CHAPTER-VI
RESULTS AND DISCUSSION

To evaluate the main effects and interaction effects of blended learning modules in Science on student engagement, learning effectiveness and self-efficacy in relation to creativity, the data were analyzed. The technique of t-test and analysis of variance (F-ratio) were calculated.

6.1 EFFECT OF BLENDED LEARNING MODULES ON STUDENT ENGAGEMENT IN RELATION TO HIGH CREATIVITY

As per the objectives of the study, the present study was undertaken on the basis of following hypotheses:

H-1 The two instructional treatments will yield equal mean gain scores of the student engagement for students with high creativity.

The t-ratio of 9.655 between the control and experimental group for mean gain scores on student engagement was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and were engaged more than the students taught through traditional strategies.

Therefore, the hypothesis H-1 two instructional treatments will yield equal mean gain scores of the student engagement for students with high creativity stands rejected at .01 level of significance.

The results are same as the results and findings of other researches Kellerer et al. (2014), Wei Li (2016), (Canale and Duwart, 1999; Hayward et al., 2001) Lester (2013), Bundick, Matthew, Quaglia, Russell, Corso, Michael, Haywood, Dawn (2014) and Laura (2017).
**H-1.1** The two instructional treatments will yield equal mean gain scores of the student engagement in the domain of behavior engagement for students with high creativity.

The t-ratio of 8.110 between the control and experimental group for mean gain scores of behavior engagement as the domain of student engagement was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and were engaged behaviorally more than the students taught through traditional strategies.

Therefore, **the hypothesis H-1.1 two instructional treatments will yield equal mean gain scores of the student engagement in the domain of behavior engagement for students with high creativity** stands rejected at .01 level of significance.

The results also coincide with certain researches Lu and Chiou (2010), Smirnova, Galina, K atashev, Valery (2017), Sawang, Sukanlaya, O'Connor, Peter, Ali and Muhammad (2017) and Isiaq, Sakirulai, Olufemi, Jamil, Md and Golam (2018).

**H-1.2** The two instructional treatments will yield equal mean gain scores of the student engagement in the domain of affective engagement for students with high creativity.

The t-ratio of 6.382 between the control and experimental group for mean gain scores affective engagement as the domain of student engagement was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and were
engaged affectively or emotionally more than the students taught through traditional strategies.

Therefore, **the hypothesis H-1.2 two instructional treatments will yield equal mean gain scores of the student engagement in the domain of affective engagement for students with high creativity** stands at .01 level of significance.

The finding is supported by findings of the Sawang, Sukanlaya, O'Connor, Peter, Ali and Muhammad (2017).

**H-1.3 The two instructional treatments will yield equal mean gain scores of the student in the domain of cognitive engagement for students with high creativity.**

The t-ratio of .565 between the control and experimental group for mean gain scores of cognitive engagement as the domain of student engagement was found to be insignificant at .05 level. This inferred that there was statistically insignificant difference in mean gain scores and had slightly high mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained less cognitive engagement than the students taught through traditional strategies.

Therefore, **the hypothesis H-1.3 two instructional treatments will yield equal mean gain scores of the student in the domain of cognitive engagement for students with high creativity** stands accepted at .05 level of significance.

The finding is supported by findings of the Vaughan (2014), Sarıtepeci and Çakır (2015), Laura (2017) and Isiaq, Sakirulai, Olufemi, Jamil, Md and Golam (2018).

**H-1.4 The two instructional treatments will yield equal mean gain scores of the student engagement in the domain of agentic engagement for students with high creativity.**

The t-ratio of 7.723 between the control and experimental group for mean gain scores of agentic engagement as the domain of student engagement was found to be
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significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and agentic engagement was more than the students taught through traditional strategies.

Therefore, the hypothesis H-1.4 two instructional treatments will yield equal mean gain scores of the student engagement in the domain of agentic engagement for students with high creativity stands rejected at .01 level of significance.

The finding is supported by findings of the Linden and Kim (2014).

H-2 The two instructional treatments will yield comparable mean gain scores of the student engagement for students with average creativity.

The t-ratio of 9.080 between the control and experimental group for mean gain scores on student engagement was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher the mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and were engaged more than the students taught through traditional strategies.

Therefore, the hypothesis H-2 two instructional treatments will yield comparable mean gain scores of the student engagement for students with average creativity stands rejected at .01 level of significance.

The results are in close proximity with results and findings of other researches Kellerer et al (2014), Wei Li (2016), (Canale and Duwart, 1999; Hayward et al., 2001), Carini, Kuh and Klein (2004), Lester (2013), Bundick, Matthew, Quaglia, Russell, Corso, Michael, Haywood, Dawn (2014) and Laura (2017).
H-2.1  The two instructional treatments will yield comparable mean gain scores of the student engagement in the domain of behavior engagement for students with average creativity.

The t-ratio of 7.480 between the control and experimental group for the mean gain scores on behavior engagement as the domain of student engagement was found to be significant at .01 level. This inferred that there was a statistically significant difference in mean gain scores and had higher the mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and were engaged behaviorally more than the students taught through traditional strategies.

Therefore, the hypothesis H-2.1 two instructional treatments will yield comparable mean gain scores of the student engagement in the domain of behavior engagement for students with average creativity stands rejected at .01 level of significance.

The results also coincide with certain researches Lu and Chiou (2010), Smirnova, Galina, Katashev, Valery (2017), Sawang, Suanklaya, O'Connor, Peter, Ali and Muhammad (2017) and Isiaq, Sakirulai, Olufemi, Jamil, Md and Golam (2018).

H-2.2  The two instructional treatments will yield comparable mean gain scores of the student engagement in the domain of affective engagement for students with average creativity.

The t-ratio of 4.377 between the control and experimental group for the mean gain scores on affective engagement as the domain of student engagement was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher the mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.
This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and were engaged emotionally or affectively was more than the students taught through traditional strategies.

Therefore, the hypothesis H-2.2 two instructional treatments will yield comparable mean gain scores of the student engagement in the domain of affective engagement for students with average creativity stands rejected at .01 level of significance.

The finding is supported by findings of the Sawang, Sukanlaya, O'Connor, Peter, Ali and Muhammad (2017).

H-2.3 The two instructional treatments will yield comparable mean gain scores of the student in the domain of cognitive engagement for students with average creativity.

The t-ratio of .747 between the control and experimental group for mean gain scores on cognitive engagement as the domain of student engagement was found to be insignificant at .05 level. This inferred that there was statistically insignificant difference in mean gain scores and had slightly high the mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained less cognitive engagement than the students taught through traditional strategies.

Therefore, the hypothesis H-2.3 two instructional treatments will yield comparable mean gain scores of the student in the domain of cognitive engagement for students with average creativity stands accepted at .05 level of significance.

The finding is supported by findings of the Vaughan (2014), Sarıtepeci and Çakır (2015), Laura (2017) and Isiaq, Sakirulai, Olufemi, Jamil, Md and Golam (2018).
H-2.4 The two instructional treatments will yield comparable mean gain scores of the student engagement in the domain of agentic engagement for students with average creativity.

The t-ratio of 7.125 between the control and experimental group for mean gain scores on agentic engagement as the domain of student engagement was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher the mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and agentic engagement was more than the students taught through traditional strategies.

Therefore, the hypothesis H-2.4 two instructional treatments will yield comparable mean gain scores of the student engagement in the domain of agentic engagement for students with average creativity stands rejected at .01 level of significance.

The finding is supported by findings of the Linden and Kim (2014).

H-3 There will be no significant interaction between instructional treatments and creativity on student engagement.

Main Effect in Instructional Treatments

Table 5.32 reveals that the F value 175.191 with df 199 for the difference between control and experimental group had higher the table value at.01 level of significance. It stated that there was significant difference in the mean gain scores of student engagement in respect two instructional treatments i.e. traditional strategies and blended learning modules as shown in the table 5.31.

The result of significant difference among groups i.e. students taught through blended learning modules are highly effective or highly engaged than students taught through traditional way.

Main Effect of Creativity

Table 5.32 reveals that the F value 3.370 with df 199 for the difference between categories was found to be insignificant at .05 level of significance. There is
no significant difference in mean gain score of student engagement in the variable of category i.e. high creativity students and average creativity students as shown in the table 5.1. Thus, it can be inferred that students are not affected in mean gain scores on student engagement in relation to science concept or may not be engaged in the category.

Interactional Effect between Instructional Treatments and Creativity

Table 5.32 reveals that the F value 2.256 with df 199 for the first order interaction effect between instructional treatments and creativity was not found significant, because the F value is less than table value at .05 level of significance. The result revealed that there was no significant interaction between instructional treatments and creativity on student engagement.

But figure 5.8: Showing that there is slightly interaction between students with the high and average creativity and instructional treatments on student engagement.

Therefore, hypothesis H-3 there will be no significant interaction between instructional treatments and creativity on student engagement stands accepted.

6.2 EFFECT OF BLENDED LEARNING MODULES IN SCIENCE ON LEARNING EFFECTIVENESS IN RELATION TO CREATIVITY

H-4 There will be no significant difference in mean gain scores of the learning effectiveness for students with high creativity when taught by two instructional treatments.

The t-ratio of 10.610 between control and experimental group for mean gain score on learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher the mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and learning effectiveness was more than the students taught through traditional strategies.

Therefore, the hypothesis H-4 there will be no significant difference in mean gain scores of the learning effectiveness for students with high creativity

H-4.1 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of progress for students with high creativity when taught by two instructional treatments.

The t-ratio of 1.199 between control and experimental group for mean gain scores on progress as the domain of learning effectiveness was found no significant at .01 level. This inferred that there was statistically less significant difference in mean gain scores of the experimental group taught through Blended Learning Modules and the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules had less progress in effective learning than the students taught through traditional strategies.

Therefore, the hypothesis H-4.1 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of progress for students with high creativity when taught by two instructional treatments stands accepted at .05 level of significance.

H-4.2 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of outcomes for students with high creativity when taught by two instructional treatments.

The t-ratio of 5.161 between control and experimental group for mean gain scores on outcomes as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.
This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and had more outcomes in learning effectiveness than the students taught through traditional strategies.

Therefore, the hypothesis H-4.2 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of outcomes for students with high creativity when taught by two instructional treatments stands rejected at .01 level of significance.


H-4.3 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of reflection for students with high creativity when taught by two instructional treatments.

The t-ratio of 5.635 between control and experimental group for mean gain on scores reflection as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and had more outcomes in learning effectiveness than the students taught through traditional strategies.

Therefore, the hypothesis H-4.3 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of reflection for students with high creativity when taught by two instructional treatments stands rejected at .01 level of significance.

The results also coincide with research of Wei Li (2016)
H-4.4 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of beyond merely thinking and recalling for students with high creativity when taught by two instructional treatments.

The t-ratio of 7.126 between control and experiment group for mean gain scores in the subject of Science was found significant at .01 level. This inferred that there was statistically significant difference in gain scores of the experimental group taught through Blended Learning Modules and control group taught through traditional strategies. The experimental group taught through Blended Learning Modules had higher mean scores than control group taught through traditional strategies.

This result showed that the students taught through Blended Learning Modules attained more Science concepts and students with high creativity showed thinking and recalling merely beyond found more than the students taught through traditional strategies.

Therefore, the hypothesis H-4.4 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of beyond merely thinking and recalling for students with high creativity when taught by two instructional treatments stands rejected at .01 level of significance.

The results are in close proximity to results and findings of other researches Guido (2014), Smirnova, Galina, Katashev, Valery (2017).

H-4.5 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of insight for students with high creativity when taught by two instructional treatments.

The t-ratio of 12.244 between control and experimental group for mean gain scores on insight as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and
developed more insight or deepen understanding than the students taught through traditional strategies.

Therefore, **the hypothesis H-4.5 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of insight for students with high creativity when taught by two instructional treatments** stands rejected at .01 level of significance.

**H-5**  **There will be no significant difference in mean gain scores of the learning effectiveness for students with average creativity when taught by two instructional treatments.**

The t-ratio of 10.564 between control and experimental group for mean gain scores on learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and learning effectiveness was more than the students taught through traditional strategies.

Therefore, the hypothesis **H-5 there will be no significant difference in mean gain scores of the learning effectiveness for students with average creativity when taught by two instructional treatments** stands rejected at .01 level of significance.


**H-5.1 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of progress for students with average creativity when taught by two instructional treatments.**

The  t-ratio of .420 between control and experimental group for mean gain scores on progress as the domain of learning effectiveness was found no significant at .01 level. This inferred that there was statistically less significant difference in the
mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules had less progress in effective learning to the students taught through traditional strategies.

Therefore, the hypothesis H-5.1 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of progress for students with average creativity when taught by two instructional treatments stands accepted at .05 level of significance.

H-5.2 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of outcomes for students with average creativity when taught by two instructional treatments.

The t-ratio of 4.870 between control and experimental group for mean gain scores on outcomes as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and had more outcomes in learning effectiveness than the students taught through traditional strategies.

Therefore, the hypothesis H-5.2 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of outcomes for students with average creativity when taught by two instructional treatments stands rejected at .01 level of significance.

H-5.3 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of reflection for students with average creativity when taught by two instructional treatments.

The t-ratio of 9.205 between control and experimental group for mean gain scores on reflection as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and had more outcomes in learning effectiveness than the students taught through traditional strategies.

Therefore, the hypothesis H-5.3 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of reflection for students with average creativity when taught by two instructional treatments stands rejected at .01 level of significance.

The results also coincide with research of Wei Li (2016)

H-5.4 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of beyond merely thinking and recalling for students with average creativity when taught by two instructional treatments.

The t-ratio of 5.226 between control and experimental group for mean gain scores on beyond merely thinking and recalling as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and had more beyond merely thinking and recalling as the domain of learning effectiveness than the students taught through traditional strategies
Therefore, the hypothesis H-5.4 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of beyond merely thinking and recalling for students with average creativity when taught by two instructional treatments stands rejected at .01 level of significance.

The results are same as the results and findings of other researches Guido (2014), Smirnova, Galina, Katashev, Valery (2017)

H-5.5 There will be no significant difference in mean gain scores of the learning effectiveness in the domain of insight for students with average creativity when taught by two instructional treatments.

The t-ratio of 11.051 between control and experimental group for mean gain scores on insight as the domain of learning effectiveness was found to be significant at .01 level. This inferred that there was statistically significant difference in mean gain scores and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more insight or deepen understanding than the students taught through traditional strategies.

Therefore, the hypothesis H-5.5 there will be no significant difference in mean gain scores of the learning effectiveness in the domain of insight for students with average creativity when taught by two instructional treatments stands rejected at .01 level of significance.

H-6 There will be no significant interaction between instructional treatments and creativity on learning effectiveness.

Main Effect in Instructional Treatments

Table 5.34 reveals that the F value 222.848 with df 199 for the difference between control and experimental group had higher than the table value at.01 level of significance. It stated that there was significant difference in mean gain scores of learning effectiveness in respect of control and experimental group as shown in the table 5.33.
The result of significant difference among groups i.e. students taught through blended learning modules are highly effective than taught through traditional way or their learning may be very effective.

**Main Effect of Creativity**

Table 5.34 reveals that the F value 37.355 with df 199 for the difference between categories was found to be significant at .01 level of significance. There is significant difference in mean gain scores of learning effectiveness in the variable of category i.e. average creativity students and high creativity students as shown in the table 5.33. Thus it can be inferred that students highly affected mean gain score on learning effectiveness in relation to science concept or their learning may be highly effective.

**Interactional Effect between Instructional Treatments and Creativity**

Table 5.34 reveals that the F value 1.481 with df 199 for the first order interaction effect between instructional treatments and creativity was found to be insignificant because the F value is less than table value at .05 level of significance. The result revealed that there was no significant interaction between instructional treatments and creativity on learning effectiveness.

Figure 5.9 showing that there is no interaction between students with the high and average creativity and instructional treatments on learning effectiveness.

So, there is no interaction between students with average creativity and students with high creativity in both instructional treatments on learning effectiveness.

Therefore, **hypothesis H-6 there will be no significant interaction between instructional treatments and creativity on learning effectiveness** stands accepted.

**6.3 EFFECT OF BLENDED LEARNING MODULES IN SCIENCE ON SELF-EFFICACY IN RELATION TO CREATIVITY**

**H-7 The two instructional treatments will yield equal mean gain scores on the self-efficacy for students with high creativity.**

The t-ratio of 12.817 between control and experimental group for mean gain scores on self-efficacy was found to be significant at .01 level. This inferred that there
was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and more self-efficient than the students taught through traditional strategies.

Therefore, the hypothesis **H-7 two instructional treatments will yield equal mean gain scores on the self-efficacy for students with high creativity** stands rejected at .01 level of significance.

**H-7.1 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-regulatory skills for students with high creativity.**

The t-ratio of 3.912 between control and experimental group for mean gain scores on self-regulatory skills as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-regulatory skills than the students taught through traditional strategies.

Therefore, the hypothesis that **H-7.1 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-regulatory skills for students with high creativity** stands rejected at .01 level of significance.

The results are in close proximity with results and findings of other researches Smirnova, Galina, Katashev, Valery (2017) and Tai and Hung-Cheng (2016) Bradley, Rachel, Browne, Blaine L.; Kelley and Heather (2017).

**H-7.2 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-influence for students with high creativity.**
The t-ratio of 4.936 between control and experimental group for mean gain scores on self-influence as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with the creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-influence than the students taught through traditional strategies.

Therefore, the hypothesis H-7.2 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-influence for students with high creativity stands rejected at .01 level of significance.

H-7.3 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-confidence for students with high creativity.

The t-ratio of 8.212 between control and experimental group for mean gain scores on self-confidence as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-confidence skills than the students taught through traditional strategies.

Therefore, the hypothesis H-7.3 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-confidence for students with high creativity stands rejected at .01 level of significance.

The results also coincide with research of Azizan (2010).

H-7.4 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of social-achievement for students with high creativity.
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The t-ratio of 6.735 between control and experimental group for mean gain scores on social-achievement as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more social-achievement skills than the students taught through traditional strategies.

Therefore, the hypothesis **H-7.4 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of social-achievement for students with high creativity** stands rejected at .01 level of significance.

The finding is supported by findings of Chi-hung (2012)

**H-7.5 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self for students with high creativity.**

The t-ratio of 8.550 between control and experimental group for mean gain scores on self as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self in the students than the students taught through traditional strategies.

Therefore, the hypothesis **H-7.5 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self for students with high creativity** stands rejected at .01 level of significance.

The results are same as the results and findings of other researches Kellerer et al (2014) Smirnova, Galina, Katashev, Valery (2017), Chen, Bryan, Chiou, Hua-Huei (2014)
H-7.6 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-evaluation for students with high creativity.

The t-ratio of 10.191 between control and experimental group for mean gain scores on self-evaluation as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-evaluation than the students taught through traditional strategies.

Therefore, the hypothesis H-7.6 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-evaluation for students with high creativity stands rejected at .01 level of significance.

H-7.7 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-esteem for students with high creativity.

The t-ratio of .237 between control and experimental group for mean gain scores on self-esteem as the domain of self-efficacy was not found significant at .01 level. This inferred that there was statistically insignificant difference and had nearly equal mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules had not developed more self-esteem than the students taught through traditional strategies.

Therefore, the hypothesis H-7.7 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-esteem for students with high creativity stands accepted at .05 level of significance.

H-7.8 The two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-cognition for students with high creativity.
The t-ratio of 6.860 between control and experimental group for mean gain scores on self-cognition as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-cognition than the students taught through traditional strategies.

Therefore, the hypothesis that H-7.8 two instructional treatments will yield equal mean gain scores on the self-efficacy in the domain of self-cognition for students with high creativity stands rejected at .01 level of significance.

H-8 The two instructional treatments will yield comparable mean gain scores on the self-efficacy for students with average creativity.

The t-ratio of 11.316 between control and experimental group for mean gain scores on self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and more self-efficient than the students taught through traditional strategies.

Therefore, the hypothesis H-8 two instructional treatments will yield comparable mean gain scores on the self-efficacy for students with average creativity stands rejected at .01 level of significance.

H-8.1 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-regulatory skills for students with average creativity.

The t-ratio of 4.838 between control and experimental group for mean gain scores on self-regulatory skills as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference
and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-regulatory skills than the students taught through traditional strategies.

Therefore, the hypothesis H-8.1 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-regulatory skills for students with average creativity stands rejected at .01 level of significance.

The results are in close proximity with results and findings of other researches Smirnova, Galina, Katashev, Valery (2017) and Tai and Hung-Cheng (2016) Bradley, Rachel, Browne, Blaine L.; Kelley and Heather (2017)

H-8.2 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-influence for students with average creativity.

The t-ratio of 3.830 between control and experimental group for mean gain scores on self-influence as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-influence than the students taught through traditional strategies.

Therefore, the hypothesis H-8.2 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-influence for students with average creativity stands rejected at .01 level of significance.

H-8.3 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-confidence for students with average creativity.
The t-ratio of 6.192 between control and experimental group for mean gain scores on self-confidence as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-confidence skills than the students taught through traditional strategies.

This result showed that the students taught through Blended Learning Modules attained more Science concepts and self-confidence among students with average creativity was more than the students taught through traditional strategies.

Therefore, the hypothesis H-8.3 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-confidence for students with average creativity stands rejected at .01 level of significance.

The results also coincide with research of Azizan (2010)

H-8.4 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of social-achievement for students with average creativity.

The t-ratio of 5.729 between control and experimental group for mean gain scores on social-achievement as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with average creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more social-achievement skills than the students taught through traditional strategies.

Therefore, the hypothesis H-8.4 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of social-achievement for students with average creativity stands rejected at .01 level of significance.
The finding is supported by findings of Chi-hung (2012)

**H-8.5 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self for students with average creativity.**

The t-ratio of 3.695 between control and experimental group for mean gain scores on self as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self in the students than the students taught through traditional strategies.

Therefore, **the hypothesis H-8.5 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self for students with average creativity** stands rejected at .01 level of significance.

The results are same as the results and findings of other researches Kellerer et al (2014), Smirnova, Galina, Katashev, Valery (2017), Chen, Bryan, Chiou, Hua-Huei (2014)

**H-8.6 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-evaluation for students with average creativity.**

The t-ratio of 7.959 between control and experimental group for mean gain scores on self-evaluation as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-evaluation than the students taught through traditional strategies.
Therefore, the hypothesis H-8.6 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-evaluation for students with average creativity stands rejected at .01 level of significance.

H-8.7 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-esteem for students with average creativity.

The t-ratio of 1.790 between control and experimental group for mean gain scores on self-esteem as the domain of self-efficacy was found to be insignificant at .01 level. This inferred that there was statistically insignificant difference and had slightly high mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules not developed self-esteem among the students than the students taught through traditional strategies.

Therefore, the hypothesis H-8.7 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-esteem for students with average creativity stands accepted at .05 level of significance.

H-8.8 The two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-cognition for students with average creativity.

The t-ratio of 6.879 between control and experimental group for mean gain scores on self-cognition as the domain of self-efficacy was found to be significant at .01 level. This inferred that there was statistically significant difference and had higher mean gain scores of the experimental group taught through Blended Learning Modules than the control group taught through traditional strategies.

This result showed that the students with high creativity taught through Blended Learning Modules attained clearer and deeper concepts in Science and developed more self-cognition than the students taught through traditional strategies.

Therefore, the hypothesis H-8.8 two instructional treatments will yield comparable mean gain scores on the self-efficacy in the domain of self-cognition for students with average creativity stands rejected at .01 level of significance.
H-9 There will be no significant interaction between instructional treatments and creativity on self-efficacy.

Main Effect in Instructional Treatments

Table 5.36 F value 291.015 with df 199 for the difference between control and experimental group had higher the table value at .01 level of significance. It stated that there is significant difference in mean gain scores of self-efficacy in respect of control and experimental group as shown in the table 5.35.

The result of significant difference among groups i.e. students taught through blended learning modules is highly effective than taught through traditional way.

Main Effect of Creativity

Table 5.36 reveals that the F value 1.171 with df 199 for the difference between categories was not found significant at .05 level of significance. There was no significant difference in mean gain score of self-efficacy in the variable of category i.e. high creativity students and average creativity students as shown in the table 5.35. Thus it can be inferred that students are not affected in mean gain score on self-efficacy or may not develop self-efficacy.

Interactional Effect between Instructional Treatments and Creativity

Table 5.36 reveals that the F value .959 with df 199 for the first order interaction effect between instructional treatments and creativity was found no significant because the F value is less than table value at 0.05 level of significance. The result revealed that there was no significant interaction between instructional treatments and creativity on self-efficacy.

But figure 5.10: Showing that there is a slight interaction between the instructional treatments and students with the high and average creativity on self-efficacy.

Therefore, hypothesis H-9 there will be no significant interaction between instructional treatments and creativity on self-efficacy stands accepted.