, deeper processing of ideas, better preservation and transfer of educational materials, greater stability and scientific sustainability, more academic success, greater intrinsic motivation (Chanchalor and Chomphutong, 2004) and positive attitude to the subject of learning. All these aspects of learning improve the behavior and convincing students to acquire applied knowledge, memory enhancement, advanced training, processing of materials and the ability to transfer information to new concepts (Yadav *et al.*, 2011; Jorczak, 2011; Knight *et al.*, 2007).

In general, The emphasis on using active teaching methods in agriculture is more effective for the students in learning process. By using the team teaching approach, the main goals of agricultural education are realized through the development of higher mental skills, such as reasoning and problem solving, development of attitude and gaining interpersonal skills such as listening, speaking, discussing and leadership of the group. These interpersonal skills are of great importance, especially for agricultural students, who will ultimately deal with farmers and other utilizations, community groups, scientific communities and the like, based on their professional background.

### **Educational Progress and Strengthening Teamwork Behavior: Outcomes of Team Teaching Methods**

Teamwork behavior is a combination of knowledge, skills, and attitude of team members. Teamwork knowledge includes common mental models, student knowledge and understanding of topics related to team, environment, actions, and programs (Nguyen *et al.*, 2016). Teamwork attitudes include mutual trust (Weller, 2015), belief in the importance of teamwork, and prioritizing team approaches to individual approaches in dealing with problems (Reader and Cuthbertson, 2007). Teamwork skills include communication skills, creative

behaviors, leadership and management skills (Weller, 2015). Various studies have been conducted on the impact of lecture and team teaching methods on the academic achievement of students. Many of them have found that team teaching is more effective in improving the students' learning skills and academic achievement compared to lecture methods (Shabani *et al.*, 2016; Rahimi Mand and Abbaspour, 2015; Sadeghi Dizaj *et al.*, 2015; Hakim Zadeh *et al.*, 2014; Omowunmi and Ezekiel 2007). At the same time, some other studies have argued that there is no significant difference between lecture and team teaching methods in terms of enhancing the performance and academic achievement of students (Dusold and Sadoski, 2006; Stewart *et al.*, 2009). With respect to the impact of team teaching methods on strengthening teamwork behavior, many studies (Jafari Sani *et al.*, 2017; Shabani *et al.*, 2016; Rahimi Mand and Abbaspour, 2015; Raoufi *et al.*, 2014) have reported the positive effect of this method versus traditional methods including lectures.

The major objective of this study was to investigate the effect of TMTD teaching method on academic achievement and strengthening the teamwork behavior of agricultural students.

## **MATERIALS AND METHODS**

### **Research Plan**

A quasi-experimental pre-test-post-test study was used in the present study with two non-randomized groups to determine the effect of two teaching methods, including Team Members Teaching Design (TMTD) and lecture, on academic achievement and teamwork behavior improvement of agricultural students in the first semester of the academic year 2017-2018.

At first, the subjects were trained under relatively controlled conditions without the intervention of the independent variable (TMTD teaching method), and then,



educational and behavioral assessment (pre-test) was performed T1. Next, the independent variable (TMTD teaching method) was applied to the subjects and at the end of the course, teamwork behavior and academic achievement were re-evaluated (post-test)(T2).

In this design, the dependent variable is measured before and after the implementation of the independent variable. Due to factors such as the concurrent occurrence during the research, the physical and mental status of the subjects, the way the pre-test is performed, the means of measurement, the returns from the statistical tools, and the drop in the subject, it was quite impossible to ensure that the observed difference between T1 and T2 was brought about only by the intervention of the independent variable. To increase validity and accuracy, as well as to reduce the impact of factors that the project is not able to control, the researchers implemented this project simultaneously for two groups of agricultural extension students in "Entrepreneurship in agriculture" and "Educational Psychology" courses.

### Statistical Population

The statistical population of the study consisted of two groups of students from the Faculty of Agricultural Extension and Education in University of Tehran. The first group was composed of 16 sophomores in the first semester of 2017-2018 who had taken 'Entrepreneurship in Agriculture' course for the first time. The second group consisted of the freshmen of Agricultural Extension and Education in the first semester of 2017-2018, amounting to 7 students, who had taken a course in educational psychology. Students were between the ages of 18 and 20 years old. In the first group, there were 6 women and 10 men and, in the second group, there were 5 women and 2 men.

### Data Collection Instrument

A questionnaire of Neestani's (2014) behavior measurement was used to collect the teamwork behavior data. This is a modified

form of the Neestani's behavior Teamwork Scale and includes 50 statements that measure teamwork behavior on a four-point Likert scale (from Never= 1 to Always= 4).

For this scale, three areas of knowledge, attitude, and skill are defined.

Knowledge includes 14 items. Example of knowledge statement: "I try to give all the information to the team in group work or in the team while learning more."

Attitude includes 17 items. Example of attitude statement: "I play my responsibilities well in team work and I feel satisfied with that."

Skill includes 19 items. Example of skill statement: "I minimize the problems by forming common groups in the course".

In fact, higher scores in knowledge, attitude, and skill indicate an increase in the growth of teamwork behavior. The method of scoring in this questionnaire is as a person with high-level (171-200), average (141-170), poor (111-140) team spirit and less than 110 needs more work and effort to create team spirit and teamwork skills.

### The Validity of the Research Instrument

After the questionnaire was revised, it was presented to a panel of relevant experts, and its content validity was confirmed. To assess the reliability of this scale, Cronbach's alpha and split-half method were used. This coefficient for the whole scale was equal (more than 0.85). In addition, in the subscales, the range of reliability coefficients was between 0.35 and 0.82 and the coefficients of split-half were between 0.79 and 0.48. The results demonstrate the desirable and acceptable reliability and validity of this scale for assessing teamwork behavior of students.

### Data Collection

### The Explanation, Formulation, and Planning

Prior to the beginning of the semester and after briefing the selected faculty trainers, several meetings were held to cooperate with the

scholars and trainers. After they accepted to have this pilot project conducted in their classrooms, all stages of the implementation of the TMTD teaching method were explained by the researcher step by step, and they were provided with the resources on how to teach TMTD. It should be noted that the trainers had previously learned how to apply team teaching methods and had a lot of interest in implementing this teaching method in their classes. Teaching in lecture and teamwork methods was planned according to the educational calendar. According to the program, 14 training sessions were planned, and two sessions were allocated for evaluation (middle and final). Therefore, it was decided to present in both courses a lecture in the first seven sessions and a team mode in the second seven sessions. The lesson plan was designed by the teachers and was approved by research team members.

Throughout the teaching process in both courses, the researcher served as an educational assistant along with trainers in classrooms, facilitating the teaching process and helping teachers to implement this teaching method to the best possible form.

### Teaching Lecture

In the first training session, the questionnaire of demographic information and personal-occupational characteristics was completed by the students. It was found that the subjects were in the age range of 18-20 years old and the two courses did not have a significant difference in terms of demographic characteristics. Students received lecture instruction from October 2017 for seven sessions (1.5 hours). During this period, the trainers in both courses presented a variety of lesson subjects that were of theoretical nature in the form of lectures for students. There was no group and cooperative activities during this period. After completing the last lecture session, evaluation tests were conducted to assess the performance of the students and their teamwork behavior in a similar way in both courses.

### Team Teaching (TMTD)

The teaching of team members are based on two principles;

1-Each member of the group will study a different subject among the subjects that they are supposed to learn.

2-Every student can teach his/her own group members. Therefore, each member acts as an educator as a participant.

### Organizing Groups

The grouping in this method is such that the number of members in each group should be equal to the number of the parts of the course. Therefore, at first, the content of the course was divided into almost equal parts. In the first course ('Entrepreneurship in Agriculture' course) (EA), the content of the course was divided into four parts, and the students were divided into four groups with four members. These groups were coded as 1 to 4. In the second course ('Educational Psychology' course) (EP), the content of the course was divided into three parts, and the students were divided into two groups with three and four members. These groups were, also, numbered as 1 and 2. In the grouping of the students, the characteristics of gender and Grade Point Average (GPA) were considered and it was tried to organize the teams in a way that they included both sexes and strong and weak students. The teams were formed circularly and far from each other.

### Classes Divided into Groups

After classifying the contents and grouping the students, the lessons were distributed among the groups. Then, the first person in each group was given the first part of the content, the second person was given the second part etc., and each individual in each group was responsible for a certain part of the course content. Each person was obligated to study, read, summarize, draw a



chart, and gain mastery on its own part individually outside the classroom alone (Figure 1).

### Formation of a Specialized Team

At this stage, all people who had studied the content of the course in the first part of the group came together to discuss the possible bugs. Those who had read the second part of the content together formed the same group of people who had studied a common part. Specialist groups were named with the letters A, B, C, D (Figure 2).

### Returning to the Group and Teaching other Members

After discussing and fixing possible bugs, the members of the specialized groups returned to their respective groups to teach the whole group. To follow the order and sequence of course content, the person who had studied the first part of the content presented his/her part first, then, the second part was presented by the second person, and

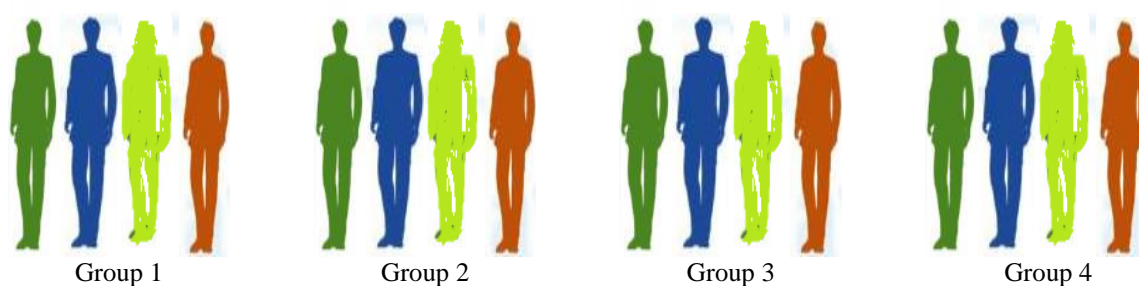
so on. During teaching, students were not allowed to refer to the text and they could only refer to their notes and summaries (Figure 3).

### Testing and Evaluation

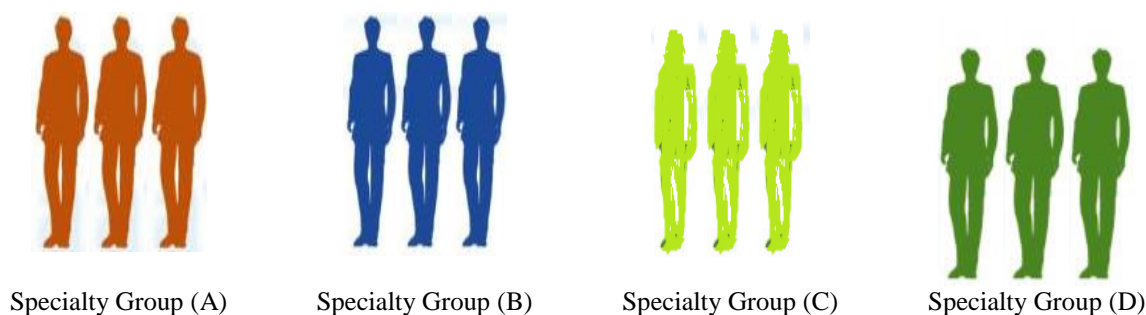
At the beginning of each session, the students were evaluated with the pre-test that included the questions designed based on the objectives, the lesson plan, and the educational content of the topic for about five minutes. After completing the TMTD course, the teacher asked questions in equal numbers from each part and the students responded individually to the questions. The scores from this test indicated students' achievement from the team teaching method (post-test). At this stage, the teamwork behavior of the students was re-evaluated using a standard questionnaire for assessing teamwork behavior (Neestani, 2014) (post-test).

### Data Analysis

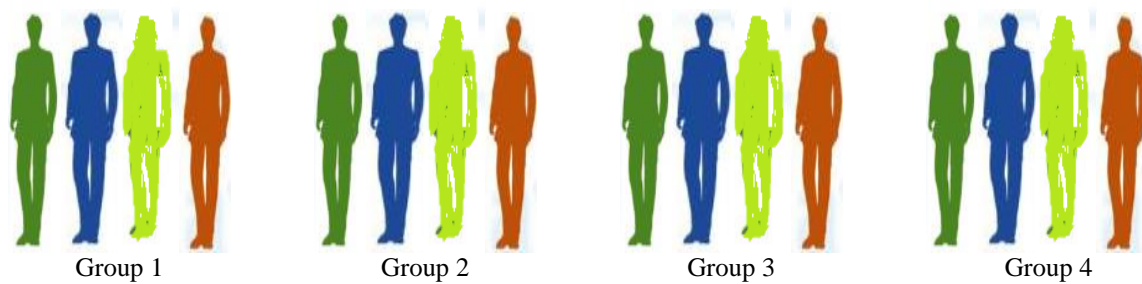
Descriptive statistics including mean and



**Figure1.** Grouping and assigning the parts of course content to individual members of the group.



**Figure 2.** The formation of specialized groups for each part of the course content.



**Figure 3.** Returning from the specialized groups and teach one's own group.

standard deviation and inferential statistical methods including paired t-test and Wilcoxon test were used to analyze the data, which included the scores of academic achievement and the components of teamwork behavior. The normality of quantitative variables was confirmed by normal tests and then, the data were analyzed by statistical tests.

## RESULTS AND DISCUSSION

### The Basic Statistical Evaluation of the Academic Achievement

Calculating the amount of skewness for the academic achievement variable using lecture and TMTD methods in the EA course was 0.138 and 0.914, respectively, and in the range of  $(-2, 2)$ . In terms of inclination, the variables of lecture and team grades were normal and their distribution was symmetric. Their elongation (kurtosis) was -0.783 and 0.312, respectively, and in range of  $(-2, 2)$ . This indicates that the

distribution of variables has a normal stretch (Table 1).

As shown in Figure 4, the distribution of the data graph was normal, and the average of the standard scores of the variables was equal to 0 and its standard deviation was equal to 1, and the distribution of the sheet was of symmetric type. With respect to the EP course, the values of skewness and kurtosis for the score variable with the lecture and team methods were 1.792, 3.545, 0.879, and 0.588, respectively, indicating that the variables were normal in terms of inclination. However, since stretching values were outside the range  $(-2, 2)$ , the distribution of variables did not have a normal stretch. The results are displayed in Table 1.

After examining the normal Skewness and Kurtosis distribution of data, the Kolmogorov-Smirnov test were used to ensure that the data were normal. The results of the Kolmogorov-Smirnov test are shown in Table 2. Given that all values are greater than 0.05, the data can be assumed with high normal confidence (Table 2; Figure 4).

**Table 1.** Descriptive statistics, skewness and kurtosis.

Courses	Method	N	Min	Max	Mean	Std deviation	Skewness		Kurtosis	
							Statistic	Std error	Statistic	Std error
EA	Lecture	16	3.75	8.75	6.1094	1.56250	0.138	0.564	- 0.793	1.091
	Team	16	3.50	10.00	8.1575	1.96341	- .914	0.564	0.312	1.091
EP	Lecture	7	4.20	8.60	7.3000	1.50000	-1.792	.794	3.545	1.587
	Team	7	5.80	9.40	7.9857	1.21988	-.879	.794	.588	1.587



The Quantile-Quantile charts are plotted for the graphical representation of the normal distribution of data (Figure 5).

### Comparison of Mean and SD of Academic Achievement and Teamwork Behavior

The statistical mean and standard deviations for all the variables and samples studied in the two methods of lecture teaching (pre-test; the scores obtained at the end of the course by the lecture method) and the team teaching (post-test; scores obtained at the end of the course with TMTD method) are displayed in Table 3.

The means of the courses did not show any significant difference in the pretest stage. Therefore, the courses were homogeneous before the intervention. Mean scores of teamwork behavior of students in both courses were increased after team training ( $138.00 \pm 16.23$  and  $142.28 \pm 15.35$ ). Also, the mean scores of teamwork behavior

indicated the homogeneity of the courses before the intervention of the independent variable, but after providing TMTD training, this increase was furthered; that is, the teamwork behavior of the students was strengthened ( $138.0 \pm 16.23$  and  $142.28 \pm 15.35$ ).

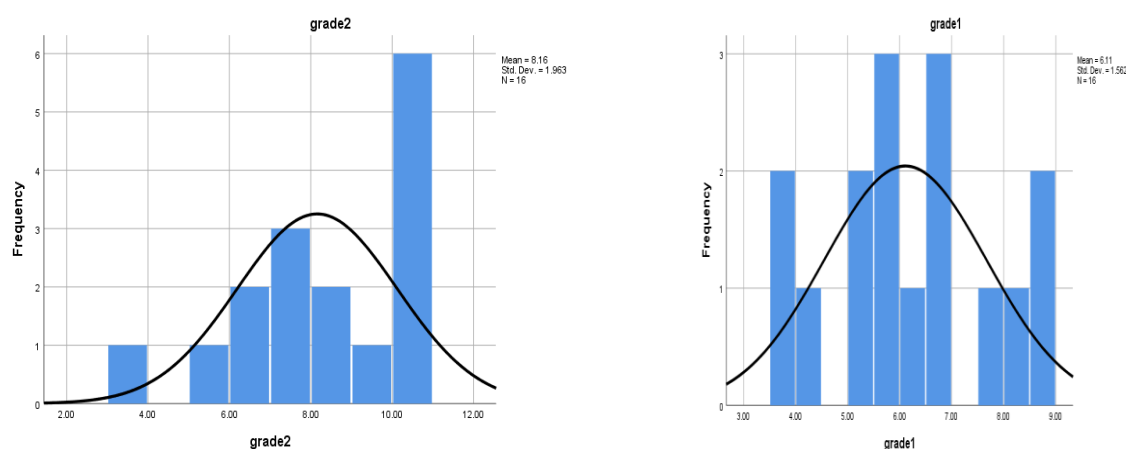
The results of measuring the teamwork behavior of students in both courses are presented in Table 4. The minimum and maximum scores in the training mode were 103 and 140 in lecture method, which was increased to 115 and 160 after training with the team method, respectively.

With respect to the second course, the same results were obtained such that the minimum and maximum scores in the training mode with the lecture method were 100 and 140, but they were increased to 113 and 160 after training with a team method, respectively. This finding showed that in the pre-test mode, the teamwork spirit and teamwork skills of the students were weak, but they were slightly improved after the

**Table 2.** Tests of normality.

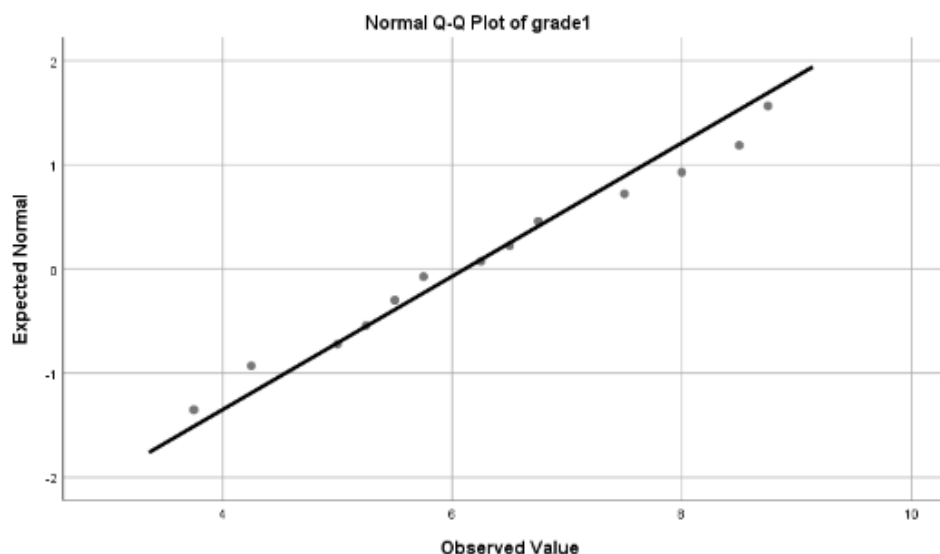
Courses	Method	Kolmogorov-Smirnov <sup>a</sup>		
		Statistic	df	Sig
EA	Lecture	0.091	16	0.200*
	Team	0.201	16	0.083
EP	Lecture	.227	7	0.200*
	Team	0.141	7	0.200*

<sup>a</sup> Lilliefors Significance Correction, \* This is a lower bound of the true significance.



**Figure 4.** Evaluation of the normality of academic achievement scores in courses 1 and 2.





**Figure 5.** The Q-Q chart of normality of academic achievement in course EA, EP.

**Table 3.** The mean and standard deviation of pre-test and post-test of academic achievement and teamwork behavior in the first and second courses.

Cocourses	N	Mean				TWB <sup>a</sup>			
		Lecture (T1)		Team (T2)		Lecture (T1)		Team (T2)	
		M	SD	M	SD	M	SD	M	SD
EA	16	117.62	12.09	138.00	16.23	119.62	12.09	138.00	16.23
EP	7	119.28	11.70	142.28	15.35	119.28	11.70	142.28	15.35

<sup>a</sup> TWB: TeamWork Behavior.

team training. The distribution of the rates of student teamwork behavior in both methods of lecture and TMTD in both courses are displayed in Table 4.

The majority (more than 81% in the EA course and 85% in the EP course) exhibited poor teamwork spirit and teamwork behavior (score between 111-140) after attending the course taught by lecture method. Therefore, the provision of teamwork training in the TMTD mode was reinforced and upgraded to a moderate level (more than 56% in the EA course and 71% in the EP course).

According to t-test coefficient, we can say that the mean scores of students in both courses, before and after the team training, was significantly different at the 0.99 and 0.95 confidence levels ( $t = -5.086$ ,  $P = 0.00$ ) and ( $t = -3.718$ ,  $P = 0.01$ ). There is a relatively strong correlation between the

academic achievement scores of the students before and after the team training. Results are displayed in Tables 5.

The comparison of the scores of student teamwork behavior in the two teaching methods of lecture and TMTD teaching showed a significant difference in both courses at the 5% level ( $Z = -3.522$ ,  $P = 0.000$  and  $Z = -2.371$ ,  $P = 0.018$ ) (Table 6).

The results of this study showed that the mean score of academic achievement and teamwork behavior of students after intervention in both courses was significantly higher than that of lecture method. The authors did not find a study that directly addressed the impact of agricultural education through the use of the TMTD model on strengthening teamwork behavior. However, some studies have examined the role of education in medical and nursing disciplines (Smith *et al.*, 2010; McCallin and

**Table 4.** The frequency table after the lecture and team teaching in courses EA and EP.

Valid	EA				EP			
	Lecture		Team		Lecture		Team	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Less than 110	3	18.8	---	---	1	14.3	---	---
111-140	13	81.3	7	43.8	6	85.7	2	28.6
141-170	---	---	9	56.3	---	100.0	5	71.4
171-200	---	---	---	---	---	---	---	---
Total	16	100.0	16	100.0	7	100.0	7	100.0

Bamford, 2007; Meagher *et al.*, 2009; Haghani and Ravanipour, 2010; Payami Bousari *et al.*, 2006). Also, the effect of providing educational content by the TMTD model has been used to increase awareness and improve the performance of individuals. This finding confirms the results of previous research (Shafiee and Shafiee, 2017; Smith *et al.*, 2010; Haghani and Ravanipour, 2010; Payami Bousari *et al.*, 2006).

## CONCLUSIONS

The main method of education in Iran's educational system is based on individual and competitive principles and less is the method of a training team.

Based on the theory of social learning, students within a team have more

opportunity to learn from one another on the basis of the reactions. To find a way to better measure the students' final performance in the agricultural environment, teamwork is an accessible and predictable method for this purpose. This means that students have benefited from learning opportunities from their peers who work as a team of the opportunity to learn students in a team. In confirmation of the researchers' view of the importance and role of teamwork in the study period, it has been determined in the research that teaching managers responsible for teaching planning can have more functional changes in the field of agricultural education, which seems to be due to the nature of team performance as compared to individualist performances. It seems that if more team teaching methods are developed in the context of teaching methods, students will find better mental

**Table 5.** Paired Samples statistics.

Pair	Mean	Std deviation	Std mean	95% Confidence interval of the difference		t	Correlation	df	Sig (2 Tailed)
				Lower	Upper				
	-2.04812	1.61073	0.40268	-2.90642	-1.18983	-5.086	0.603	15	0.000
Grade1-2	-0.68571	0.48795	0.18443	-1.13699	-1.13699	-3.718	0.956	6	0.010

**Table 6.** Wilcoxon test results for the variables of teamwork behavior in both courses.<sup>a</sup>

Courses	Variables	Mean rank	Sum of ranks	Z	Asymp sig (2-Tailed)
EA	TWB 2-TWB 1	0.00	0.00	-3.522	0.000
		8.50	136.00		
EP	TWB 1-TWB 2	0.00	28.00	-2.371	0.018
		4.00	0.00		

<sup>a</sup> TWB: teamwork behavior.

readiness for accepting such methods, will be less confused, and will find a better way to adjust themselves by learning from these methods. According to the results, the following suggestions can be made:

Teachers of entrepreneurship courses in agriculture and educational psychology can use the TMTD teaching method as per the steps in this template. Course developers in 'Agricultural Extensions and Education' may be in the best position to determine the topics and organize the content of the course in accordance with the procedures of this method in the training courses in order to facilitate the teaching of teachers in different courses. Implementation of courses on how to teach this method to familiarize teachers with practical training and obtain the necessary skills regarding the nature of the method and its appropriateness for different lessons can provide a good basis for changing the teaching methods and improving the quality of education in agricultural education courses. It is suggested that only teachers who have passed the course of collaborative (team) teaching methodology and the specialized workshops be certified to use these methods. Meanwhile, it is suggested that these methods are gradually used in different educational levels from primary to university. Given that the effectiveness of the TMTD method in this research and some references has been confirmed, it is recommended that the teachers use active teaching methods as a solution to improve teamwork behavior and increase the academic achievement of the students.

Based on the findings, it can be interpreted that, due to the novelty of the new teaching method (TMTD), the students were eager to learn and implement this method. The researchers were able to take this method well according to the predetermined schedule. In general, the students have accomplished good grades, which, of course, may be associated with the new and appealing content, either under the influence of the student's academic degree or the effectiveness of this educational method.

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## مقایسه تطبیقی روش تدریس سخنرانی و طرح تدریس اعضای تیم (TMTD) در نظام آموزش عالی کشاورزی ایران

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### چکیده

در دانشکده‌های کشاورزی، عموماً برای آموزش از روش سخنرانی استفاده می‌شود. یادگیری از طریق مشارکت و تیم، یکی از روش‌های متداول آموزشی در عصر حاضر است. این مطالعه با هدف مقایسه روش تدریس طرح تدریس اعضای تیم (Team Member Teaching Design-TMTD) و روش تدریس سخنرانی بر پیشرفت تحصیلی و رفتار کار تیمی دانشجویان کشاورزی انجام شده است. با استفاده از طرحی درون گروهی در دو کلاس، دانشجویان ابتدا در دوره‌ای با روش سخنرانی آموزش داده شدند و سپس از طریق تیمی آموزش دیدند. تفاوت بین روش‌های تدریس سخنرانی و تیمی با بررسی پیشرفت تحصیلی و رفتار کار تیمی مورد مقایسه قرار گرفت. نمونه‌های مورد مطالعه دانشجویان رشته ترویج و آموزش کشاورزی دانشگاه تهران در سال تحصیلی ۹۷-۱۳۹۶ بودند. رفتار کار تیمی دانشجویان و پیشرفت تحصیلی آنان با استفاده از آزمون قبل و بعد از هر روش تدریس ارزیابی گردید. در دوره‌های تحصیلی مورد مقایسه، تاثیر روش تدریس TMTD بر پیشرفت تحصیلی نشان داده شد. نتایج آزمون‌های مقایسه میانگین تفاوت معنی‌داری بین دو روش تدریس در پیشرفت تحصیلی و تقویت رفتار کار تیمی دانشجویان نشان دادند. در این مقاله همچنین در مورد نحوه اجرای روش تیمی، کاربرد آن در تدریس و ارائه راهکارهای لازم به‌منظور کسب نتایج بهتر در تدریس و یادگیری بحث شده است.