The main purpose of the study is to explore the relations among learning interest, teacher motivational style, classroom learning climate, and learning engagement in the classroom of junior high schools. Students of 27 classes, totally 898 students, are selected as participants. Scales of Learning Interest, Teacher Motivational Style, Classroom Learning Climate, and Learning Engagement are designed as instruments in this study. Personal Interest and Stimulating Interest are the two factors in Learning Interest. Two types as "control", "autonomy support" are divided in the variable of teacher motivational style. Teacher-student interaction, academic effort, and cognition ability are three variables of classroom learning climate. Moreover, behavioral engagement, emotional engagement, and cognitive engagement are three variables of learning engagement. Three-way ANOVA, one-way ANOVA, Person's correlation and Multiple Regression were used for the data analysis. The main findings in the study are as following: 1. Regarding student's learning interests, teacher motivation style, classroom learning climate and learning engagement, there were significant difference on the performance on grade of junior high schools. The performance of 7th grade is much more significant than the others. 2. There was significant difference on gender in teacher motivation style and classroom learning climate, the correlative performance of female students in these two domains was much significant than the male ones; however, as for learning interest and learning engagement, no significant difference was found. 3. Students from higher SES families had showed better learning interest, teacher motivational style, classroom learning climate, and learning engagement than those from lower SES. 4. No significant interaction effects were found among the demographic variable, such as gender, grade, and SES, for domain of learning interest, teacher motivational style, classroom learning climate, and learning engagement. 5. Subjects who perceived better teacher motivational style of autonomy support had better learning interest, classroom learning climate, and learning engagement. 6. There was a significant positive correlation among learning interest, teacher motivational style, classroom learning climate, and learning engagement. 7. Learning interest, teacher motivational style, and classroom learning climate showed apparent predictability to learning engagement. Some suggestions are made according to the findings for teachers and curriculum design.