The Effectiveness of Using the Lesson Study Model on Palestinian Secondary School Teachers' Professional Development and their Attitudes towards such a Model

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A Thesis Submitted to the Faculty of Education in Partial Fulfillment of the Requirements for the Master Degree in Education

2014
(And say: Work (righteousness): Soon will Allah observe your work, and His Messenger, and the Believers: Soon will ye be brought back to the knower of what is hidden and what is open: then will He show you the truth of all that ye did.)

(The Holy Quran, Al-Tawba, verse 105)
Dedication

This study is dedicated to the loving memory of my mother, Suad Al-Farra. She raised me to value education; she worked hard all of her life to ensure that I received the best education she could provide me with. Without her love and support, I would never have accomplished my goals. My only regret is that she did not live to see me achieve this particular goal.

This project is also dedicated to my family, which has provided me with inspiration, patience, encouragement and love. My wife, Farhouda, and my children, little Suad, Sama, Malak, Halla, Farah and Seba have been my mainstays throughout my education and career and have shown their pride in my accomplishments.
ACKNOWLEDGMENTS

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

Indeed, this study would not have been realized without the aid and encouragement of so many people. Actually, this piece of work has been a collective effort and by no means my sole product. Family and friends are at the core of this accomplishment, constantly providing me with encouraging words to get through tougher times.

First, I would like to sincerely thank my supervisor Dr. Sadek Firwana for his patience and expert guidance throughout the writing and organizational processes of my dissertation. My heartfelt thanks also go to the assessment panel that accepted the work of reading and assessing my work and for their invaluable remarks.

Of course, I will forever be indebted to one person who has been the inception of this dissertation, Dr. Ibrahim Al-Astal, for being so supportive and cooperative towards this endeavor.

I am also deeply grateful to Dr. Basil Skaik, who was my teacher during my study journey in the College of Science and Technology and Al-Azhar University, spending long hours on the phone illuminating some ambiguous points about the study title to help make completing this project a real possibility.

To my thesis tools referee committee who has accommodated and pushed my work to have a better quality, thank you. I would also like to thank the study participants, the secondary school English teachers, for their cooperation, kind welcome. Their excitement for teaching and knowledge were inspirational and at the heart of doing this particular study.
I would also like to thank the principals of the three study sample schools for allowing me to observe the participants in the schools for the whole duration of the study implementation, especially, the principal of Khalid Al-Hassan Secondary School, Mohammed Al-Asoly, Suleiman Sha’at the principal of Al- Haj Mohammed Al-Najar School and Asma Mekdad the principal of Khanyounis Secondary School for Girls.

And many thanks also go to the Islamic University and Directorate of Education in Khanyounis Governorate for their help to finish this study.

Finally, to my family members, my wife, Farhouda, who has been supportive and patient with me during long nights, early mornings, and years long. Throughout this endeavor it has been her inspiration and faith that pushed me toward the completion of this important educational goal. My father, brothers, daughters, you just do not know how I appreciate your sincere support and love. Thank you for always being there. To my friends, especially those who have shared my time during my Master study journey in the Islamic University, all those two years would not have been bearable without your words of encouragement and your warm company.
Abstract
The Effectiveness of Using the Lesson Study Model on Palestinian Secondary School Teachers' Professional Development and their Attitudes towards such a Model

The purpose of this study was to examine the effectiveness of using the Lesson Study Model on Palestinian secondary school EFL teachers' professional development and their attitudes towards such a model. To achieve the study aims, the researcher adopted the descriptive analytical approach with a purposive sample of (20) male and female participant teachers from three schools in the Governorate of Khanyounis, Western Directorate of Education. To collect data for the study, the researcher designed an observation card as a major tool, a lateral thinking test and an interview administered on (10) participants.

After the validity and reliability of the study tools were examined, they were implemented on the study sample in the school year 2013-2014. The teachers were involved in the pre and post treatments of the observations, the lateral thinking tests, and the complete cycle of Lesson study sessions.

To statistically analyze the gathered data, the researcher used Wilcoxon Z test, Eta square, Cooper formula, means, Alpha Cronbach, Pearson Coefficient and Kuder-Richardson (K-R21) formula.

The findings of the study revealed that there were significant differences at $(\alpha \leq 0.05)$ in secondary school EFL teachers' verbal interaction due to the use of Lesson Study collaborative cycle. The findings also pointed out that there were statistically significant differences at $(\alpha \leq 0.05)$ in secondary school teachers' lateral thinking owing to the application of Lesson Study collaborative team work. Additionally, Lesson Study process effectively assisted the teachers in improving
their teaching practices and their career loyalty. Finally, the findings revealed that Lesson Study Model had a large effect size on teachers' professional development.

Based upon the previous findings, the current study recommended the adoption of Lesson Study, holding educational courses and workshops for teachers in general and of English in particular focusing on employing Lesson Study to enrich and develop teachers' instructional practices. It also suggested that further research should be conducted on the effect of Lesson Study on English teachers teaching other school stages and teachers of other school subjects, teachers' and students' creative thinking skills as well as the treatment of learning difficulties in English.
ملخص الدراسة

فعالية استخدام نموذج الدرس المبحةث على التطور المهني لمعلمي المدارس الثانوية الفلسطينية و اتجاهاتهم نحو النموذج

هدفت الدراسة إلى التعرف على فاعلية استخدام نموذج الدرس المبحةث على التطور المهني لمعلمي المدارس الثانوية الفلسطينية و اتجاهاتهم نحو النموذج ، و لتحقيق أهداف الدراسة استخدم الباحث المنهج الوصفي التحليلي على عينة قصدية مكونة من 20 معلما و معلمة من ثلاث مدارس في محافظة خان يونس، مدرية التربية و التعليم غرب خان يونس.

و لقد صمم الباحث أدوات و مواد بحثية لتحقيق الاهداف تمثلت في: بطاقة الملاحظة كأداة رئيسية، اختبار التفكير الجانبي و اجراء مقابلات مع 10 مشاركين. وبعد التأكد من صدق أدوات الدراسة و ثباتها، تم تطبيقها على عينة الدراسة في العام الدراسي 2013- 2014.

للوصول إلى نتائج الدراسة، استخدم الباحث عددا من الاختبارات الإحصائية تمثلت في اختبار (Z) وليكسون، معادلة حجم الاثر، معادلة كور، المتوسط الحسابي، معامل الفا كرونباخ، معادلة بيرسون، و معادلة كورد ريتشاردسون 21.

اظهرت نتائج الدراسة وجود فروق إيجابية ذات دلالة إحصائية عند مستوى دلالة (0.05 ≤ α) في التفاعل اللغوي لمعلمي اللغة الإنجليزية للمدارس الثانوية، بين فاعلية الدرس المبحةث و دورته التعليمية. وكذلك اظهرت النتائج وجود فروق إيجابية ذات دلالة إحصائية عند مستوى دلالة (0.05 ≤ α) في التفكير الجانبي لمعلمي المدارس الثانوية، و ذلك لعمل بروح فريق الدرس المبحةث التعليمي.

في ضوء ما سبق اوصت الدراسة بتبني الدرس المبحةث و عقد دورات وورش عمل للمعلمين بشكل عام و معلمي اللغة الإنجليزية بشكل خاص، مركزا على توظيف الدرس المبحةث لانجازه و تطوير ممارسات المعلمين التدريسية. كما اقترحت الدراسة اجراء دراسات على فاعلية الدرس المبحةث على معلمين من مراحل مختلفة، معلمين لموضوعات مختلفة، و كذلك على مهارات التفكير الابداعي للمعلمين و الطلاب وكذلك في علاج صعوبات التعلم في اللغة الإنجليزية.
# Table of Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedication</td>
<td></td>
</tr>
<tr>
<td>Acknowledgments</td>
<td></td>
</tr>
<tr>
<td>Abstract</td>
<td></td>
</tr>
<tr>
<td>ملخص الدراسة</td>
<td></td>
</tr>
<tr>
<td>Table of Contents</td>
<td></td>
</tr>
<tr>
<td>Lists of Appendices</td>
<td></td>
</tr>
<tr>
<td>List of Tables</td>
<td></td>
</tr>
<tr>
<td>List of Figures</td>
<td></td>
</tr>
</tbody>
</table>

## Chapter I

**INTRODUCTION**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. The need and rationale of the study</td>
<td>3</td>
</tr>
<tr>
<td>1.2. Statement of the problem</td>
<td>4</td>
</tr>
<tr>
<td>1.3. Research questions</td>
<td>5</td>
</tr>
<tr>
<td>1.4. Research hypotheses</td>
<td>5</td>
</tr>
<tr>
<td>1.5. The purpose of the study</td>
<td>6</td>
</tr>
<tr>
<td>1.6. Significance</td>
<td>6</td>
</tr>
<tr>
<td>1.7. Limitations</td>
<td>7</td>
</tr>
<tr>
<td>1.8. Operational Definitions of Terms</td>
<td>8</td>
</tr>
<tr>
<td>1.9. Summary</td>
<td>9</td>
</tr>
</tbody>
</table>
# Chapter II

## LITERATURE REVIEW

### Section I: Literature Review

<table>
<thead>
<tr>
<th></th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Part I: Lesson Study</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>2.1.1. Lesson Study various contexts</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>2.1.2. The Cycle of Lesson Study</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>2.1.3. Teachers' professional development</td>
<td>19</td>
</tr>
<tr>
<td>5</td>
<td>2.1.4. Lesson Study as Professional Development</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>2.1.5. Lesson study as Communities of Inquiry</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>2.1.6. Sustaining Professional Development</td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>2.1.7. Outcomes of Lesson Study</td>
<td>25</td>
</tr>
<tr>
<td>9</td>
<td>2.1.8. Challenges to sustaining momentum in Lesson Study</td>
<td>28</td>
</tr>
<tr>
<td>10</td>
<td>2.1.9. Guideline for Implementing Lesson Study</td>
<td>29</td>
</tr>
<tr>
<td>11</td>
<td>Part II: Verbal Interaction</td>
<td>30</td>
</tr>
<tr>
<td>12</td>
<td>2.2.1. Interaction analysis technique</td>
<td>31</td>
</tr>
<tr>
<td>13</td>
<td>2.2.2. Meaning of classroom interaction</td>
<td>31</td>
</tr>
<tr>
<td>14</td>
<td>2.2.3. Basic Theoretical Assumptions of Interaction Analysis</td>
<td>32</td>
</tr>
<tr>
<td>15</td>
<td>Part III: Lateral thinking</td>
<td>33</td>
</tr>
<tr>
<td>16</td>
<td>2.3.1. Understanding Lateral Thinking</td>
<td>34</td>
</tr>
<tr>
<td>17</td>
<td>2.3.2. What exactly is Lateral Thinking?</td>
<td>34</td>
</tr>
<tr>
<td>18</td>
<td>2.3.3. Vertical Thinking against Lateral Thinking</td>
<td>36</td>
</tr>
<tr>
<td>19</td>
<td>2.3.4. Lateral thinking puzzles</td>
<td>37</td>
</tr>
<tr>
<td>20</td>
<td>Part IV: Professional Loyalty</td>
<td>38</td>
</tr>
<tr>
<td>21</td>
<td>2.4.1. What is loyalty?</td>
<td>38</td>
</tr>
<tr>
<td>22</td>
<td>2.4.2. How to foster employee's loyalty?</td>
<td>38</td>
</tr>
<tr>
<td>23</td>
<td>Section II: Previous Studies</td>
<td>40</td>
</tr>
<tr>
<td>24</td>
<td>Part I: Studies related to Lesson Study as a teachers' professional development Model</td>
<td>41</td>
</tr>
<tr>
<td>25</td>
<td>Part II: Studies related to teacher and classroom verbal interaction</td>
<td>46</td>
</tr>
<tr>
<td>Part III</td>
<td>Studies related to lateral thinking</td>
<td>50</td>
</tr>
<tr>
<td>Part IV</td>
<td>Studies related to professional loyalty</td>
<td>52</td>
</tr>
<tr>
<td>2.5.</td>
<td>General Commentary on Section II: Previous Studies</td>
<td>53</td>
</tr>
<tr>
<td>2.6.</td>
<td>Analysis of the previous studies</td>
<td>55</td>
</tr>
<tr>
<td>2.7.</td>
<td>Summary</td>
<td>57</td>
</tr>
</tbody>
</table>

**Chapter III**

**METHODOLOGY**

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.1. Type of Research Design</td>
<td>58</td>
</tr>
<tr>
<td>2</td>
<td>3.2. Population</td>
<td>59</td>
</tr>
<tr>
<td>3</td>
<td>3.3. Sample</td>
<td>59</td>
</tr>
<tr>
<td>4</td>
<td>3.4. Variables</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>3.5. Instruments</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>3.5.1. The Observation Card</td>
<td>60</td>
</tr>
<tr>
<td>7</td>
<td>3.5.2. Lateral Thinking Test</td>
<td>67</td>
</tr>
<tr>
<td>8</td>
<td>3.5.3. The Interview</td>
<td>74</td>
</tr>
<tr>
<td>9</td>
<td>3.6. The study implementation procedures</td>
<td>75</td>
</tr>
<tr>
<td>10</td>
<td>3.7. The Statistical Analysis</td>
<td>77</td>
</tr>
<tr>
<td>11</td>
<td>3.8. Summary</td>
<td>77</td>
</tr>
</tbody>
</table>

**Chapter IV**

**RESULTS: DATA ANALYSIS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.1. Answer to the first question</td>
<td>79</td>
</tr>
<tr>
<td>2</td>
<td>4.2. Answer to the second question</td>
<td>81</td>
</tr>
<tr>
<td>3</td>
<td>4.3. Answer to the third question</td>
<td>86</td>
</tr>
<tr>
<td>4</td>
<td>4.4. Answer to the fourth question</td>
<td>88</td>
</tr>
<tr>
<td>5</td>
<td>4.5. Answer to the fifth question</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>4.6. Answer to the sixth question</td>
</tr>
<tr>
<td>7</td>
<td>4.7. Summary</td>
<td>92</td>
</tr>
</tbody>
</table>

**Chapter V**

**FINDINGS, DISCUSSION, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.1. Findings</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5.2. Findings and Interpretations</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5.2.1. Interpretation of the first question</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5.2.2. Interpretation of the second question</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5.2.3. Interpretation of the third question</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>5.2.4. Interpretation of the fourth question</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>5.2.5. Interpretation of the fifth question</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>5.2.6. Interpretation of the sixth question</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5.3. Conclusions</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>5.4. Pedagogical Implications</td>
<td>105</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>5.5. Recommendations</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5.5.1. Recommendations to the teachers</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>5.5.2. Recommendations to the English language supervisors</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>5.5.3. Recommendations to the Palestinian Ministry of Education</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5.5.4. Recommendations for further studies</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Resources</td>
<td>108</td>
<td></td>
</tr>
</tbody>
</table>
## List of Appendices

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Referee Committee</td>
<td>118</td>
</tr>
<tr>
<td>2.</td>
<td>Observation card for teachers’ interactional practices &amp; Self-reflection sheet</td>
<td>119</td>
</tr>
<tr>
<td>3.</td>
<td>Lateral thinking test</td>
<td>124</td>
</tr>
<tr>
<td>4.</td>
<td>Interview Protocol</td>
<td>129</td>
</tr>
<tr>
<td>5.</td>
<td>Lateral thinking sample test</td>
<td>131</td>
</tr>
<tr>
<td>6.</td>
<td>Sample of lesson plan (Twelfth Grade)</td>
<td>134</td>
</tr>
<tr>
<td>7.</td>
<td>Photos of teachers during Lesson Study Cycle</td>
<td>140</td>
</tr>
</tbody>
</table>

## List of Tables

<table>
<thead>
<tr>
<th>No</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>The differences between Vertical &amp; Lateral Thinking</td>
<td>36</td>
</tr>
<tr>
<td>3.1</td>
<td>Distribution of the sample according to place and gender</td>
<td>60</td>
</tr>
<tr>
<td>3.2</td>
<td>The steps of the observation card</td>
<td>61</td>
</tr>
<tr>
<td>3.3</td>
<td>Correlation coefficient of every observation card item with the total score of their steps</td>
<td>63</td>
</tr>
<tr>
<td>3.4</td>
<td>Pearson Correlation coefficient of every step of the observation card with the total degree of the observation card and the steps with other ones</td>
<td>64</td>
</tr>
<tr>
<td>3.5</td>
<td>Cooper of the observation card reliability</td>
<td>65</td>
</tr>
<tr>
<td>3.6</td>
<td>Correlation coefficient between the two halves of each step pre modification and the reliability post modification</td>
<td>66</td>
</tr>
<tr>
<td>3.7</td>
<td>Cronbach's Alpha for each scope of the observation and the entire observation card</td>
<td>67</td>
</tr>
<tr>
<td>3.8</td>
<td>Correlation coefficient of every item of the test with the total score of the test</td>
<td>70</td>
</tr>
<tr>
<td>3.9</td>
<td>Alpha Spilt-half Coefficient of the Lateral Thinking Test</td>
<td>71</td>
</tr>
<tr>
<td>No</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Lesson Study Process</td>
<td>14</td>
</tr>
</tbody>
</table>

List of figures
Chapter I
Introduction
Chapter I

INTRODUCTION

Challenge and change are two words that are commonly used to describe many aspects of our life in the world in the early 21st century. We can expect more challenges because of increasing globalization, information and communication technologies and socio-economic development. Meeting these challenges quickly points to the crucial need to enhance new perspectives on educational leadership, policies, curriculum, contents and methods of teaching (Sarkar Arani & Fukaya 2009). The need to re-construct teaching, both within and outside the school, is gaining increased attention among educational researchers, policy-makers, administrators, practitioners, parents and media. Therefore, educational management in the recent past has heavily emphasized the importance of re-thinking education for more effective teaching, enhanced learning, higher student achievement, and civic and moral education.

At the end of the 20th century, educational reform in many countries emphasized the one-way and top-down relationship between educational administrators and schools and teachers. It appeared to be a more authority-oriented strategy for change and focused on educational policies, school management, and the content of teaching and curriculum as ideology.

However, it seems that in the early 21st century, educational reform shifted to put more emphasis on learning-oriented strategy for change and to focus on empowerment of teachers and self-sustaining change in school. Consequently, teacher quality has developed into a core innovation issue of school education in many countries. That is much attention and emphasis needed to be on what actually goes on in the classroom and how the quality of teaching can be improved (Inprasitha et al., 2009; Steele & Boudett, 2008; Gao, 2006; Matoba, Krawford & Sarkar Arani, 2006; Sato, 2006; Saito et al., Lewis et al., 2006; Matoba & Sarkar Arani, 2003; Stigler & Hiebert, 1999).

Accordingly, many educators and practitioners often criticize teacher professional development efforts for their lack of continuity and ability to produce effective change in teacher practice and student learning (Loucks-Horsley et al.,
Thus, a strong need exists for teachers to experience sustained, high-quality professional development in order to improve student learning and teacher instruction.

The rationale for the importance of a suggested model, as a professional development tool, is that teachers to be successful in teaching, students must achieve to high standards. Professional development must find teachers engaged in sustained, intellectual study of what they teach and how they teach it. Teachers learn better when they learn together and support one another in planning better lessons. This is the premise of the Japanese professional development model called Lesson Study.

Many educational scholars believe that a critical component of any educational reform effort should be to provide teachers with opportunities and appropriate support structures that encourage the critical work of on-going improvement of pedagogical practice (Darling-Hammond & McLaughlin, 1995; Garet et al., 2001; Sparks & Hirsh, 1997).

This study will present a professional development initiative based on the Japanese lesson-study model described by Stigler and Hiebert (1999) in 'The Teaching Gap'. Lesson Study is an inquiry model of teacher professional development, used extensively throughout Japan and has begun to capture the attention of communities all over the globe as a potential strategy for enhancing teacher professional development. As we seek understanding of what is required of professional-development experiences that lead to real improvement in how teachers teach, observing the process of Lesson Study may provide valuable insights. Moreover, Lesson Study is a professional development process that builds teachers’ instructional skills. It also builds connections across grade levels and content areas (Boss, 2002). In addition, Lesson Study is an initiative that puts teachers in a leadership role for improving their own classroom practices. Lesson Study, also called research lessons, is a simple process with overreaching potential to change our whole system of “telling” curriculum (Lewis, 2000). Research lessons share five special characteristics:

a) research lessons are planned collaboratively over time.
b) research lessons are designed to bring to life in a lesson an overarching goal or vision of education.
c) research lessons are observed by other teachers.
d) research lessons are recorded.
e) research lessons are discussed.

The Japanese technique of Lesson Study is a collaborative process and according to Stigler and Hiebert (1999) is the most powerful means to change the culture in the classroom. The Lesson Study initiative is a well-established Japanese tradition that can be traced back to the early 1900’s (Fernandez, 2002). Stigler (2002) talked about the advantages of Lesson Study as a professional development initiative to improve the teaching and learning process in American schools. Stigler claimed the “why” of Lesson Study is because the standards movement created a real need for teacher learning. He believes that teachers needed to learn to analyze their own practices and other teachers’ practices as well. Attempts are now being made to adapt Lesson Study to fit the needs and culture of Palestine. That is, Palestinian teachers exchange visits for the sake of mutual and peer coaching experiences. However, this work needs deeper attention and further encouragement and support from the school principals, teachers and parents and from the whole community to meet the teachers’ and students' needs as well.

1.1. The need and rationale for the study

In the researcher’s experience as a secondary school teacher of English for more than seventeen years, the majority of students face serious difficulties learning English. Some difficulties can be attributed to the students themselves, others can be attributed to the curriculum and still some others can be attributed to the teachers because some of them may be using instructional practices. Also, some problems faced by students need deeper thinking on behalf of their teachers and an ability to think out of the box. So the current study arose from the researcher’s desire for improving teachers' professionalism and consequently improving students' learning capabilities. The best place to do this is the classroom where teachers use different instructional practices. The intervention of Lesson Study Model used in this study targets teachers' professional development, lateral thinking, verbal interaction which
are most needed by English language teachers. The most important thing that Lesson Study offers is the collaborative team work through which teachers learn from each other and select a problem students find difficulty in. One participant teacher presents it while his colleagues observe, reflect, discuss and finally he/she or another teacher reteaches the lesson for the sake of students’ better understanding. This is in fact the premise of the Lesson Study that the researcher initiated as a teacher's professionalism tool.

Moreover, according to the researcher's best knowledge, this study is unique in the Palestinian context as no other study investigated the effectiveness of Lesson Study Model on developing secondary school teachers' professionalism. Therefore, Lesson Study can be used to develop teachers' instructional skills. That is, this study offers Palestinian secondary school teachers the opportunity to use Lesson Study main cycle to improve their classroom instructional practices, especially teachers’ and students’ verbal interaction, lateral thinking skills an teachers’ loyalty towards their career.

The findings of this study might encourage educational leaders to consider Lesson Study Model to create effective teaching and learning environments inside the classroom, which justifies implementation of this study.

1.2. Statement of the problem

In 'The Teaching Gap' (1999), Stigler says, “Unless we can change the way instruction is delivered in the classroom, we cannot significantly affect the learning process”. Stigler and Hiebert (1999) say that Lesson Study has the potential to change what actually happens in the classroom. Further, Stigler and Hiebert think that teachers operate from a “script for teaching” that is culturally determined and that is based on a small number of inferred beliefs about subject matter, how students learn and the role of teachers in the classroom.

Lesson Study is a valuable aid to teachers as they develop lesson plans and different strategies to teach. With Lesson Study, teachers need to collaborate at every step of the process. They also need to identify alternative ways to teach and they need judgement to know when to employ which method. Teachers gain that judgement by observing each other teaching the same lessons with the same
objectives (Willis, 2002). Ultimately, student responses become predictable and instruction can be altered to increase learning. Stigler and Hiebert (1999) say this is the core of the Lesson Study initiative. They believe that we rely too much on the academic research to diagnose problems concerning teaching and learning.

Through collaboration, teachers can discover for themselves what needs to happen in the classroom. Stigler states in an interview conducted by Willis (2002), “We need to find ways of learning from our most successful teachers. In addition, principals become directly involved in this process (Binder, 2004). Leadership and teacher expertise working together can make a positive change in the culture of our schools. The study problem can be summarized in the following question:

What is the effectiveness of using the Lesson Study model on Palestinian secondary school teachers' professional development and their attitudes towards such a model?

1.3. Research questions

To achieve the purpose of the study, the research addressed the following six questions:

1- What is the general framework for 'Lesson Study'?
2- What is the effectiveness of 'Lesson Study' on improving secondary school teachers' verbal interaction?
3- What is the effectiveness of 'Lesson Study' on improving secondary school teachers' lateral thinking?
4- What is the effectiveness of 'Lesson Study' on improving secondary school teachers' professional loyalty?
5- Is there a correlation between verbal interaction and lateral thinking in teachers' professional development?
6- What are teachers’ attitudes towards the use of 'Lesson Study' as a professional development process?

1.4. Research hypotheses

The study attempts to investigate the following hypotheses:

1- There are statistically significant differences of 'Lesson Study' at (α ≤ 0.05) on secondary school teachers' verbal interaction.
2- There are statistically significant differences of 'Lesson Study' at (α ≤ 0.05) on secondary school teachers' lateral thinking.

3- There is a correlation between verbal interaction and lateral thinking in teachers' professional development.

1.5. The purpose of the study

This study aims at:

1. Identifying the effect of the Lesson Study model on 20 Secondary school teachers from different schools in Khanyounis Western directorate.
2. Determining if the model is effective in helping teachers to improve their teaching practices.
3. Examining the effectiveness of the model on students' learning abilities.
4. Examining teachers' attitudes towards Lesson Study.
5. Identifying more efficient and meaningful ways in teaching English language.
7. Putting forward some recommendations, suggestions and pedagogical beliefs for both teachers and learners who seek to develop the teaching and learning process using the Lesson Study model.

1.6. Significance of the study

Even more basic is the whole idea of instruction as something that can and should be improved through consultation with colleagues, trial in the classroom and critique (Lewis, 2000, pp. 32–33). In the light of these words, Stigler (1999) talks about building a professional body of knowledge to help teachers learn to analyze their own and their colleagues' classroom practices. That is he describes the professional significance of Lesson Study as a way to impact the quality of teaching inside the classroom. Stigler and Hiebert (1999) state that most professional development efforts fail to improve education because they are not classroom based. They are initiatives that happen to the teacher. Teaching, Stigler and Hiebert argue, is cultural. They both assure the importance of having a “knowledgeable mutual” work with school team members.
However, the problem is that teachers see anyone other than a fellow teacher as an evaluator who will be judging them. This example also highlights the need for changing the teaching methods. From the researcher's point of view, the traditional evaluation system has done more harm than good for improving the teaching and learning process. That is, some teachers are afraid to take risks. They are afraid to have people in their classrooms, observing for signs of student learning. That is, classrooms in Palestine may represent just one of the barriers to implement the Lesson Study process within our schools.

Another way this study will have professional significance for the teaching profession is the research-based strategy associated with Lesson Study. Teachers are rarely represented as sources of knowledge about teaching. Lesson Study can counteract this tendency because it enables teachers to become researchers in the classroom. Through work with Lesson Study, teachers have a way of communicating and organizing their knowledge base. In addition, they have a way of sharing that knowledge base with their colleagues in a collaborative, reflective manner (Saul, 2001).

1.7. Limitations

The study was applied within the following limitations:
1. The results of the study were limited to the first semester of the scholastic year 2013/2014.
2. The study was limited to the population of grade eleven and twelve secondary school English language teachers in Khanyounis Western Directorate schools.
3. The study focused on examining the effectiveness of the essential elements of the Lesson Study model on developing 20 secondary school teachers' professionalism mainly verbal interaction, lateral thinking and professional loyalty.
1.8. Operational Definitions of Terms

1. Effectiveness:

"Effectiveness is the capability of producing a desired result. When something is deemed effective, it means it has an intended or expected outcome, or produces a deep, vivid impression" (Wikipedia, 2013). Based on the researcher's experience; Effectiveness is the degree of improvement in the teachers' professional achievement level mainly verbal interaction, lateral thinking and professional loyalty as a result of using Lesson Study Model in secondary school English classes.

2. Lesson Study:

Lesson Study (also called the Research Lesson) is a process that follows a cycle by which teachers of English in the same community of practice work together by identifying a goal or a problem for the lesson, collaboratively developing a lesson plan. Then, one participant teacher implements the lesson with observation by colleagues and other experts, analytically reflecting on the teaching and learning that occurred, and revising the lesson. The essence of Lesson Study lies in the amount of intellectual and affective engagement of its participants who engender a spirit of collaboration - working on a shared goal that they themselves generated (Rock & Wilson 2005: 78).

The researcher adopted this definition of the Lesson Study because it clarifies all the important aspects of the term, especially the element of having a spirit of collaborative community setting shared goal, problem or pedagogical practice for improvement that connects with desired student characteristics.

3. Verbal interaction:

Verbal interaction is one way for teachers to communicate face-to-face with students, students with the teacher and students with other students. Some of the key components of verbal communication are sound, words, speaking, and language.
4. Lateral thinking:

Lateral thinking is solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic. The term was coined in 1970 by De Bono. As taught by De Bono, lateral thinking deliberately distances itself from standard perceptions of creativity as either "vertical" logic (the classic method for problem solving: working out the solution step-by-step from the given data) or "horizontal" imagination (having a thousand ideas but being unconcerned with the detailed implementation of them. (De Bono, 1970: 8).

5. Professional loyalty:

Loyalty is usually seen as a virtue, albeit a problematic one. It is constituted centrally by perseverance in an association to which a person has become intrinsically committed. Organizations often demand it, and countries do what they can to foster.

This study defines professional loyalty as the situation where teachers are enthusiastic about their teaching profession, are committed to the values of their career and achieving their goals, and are willing to self-development in all places and at all levels regardless of the payment that may come from it.

1.9. Summary

In this chapter, the researcher handled the major issues of chapter one: an introduction to the study, need and rationale, statement of the problem, hypotheses, purpose, significance, limitations and definitions of variables and terms. In chapter two, the researcher will discuss the review of literature and some related studies.
Chapter II

Literature Review
Chapter II

LITERATURE REVIEW

This chapter is divided into two sections. The first one clarifies some important conceptual bases concerning ‘Lesson Study’ and includes headlines such as what Lesson Study is, Lesson Study contexts, Lesson Study cycle, and essential elements of teachers’ professional development that directly target their practices. It also sheds light on the major elements considered the basis of teachers’ professional development including lateral thinking, teacher’s verbal interaction and teacher’s professional loyalty. The second part focuses on some existing bodies of literature on Lesson Study practices (namely, Lesson Study as a professional development process and Lesson Study as a professional development approach to systemic reform of our educational system).

Section I: Literature Review

Part I: Lesson Study

Lesson Study is a Japanese form of professional development that centers on collaborative study of live classroom lessons. It is considered as the most fundamental educational practice responsible for teachers’ professional development (Yoshida, 2005; Murata & Takahashi, 2002; Stigler & Hiebert, 1999).

Lesson Study is the translation of the Japanese words jugyou, which means lesson or classroom instruction, and kenkyuu, which means study or research. In the light of the two terms being translated, Lesson Study is concisely described as a process that “consists of the study or examination of teaching practice” (Fernandez & Yoshida, 2004: 7). Moreover, Lesson Study is more than just the study of lessons, but it is rather a systematic investigation into teaching practice by examining lessons (Fernandez & Chokshi, 2002).

Furthermore, Lewis (2002) describes Lesson Study as a teacher-led instructional development effort characterized with a collaborative style. This approach to professional development has been recognized by the Japanese education
community for the improvement of instruction in Japanese classrooms (Lewis et. al 2006; Stigler & Hiebert, 1999; Lewis & Tsuchida, 1997).

The history of Lesson Study dates back from the Meiji period (1868-1912), when it was developed as an educational practice. Its main function was to enable teachers to develop and study their own teaching practices (Baba, 2007). The simple premise behind conducting Lesson Study is that in order to improve teaching, the most effective place to do so would be in the context of a classroom lesson (Stigler & Hiebert, 1999). Moreover, Isoda et al. (2007) identify several underlying ideas about the practice of Lesson Study:

1. Teachers can best learn from and improve their practices by seeing other teachers teach.

2. There is an expectation that teachers who have developed deep understanding of and skill in subject matter pedagogy should be encouraged to share their knowledge and experience with colleagues.

3. While the focus appears to be on the teacher, the final focus is on the cultivation of students’ interest and on the quality of their learning (Elipane, 2012: 50).

Lesson Study is a process that follows an iterative cycle by which teachers exigently work together on a shared goal or inquiry centered on students’ learning, plan a lesson that would allow for an exposition of these learning, then jointly examine and discuss the performance of the lesson as observed (Murata, 2011). Moreover, Watanabe (2002) expresses that through Lesson Study experience, teachers realize possibilities wherein they could examine all aspects of their teaching, such as the curriculum, lesson plans, instructional materials, content, teaching strategies, etc.

Furthermore, Sarkar Arani (2006) clarifies that the most important features of Lesson Study are collaborative planning, doing and reflecting. This approach requires a friendly and cooperative environment at school. Even though Lesson Study is for collaborative occupational development, it reflects the culture in which it is carried out. It is very important to fully understand that Lesson Study is a cultural path way
to improving teaching. According to Stigler and Hiebert teaching is a cultural activity and is a complex system. They emphasize that “The scripts for teaching in each country appear to rest on a relatively small and tacit set of core beliefs about the nature of the subject, about how students learn, and about the role that a teacher should play in the classroom” (1999: 87). For effective Lesson Study to take place, it is necessary to create a cooperative occupational culture through collaborative participation. We need to carefully and slowly construct a culture in which teachers can come together in a non-intimidating atmosphere (Watanabe, 2002).

In brief, Lesson Study for teachers serves as a practice that has been validated by a tradition of empirical assimilations on actual classroom settings. The variations on how the practice is being performed relying on differences in contexts enlighten how Lesson Study has been evolving, and how its utilization has been carefully constructed and conceptualized (Elipane, 2012: 51).

2.1.1. Lesson Study various contexts:

Lesson Study in Japan takes on different forms and scales i.e. relying on the purpose, range, field, or even support. In terms of purpose, Lesson Study might be held with the objective of advancing or testing the performance of a good classroom teaching practice for further analyses and investigations. Another purpose could also be for the professional development of novice teachers. Moreover, several textbook publishing companies usually hold and sponsor Lesson Study for the purpose of developing suitable and research-based instructional materials (Elipane, 2012).

Fernandez and Yoshida (2004) exemplify that certain schools are designated by the Japanese government or local board of education to conduct Lesson Study as a part of its research and professional development component. They further continue that pre-service teachers also get the opportunity to engage in Lesson Study as they prepare and teach a research lesson with their university professors, cooperating teachers, and other student teachers observing them. Accordingly, Murata and Takahashi (2002) distinguish between three organizational levels of Lesson Study based on scope: (1) school-based level; (2) district-level; and (3) national level.

An in-school or in-service professional development program in Japanese schools could sum up the concept of a school-based Lesson Study. Dealing with the
semantics of the term, *kounai kenshuu* is made up of two Japanese words, which are *kounai* or in-school, and *kenshuu* or training. The English translation would literally mean an in-school training (for teachers). According to Fernandez and Yoshida (2004), “what makes *kounai kenshuu* unique is that it is a form of in-service professional development that brings together the entire teaching staff of a school to work in a sustained and focused manner on a school-wide goal that all teachers have agreed is of critical importance to them” (p. 10). In this sense, Lesson Study could be addressed as a kind of professional development effort.

On the other hand, schools may hold open-house research lessons that may be participated in by teachers from a district, or even a region. Watanabe (2002) even talks of open-house research lessons being organized in *Fuzoku schools* (schools that are affiliated to Japanese national universities); and these open-house lesson studies are usually participated in by hundreds of visitors. National professional organizations may also coordinate large-scale Lesson Study endeavors, which may attract thousands of educators. These organizations may not necessarily be associated with universities (Elipane, 2012).

### 2.1.2. The Cycle of Lesson Study:

To the casual observer, Lesson Study may seem like a simple idea. Teachers with a common focus meet and plan lessons together. These lessons may have a focus on building skills or understanding, and is known as Lesson Study, which is taught by one and observed by not only all of the teachers who are doing the planning, but also by observers who, at one end of the field, may come only from the teachers’ own school, or, at the other end, may come from all over the country. A debriefing session follows the lesson, where the lesson is discussed at some length, with modifications often suggested by the observers, who frequently include an invited academic or “veteran teacher” (Doig & Groves, 2011).

Now, it seems to be pressing to make good sense of the steps or structure of Lesson Study practice. Hence, in order to attain his, it is necessary to clear out the deep rooted principles behind each of the components of Lesson Study process in the desire to explicate its essential elements. Takahashi and Yoshida (2004) offer a substantive description, via diagram, of a typical Lesson Study process as the coming
Figure displays. Figure (2.1) below represents a typical Lesson Study process, reprinted from Takahashi and Yoshida (2004: 439).

**Lesson Study Process**

![Diagram of Lesson Study Process]

**Figure (2.1)**

It can be seen from this diagram that structurally, at the center of the cycle is the Research Lesson, or "kenkyuu jugyou" (the lesson prepared for the purposes of Lesson Study); and this is categorically affirmed by a number of researchers in the field (Wang- Iverson & Yoshida, 2005; Fernandez & Yoshida, 2004; Lewis, 2002; Murata & Takahashi, 2002; Murata, 2011). However, the importance and the benefits of Lesson Study could not only be focused by merely observing research lessons alone. What transpires before and after, or around, the Research Lesson systematically imparts a desire as to why Japanese practitioners have propitiously or promisingly Lesson Study and why they find it beneficial and rewarding.

This study clarifies that the Lesson Study supporters will denote those in the left side of the diagram presented by Takahashi & Yoshida (2004); that is the Lesson planning group. This includes the teacher in charge of the delivery of the research lesson, or what Japanese educators call as "jugyousha". Lesson Study participants, on the other hand, would be an encompassing term that comprises all the persons that have been involved in any of the Lesson Study process, including those on the right
side of the diagram- who can also be considered as observers / outsiders (or people who do not categorically belong to Lesson Study supporters), and the knowledgeable others (or resource persons).

The Lesson Study process is characterized by iterative cycle that mainly consists of (1) collaborative goal setting; (2) study materials and lesson planning; (3) enactment and making public of the Research Lesson, (4) post-lesson reflection meeting, or lesson debriefing and the proceeding activity would be to either reteach the lesson based on the lesson debriefing, and/or repeat the cycle for future courses.

The following part presents a brief description of and discussion on the essential elements or steps in the Lesson Study cycle:

- **Goal-setting:**

Lesson Study is a teacher-led professional development (Fernandez & Yoshida, 2004; Lewis, 2002). The teachers themselves choose the specific topic fitting for the set goals. The chosen topic will then be the basis of the research lesson that may be designed and developed for public exhibition afterwards. Setting the goals marks as the initiation of the Lesson Study. The proponent teachers are engaged in exhibiting or building knowledge or local theories on certain subjects and important classroom situations. Also, it allows the proponents to explore possibilities and predict positive routes for education issues. According to Murata (2011), throughout the Lesson Study process, there can be seen a movement of goals from being general into more specific research questions. Hence, in the act of considering significant factors towards the achievement of the goals, the Lesson Study proponents would inexorably be positioned as researchers. At this point, the topic is then identified in the hope of illuminating the inquiry being supported by the decided research goal. Furthermore, coming up with shared goals and jointly deciding on topics that could potentially pave the way towards the achievement of these goals signals the shaping of the creation of a community of practice (Hix, 2008: 26).
- **The Lesson Plan:**

After identifying the goals and the proper topic, the Lesson Study proponents are required to explore the interrelated factors and features of fitting classroom instructions. Deep investigation of the relevant curricular materials and resources that surround the topic or learning contents for a particular lesson is considered as one of the most vital stages of the Lesson Study cycle.

When investigating the Lesson Study plan we should put the following conceptions in mind as to study the following:

- a variety of teaching and learning materials, such as curricula, textbooks, worksheets and manipulative materials;
- a variety of teaching methods;
- the process of student learning, including students’ typical misunderstanding, mistakes and anticipated solutions to problems, as well as how teachers can react to them;
- the state of students’ learning; and
- research related to the topic (Takahashi & Yoshida, 2004: 440).

According to Fujii (2010) and Takahashi et al. (2005), the more teachers get engaged in lesson plan investigation, the broader opportunity to reinforce and rectify their subject understandings, pedagogical content knowledge, and epistemological assimilations on student thinking. Based on the set goals and the established topic for Lesson Study, the Lesson Study proponents are prompted to make sense of the strong body of relevant resources (Elipane, 2012).

At this stage, Fujii (2010) asserts that Japanese teachers typically initiate their engagement through examinations of textbooks as these are acknowledged to embody what the Japanese National Course of Study conceptually and practically embodies.

Thus teachers seek access to several written resources that could facilitate their lesson planning. Spontaneously, teachers would embark on the inspection of textbooks. These textbooks are carefully written and the constitution of their contents is well rationalized. A handful of educators, advisers, teachers, and subject matter specialists are involved in the process of their completion.
In Japan, the presentation of the contents of the textbooks alone would not be singly able to suffice as a replacement for instruction. Teachers play a very important role in being able to extend support for the students’ learning of the subject contents furnished in the textbooks. Consequently, teachers need deep and principled understandings of the context of how the content of the textbook was written, and more so, they are necessitated to channel their pedagogical content knowledge in order to optimally utilize the textbooks in their instruction (Elipane, 2012). It is reassuring that the development and improvement of learning resources is evidently associated with the Lesson Study process (Murata, 2011).

As the Lesson Study proponents occupy themselves in seeking ways of addressing the enormous challenge of integrating discrete pieces of knowledge and skills into a coherent whole, they simultaneously, or subsequently, embark on planning how these goals and topics would exist by way of coming up with a detailed lesson plan. Looking at the detailed lesson plan for the Lesson Study, the instructional plan—which contains the sequence of all the lessons for a single unit of topic—are usually included for the review of the Lesson Study participants in order to provide the observers from other schools or institutions with a clear idea on the context of the lesson. The lesson plan would then embody how examining Lesson plan has afforded thoughtful negotiations on the appropriate examples and learning tasks that should be designed for the class in order to achieve the objectives for research lessons, giving much intensive study of the learnt content routes and careful analysis of student abilities/ interests and contexts. In actuality, a writing of lesson plan for research lessons under goes several modifications (Elipane, 2012).

Furthermore, lesson planning illuminates the Lesson Study proponents’ generation of new ideas and knowledge. Ultimately, writing the lesson plan may serve as a viable means in bridging educational concepts to actual classroom practice

- **Delivery of the Lesson Study:**

  Research Lesson is considered as the heart of any Lesson Study attempt (Fernandez & Yoshida, 2004; Lewis, 2002; Murata & Takahashi, 2002). Through live Research Lessons, participants get rich opportunities for learning- in-practice by way of explicit discussions and reflections on actually lived and/ or observed
classroom events rather than seeking for shared understandings of substitute classroom situations.

Structuring Research Lessons in such a way that a particular host school or organization opens its classrooms for observation of the core participants of the study and the outsiders provide an opportunity for mutual learning and professional development. Moreover, these research lessons provide an access to intellectual resources from outside the local school contexts. Murata (2011) posits that through a live Research Lesson, the promotion of shared professional knowledge is formed via shared classroom experiences, affording a unique learning opportunity for teachers. Live Research Lessons provide a very authentic context that could facilitate towards the creation of communities of practice where in analysis, processing, reflecting, and communication about jointly observed classroom situations could be grounded. In this way, the phenomena of practice is concretized and evidenced, which would open a platform for more effective and more thoughtful discussion and analysis. The bases of knowing and learning in and about practice are made public, and in turn, could facilitate towards a creation of shared understandings.

- **Post-lesson Discussion or Lesson Debrief:**

  The post-lesson discussion, or lesson debrief, serves as a potent venue where all reactions, reflections and feelings regarding the Research Lessons are discussed and consolidated in full. It is also a way to assess whether the goals and the objectives set for the particular Lesson Study were attained. In the words of Watanabe (2002), a Research Lesson “must always include a post lesson discussion in which all participants can reflect critically on the lesson” (p.37). Through the shared experiences afforded by observations of live Research Lessons, the discussions revolve and build on the participants’ conceptions and descriptions of the variety of aspects derived from it. The post-lesson discussions can expand certain vitality in terms of how each of the participants makes sense of a range of different emphases of observations in Research Lessons. The miscall of any perspectives that each of the participants could bring on the table could expand and elaborate on issues and, in turn, could bring them to an examination of their own practices and perspectives. Through Lesson Study, the knowledge from practitioners engendering research-
oriented methodologies contributes to the growth of the professional knowledge base. For example, teacher educators participating in Lesson Study could inject different concepts and reform-oriented ideas supported by various bodies of research in the field, connecting it to the Research Lessons. Participants from the board of Education may stimulate discussion on current learning ability surveys in a locality, published materials espoused by the government, or standards. This may facilitate the teachers in to becoming more conscious on acquiring agencies to broaden and contextualize their existing repertoire of effective teaching strategies.

Indeed, the practice of Lesson Study provides a coherent infrastructure for teacher education (pre-service and in-service), which has implications on continuous, cumulative, and recursive learning, in which the teachers themselves play a big part in their education. Teachers/ participants are encouraged to practice agency, as it is expected that each of the participants has something to offer on the table. The learning that goes with the activity is collective, and thus, naturally dispensed to be made public. This consequence presents a potential in being able to contribute to the knowledge base of the profession, and at the same time, towards the creation of norms or shared understandings in a community of practice.

2.1.3. Teachers' professional development:

Recent scholarship on teachers’ professional development calls for change and suggests that one of the most important things for teachers’ professional development is to do research into their own classrooms with their own students (Levin & Rock, 2003; Thiessen, 2000; Smylie, 1995; Dean, 1991).

According to Darling-Hammond and McLaughlin (1995), professional development today should provide “occasions for teachers to reflect critically on their practice and to fashion new knowledge and beliefs about content, pedagogy and learners” (p.597). Lieberman (1995) characterizes effective professional development as that which is grounded in inquiry, reflection, and participant-driven experimentation, naming the role of teacher-researcher as an appropriate means. Rosaen and Schram (1997) suggest that future studies should look at the potential for shared inquiry among novice and experienced teachers to promote professional
dialogue about teaching and learning and whether it results in greater learning experiences for both sets of teachers.

Teaching quality and teachers’ professional development are closely tied to school activities and environment. It is not surprising then, that international attention has turned to less familiar, but apparently more successful, professional development practices, such as Japanese Lesson Study (Doig & Groves 2011: 86) In searching for features of successful teacher's professional development, Ingvarson et al. (2004) suggest that the relationship between student outcomes and teachers’ development is reciprocal in that “the more successfully students learn, the more likely it is that the teacher will adopt practices that encourage further successful learning” (p. 23).

In a similar attitude, Royce (2010: 6) argues that, “what we know to be true for students also applies to the teachers' professional development. That is, teachers learn best by doing and building their own understandings rather than being told”. This resonates strongly with Guskey’s (2002) repetition of his Model of Teacher Change where he states that “improvements typically result from changes teachers have made in their classroom practices- a new instructional approach, the use of new materials or curricula, or simply a modification in teaching procedures or classroom format” (p. 383). Thus, opportunities to experiment with classroom practice and analyze it in detail, an important feature of Japanese Lesson Study, is likely to be a fruitful path to take in teacher professional development.

Moreover, Hattie (2009), when looking for the characteristics of teachers whose students claimed were the best, quotes Pehkonen (1992) as saying that these characteristics include “teachers who helped students to have different and better strategies or processes to learn the subject” (p.108), thus indicating that professional development that provides teachers with these skills would be of benefit to students. Besides, one distinguished benefit of Japanese Lesson Study in mathematics is based around a structured problem-solving research lesson, in which a major part of the lesson consists of students sharing, polishing and refining their solution strategies.

Loucks-Horsley et al. (1996), describe the results of the Professional Development Project of the National Institute, which looked at the professional development communities’ understandings of what was effective professional
learning, found a large amount of consensus. For example, it was agreed, inter alia, that good professional development programs:

- are driven by a clear, well-defined image of effective classroom learning and teaching;
- provide teachers with opportunities to develop knowledge and skills and broaden their teaching approaches, so they can create better learning opportunities for students; and
- build or strengthen the learning community of teachers of different school subjects

2.1.4. Lesson Study as Professional Development:

Lesson Study makes various types of knowledge more visible, such as colleagues’ ideas about pedagogy and students’ thinking, thereby enabling teachers to encounter new or different ideas, and to refine their knowledge (Lewis, Perry & Hurd, 2004: 18-22).

We are attracted to the Japanese notion of Lesson Study because it lays out a model for teacher learning and a clear set of principles or hypotheses about how teachers learn. Lesson Study embodies a set of concrete steps that teachers can take, over time, to improve teaching. These steps may need to be modified to work in the United States. But we believe it is better to start with an explicit model, even if it needs revising, than with no model at all (Stigler & Hiebert, 1999).

Research lessons are not about perfecting one lesson, but rather focus on developing teachers’ ideas and experiences of different approaches to teaching. Research lessons make participants and observers think quite profoundly about specific and general aspects of teaching (Doig & Groves 2011: 86). Lewis et al. (2004) state that "Lesson Study is not just about improving a single lesson. It is about building pathways for ongoing improvement of instruction". (p. 18)

Lewis and Tsuchida (1998) and Lewis (2000) identify a number of ways in which Lesson Study contributes to the improvement of education. One teacher interviewed described the impact of Lesson Study this way:

Research lessons help you see your teaching from various points of view. A lesson is like a swiftly flowing river; when you’re teaching you must make
judgments instantly. When you do a research lesson, your colleagues write down your words and the students’ words. Your real profile as a teacher is revealed to you for the first time (Teacher cited in Lewis & Tsuchida, 1998: 15).

Other teachers spoke of Lesson Study as offering them the opportunity to “learn to develop the eyes to see children” (Lewis, 2000: 14). Through the systematic data gathering facilitated by the lesson plans suggesting what to look for in the research lesson and all participants sharing their data.

Lesson Study was also seen by Lewis and Tsuchida (1998) as an important way to spread ideas about new content and approaches – especially at times when there were changes in the national curriculum, with teachers not only having the opportunity to watch new content being taught but also being able to discuss the reasons behind changes. Other ways in which they saw Lesson Study having an impact was through: connecting classroom practice to broader school and community goals; creating demand for improvement of practice through viewing best practice and comparing it with their own; shaping national policy; and honouring the role of classroom teachers. But perhaps the most interesting observation is that Lesson Study provides the opportunity for teachers to explore conflicting ideas, by giving “teachers a chance to bring up, discuss, and perhaps reconcile competing goals or visions of education (p. 16).

The practice of teaching should not be defined by activities or strategies of best practice, nor should the sharing of these be considered as development for a teacher.

Best practices in the hands of incompetent teachers will not produce student learning. The practice of teaching requires reflection to determine connections between what the teachers believe is taught and what the students reveal as learned. Improving or altering teaching and building new models of teaching, that is, professionally developing teaching, may be facilitated by the active observation and discussion of the teaching act. Lesson Study is one form of professional development that provides this opportunity for observation and discussion as well (Hix, 2008: 7).
2.1.5. Lesson Study as Communities of Inquiry:

Lesson Study is a model for a community of practitioner-teachers to follow as they study student thinking for the purpose of improving instructional practices in their own classrooms (Yarema, 2010: 5).

In a review of past thinking and future prospects for mathematics teacher professional development, Zaslavsky, Chapman and Lieken (2001) argue that past professional development programs mirrored the teaching: that is to say, “transmitting information, providing ideas and providing training in skills and techniques” (p. 878). They go on to say that this has been supplanted, more recently, in many cases, with programs that require teachers to play an active role in their own professional development. As a consequence, professional development programs adopt a constructivist perspective that “teacher’s knowledge is developing socially within communities of practice” (p. 878).

Lesson Study is a very powerful way to bring teachers together to structure and organize their thinking about classroom practices. However, we must not lose sight of the fact that Lesson Study in and of itself is an empty shell that will be filled according to the knowledge and skills brought to bear by the group of teachers conducting this activity (Fernandez & Yoshida, 2002).

For example, in examining an action research-based professional development program, the following characteristics were noted: collaborative planning of group activities and individual lessons; lessons taught by the program leader and observed by the participants, and vice versa; co-teaching by the leader and participants; and post-lesson de-briefing by everyone in the program. Many, but not all, of these characteristics are also to be found in Lesson Study practice. These include collaborative lesson planning, lesson observation, and post-lesson de-briefing.

Further, Stein et al. (2000) hold the view that once teachers see their own students’ task responses as examples in a more general pattern, they could then reflect on their own practice from a cognitive demand perspective, the perspective that Lesson Study employs, as one of its enabling aspects, lesson task selection and implementation. That is, if a professional teacher notices that his/her own students do
not go to the point when responding and giving general answers, of course this requires him/her to focus on more practice and more implementation.

Zaslavsky et al. (2001) also note that lesson tasks have a dual role: they are both lesson content that drives student learning and are also the basis for indirect learning by the teacher. Lewis et al. (2009) propose a theoretical model for the way in which Lesson Study produces instructional improvement. The model proposes that not only does Lesson Study make various types of knowledge more visible and improve resources available to teachers, but that “Lesson Study enables teachers to strengthen professional community and to build the norms”. They add that “these might include norms of inquiry and accountability and shared language and frameworks for analysis of practice” (p. 286). These norms and practices resonate with Splitter’s (2009) definition of a community of inquiry as:

a particular kind of … environment or culture, in which students engage together in various forms of inquiry, where the latter is understood to be any mode of thinking that is motivated by, and directed toward, clarifying, solving or resolving something which is regarded as both problematic and worthy of attention. (p. 171)

Moreover, Perry and Lewis (2009), in a description of what they call an “existence proof” states that Lesson Study can be successfully adapted in the USA, regarding the development of a professional community as one of the key conditions for supporting successful Lesson Study. This means that a guaranteed successful adoption for Lesson Study in any community is to make sure that the whole community is willing for this professional development model.

2.1.6. Sustaining Professional Development:

Of all aspects of professional development, sustaining change is perhaps the most neglected. It is clear that, to be successful, professional development must be seen as a process, not an event (Guskey, 2002: 388).

There are a number of reasons why Lesson Study offers the potential for sustained professional development. Firstly, it offers teachers the opportunity to develop professional communities of inquiry, with ownership of the improvement effort, a commitment to inquiry, shared goals, and a sense of responsibility to their
colleagues and students. Secondly, while progress is often slow at the start, the process can evolve over time with teachers beginning by weaving “some of the simpler components of Lesson Study (such as collaborative lesson planning) in with their existing practices, and only later grasping the significance of other ideas such as developing a lesson rationale and documenting their own learning” (Perry & Lewis, 2009: 388). Thirdly, Lesson Study enables teachers to build on their efforts and refine their understandings. In the case reported by Lewis and et al. (2009), teachers on their own initiative decided to continue to meet to further revise their lesson to allow colleagues to observe the research lesson and collect data. This is not an uncommon occurrence in Lesson Study. Lastly, as Perry and Lewis (2009) comment: Lesson Study may stand a better chance of survival than specific instructional reforms because it is a means for bringing practice into line with goals that can be used flexibly to support various reform ideas (p. 387).

Moreover, Lesson Study is considered as an evidence-based approach to sustaining teaching improvement. In the best cases, teachers get important insights into how their students learn from the lesson, where they get stuck, what changes take place, and how they interpret ideas. That is, the observations of classroom thinking can provide the kind of data that is directly applicable to making improvements in the lesson. These data are different from more general information about student performance on tests, quizzes and papers (Cerbin & Koop, 2006: 255).

2.1.7. Outcomes of Lesson Study:

Sarkar Arani, and Fukaya (2009) confirm, through research and particularly case studies of Lesson Study in which they have been involved, that Lesson Study helps teachers to conduct and analyze lessons which encourage individual students to express themselves creatively, to be active during teaching-learning processes, and consequently to be able to fully participate in cooperative learning (Abiko & Fukaya, 2008; Sarkar Arani, 2006; Fukaya, 2002).

Sarkar Arani, and Fukaya (2009) mention the following viewpoints as the main outcomes of their understanding of the impact of Lesson Study on the quality of teachers and teaching in practice:
• **Paying more attention to student variation:**

Teachers learn to observe students individually and carefully in the Lesson Study process. They learn how to recognize the needs of students by creating an individual database in school and calling on students who do not raise their hand in class or have special problems or interests and provide them with opportunities to learn the feeling of successful achievement through group participation. Through participant observation in the Lesson Study process sufficient attention is paid to students who are docile, quiet, and who think over things carefully and seriously.

• **Looking for more effective ways of establishing and concluding lesson:**

Each activity in the teaching-learning process has a logical relationship with the daily life of students. Regarding student motivation, teachers posed questions that had meaning for the daily lives of the students at the beginning of specific lessons. At the end of a lesson, the teacher and students together as a group try to discuss and correct a problem. The objective is to make a convenient record of this in a notebook as conclusion and sometimes reflection. Since this method is often used by students, the format for the record they make will be virtually identical. What needs to be mentioned here is that lesson proceedings are summarized through reflection, comments, formulas, or questions. In this way, the teaching-learning process has a purpose, and is easy to follow and understand.

• **Designing learning for more mutual interaction:**

Through their participation in Lesson Study, teachers learn how to design learning opportunities for more student-student interaction as a means of facilitating classroom activities. Moreover, small groups of students and team teaching are organized to demonstrate their individual characteristics and needs as much as possible. Teachers and students work together during Lesson Study to develop alternative strategies to build new standards for their successes and order within the culture of expanding learning.
• **Looking for creative ideas:**

Lesson Study is a leading method to train school teachers to utilize a problem-solving approach consisting of questions and discovery of solutions. There is more emphasis on the problem-solving process than on a specific answer. Therefore, teachers and students try to make connections between thinking and action in order to facilitate the learning environment for developing critical thinking skills. In these ways students are the teachers' partners in examining more effective teaching and learning in practice. According to the case study analysis, the teachers of a school at Nagoya rarely mention whether a student's answer is correct or wrong (Sarkar Arani & Fukaya, 2009: 6).

• **Learning to assess and assessing to learn:**

Teachers learn during Lesson Study to change their assumptions about students' capacity and to give them a chance to be different even while making mistakes. Teachers learn how to apply such mistakes to discussion of various interpretations and provide opportunities to support them in further challenges. When teachers are asked questions by students, rather than just answering, they respond in a way in which the students can think of the fundamental issues involved and solve the problem by themselves as well as construct knowledge in an effective way. Students will cease asking questions if teachers do not pose self-initiated questions or are unable to accommodate the students' interests. To let students freely ask questions and freely try to explain their opinions, teachers must respond effectively to self-initiated questions as well as to students' needs and interests. Therefore, a mistake is attributed to a lack of learning and thinking efforts, rather than the students' lack of academic ability. Consequently, students do not feel hesitant to present their critical opinions, different ideas and reflect on their own learning performance.

• **Learning to reflect and reflecting to learn:**

Teachers as members of a learning community reflect individually and in groups on their own thinking, mental model, teaching materials, learning design, and decisions and actions via lesson manuscripts and a process of analysis. They are always looking for peer group learning opportunities which bring them alternative
perspectives for managing classroom activities in a more effective way. Rather than learning about theoretical or abstract principles teachers are thought to acquire skills and practical knowledge through re-planning, participant observation, doing and reflecting on the classroom activities that comprise lesson analysis. Such educational experiences which come from self-reflection on action have been considered essential in providing opportunities for self-evaluation and feedback; and teachers learn that "when I learn, my students learn" (An Ohio teacher, November 1999 cited in Ploeg et al., 2000: 1).

One additional outcome which is not included in the list above that the researcher of the current study came across and would like to add is the following:

- **Collaborating to learn and learning to collaborate:**

  Working on this Lesson Study project provided an opportunity for teacher-participants to develop and strengthen their teamwork skills, as they learned how to work together effectively and learn as part of a team of teachers. With four group members, it was sometimes difficult to arrive at a consensus; however, differences of opinion were viewed positively, as an opportunity for growth. Team members often pushed each other to think things through and rethink assumptions. On several occasions, ideas that met with very little support initially were later brought up again and received more positively (Gillies et al., 2008: 37).

### 2.1.8. Challenges to sustaining momentum in Lesson Study:

The main challenges to sustaining momentum in Lesson Study include the educational system, school cultural issues and other social and economic aspects (Sarkar Arani, 2006). However, the following are considered the main viewpoints rendering Lesson Study sustaining power in general:

- Teachers' time limitation, work style, socio-economic and their professional quality status.
- Lack of systematic support in collaborative work.
- Limited opportunities for collaborative activities and shared decision-making regarding school management.
• Greater emphasis on individual capacity rather than group potential and productivity in regard to the issue of improving the quality of school education.
• Emphasis on theoretical knowledge rather than professional knowledge regarding teaching improvement in practice.
• Looking at Lesson Study as a way of teacher assessment rather than an approach for improving teaching.
• Emphasis on results rather than process and pressing teachers into more teaching than learning.
• Teachers' anxiety and assumptions about opening the class to observers, lesson analysis and group-reflection.
• Looking for quick results and outcomes in regard to putting Lesson Study into practice as an alternative approach.

2.1.9. Guideline for Implementing Lesson Study:

Sarkar Arani and Fukaya (2009) ascertain the following essential schemes which they examined with their colleagues in practice are useful for teachers, educational researchers and administrators in conducting Lesson Study for improving teaching, building a capacity for expanding learning communities (Sarkar Arani, Shibata & Matoba, 2007: 29-32) and as Berreth (1999) mentioned for being a partner in reform that works:
• Bring partners together and organize informal and formal meetings for expanding professional dialogue.
• Establish and use a common language and meaning from the beginning.
• Build relationships for sharing ideas and trying to achieve team discussion.
• Make a dialogue to share knowledge and practical experiences.
• Look for shared ideas that are transferable from teaching to learning.
• Highlight both the process and the outcomes of the collaborative research on classroom activities.
• Search for a common mission and try to find points which are common among teachers, principals and educators that can be built upon.
• Clarify the roles and tasks of participants in classroom-based collaborative research activities.
• Build a culture of improvement such which is based on collaborative work and support for constant change.

• Recognize that change takes time and needs systematic hardware and software supports from inside and outside the school.

• Consider that the Lesson Study model is likely to be seen as easy to learn but difficult to adequately master in practice.

• Look at Lesson Study as a process rather than a project or an event.

To conclude, great attention should be paid to the nature of the Lesson Study cycle that plays an essential part in teachers' professional development. And the systematic sequence of this cycle, especially the planning and observational phases that reflect the teaching and learning progress, is indispensable.

The core of the forthcoming part lies on the views tackling the nature and meaning of classroom verbal interactions as well as the ideas behind the advantages and characteristics of good classroom interaction from different angles. The researcher's comment and point of view on interaction will be stated.

Part II: Verbal Interaction

English teachers implement interaction patterns in various types of communicative strategies to explain their messages in the form of verbal behaviours and non-verbal signals. The ways the teacher uses the patterns are various depending on the situation they face. Both verbal behaviours and non-verbal signals are always used concomitantly for making the students understand the messages communicated Malamah-Thomas (1987). However, teachers are criticized for the dominant role they play during their classes and consequently the passivity of students in different levels or grades.

Indeed, one of the basic attempts of this study is to shed light on the characteristics of the teacher's interaction patterns in EFL classes. An observation card (See Appendix 2) was designed to investigate the verbal interaction inside the Palestinian secondary school classrooms.
2.2.1. Interaction Analysis Technique:

Communication in general is a process of sending and receiving messages that enables humans to share knowledge, attitudes, and skills. Although we usually identify communication with speech, communication is composed of two dimensions - verbal and nonverbal.

The teaching-learning situations in the class-room involve interaction between the teacher and the students. The success of a teacher may be judged through the degree of effectiveness of his/her teaching which may be objectively assessed through his/her classroom behaviour or interaction. Thus a systematic or objective analysis of the teacher’s classroom interaction may provide a reliable assessment of what goes on inside the class-room in terms of teaching and learning (Flanders, 1970).

Teachers have their own ways to communicate messages to the students in the classroom. In general teachers communicate the messages by implementing interaction patterns in the form of verbal behaviours and non-verbal signals. The non-verbal signals usually occur together with verbal behaviours since the use of non-verbal signals can help the teachers to make the students understand the messages more easily.

2.2.2. Meaning of classroom interaction:

Classroom interaction is critical to the teaching and learning situation. Class talk offers a promising tool for helping instructors create a more interactive, student-centered classroom. Class talk is a useful tool for engaging students in active learning and also for enhancing the overall communication in the classroom. It is, thus, the teacher’s responsibility to create for learners an enabling environment; one in which they experience intellectual, social and emotional growth. The amount of teacher and pupil talk in the classroom situation facilitates effective and efficient interaction. This means that the nature and amount of talk has profound bearing on the nature and quality of teaching and learning obtained in any classroom situation. In order to understand the nature of interaction obtained in classrooms, communication researchers have developed classroom interaction observation instruments. These
instruments have been used for coding and analyzing classroom verbal interaction patterns. The results of classroom interaction analysis can help classroom practitioners change their ways of teaching if the analysis shows that classroom interaction is teacher dominated.

2.2.3. Basic Theoretical Assumptions of Interaction Analysis:

(i) Predominance of verbal communication
(ii) Higher reliability of verbal behaviour
(iii) Consistency of verbal statements
(iv) Teacher’s influence
(v) Relation between students and teacher
(vi) Relation between social climate and productivity
(vii) Relation between class-room climate and learning
(viii) Use of observational technique
(ix) Role of feedback
(x) Expression through verbal statement

It can be concluded that the EFL teacher, while communicating messages in EFL classes, uses different kinds of English verbal behaviours and non-verbal signals. Also, how the non-verbal signals that are used by the teacher in communicating his/her messages in EFL classes support the verbal behaviours.

One of the major issues this study intended to explain is the relationship between the Lesson Study Model and classroom verbal interaction that the Model is supposed to enhance in the Palestinian teacher's verbal interaction development. Of course, the classroom interaction observation in this study was guided by the following questions:
1. How much talk does the teacher do in a lesson?
2. How much talk do pupils do in a lesson?
3. What is the content of talk by both the teacher and pupils?
4. What are the suggestions for the improvement of the main features of talk observed in the lesson? (Goronga, 2013: 433).
In the part that follows, another feature of teachers' progressive achievement that is Lateral Thinking will be discussed. So, Lateral Thinking will be fully defined and more analytical vision is assigned concerning different views related to integrating the term in curriculum. Also, a comparison between lateral and vertical thinking is tabulated in a simple way.

**Part III: Lateral Thinking**

Edward de Bono is regarded by many as the leading authority in the world in the field of creative thinking and the direct teaching of thinking as a skill. Contrary to what most people believe and have been taught, thinking is not the same as intelligence. It is not an ability that individuals are born with. Several decades of research have revealed that thinking is a skill that can be developed through direct training and practice (De Bono, 1995: 12).

According to De Bono, Lateral Thinking is about reasoning that is not immediately obvious or about ideas that may not be obtainable by using only traditional step-by-step logic. In other words, it is about using your creative (right) brain to help solve problems or come up with new ideas that you would not normally be able to do using your logical (left) brain.

The idea that to be effective thinkers all our students' need is "all the information" is not correct. In these days of the Internet technology, there is the danger of becoming overly dependent on technology for our ideas. No matter how much information our students have or how well they can use technology, if they do not learn to think for themselves and think creatively, they will not be successful. Teaching thinking skills needs to be part of our educational system and special courses in the curriculum should be designed to teach thinking. This type of thinking can be called Lateral Thinking. This concept is very useful for all people, particularly students and teachers, especially when making a decision concerning solving problems.
2.3.1. Understanding Lateral Thinking:

There are three basic ways of thinking, which are logical thinking, common sense, and puzzles & science. Logical thinking is where people do not overlook the reason why they consider a thing as correct. For example, a car will not run without fuel and most people know it without comprehending this problem. The second basic method is common sense. In this method, people find solutions for their problems based on their experience. The third method is puzzles and science here people try to find a solution for a certain problem (Mérö, 1990:11-36). Lateral Thinking is a way of solving problems by using your imagination to find new ways of looking at a problem.

Lateral thinking is close to what we usually call insight, creativity and humor. They have the same basis but while we think of creativity, insight and humor as talents or something that just happens; lateral thinking is a more deliberate process. It is a way of using the mind for logical thinking but in a very different way. Lateral thinking is an insight tool. It is also a process that can be taught. In logical or vertical thinking the mind functions to create patterns out of its surroundings. Once the patterns have been formed, it becomes possible to recognize them, react to them and use them.

2.3.2. What exactly is Lateral Thinking?

Lateral thinking is concerned with the generation of new ideas. Lateral thinking is also concerned with breaking out of the concept presence of old ideas. This leads to changes in attitude and approach; to looking in a different way at things which have always been looked at in the same way. Liberation from old ideas and the stimulation of new ones are twin aspects of lateral thinking.

Lateral thinking is quite distinct from vertical thinking which is the traditional type of thinking. In vertical thinking one moves forward by sequential steps each of which must be justified. Lateral thinking is not a substitute for vertical thinking. Both are required. They are complementary. Lateral thinking is generative. Vertical thinking is selective (De Bono, 1970: 8).
Moreover, De Bono describes lateral thinking as ‘a habit of mind and an attitude of mind’ which can be fostered by practising specific lateral thinking techniques, such as:

- Challenging assumptions (e.g. by thinking outside the box)
- generating alternatives (even when you have an apparently satisfactory solution)
- suspended judgement
- brainstorming
- Analogies
- random stimulation (e.g. by opening a dictionary to find a random word and apply it to the problem)

Lateral thinking involves moving “sideways” to look at things in a different and sometimes illogical way. With lateral thinking one creates as many alternative approaches as one can. Lateral thinking is generative and provocative. Vertical thinking is selective and analytic. Richness is what matters in lateral thinking. Rightness is what matters in vertical thinking. Vertical Thinking selects a pathway by excluding other pathways. Lateral thinking does not select but seeks to open up new pathways. Lateral thinking is the ability to look at things in different ways, it is a neutral process. Lateral thinking is an attitude of mind that involves the willingness to try to look at things in different ways. Try to put yourself in the other person's shoes in order to look at the world from that position. It involves an appreciation that any way of looking at things is only one among many possible ways.
2.3.3. Vertical Thinking against Lateral Thinking:

Table (2.1) below highlights the differences between vertical and lateral thinking.

**Table (2.1)**  
Differences between Vertical and Lateral Thinking

<table>
<thead>
<tr>
<th>Vertical</th>
<th>Lateral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Looking for the right approach</td>
<td>Looking for as many approaches as possible</td>
</tr>
<tr>
<td>Rightness</td>
<td>Richness</td>
</tr>
<tr>
<td>Proceeds if there is a direction</td>
<td>Proceeds to generate direction</td>
</tr>
<tr>
<td>Is analytical</td>
<td>Is provocative</td>
</tr>
<tr>
<td>Is sequential</td>
<td>Can make jumps</td>
</tr>
<tr>
<td>One must be correct at every step</td>
<td>One does not have to be correct at every step</td>
</tr>
<tr>
<td>Uses negative to block off certain pathways</td>
<td>There is no negative</td>
</tr>
<tr>
<td>Excludes what is irrelevant</td>
<td>Welcomes chance intrusions</td>
</tr>
<tr>
<td>Fixed categories/labels</td>
<td>Labels may change</td>
</tr>
<tr>
<td>Explores most likely paths</td>
<td>Explores least likely paths</td>
</tr>
<tr>
<td>Is a finite process</td>
<td>Is a probabilistic process</td>
</tr>
</tbody>
</table>

Lateral Thinking can be defined as a way of thinking that seeks a solution to a difficult problem through unusual methods or elements that would normally be ignored by common sense thinking. Dr. Edward de Bono divides thinking into two methods. He calls one "vertical thinking," which uses the resources of logic—the traditional historical method. He calls the other "lateral thinking," which involves
changing the obvious thinking order and arriving at the solution from another point of view. De Bono's Lateral Thinking methods provide a planned, orderly process that results in new thinking. These skills can be taught and learned by students who become better students by adding strength to their natural abilities and improve their creativity and originality, which leads to more successful learning.

2.3.4. Lateral thinking puzzles:

Lateral thinking puzzles are problems where you have to think differently and use fresh approaches to solve the problem. They are generally used as exercises in questioning techniques and imaginative problem solving. You should come with creative answers and think out of the box. There are probably many possible solutions which fit the initial conditions, only the canonical answer is truly satisfying (Sloane, 2006: 9).

Example: Why do Chinese men eat more rice than Japanese men?

Solution: There are more Chinese men than Japanese men.

To sum up, Lateral Thinking leads to changes in attitude and approach. That means looking in a different way at things which have been looked at in the same way.

The researcher is completely with what De Bono (1970) states "You cannot dig a hole in a different place by digging the same hole deeper" (p: 8). This means trying harder in the same direction may not be useful as changing direction. And one may ask what Lesson Study has to do with Lateral thinking or in other words what the relation is between both of them. The idea is simple since Lesson Study emphasizes the collaborative team work which in turn instigates a cycle of discussion in every element in Lesson Study that supports thinking especially lateral thinking.

The coming part will tackle loyalty, the definition different viewpoints concerning the term and some tips to foster teachers' professional loyalty.
Part IV: Professional Loyalty

2.4.1. What is loyalty?

Webster’s Dictionary defines loyalty as being faithful to a cause, ideal, custom, institution or product. In everyday life, loyalty is found in sports fans that cheer for their teams even when they are losing or in a dog that never leaves its owner’s side.

Reichheld (1996) defines loyalty as the willingness to make an investment or personal sacrifice to strengthen a relationship. Barrett (2012) explicates that loyalty is important in relationships between friends, family, co-workers, and loved ones. But loyalty is also crucial to the relationship between employees and employers. Loyalty is a key component of employee engagement, which is important to employers because engaged employees drive higher sales and are more likely to stay with their company.

On the other hand, disloyal and disengaged employees will leave their companies for new opportunities, which leaves employers burdened to recruit and train new talent. Additionally, employee turnover is costly for employers (Phillips, 2009)

2.4.2. How to foster employee’s loyalty?

Since each employee is a unique individual, no single approach works for everyone, but here are some ideas that Phillips (2009) has put into practice to improve loyalty:

**Offer more than just a job**

Employees who view their current job as part of a rewarding career path with their employer are naturally more motivated and invested in their work. They may also be more likely to view necessary but tedious parts of the job in the context of the bigger picture.
**Generate good will through good deeds**

Being involved with work that "does good" makes employees feel good about their jobs and their employer. In some way, each employer supports the larger community.

**Empower employees**

Providing a channel for employees to communicate ideas and influence practices gives them a stake in the success and promotes team spirit.

**Invest in training and development**

If you invest in your employees, they are more likely to invest in your work. They will also have a better understanding of your work goals and practices, which can likely translate to improved performance.

**Share your vision**

Communicate your work direction and decisions. Employees feel trusted and are more trusting when they know about work decisions.

**Challenge employees**

That means setting and meeting high expectations makes employees feel more positive about their jobs.

**Recognize and reward often**

Employees appreciate positive feedback and tend to be more productive after receiving it. Additionally, giving praise to an employee is like tipping over a row of dominos: a productive employee tends to inspire and motivate co-workers by example.

**Find common ground**

Align career development with work goals. If a concession that you make for an employee is not good for both the employee and the work, it will not be good for long.
**Get to know your employees**

An employee's relationship with his/her boss and co-workers is one of the most important factors in determining how loyal that employee is. Treat employees as individuals and look for ways to foster solid relationships.

To sum up, what is applicable to employees in general because teachers are, after all, employees working for public or private bodies. Moreover, teachers are a member of a community and play a very crucial role in helping students learn and to guarantee that they are performing their roles in the best possible way they have to be loyal to this endeavor. Indeed, teachers’ loyalty can contribute to the enhancement of their teaching. One of the Lesson Study outcomes is to enhance teachers' professional loyalty, which in its turn will enhance teachers’ professional development and vice versa.

After all theoretical part and all aspects concerning the major elements of this study including the general framework of Lesson Study, Lateral thinking, verbal interaction and professional loyalty have been introduced, the forthcoming section will deal with previous studies related to the study topics. These are going to be listed

**Section II: Previous Studies**

This section sheds light on the four parts of previous studies. The first relates to Lesson Study as a teaching professional Model, while the second deals with teachers' and classroom verbal interaction. The third part tackles lateral thinking and the fourth presents some professional loyalty studies.

According to Ary et al. (1979: 69) in organizing the related studies a researcher should "begin with the most recent studies in his field and then work backward through the earlier ones. Recent studies have already incorporated the thoughts and findings of research. Earlier misunderstandings have been corrected and unprofitable approaches have been avoided."

Thus, related studies are chronologically arranged from the most recent to the earlier ones. Some studies are followed by a brief comment in which the researcher
indicates their importance for the study at hand. Finally, general comments on Section II are included.

Part I: Studies related to Lesson Study as a teachers' professional development Model

Elipane (2012)

This study explored how integrating the essential elements of Lesson Study as a powerful intervention in the pre-service mathematics teacher education contributes to prospective teachers’ facility in realizing their theoretical knowledge in the actual practice of teaching. Whereas Lesson Study is being widely performed in in-service education, this teacher's investigation sought to explore practices in Japanese pre-service teacher education environments that potentially nurture amongst the prospective teachers their facility in being able to successfully participate in Lesson Study activities as they commence their actual in-service teaching.

Thus, in this investigation, the focal research question was “How are the essential elements of Lesson Study integrated in pre-service teacher education in Japan?” Using phenomenological case study, this inquiry sought to understand the underlying principles behind the accession of Lesson Study in pre-service teacher education, specifically in the context of student teaching practicum in a Fuzoku School. Five interconnected themes that pertain to skills, competencies and habits of mind were elevated from the investigation: (1) acclimatizing to the school contexts and classroom (socio-mathematical) norms; (2) making sense of powerful resources for classroom instruction; (3) utilizing the school and classroom contexts as venues of inquiry; (4) engaging in critical reflections; and (5) forging the spirit of collaboration.

Finally, the culmination of this research raises disuses on deeper and more detailed investigations on the cultural and institutional conditions that make it possible for Lesson Study to be effectively integrated in the Japanese pre-service teacher education. This led to a future direction of a more robust body of research in this area (teacher education) – including those with comparative nature – that deem to reflect on the potential replicability or transferability of Lesson Study outside Japan.
Abdul Baset (2010)

This study aimed at exploring the effectiveness of a suggested training program based on the Lesson-Study strategy in achieving some national education standards for social studies majors of the College of Education. This included measuring the participants’ feedback, the cognitive domain, and the performance of participants in order to achieve the teacher standards developed in the National Education standards document. A handbook for trainers as well as a manual for students was developed. A model for evaluation, a test, and an observation sheet were also developed for assessing feedback, cognition, and performance respectively. The sample of the study consisted of (30) male and female students in Social studies in Qena College of Education. Results showed that the Lesson-Study strategy was effective in achieving some of the national educational standards for social studies majors of the College of Education.

McDowell (2010)

The purpose of this study was to explore pre service teachers' lived experiences in Lesson Study focusing on teaching and learning nature of science (NOS). The body of knowledge about shifting pre- and in-service novice NOS understandings is substantial. The focus of science education research is now exploring ways to move these informed NOS understandings into classroom practice. The research questions guiding the study were (a) how do pre service teachers' understandings of NOS shift as a result of the Lesson Study experience?, and (b) how does the reflective practice that occurs in Lesson Study influence pre service teachers' transition of NOS tenets into classroom practice? The participants in this study represented a teaching alternative certification program in a southeastern university. In the first summer semester of this certification program, the participants were immersed in reform based science instruction; a section of which included NOS teachings (INTASC, 2002)

In the following semester, participants were placed in a practicum setting; where the exploration of the pre service teachers' teaching of NOS was supported
through the modified Lesson Study framework. Data sources included the Views on Nature of Science – Form B (VNOS-b), interviews, and Lesson Study portfolios. Analysis of NOS understandings was guided by instruments found in literature associated with the VNOS-b and reflection.

Results showed successful transfer of NOS into classroom practice using the modified Lesson Study framework, with less success in the deepening of participants' NOS understandings. Of particular significance was that results indicated a deepening of NOS pedagogical content knowledge for those participants functioning at higher levels of reflection. The study results contribute to two knowledge bases. First, they provide insight into how Lesson Study can be used in the United States in alternative teacher preparation programs. Second, they contribute to what is understood about how to support the transition of NOS understandings into classroom practice.

**Chassels and Melville (2009)**

The purpose of this study was to investigate benefits and challenges to engage teacher candidates in Lesson Study, defined as a collaborative, reflective, and interactive teacher development process, the researchers analyzed reflective papers submitted by 60 teacher candidates studying at an Ontario faculty of education, engaged 20 practicum associate teachers in a group discussion, and considered the reflective notes of the course instructor.

Findings suggest that Lesson Study provides opportunities for teacher candidates to build professional learning communities, to deepen understanding of curriculum and pedagogy, and to develop habits of critical observation, analysis, and reflection. Although benefits of Lesson Study are numerous and significant, the research identified implementation challenges related to time, practicum placements, and the professional development of associate teachers.
Hix (2008)

The purpose of this study was to examine what teachers may learn while participating in Lesson Study and if certain Lesson Study experiences can be linked to teacher learning. Two teams of middle school teachers participated in Lesson Study and a qualitative research methodology was used to address research questions regarding what teachers learned, what experiences in Lesson Study may be linked to that learning, and what may be included in the roles of the knowledgeable others and the Lesson Study facilitator.

The Lesson Study teams, one sixth-grade team and one seventh-grade team, met approximately every two weeks for seven months and completed two cycles of Lesson Study. They were interviewed before Lesson Study began, after the first cycle, after the second cycle, and after the process was completed.

The teachers showed three threads of growth in what and how they think about teaching. The teachers were using a reform curriculum, and during Lesson Study, they developed a clearer view of their role as teachers in a classroom using a reform curriculum. They also showed growth in knowledge for teaching in the areas defined as common content knowledge, specialized content knowledge, and pedagogical content knowledge. Finally, they claimed to better focus lessons after the experience of Lesson Study. The features of Lesson Study that were linked to this learning in this study were the detailed, collaborative planning, anticipating student responses, creating evaluation questions for the public teaching, observing the public teaching, and discussing public teaching with knowledgeable others.

Kratzer and Teplin (2007)

Challenges in adapting Lesson Study for an American context have included teachers’ limited prior experience with action research and facilitation as well as a mismatch between American curricula and the time requirements of the traditional Japanese Lesson Study model. Lesson Link adapts Japanese Lesson Study for American contexts and culture by creating small teacher teams, all of whom teach the lesson, adjusting the curricular pace for teaching the lesson multiple times, and implementing structures to build teachers’ capacity for research and facilitation.
This paper reports on a two-year mixed methods action research study of Lesson Link’s implementation in one suburban school district, where over 120 teachers from 14 schools participated in 38 Lesson Link teams between 2005 and 2007. These teachers taught pre-kindergarten through tenth grade, and the content focus for Lesson Link teams included reading comprehension, mathematics, writing, health, science, and more. Most teams were led by full-time teachers who received training to become Lesson Link facilitators. Key findings demonstrate that participation in Lesson Link transformed group interaction among teacher teams, led to improved individual teacher instruction, and increased student achievement.

**Rock and Wilson (2005)**

The purpose of this study was to describe the effects of the Lesson Study process on six upper-elementary teachers from a city school system in the southeastern United States. The study specifically addressed the following research questions: (a) How did these teachers perceive Lesson Study as a professional development process? (b) How did engaging in Lesson Study affect these teachers’ instruction?

A qualitative design was selected for this study. Data sources used were (a) participant interviews, (b) field notes/observations, and (c) teacher reflection journals. Multiple sources of evidence suggest that all six of the participants:

- found the focused and sustained work to stimulate their growth as teachers;
- experienced an increase in their professional confidence.
- stressed that the peer collaboration was valuable to their professional development.
- found the reading and sharing of professional literature and the consultations with experts that directly related to the problem of study were very beneficial to the process.
- expressed their belief that peer coaching and mediation training would improve their abilities to engage in Lesson Study more effectively.
- Participants indicated how important it was that all team members interacted with the same information and instruction to discuss and process as a group.
They believed that “shared instruction made a positive difference in their team planning and instruction”.

Friedman (2005)

The purpose of this qualitative research study was to determine whether Lesson Study could fit into teachers’ existing work culture. Data concerning teachers’ attitudes and beliefs about the Lesson Study process were collected. Lesson Study was specifically designed to standardize math and science lessons to focus on the curricula in order to improve test scores of U.S. students compared to peak performing countries.

In this research study nine teachers, three administrators, a professor and two focus groups, engaged at various stages in the Lesson Study process, were interviewed on their attitudes and beliefs. This research study concluded with predictions about the future of Lesson Study and whether it could be sustained in the U.S. teaching culture in order to change teaching strategies in American classrooms.

In conclusion, Part I provided a wide scope on how Lesson Study major elements pushed forward teachers' instructional practices for the better. Besides, when adopted, success in teaching and learning was the outcome. Thus, this gave initial indications for this study to be on the right track. The coming part is going to tackle teachers' classroom interaction patterns and how they are varied and what effects they have on the students' learning.

Part II: Studies related to teacher and classroom verbal interaction

Goronga (2013)

The purpose of this study was to investigate the nature and quality of classroom verbal interaction obtained in a primary school classroom. A case study design was adopted for this study. Only one class comprising of 15 boys and 15 girls was used to study verbal interaction between the teacher and pupils. The study found out that the teacher talked more than the pupils did. This means that classroom verbal interaction in primary classrooms is still teacher-dominated, thus, confirming earlier research findings on classroom verbal interaction analysis, that, in the researches they
did, teachers talked 2/3 of the time while pupils talked only 1/3 (Flanders, 1970; Nagel, 1992; Muhammad, 2005; Nyambura, 2012). Educators generally agree that children learn most by doing, yet this awareness is rarely translated into classroom teaching methods. The study recommends that similar studies be conducted across grades and extended to secondary school level.

**Faruji (2011)**

This study is an investigation of certain aspects of classroom verbal interaction with a focus on description and analysis of questions in teacher talk. Transcriptions of recorded classroom sessions were analyzed to identify the type of the questions used by an Iranian EFL teacher teaching in a language institute in Iran. After data analysis of 8 sessions of instruction, the researcher identified four categories of teacher questions and their related frequency across the discourse of teacher talk.

**Urquijo (2011)**

This report was based on an action research multiple baseline design study across five different qualitative aspects of spoken interaction used to evaluate the effectiveness of a flashcard system to improve oral performance in the ESL classroom. The participants were ten children attending third grade in a public school in Bogota, and who were assessed as having low oral performance in spoken English language. Results showed that the Interactions Flashcards system was effective in improving oral performance in general and increasing levels in each one of the qualitative aspects of spoken interaction including range, accuracy, fluency, interaction, and coherence.

**Inamullah, NaseerUd din and Hussain (2008)**

The main objective of the proposed study was to explore Teacher–Student verbal interaction patterns at tertiary level education in the North West Frontier Province of Pakistan using Flanders’ Interaction Analysis system. This study was
significant because its findings and conclusions may stimulate teachers to improve their teaching behaviour in order to maximize student learning. To achieve the study objectives, three hypotheses were formulated in the light of Flanders “Two-thirds rule” of teacher-student classroom interaction at the tertiary level, namely, about two-thirds of the classroom time is devoted to talking, about two-thirds of this time the person talking is the teacher and two-thirds of the teachers’ talk is “direct” talk.

Twenty-five classrooms at the tertiary level were randomly selected as samples for this study. Twenty-five observations were carried out, one in each classroom, using Flanders Interaction Analysis system to secure the data. To do this, time sampling was used and each classroom was observed for 810 seconds (13.50 minutes) in a 45-minutes class. After obtaining and encoding the data, it was tabulated, analyzed, and interpreted by using percentages, means, and standard deviations. All the hypotheses were supported and it was concluded that, at the tertiary level, more than two-thirds of classroom time was devoted to talking. Thus, talk method dominated in classes. More than two-thirds of the classroom talking time was devoted to teachers talking at the tertiary level with the teachers playing the dominant role. More than two-thirds of the teachers’ talking time was devoted to direct talk, which showed the direct role of the teacher and indirect role of students at the tertiary level.

Pinel (2005)

This case study was set within the context of a national reform strategy that strongly espouses oral involvement of learners through ‘catechetic’ interactions, i.e. the use of question-and-answer as a means of teaching, and its inverse, the students’ use of question-and-answer with their teacher and their peers in order to enhance their learning, and other oral contributions. Fourteen lessons spanning learners aged 4-15 years were observed and analyzed with respect to the extent and quality of such interactions. Attention was paid to observing the catechetics of each lesson. The incidence and nature of students’ oral contributions and interactions could be described as ‘the learner's voice’ within lessons.

Data on these lessons, coupled with data gathered from surrounding structured conversations with teachers and pupils, indicates that the espousal by
teachers of some key tenets of the reform strategy is not as yet being significantly enacted in their practice. Also, implicit altered expectations of their role within lessons have not been communicated effectively to most students. The authoritarian model adopted by the reform strategy is suggested as a key factor.

**Cullen (2002)**

This paper investigates a particular aspect of teacher talk. That is teacher's provision of feedback or follow-up-and examines the role it plays in EFL/ESL classroom discourse. It draws on transcript data from a secondary school classroom in Tanzania to illustrate a teacher's follow-up moves, where these moves form the third part of a chain of (Initiate–Respond–Follow-up) I-R-F exchanges between the teacher and her students. Two main roles of the F-move are identified: evaluative and discoursal - each of which, the searcher argues, supports learning in different ways. The paper focuses, in particular, on discoursal follow-up, and the strategies which the teacher in the data uses to build on students’ contributions and develop a meaning leading to a focused dialogue with the class.

**Wu (1993)**

This study aimed to investigate the relationships among these four variables in the ESL classroom in Hong Kong: (1) question types, (2) questioning strategies, (3) student attitudes, and (4) patterns of interaction.

The questions of four ESL teachers in Hong Kong were analyzed. The findings indicated that the overwhelming number of responses generated by these questions were restricted rather than elaborate, irrespective of the types of question that elicited them. In addition, referential and open questions are less effective than display and closed questions in eliciting responses from students.

This study suggests that in Hong Kong, ESL students prefer to be modest rather than to show off by giving lengthy responses to teacher questions. In this situation, the use of appropriate questioning strategies, e.g. probing, deserves special attention if teachers want their students to produce longer and syntactically more complex answers.
Nashwan (1989)

This study aimed to analyze the verbal interaction which occurred in the student-teacher lessons. The following questions were addressed: 1. What are the types of student-teachers' verbal behaviour? 2. What are the types of pupils' verbal behaviour? 3. What is the degree of indirectness/directness in student-teachers' lessons? Forty-seven lessons were tape recorded and analyzed by (FIAC) system. These lessons were randomly selected. The result revealed: 1. The lecturing behaviour was the most dominant. 2. The indirectness/directness ratio in student-teachers' lessons was (27.8%). 3. The percentage of pupils' verbal behaviour was less than (50%) in most of the lessons. This study recommended that these types of verbal interaction minimize the effective communication in the classroom and learning. So, the student-teacher must be trained to be able to use indirect verbal interaction.

Ultimately, the essence of this part is the reality of the classroom verbal interaction being practised in different areas and the danger of wrong or at least less attention being given to what is happening inside classrooms. That is in fact why the researcher of the current insisted on studying this particular issue as one of the Lesson Study main effective outcomes.

The following part will analyze an important factor that mainly affects teachers' professional development as one of Lesson Study major constituents. That is lateral thinking.

Part III: Studies related to (lateral) thinking

Dennis and Woolbright (2007)

This conceptual paper is about the deliberate teaching of thinking as a skill and its practical use as part of the language-teaching curriculum. Lateral Thinking can be defined as a way of thinking that seeks a solution to a difficult problem through unusual methods or elements that would normally be ignored by common sense thinking. De Bono divides thinking into two methods. He calls one "vertical thinking," which uses the resources of logic - the traditional historical method. He calls the other "lateral thinking," which involves changing the obvious thinking order and arriving at the solution from another point of view. De Bono's Lateral Thinking
methods provide a planned, orderly process that results in new thinking. These skills can be taught and learned by students who become better students by adding strength to their natural abilities and improve their creativity and originality, which leads to more successful learning.

Kamel and Ai-safi (1995)

This study investigated the effects of the interaction of students' preference learning and thinking styles and state anxiety (as measured by Spielberger's et al. Trait-State Anxiety Inventory) on academic achievement in a sample of male Saudi college students (N = 225). Data were analyzed using a 2-wayANOVA factorial design: 3 (styles of learning: left, right, integrated) x 3 (level of state anxiety). Three analyses were conducted using Sue. Ace. Hours of major courses, G.P.A. of College and University requirements (as dependent variables). The results revealed that there were significant main effects of state of anxiety (P. 01) styles of learning (P. 5) and their interaction achievement in major courses. The differences were in favor of students whose state of anxiety was moderate and whose preferred learning style was integrated. There were neither significant main effects of the two independent variables nor of their interaction on the sample achievement of college and university requirements. Findings of this study provided affirmation of the interpretation of Spielberger's theory of the relationship of anxiety to academic attainment.

It can be concluded from the studies above that thinking in general can be taught and also can be practiced. This is contrary to what have been learned by many people that thinking is the same as intelligence and that both are inherited. However, many researchers such as De Bono (1976), state that thinking can be taught for enhancing students' abilities. Besides, there is a new trend that people send their children to centers to improve their thinking abilities in different school subjects. So, the current study adopted Lateral Thinking as one of the main factors for teachers' professional development which of course is reflected on both the students and the curriculum to be on the focus of the teaching and learning process.

The forthcoming part is related to professional loyalty. It mainly investigates job satisfaction that leads to professional loyalty.
Part IV: Studies related to professional loyalty

Al-meajel and Al-yhia (2003)

The purpose of the study was to find out job satisfaction for supervisors in the College of Education at King Saud University. A questionnaire was designed to measure supervisors’ job satisfaction. Results of this study indicated that supervisors were generally satisfied with their jobs, however it showed they were not satisfied with some aspects related to administrative organization and students. The results also showed that there was no significant difference in their job satisfaction according to education degree and department.

Alajaji (1997)

The purpose of this study was to investigate job satisfaction for social studies teachers in the intermediate schools in Riyadh, Saudi Arabia. It was also aimed to find out to what extent social studies teachers at the intermediate schools differ in their job satisfaction. A questionnaire was designed to measure teachers' job satisfaction. The population of this study consisted of all 400 social studies teachers working in 137 intermediate schools in the city of Riyadh, Saudi Arabia.

A sample of (38) schools (28%) of Riyadh's intermediate schools) was randomly selected. All 114 social studies teachers working in these schools participated in this study. Results of the study showed that (74%) of social studies teachers were satisfied with their jobs. The results also showed no correlation between job satisfaction and the following independent variables: age, experience, training, and area of specialty. Meanwhile, statistical analysis showed some correlation between degree and job satisfaction. Correlation was also found between job satisfaction and school of graduation for Al-Imam Mohd. Bin Saud University.

Alsaigh and Hussain (1994)

The aim of this study was to identify the loyalty of teachers to their jobs and their relationship to qualification and experience. Two questionnaires were given to (177) Saudi teachers teaching in elementary schools in Riyadh. The results obtained
showed that there were no significant differences in the degree of teacher's loyalty due to qualification and experience. There was a significant correlation between the types of educational leadership and the degree of teachers' loyalty.

To sum up, professional loyalty is one of the elements that is directly addressed to job sustaining development. That means, the employee who has the feelings of job satisfaction has inner stimuli towards improving his/her style of work which is automatically connected with self-professional development. This is why the current study investigated this element as an outcome of exposing teachers to the Lesson Study model experience.

2.5. General Commentary on Section II: Previous Studies

The most important remarks drawn from the review of related studies in the different parts of Section II of this chapter are as follows:

1. The studies in Part I focus on and advocate the role of the Lesson Study as a basic element in teachers' effective instructional practices.

2. Most of the studies in Part II support and enhance using good classroom interaction, especially teachers' and students' verbal practices, besides illuminating the undesirable consequences of the teachers' implementation of imbalanced verbal interaction inside classrooms. As a result, the researcher focused on this issue in the current study as one of Lesson Study major effective outcomes.

3. The majority of the studies in Part III confirm that using the collaborative, group work and discussion sessions provoke and spark teachers' lateral thinking concerning curriculum problems. Most of the studies in Part III clarify that creative thinking can be taught and be practiced. So, the researcher got benefit from these basics in conducting lateral thinking puzzles that enhances teachers' and students’ thinking as a result of teachers' exposure to samples of those puzzles and discussion sessions. So, the current study adopted Lateral Thinking as one of the main factors of teachers' professional development, which of course is reflected on the students’ ways of thinking.
4. Results of many previous studies revealed that if work enthusiasm exists, sustainable development and willingness are the output in general and in teachers' loyalty in particular.

5. Most of the reviewed previous studies focused on investigating the effects of Lesson Study on pre-service teachers' professional development, while few of them conducted Lesson Study Model on in-service teachers. Therefore, the current study is quite important.

6. Most of the previous studies concentrated on the role of Lesson Study in improving teachers' professional teaching practices. However, the current study integrated major professional factors such as verbal interaction, lateral thinking and professional loyalty as Lesson Study outcomes. That is why this study is unique.

7. The majority of the previous studies were conducted on mathematics and science teachers, while the current study was conducted on English teachers.

8. Two studies were carried out in the Arab world and others were done in other countries such as USA. However, none of the studies was conducted in Palestine.

9. It is very important to admit that the researcher got great benefit from reviewing the related studies in as follows:
   - choosing and designing the tools of the study and using the appropriate research design
   - choosing the right statistical treatments for the study
   - writing the outline of the theoretical framework
   - justifying the study results
   - guiding to design the procedures
   - preparing the Lesson Study Model and identifying its major elements
2.6. Analysis of the previous studies

There are similarities and differences between this study and the previous ones in the following:

- **The focus and purposes of the studies:**
  
  Most of the previous studies focused on Lesson Study as a teachers' professional development tool and supported the importance of Lesson Study cycle in improving teachers' instructional practices such as those of Elipane (2012), Abdul Baset (2010), McDowell (2010), Chassels and Melville (2009), Hix (2008), Kratzer and Teplin (2007), Rock and Wilson (2005), Hibert (2002).

  Other studies suggested that teachers' and students' interactions, particularly the verbal one, should be modified for the sake of good students' achievement and language mastery and classroom management such as Goronga (2013), Urquijo (2012) Faruji (2011), Inamullah, Naseer Uddin and Hussain (2008), Pinel (2005) Cullen (2002), and Wu (1993). What distinguishes the current study is that it investigating both teachers' and students' talk time during class per minute.

  In this study, the researcher not only focused on Lesson Study as a teachers' professional tool and its importance in developing teachers' instructional practices, but also linked the Lesson Study with secondary school teachers' lateral thinking and professional development.

- **Methodology:**
  
  Some of the previous studies used the experimental method such as those of Abdul Baset (2010), McDowell (2010), Kratzer and Teplin (2007), while Elipane (2012), Faruji (2011), Chassels and Melville (2009), Hix (2008) and Rock and Wilson (2005), Cullen (2002), Wu (1993) and Alsaigh and Hussain (1994) used the descriptive method. In the current study, the researcher used the descriptive analytical method.

- **Tools:**
  
  The tools used in the previous studies were different from one study to another in number and type of tools. For example, Abdul Baset (2010) used three tools: a model for evaluation, a test, and an observation sheet to assess feedback, cognition, and performance respectively, McDowell (2010) used two tools:

**Sample:**

Other areas of similarities and differences among studies are in sample number, gender and age. Abdul Baset (2010) applied his case study on a sample of (30) male and female students in Social Studies in Qena College of Education. Chassels and Melville (2009) applied their study on a sample of (60) teacher candidates studying at an Ontario Faculty of Education. Hix (2008) used two teams one sixth-grade and one seventh-grade team sample. Kratzer and Teplin (2007) applied the study on (120) tenth grade teachers from (14) schools who participated in 38 Lesson Study teams. Rock and Wilson (2005) implemented the study on six upper-elementary teachers from a city school system. Inamullah, Naseer Uddin and Hussain (2008) applied their study on twenty-five classrooms at the tertiary level that were randomly selected as samples for this study, Goronga (2013) a case study design was adopted for this study, Only one class comprising of (15) boys and (15) girls was used to study verbal interaction between the teacher and pupils. In this study, the sample was (20) (male and female teachers) secondary school teachers.

**Place:**

All the previous studies were applied in different countries. For example, Abdul Baset’s (2010) study was conducted in Egypt, Inamullah, Naseer Uddin and Hussain’s (2008) study was conducted in Pakistan, Elipane’s (2012) study was conducted Japan, McDowell’s (2010) study was conducted in America, Wu (1993) study was conducted in Hong Kong, A-meajel and Al-yhia’s (2003) study was conducted in Saudi Aribia. This study was conducted in Khanyounis City, Gaza Strip, Palestine.
- **Statistical treatments:**

  Concerning the statistical treatments which were used in the previous studies to measure the results, they varied and included T. test, means, ANOVA and others. In this study, Wilcoxon Signed Ranks Test. Effect size level using Z value, and Eta square to check the effect size were used.

2.7. **Summary**

The literature reviewed in this chapter empowered the researcher with the role of Lesson Study as a basic element in teachers' effective instructional practices. The researcher benefited from research findings in the world of using good classroom interaction, especially teachers' and students' verbal practices. The following chapter is going to present the methodology and the procedures followed so as to examine to what extent the Lesson Study Model helped the secondary school teachers develop their instructional practices and ways of lateral thinking styles as well.
Chapter III
Methodology
Chapter III
METHODOLOGY

This chapter describes the procedures followed throughout the study. It presents the type of the research design and the research variables. Besides, the population and the sample of the study and the research instruments are presented in detail. In addition, the chapter introduces the statistical treatment of the study findings.

3.1. Type of Research Design:

In the attempt to examine major professional development elements of Secondary School English language teachers, the researcher developed three research tools. A lateral thinking test, an observation card and an interview were administered on 20 secondary school English language teachers in Khanyounis Western Governorate. The tools were designed to explore the effect of the Lesson Study Model on these three professional development elements on the Palestinian teachers’ lateral thinking, classroom interaction, and professional loyalty.

The purpose of this descriptive analytical study was to determine whether, given the existing teachers’ culture in Palestine schools, the Lesson Study model could fit into that culture as a viable professional development instrument. The descriptive research is defined as "research that describes a group of characteristics or behaviours in numerical terms" Descriptive research also interprets data in words in case of qualitative data (Maykut & Morehouse, 1994).

A purposive sample of 20 teachers was selected as the participants of this study. Using qualitative research methodology, the researcher investigated a group of teachers who were engaged in Lesson Study in the beginning and end stages of the process.

Three major data collection strategies in qualitative educational research are document collection, observation and interviews in addition to taking extensive and detailed field notes. The data collection strategies used in this study were individual interviews, direct observations, videotaped observation, documentation and artifacts of the actual lesson plans constructed by the Lesson Study groups. Gay (1999) states that observation, interviews, and documentation are common forms of data collection. She
defines qualitative research as “the collection and analysis of extensive narrative data
to gain insights into a situation of interest not possible using other types of data” (p.
208).

Three basic questions were used to guide the research process, and a subset of
nine questions was used during the individual interview process. The three main
research questions focused on Lesson Study and the culture of Palestine schools and
teachers’ beliefs and attitudes toward the use of Lesson Study as a professional
development tool. In addition, the list of nine sub-questions used during individual
interviews were constructed from the literature reviewed on Lesson Study and were
used consistently to add credibility and uniformity to the data gathered and the
interview process.

3.2. Population:

The study population comprises all secondary school English teachers in
Khanyounis Governorate during the first semester of the scholastic year 2013-2014 ,
that is 55 male and female teachers.

3.3. The sample:

The researcher conducted the Lesson Study Model on 20 secondary school
English teachers of both sexes in Khanyounis Governorate. They were selected
purposefully because they were highly enthusiastic, worked in schools that had great
reputation, and instructed students whose achievement was high. The participants had
similar qualifications; all of them obtained a bachelor degree in English language
teaching. All of them were from Khanyounis and Rafah Governorates and had similar
social and economic level. The average of their years of experience was six years, and
their age average was (35). The sample represented (36.3%) of the population. Table
(3.1) below shows the sample distribution according to place of work and gender.
3.4. Variables of the study:

The current study variables were divided as follows:

a) Independent variable:

The independent variable of this study was the Lesson Study Model.

b) Dependent variables:

The dependent variables in the current study were the secondary school teachers’
- Verbal interaction,
- Lateral thinking,
- Professional loyalty.

3.5. Instruments:

The study instruments comprised the following:

3.5.1. Observation Card

The researcher prepared and designed an observation card which was used as a main tool in this study. It consisted of five evaluating steps: lesson plan, opener, classroom procedures and management, language and materials, and evaluation. The observation card also included the teacher's and students' verbal interaction per minute during the period of the lesson (See Appendix 2).
a. The purpose of the observation card:

The observation card was designed to assess the secondary school teachers' performance (verbal interaction) during teaching their classes. The researcher depended on it as a main tool to answer one core question of the study.

b- Description of the observation card:

The researcher collected data within the natural setting of the classroom through direct observation and observation of the videotaped classes. In addition, data were collected during planning sessions where teachers collaborated on a particular lesson and during teacher debriefing sessions after the lesson was taught. The observation card included 40 items that were divided into five main steps besides the teacher's and students' verbal interaction per minute during classroom period (See Table 3.2). The first step was mainly directed to the first cycle of the Lesson Study model which was planning for the lesson, and then came the opener of the lesson, followed by classroom procedures and management. After that came the language and materials, and finally came the last cycle of the observation, which was evaluation. Under each main step, there was a list of sub verbal interaction skills (See Appendix 2).

Table (3.2)
The steps of the observation card

<table>
<thead>
<tr>
<th>Steps</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step (I): Lesson Plan (Planning)</td>
<td>6</td>
</tr>
<tr>
<td>Step(II): Opener</td>
<td>7</td>
</tr>
<tr>
<td>Step (III): Classroom procedures and Management</td>
<td>15</td>
</tr>
<tr>
<td>Step (IV): Language and Material</td>
<td>7</td>
</tr>
<tr>
<td>Step (V): Evaluation</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T-S Verbal Interaction</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>SS</td>
</tr>
<tr>
<td>Min.</td>
<td>40</td>
</tr>
</tbody>
</table>
c- Validity of the observation card:

"Validity means that the test should measure what it was designed for" (Abu Nahya, 1994: 336). The researcher used two kinds of validity:

• **Referees’ Validity:**

  "We can achieve this type of validity by offering the test to a number of experts who are specialized in the same field" (Ebeedat & Thweqan, 1984: 160). The researcher distributed the first draft of the observation card to a panel of experts who recommended some modifications. He modified the items of the observation card, dropped some and added others accordingly until the final copy was ready (See appendix 2).

• **The Internal Consistency Validity:**

  Al-Agha sees that the internal consistency validity indicates the correlation of the degree of each sub-skill with each level, it also indicates the correlation of the average of each level with total average (Al-Agha, 1996: 118-121). The researcher used Pearson's Correlation Formula to test the internal validity of the observation card. The formula was used to test the correlation between the degree of each item and the general degree of the step which it belongs to (see Tables 3.3, 3.4).
According to the results of table (3.3), the correlation difference of each item within its scope is significant at levels (0.01) and (0.05). Thus, it can be concluded that the observation card was suitable and highly consistent and valid as a tool for conducting the study. The researcher also made sure of the correlation between the five steps with the total degree of the observation card, and the five steps with others as shown in table (3.4).
Table (3.4)

Pearson Correlation coefficient of every step of the observation card with the total degree of the observation card and the steps with other ones

<table>
<thead>
<tr>
<th>Steps of observation card</th>
<th>Pearson Correlation</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson plan</td>
<td>0.948</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>Opener</td>
<td>0.960</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>Classroom procedures &amp; management</td>
<td>0.984</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>Language &amp; material</td>
<td>0.949</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>Evaluation</td>
<td>0.950</td>
<td>sig. at 0.01</td>
</tr>
</tbody>
</table>

r table value at df (18) and sig. level (0.05) = 0.444
r table value at df (18) and sig. level (0.01) = 0.561

As shown in the Table (3.4), there is a correlation between the steps and the total degree and each step with the other steps at sig. level (0.01), which shows a high internal consistency of the observation card which emphasizes the validity of the observation card.

d- Reliability of the Observation Card:

"Reliability of the test means that the test should nearly give the same results in case of being reapplied on the same individual group" (Abdelrahman, 1998: 163).

The researcher used the pilot study to calculate the reliability of the observation card which was measured by Cooper, Spilt-half and Alpha Cronbach methods.

Cooper Technique:

The researcher used the agreement method of observers, Cooper formula, the researcher and another experienced English teacher to determine the reliability. A sample of five teachers was used in testing the reliability. Each observer worked independently of the other and they used the same scale to record the performance of the participant teachers that occurred during the observation period using videotaping. Thus, the reliability of the observation card was measured by using Cooper formula.
The coefficient of agreement is calculated as follows:

\[
\text{Coefficient of agreement} = \frac{\text{points of agreement}}{\text{Points of agreement} + \text{points of disagreement}} \times 100
\]

**Table (3.5)**

Percentage of Agreement between observers to assess the Reliability of the Observation Card

<table>
<thead>
<tr>
<th>Group</th>
<th>Full scores of all scale items</th>
<th>First observer</th>
<th>Second observer</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>teacher 1</td>
<td>200</td>
<td>116</td>
<td>105</td>
<td>90.52</td>
</tr>
<tr>
<td>teacher 2</td>
<td>200</td>
<td>132</td>
<td>130</td>
<td>98.48</td>
</tr>
<tr>
<td>teacher 3</td>
<td>200</td>
<td>112</td>
<td>114</td>
<td>98.25</td>
</tr>
<tr>
<td>teacher 4</td>
<td>200</td>
<td>138</td>
<td>126</td>
<td>91.30</td>
</tr>
<tr>
<td>teacher 5</td>
<td>200</td>
<td>134</td>
<td>118</td>
<td>88.06</td>
</tr>
<tr>
<td><strong>Total agreement percentage reliability of the observation card</strong></td>
<td><strong>93.32</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results of Table (3.5) showed that the highest percentage of agreement among the observer teachers was (98.48), while the lowest percentage of agreement was (88.06) and the total agreement percentage reliability was (93.32). Thus, these percentages indicated a high level of the observation card reliability.

- **Split-half technique:**

  The researcher calculated the correlation between the first and the second half of each step of the observation card and the whole of the observation card. Then, the researcher used Spearman Brown Formula to modify the length of the observation card to find out the reliability coefficient as shown in Table (3.6).
(Table 3.6)
Correlation coefficient between the two halves of each step before modification and the reliability after modification

<table>
<thead>
<tr>
<th>Spilt–half technique</th>
<th>Observation Steps</th>
<th>Total</th>
<th>pre</th>
<th>post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lesson plan</td>
<td>6</td>
<td>0.943</td>
<td>0.971</td>
</tr>
<tr>
<td></td>
<td>Opener</td>
<td>*7</td>
<td>0.910</td>
<td>0.938</td>
</tr>
<tr>
<td></td>
<td>Classroom procedures &amp; management</td>
<td>*15</td>
<td>0.966</td>
<td>0.969</td>
</tr>
<tr>
<td></td>
<td>Language &amp; material</td>
<td>*7</td>
<td>0.897</td>
<td>0.951</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
<td>*5</td>
<td>0.904</td>
<td>0.912</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>40</td>
<td>0.977</td>
<td>0.988</td>
</tr>
</tbody>
</table>

* The researchers used Guttman coefficient for unequal halves

Table (3.6) ensured the reliability of the observation card.
• **Alpha Cronbach Reliability coefficient:**

Table (3.7)

**Reliability Coefficient**

<table>
<thead>
<tr>
<th>Scope</th>
<th>Total</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson plan</td>
<td>6</td>
<td>0.941</td>
</tr>
<tr>
<td>Opener</td>
<td>7</td>
<td>0.927</td>
</tr>
<tr>
<td>Classroom procedures &amp; Management</td>
<td>15</td>
<td>0.974</td>
</tr>
<tr>
<td>Language &amp; material</td>
<td>7</td>
<td>0.940</td>
</tr>
<tr>
<td>Evaluation</td>
<td>5</td>
<td>0.888</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40</td>
<td><strong>0.987</strong></td>
</tr>
</tbody>
</table>

Table (3.7) proves that the observation card has a high degree of reliability. Tables (3.6 and 3.7) show that Alpha Cronbach coefficient was (0.987), and the Spilt-half coefficient was (0.988), which proves the observation card reliability.

### 3.5.2. Lateral Thinking Test

The second tool was the lateral thinking test consisting of 25 questions. It was prepared by the researcher to assess and enhance the teachers' lateral thinking styles as a sign and a connotation of their professional development. It was used as a pretest applied before implementing the Model and as a posttest after experimenting the Lesson Study Model (See Appendix 3).
a- The General Aims of the Test:

The test aimed at assessing the effectiveness of using Lesson Study Model on developing Secondary School teachers' Lateral Thinking skills through employing creative thinking questions.

b- The Sources of Constructing the Test:

The researcher mainly depended on previous studies and different sites on the internet. Besides, he depended on his experience as an English teacher for 16 years. Moreover, the researcher consulted some English supervisors and English teachers.

c- The Items of the Test:

The items of the test were distributed into three different kinds of question. The first one comprising (10) items focusing on deduction (logical) questions could be considered the hardest. The second kind comprising (7) questions focused on paying with tricking words. The last one comprising (8) items tackled playing with numbers.

d- Instructions of the Test (for teachers):

The instructions were given to teachers by the researcher himself and also the covering page included clear information about the nature of the test and how to manage its items. Besides, the researcher informed the teachers that the test was designed for an academic research purpose and the results have nothing to do with their work position.

e- The pilot study:

In September 2013, the test was administered to a pilot sample of (20) Eleventh and Twelfth secondary school teachers of the same study sample. This is due to the difficulty of implementing the test on other teachers as the number of the population itself is small. Also, the researcher found difficulty in visiting teachers and convincing them of sitting for the test. Also there were a lot of teachers' transferal at the beginning of the school year. As a result the researcher used the pilot implementation as the pretest as well. The results were recorded and statistically analyzed to estimate the validity and the reliability of the test. The clarity of the questions was checked. The misleading items were also modified.
f- Time Duration:
The pilot study helped in estimating the time needed for answering the questions according to the following equation:

\[ \text{Time of the first teacher + time of the last teacher} \]
\[ \frac{\text{-----------------------------}}{} \]
\[ 2 \]
Therefore the time of test was (60) minutes.

g- The validity of the test:

Al Agha (1996: 118) states that a valid test is the test that measures what it is designed to measure. The study used the referee validity and the internal consistency validity to ensure that the test was valid.

❖ The referee validity:
The test was refereed by a jury of specialists (See Appendix 1), of who some were university professors, others were school teachers, English supervisors and to a school principal. The referees were asked to check the clarity and relevance of the test items. Some items were deleted, and some others were modified according to the referees’ comments.

❖ The internal consistency validity:
Al Agha (1996: 121) asserts that the internal consistency validity indicates the correlation of the score of each item with the total average of the test. It also indicates the correlation of the average of each skill with the total average of the whole test. The validity of the test was calculated by using Pearson Formula (See Table 3.8).
Table (3.8)

Correlation coefficient of every item of the test with the total score of the test

<table>
<thead>
<tr>
<th>No.</th>
<th>Pearson Correlation</th>
<th>Sig. level</th>
<th>No.</th>
<th>Pearson Correlation</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.473</td>
<td>sig. at 0.05</td>
<td>14</td>
<td>0.793</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>2</td>
<td>0.684</td>
<td>sig. at 0.01</td>
<td>15</td>
<td>0.788</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>3</td>
<td>0.592</td>
<td>sig. at 0.01</td>
<td>16</td>
<td>0.489</td>
<td>sig. at 0.05</td>
</tr>
<tr>
<td>4</td>
<td>0.705</td>
<td>sig. at 0.01</td>
<td>17</td>
<td>0.504</td>
<td>sig. at 0.05</td>
</tr>
<tr>
<td>5</td>
<td>0.705</td>
<td>sig. at 0.01</td>
<td>18</td>
<td>0.627</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>6</td>
<td>0.529</td>
<td>sig. at 0.05</td>
<td>19</td>
<td>0.718</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>7</td>
<td>0.665</td>
<td>sig. at 0.01</td>
<td>20</td>
<td>0.738</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>8</td>
<td>0.627</td>
<td>sig. at 0.01</td>
<td>21</td>
<td>0.730</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>9</td>
<td>0.604</td>
<td>sig. at 0.01</td>
<td>22</td>
<td>0.680</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>10</td>
<td>0.622</td>
<td>sig. at 0.01</td>
<td>23</td>
<td>0.665</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>11</td>
<td>0.793</td>
<td>sig. at 0.01</td>
<td>24</td>
<td>0.749</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>12</td>
<td>0.604</td>
<td>sig. at 0.01</td>
<td>25</td>
<td>0.525</td>
<td>sig. at 0.05</td>
</tr>
<tr>
<td>13</td>
<td>0.793</td>
<td>sig. at 0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$r$ table value at df (18) and sig. level (0.05) = 0.444
$r$ table value at df (18) and sig. level (0.01) = 0.561

Table (3.8) ensured the validity of the test.
h- Reliability of the test:

The test is regarded reliable when it gives the same results in case of being re-applied for the same purpose in the same conditions (Al-Agha, 1996: 120). The reliability of the test was measured by the Spilt-half and Kuder-Richardson (K-21) Techniques.

- Split Half Method:

Split Half Method depends on splitting the test into two parts and calculating the correlation between the parts, then making a correction for the correlation coefficient by Spearman–Brown Prophecy Formula (Abu Hattab & Sadeq, 1980: 14).

<table>
<thead>
<tr>
<th>SPILT –HALF TECHNIQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>Lateral Thinking Test</td>
</tr>
</tbody>
</table>

Table (3.9) assured the reliability of the test.

- Kuder-Richardson (K-R21):

(K-R21) depends on calculating the percentages of correct answers to the test items, and also on the variance of every item.

<table>
<thead>
<tr>
<th>(K-R21) Coefficients for the Test Domains</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Tables (3.9 and 3.10) showed that (K-R21) coefficient was (0.946) and that Spilt-half coefficient was (0.893) which indicated a good reliability of the test to be applied in the study.
i- Scoring of the Test:

The test was scored in a simple traditional way. Each correct answer received one point. The maximum average was (25) and the minimum was (zero). So, the total points for the whole test were (25).

k- Difficulty Coefficient:

Difficulty coefficient is measured by finding out the percentage of the wrong answers of each item made by the students (Abu Nahia, 1994:308). The coefficient of difficulty of each item was calculated according to the following formula:

\[
\text{Co. of difficulty} = \frac{\text{Number of students who gave wrong answers}}{\text{Total number of students}} \times 100
\]

\[\text{Total difficulty coefficient} = 0.54\]

Table (3.11) shows the difficulty coefficient for each item of the test:

**Table (3.11)**

<table>
<thead>
<tr>
<th>No.</th>
<th>Difficulty coefficient</th>
<th>No.</th>
<th>Difficulty coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.55</td>
<td>14</td>
<td>0.60</td>
</tr>
<tr>
<td>2</td>
<td>0.70</td>
<td>15</td>
<td>0.60</td>
</tr>
<tr>
<td>3</td>
<td>0.50</td>
<td>16</td>
<td>0.50</td>
</tr>
<tr>
<td>4</td>
<td>0.45</td>
<td>17</td>
<td>0.45</td>
</tr>
<tr>
<td>5</td>
<td>0.40</td>
<td>18</td>
<td>0.65</td>
</tr>
<tr>
<td>6</td>
<td>0.35</td>
<td>19</td>
<td>0.55</td>
</tr>
<tr>
<td>7</td>
<td>0.60</td>
<td>20</td>
<td>0.60</td>
</tr>
<tr>
<td>8</td>
<td>0.35</td>
<td>21</td>
<td>0.55</td>
</tr>
<tr>
<td>9</td>
<td>0.55</td>
<td>22</td>
<td>0.45</td>
</tr>
<tr>
<td>10</td>
<td>0.70</td>
<td>23</td>
<td>0.55</td>
</tr>
<tr>
<td>11</td>
<td>0.60</td>
<td>24</td>
<td>0.60</td>
</tr>
<tr>
<td>12</td>
<td>0.55</td>
<td>25</td>
<td>0.35</td>
</tr>
<tr>
<td>13</td>
<td>0.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Difficulty Coefficient</td>
<td></td>
<td>0.54</td>
<td></td>
</tr>
</tbody>
</table>
Table (3.11) shows that the difficulty coefficient varied between (0.35 - 0.70) with total average (0.54). Thus, it can be included that all of the items were acceptable or in the normal limit of difficulty and the test was suitable to be used as a tool of the study.

L- Discrimination coefficient:

Discrimination coefficient means that the test is able to differentiate between the high achievers and the low achievers. The discrimination coefficient was calculated according to the following formula:

\[
\text{Co. of Disc.} = \frac{\text{correct answers number in higher group} - \text{correct answers number in lower group}}{\text{Total number of teachers}} \times 100
\]

Table (3.12)

Discrimination coefficient for each item of the test

<table>
<thead>
<tr>
<th>No.</th>
<th>Discrimination coefficient</th>
<th>No.</th>
<th>Discrimination coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.30</td>
<td>14</td>
<td>0.60</td>
</tr>
<tr>
<td>2</td>
<td>0.40</td>
<td>15</td>
<td>0.60</td>
</tr>
<tr>
<td>3</td>
<td>0.40</td>
<td>16</td>
<td>0.40</td>
</tr>
<tr>
<td>4</td>
<td>0.50</td>
<td>17</td>
<td>0.50</td>
</tr>
<tr>
<td>5</td>
<td>0.60</td>
<td>18</td>
<td>0.30</td>
</tr>
<tr>
<td>6</td>
<td>0.50</td>
<td>19</td>
<td>0.50</td>
</tr>
<tr>
<td>7</td>
<td>0.40</td>
<td>20</td>
<td>0.60</td>
</tr>
<tr>
<td>8</td>
<td>0.50</td>
<td>21</td>
<td>0.50</td>
</tr>
<tr>
<td>9</td>
<td>0.30</td>
<td>22</td>
<td>0.70</td>
</tr>
<tr>
<td>10</td>
<td>0.40</td>
<td>23</td>
<td>0.50</td>
</tr>
<tr>
<td>11</td>
<td>0.60</td>
<td>24</td>
<td>0.60</td>
</tr>
<tr>
<td>12</td>
<td>0.30</td>
<td>25</td>
<td>0.50</td>
</tr>
<tr>
<td>13</td>
<td>0.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Discrimination coefficient 0.48

Table (3.12) shows that the discrimination coefficient varied between (0.30 - 0.70) with total average (0.48). So, it can be included that all of the items were
acceptable or in the normal limit of discrimination and the test was suitable to be used as a tool of the study.

3.5.3. Interview

The interview is another important source of data collection for a qualitative research study. Bogdan and Biklen (1992) define an interview as “a purposeful conversation, usually between two people, but can sometimes involve more, that is directed by one person in order to get information” (p.60). According to McMillan and Schumacher (1989) the semi-structured question is open-ended, yet it is specific in intent. It allows for the interviewee to answer the question with individual personal responses. Therefore, the researcher designed and used semi-structured interview that consisted of nine open-ended questions asking participant teachers about their experiences and reactions towards Lesson Study (See Appendix 4).

In the current study interviews served several purposes. The most prominent was to ensure that the teachers’ meanings ascribed to responses concerning participating in the Lesson Study model and their enthusiasm towards the model were accurately represented and interpreted. This is explained in further details in the data analysis section.

Each participant was given an opportunity to further elaborate on a particular tenet, ask questions, and confirm the accuracy in depicting their individual understandings. The final question in the interview was about the Lesson Study process itself and their suggestions towards implementing the Lesson Study in the Palestinian context. This allowed for rich, descriptive representations of the participants and their lived experiences in the Lesson Study experience. As a critical component for understanding these lived experiences, it was additionally critical to explore how these lived experiences in a Lesson Study contributed to shared and individual perspectives about teaching and learning through Lesson Study.

a- Description of the interview:
Following is a description of each part of the interview:

Part I was confined to personal attitudes towards the Model.

Part II was confined to collaborative nature of the Model Cycle.
Part II was confined to the suggestions of the participants related to the Model.

b- Validity and reliability of the interview:
The researcher tested the validity and reliability of the interview through a pilot study of two teachers to check its reliability. Two teachers were interviewed as a pilot study. The two teachers were secondary school English language teachers, and they, therefore, represent the actual sample of the study. Thus, the interviews proved gathering information about the same topic over similar group of respondents and so proved reliable (Cohen et al., 2010). The two teachers were excluded from the interview sample to avoid biased responses. Their responses revealed some questions did not promote open answers. Some of them complained the interview was long and the answers of the questions were somehow similar and some can repeat itself. Therefore, some questions were deleted, and some others were modified so that the interview estimated time became reasonable. For validity, the interview was proved valid through referee validity as a panel of referees checked the relevance of the comments.

c- Conducting the interview:
Prior to the interview, the researcher explained the purpose of the research and its significance. Interviews were conducted in English. Each interview took around 10 to 20 minutes. The researcher conducted two interviews a day with two teachers. In a five-day period, the researcher conducted ten interviews with ten teachers. Each teacher was notified a day before the interview. The interviews were conducted outside class time, in a location chosen by the participants based on convenience. These interviews were audio-taped and later transcribed.

3.6. The study implementation procedures
The study progressed according to the following steps:
1. Reviewing literature and previous studies related to Lesson Study and their effect on both teachers' and students' development.
2. Reviewing literature and previous studies related to verbal interaction skills, lateral thinking and professional loyalty.
3. Preparing the observation card of the teacher's verbal interaction skills, teachers' lateral thinking test and the protocol (interview).
4. Refereeing all the instatements by specialists, including professors of teaching methodology, supervisors of English language and well-experienced teachers to decide their suitability for the study.

5. Checking reliability and validity of the observation card, the lateral thinking test and the interview protocol.

6. Giving samples of lateral thinking tests to the participant researchers who were engaged in the Lesson Study Cycle. (See Appendix 5).

7. Getting permission from the Ministry of Education and Higher Education to facilitate applying the study at Khanyounis secondary schools.

8. Preparing timetable of schools' visits with the help of schools' administration in Khanyounis.

9. Building up bridges among the sample group of teachers through exchanging emails and mobile numbers and sharing ideas and opinions about the model concerning:
   a. Presenting selective video articles about the Lesson Study for familiarity with the idea and gaining advantages.
   b. Identifying the objectives of the Lesson Study model.
   c. Identifying the content of the Lesson Study model.
   d. Identifying and preparing techniques, activities and aids for implementing the Model.
   e. Identifying the tools and the techniques of evaluation.
   f. Checking reliability and validity of tools.

10. Implementing a pre - test to assess teachers` lateral thinking prior to their exposure to the Lesson Study model.

11. Implementing the Lesson Study model on the main sample of the study.

12. Observing the teachers in their classes to see the effectiveness of the model.


15. Analyzing and interpreting the results.

16. Presenting the summary, the suggestions and the recommendations in the light of the study findings.

76
3.7. Statistical Analysis

Data from interview protocol responses and the pre and post treatment of teachers' verbal interaction lateral thinking tests and professional loyalty were collected, computed, and analyzed by using Statistical Package for Social Science (SPSS). The significance level used was ($\alpha \leq 0.05$).

The following statistical techniques were used:

1. Spearman Correlation: to determine the internal consistency validity of the Observation card items and the evaluation criteria of the test.
2. Alpha Cronbach technique: to measure the reliability of the observation card items.
3. Split-half technique: to test the reliability of the observation card items and the lateral thinking test as well.
4. Kuder-Richardson (K-R21) to compute the reliability coefficient of the test.
5. Cooper formula was used to know the percentage of agreement between the two observer teachers.
6. Spearman Brown and Guttman to compute the reliability of the test (split half).
7. Wilcoxon Signed Ranks Test. Effect size level by using Z value, Eta square to check the effect volume (extent) of the evident significant differences in the teachers' performances on the pre and post treatment domains of their instructional practices and lateral thinking test.

3.8. Summary

This chapter discussed the qualitative methodologies used to research how Lesson Study as a professional development tool may fit into the existing culture in the Palestinian schools. Merriam (2001) stated, “Interviewing and observing are two data collection strategies designed to gather data that specifically address the research questions” (p. 112). Data collection consisted of observations, interviews, documents and field notes. Participants for this study were from three different school, two male
schools and one female school resource centers engaged in Lesson Study at various stages of the process.

Twenty teachers participated in the lateral thinking test and were observed during actual classes and were finally interviewed individually. Data was tape recorded during presentation stage and debriefing sessions on Lesson Study. Finally, data was gathered through field notes and a tape-recorded classroom observation during the Lesson Study Model. The data collected will be described, analyzed and sorted into themes in the coming chapter.
Chapter IV

Results: Data Analysis
Chapter IV
RESULTS: DATA ANALYSIS

The current study aimed at examining the effectiveness of using the Lesson Study Model on Palestinian secondary school teachers' professional development and their attitudes towards such a model. This chapter focuses on analyzing the data collected and presenting the results. Data for this study consisted of observations as a primary source. In addition, a lateral thinking test and individual interviews were used as sources to answer the research questions and to test the hypotheses. The researcher used different statistical techniques using the (SPSS) program to analyze the collected data. Tables were also used to tabulate and present these data followed by analysis and interpretation.

Data Analysis:
In this section, the results will be presented in the light of the research questions.

4.1. Answer to the first question:

What is the general framework of "Lesson Study"?

The researcher investigated question one which is about the general framework of 'Lesson Study' which may contribute to developing the Palestinian secondary school teachers' professionalism. To the ordinary observer, Lesson Study may seem like a simple idea. That is, teachers with a shared focus meet and plan lessons together. These lessons may have a focus on building skills or understanding, and are known as “research lessons”, which are taught by one, and observed by not only all of the teachers who are doing the planning, but also by observers who may come from the neighbouring schools, and may come from all over the country (Lewis & Tsuchida, 1998). A debriefing session follows the lesson, where the lesson is discussed at some length, with modifications often suggested by the observers, who frequently include invited academic teachers if possible. Lewis (2002) describes the Lesson Study Cycle as having four phases:
• goal-setting and planning – including the development of the Lesson Plan;
• teaching the research lesson – enabling the lesson observation;
• the post-lesson discussion; and
the resulting consolidation of learning, which has many far-reaching consequences and
the impact of research lessons on the teachers' and students' better understandings about
teaching and learning process.
While these points are simply stated, a great deal of unpacking of each was discussed
fully in Chapter II for further understanding of the concepts and processes of Lesson
Study in practice (See Appendix 7 for photos of teachers enrolled in each cycle).
In brief, Lesson Study is an effective embedded peer to peer professional
teaching and learning strategy. It requires teachers to work collaboratively to
strengthen a particular lesson until it has been refined as much as possible and
then deliver it to get powerful data about how well the lesson works. In a
seminar after the lesson is taught, the teacher (who can be anyone in the lesson
study group) reflects on the lesson first, and then the other members of the lesson
study group share the data they collected during the lesson. Lesson Study groups
make a decision about whether to revise the field tested lesson and teach it again
or simply apply what they have learned to another lesson. Even more basic is the
whole idea of instruction as something that can and should be improved through
consultation with colleagues, trial in the classroom and critique. (Lewis, 2000, pp:32-33)
The researcher was enthusiastic about the process of Lesson Study as it stands apart
from many professional development practices because it focuses on students in the
classroom. Lesson Study is as much a culture as a professional development activity
because it requires an atmosphere of teacher collaboration culture. Above all, Lesson
Study focuses on the “how” to teach rather than on the “what” to teach. Again, this is
culturally different from the traditional professional development procedure where
teachers listen to the “professionals” talk about what they should be doing to improve
their practice. “Teachers need opportunities to investigate the connection between their
practices and student performance - a perfect fit for Lesson Study” (Stepanek, 2003: 4).
Now, there is quite enough evidence that directly links Lesson Study to improved
teachers' and students’ achievement. Of course, the current study linked Lesson Study
with teachers’ verbal interaction, lateral thinking and loyalty as teachers' professional
development and these are in fact good indicators for being fit to the Palestinian teaching
culture. The results of the coming questions had a significant claim that Lesson Study will improve teachers’ and students’ achievement.

4.2. Answer to the second question:

To answer the study second question inquiring about the effectiveness of 'Lesson Study' on improving secondary school teachers' verbal interaction, the researcher tested the following alternative hypothesis: There are statistically significant differences of 'Lesson Study' at (α ≤ 0.05) on secondary school teachers' verbal interaction. To test this hypothesis, Wilcoxon Signed Ranks Test was used to show the difference between the participant teachers' responses in the pre and post teaching observation card. Mean ranks of the results of the pre and post observations were also computed. Table (4.1) below displays the results of these differences across the five steps of Lesson Study.

Table (4.1)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Ranks</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
<th>Z</th>
<th>Sig. value</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESSON PLAN</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.943</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>20</td>
<td>10.50</td>
<td>210.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPENER</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.828</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>19</td>
<td>10.00</td>
<td>190.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLASSROOM PROCEDURES &amp; MANAGEMENT</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.921</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>20</td>
<td>10.50</td>
<td>210.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LANGUAGE &amp; MATERIAL</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.929</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>20</td>
<td>10.50</td>
<td>210.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVALUATION</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.931</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>20</td>
<td>10.50</td>
<td>210.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.924</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>20</td>
<td>10.50</td>
<td>210.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“Z” table value at (0.05) sig. level equals 1.96
“Z” table value at (0.01) sig. level equals 2.58
The results in Table (4.1) indicate that the total computed \( z \) value (3.924) was greater in the total degree of the post test of the observation card than the tabled \( z \) value (2.58) at \( \alpha \leq 0.01 \). This means that there were statistically significant differences between the pre and post observation card results in all domains and the total score of the observation card five domains in favour of the post observations, which means that Lesson Study Model was effective and influential in improving teachers' verbal interaction.

To measure the effect size of Lesson Study in the post observations on improving the teachers' verbal interaction, the researcher applied the "Effect Size" technique according to the critical values for the effect size levels as shown in Table (4.2).

<table>
<thead>
<tr>
<th>Test</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \eta^2 )</td>
<td>0.01</td>
<td>0.06</td>
<td>0.14</td>
</tr>
</tbody>
</table>

To calculate the effect size, the researcher used Eta Square "\( \eta^2 \)". The following equation (Affana, 2000: 42) was used:

\[
\eta^2 = \frac{t^2}{t^2 + df}
\]
Table (4.3) shows the effect size of applying Lesson Study on improving teachers' verbal interaction in the post observation card.

**Table (4.3)**

"Z" value, Eta Square "$\eta^2$", for each domain and the total degree of the Observation Card

<table>
<thead>
<tr>
<th>Domain</th>
<th>Z</th>
<th>$Z^2$</th>
<th>$Z^2 + 4\eta^2$</th>
<th>$\eta^2$</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESSON PLAN</td>
<td>3.943</td>
<td>15.545</td>
<td>19.545</td>
<td>0.795</td>
<td>Large</td>
</tr>
<tr>
<td>OPENER</td>
<td>3.828</td>
<td>14.651</td>
<td>18.651</td>
<td>0.786</td>
<td>Large</td>
</tr>
<tr>
<td>CLASSROOM PROCEDURES &amp; MANAGEMENT</td>
<td>3.921</td>
<td>15.377</td>
<td>19.377</td>
<td>0.794</td>
<td>Large</td>
</tr>
<tr>
<td>LANGUAGE &amp; MATERIAL</td>
<td>3.929</td>
<td>15.438</td>
<td>19.438</td>
<td>0.794</td>
<td>Large</td>
</tr>
<tr>
<td>EVALUATION</td>
<td>3.931</td>
<td>15.455</td>
<td>19.455</td>
<td>0.794</td>
<td>Large</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3.924</td>
<td>15.398</td>
<td>19.398</td>
<td>0.794</td>
<td>Large</td>
</tr>
</tbody>
</table>

Table (4.3) shows that there was a large effect size for each domain and the total degree of the observation card (0.794), which means Lesson Study Model had influential effect and could improve teachers' verbal interaction. This can be attributed to the interactive teaching and learning cycle of the Lesson Study ranging from collaborative planning to the evaluation stage.

For further evidence of the effectiveness of Lesson Study on improving teachers' teaching performance, the researcher measured the teachers' and students' verbal interaction (talk) per minute in the pre and post observations and to investigate this Wilcoxon Signed Ranks Test was used to show the difference between the participant teachers' talk time in the pre and post teaching observation card. Mean ranks of the results of the pre and post observations were also computed. Tables (4.4) and (4.5) below display the results of these differences across the domains related to teachers and students.
Table (4.4)

Differences between pre and post observation for participant teachers’ and students’ verbal interaction and total degree of the observation card per minute

<table>
<thead>
<tr>
<th>Domain</th>
<th>Ranks</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
<th>Z</th>
<th>Sig. value</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Negative Ranks</td>
<td>19</td>
<td>10.95</td>
<td>208.00</td>
<td>3.85</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>1</td>
<td>2.00</td>
<td>2.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>Negative Ranks</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>3.92</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>Positive Ranks</td>
<td>20</td>
<td>10.50</td>
<td>210.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ties</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“Z” table value at (0.05) sig. level equal 1.96

“Z” table value at (0.01) sig. level equal 2.58

The results displayed in Table (4.4) indicate that the total computed (z) values (3.851) for teachers and (3.927) for students were greater in the total degree of the post test of the observation card than the tabled (z) value (2.58) at (α ≤ 0.01). This means that there were statistically significant differences between pre and post observation card results in both domains and the total score of the observation card in favour of the post observations, which indicates that Lesson Study Model is effective and influential in improving teachers’ verbal interaction mainly the teachers’ and students’ talk time per minute during the class. That is, Lesson Study is minimizing the role of the teacher and maximizing the role of the student.
Table (4.5) shows the effect size of applying Lesson Study on improving teachers' verbal interaction in the post observation card per minute.

**Table (4.5)**

"Z" value, Eta Square "$\eta^2$", for each domain and the total degree

<table>
<thead>
<tr>
<th>Domain</th>
<th>Z</th>
<th>$Z^2$</th>
<th>$Z^2 + 4\eta^2$</th>
<th>$\eta^2$</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>3.851</td>
<td>14.833</td>
<td>18.833</td>
<td>0.788</td>
<td>Large</td>
</tr>
<tr>
<td>S</td>
<td>3.927</td>
<td>15.425</td>
<td>19.425</td>
<td>0.794</td>
<td>Large</td>
</tr>
</tbody>
</table>

Table (4.5) demonstrates that there was a large effect size for each domain and the total degree of the observation card per minute for the teachers (0.788) and the students (0.794). That means Lesson Study Model had an influential effect and could improve teachers' verbal interaction. This can be attributed to the systematic cycle that Lesson Study entails and contributes to giving top priority to time management during the class.

To compute the differences between the teacher and student talk time in the pre and post application of the observation card, the researcher calculated the means of teachers’ and students’ talk time in class during the pre and post observations. The results are illustrated in Table (4.6).
The difference between the means of both teacher and student talk in post observations per minute

<table>
<thead>
<tr>
<th>Participants</th>
<th>Applied</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>pre</td>
<td>20</td>
<td>27.100</td>
</tr>
<tr>
<td></td>
<td>post</td>
<td>20</td>
<td>17.600</td>
</tr>
<tr>
<td>S</td>
<td>Pre</td>
<td>20</td>
<td>12.400</td>
</tr>
<tr>
<td></td>
<td>post</td>
<td>20</td>
<td>21.800</td>
</tr>
</tbody>
</table>

The results displayed in Table (4.6) indicate that there was also a significant difference between the means of both the teacher and student talk in the post observation. Whereas the mean of the teacher pre observation was (27.100) in relation to the total score of the observations, the mean of the teacher post observation was (17.600). Also, the mean of the student pre observation was (12.400) in relation to the total score of the observations, the mean of the student post observation was (21.800). Based on those findings, it can be concluded that using Lesson Study was effective in maximizing the students' verbal interaction and minimizing the teachers' talk time.

### 4.3. Answer to the third question:

To answer the study third question inquiring about the effectiveness of 'Lesson Study' on improving secondary school teachers' lateral thinking, the researcher tested the following alternative hypothesis: There are statistically significant differences of 'Lesson Study' at (α ≤ 0.05) on secondary school teachers' lateral thinking. To test this hypothesis, Wilcoxon Signed Ranks Test was used to test the difference between the participant teachers' performance in the pre and post application of the Lateral
Thinking Test. The mean ranks of the results of the pre and posttest were also computed. Table (4.7) below displays the results of these differences.

**Table (4.7)**

Wilcoxon signed ranks test for results of differences between pre and posttest for lateral thinking test and total score of the test.

<table>
<thead>
<tr>
<th>Ranks</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
<th>Z</th>
<th>Sig. value</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Ranks</td>
<td>1</td>
<td>7.00</td>
<td>7.00</td>
<td>3.672</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td>Positive Ranks</td>
<td>19</td>
<td>10.68</td>
<td>203.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ties</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“Z” table value at (0.05) sig. level equal 1.96

“Z” table value at (0.01) sig. level equal 2.58

The results outlined in Table (4.7) indicate that the computed ($z$) value (3.672) was greater in lateral thinking score and in the total score of the posttest than the tabled ($z$) value (2.58) at ($\alpha \leq 0.01$). This means that there were statistically significant differences between the pre and post applications of the lateral thinking test and the total score of the test, in favour of the posttest application, which means that the Lesson Study Model was effective and influential in improving teachers’ lateral thinking skills.

Table (4.8) shows the effect size of applying Lesson Study on improving teachers’ Lateral Thinking in the post applications of the lateral Thinking test.
Table (4.8)
"Z" value, Eta square "η²", for teachers' Lateral Thinking and the total degree

<table>
<thead>
<tr>
<th>Domain</th>
<th>Z</th>
<th>Z²</th>
<th>Z² + 4</th>
<th>η²</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3.672</td>
<td>13.484</td>
<td>17.484</td>
<td>0.771</td>
<td>Large</td>
</tr>
</tbody>
</table>

Table (4.8) shows that there was a large effect size in teachers' lateral thinking and the total degree of the test (0.771). This means Lesson Study Model had a large positive effect on improving teachers' lateral thinking skills. This can be attributed to the collaborative team work in solving any problem their colleagues and students may face and thinking out of the box. That is, teachers in Lesson Study were trained to think from different angles to find unexpected answers for different problems.

4.4. Answer to the fourth question:

To answer the study fourth question enquiring about the effectiveness of 'Lesson Study' on improving secondary school teachers' professional loyalty, the researcher interviewed (10) participant teachers who went through one complete cycle of Lesson Study from three different schools. Participant teachers believed that the Lesson Study Model had a valuable impact upon content knowledge, collaboration, and enthusiasm towards their career, as indicated in their comments. All participant teachers in the Lesson Study Model found the experience beneficial in terms of their professional development besides the quality of student achievement that resulted from the well-constructed plans developed for the research lesson. Most teachers reported that the Lesson Study Model provided them with greater insights into the needs of their students, the curriculum, teaching strategies, and the benefits of genuine collaboration among teachers. In addition to these understandings, some teachers appreciated the opportunity for their own professional development relevant to Lesson Study.
Because most of them were not familiar with Lesson Study prior to their involvement in this new experience, Lesson Study Cycle. For Al-Farra, for example, the major benefit was the capacity of Lesson Study to offer many benefits that could contribute to an enhanced culture of purposeful professional collaboration in schools that maintains a focus on the continuous improvement of teaching and learning required for active participation in the rapidly changing world of teaching. The majority of teachers also indicated that they experienced increased confidence in approaching instruction as a result of engaging in the Lesson Study experience. Al-Agha said, “Participation in Lesson Study improved my instruction, and now I am able to work more confidently with my students” (Interview, December 6, 2013). Firwana shared her reflections by saying “This experience has allowed me to organize, experiment with, reflect on work and revise my ideas with help from others during the Lesson Study. (Interview, December 11, 2013). Al-Farra also believed that the Lesson Study process increased his confidence level. He stated that he felt better about himself as a teacher. He did not feel as though he had been going through the motions just trying to learn things and do them with his class. He was able to discuss them with other colleagues and go through and see what worked and what did not (Interview, November 20, 2013). Al-Farra assured that this new technique made him stronger in his area and it also made him want to do more. It made him understand himself, which was key to being able to be an effective teacher, understanding what was going on with him (Interview, December 12, 2013).

It can be concluded from the participant teachers’ comments that all of them were willing to follow the cycle of Lesson Study to improve their instructional skills for the sake of their students and for their professional career as well. In short, Lesson Study positively affected the teachers’ enthusiasm towards their work loyalty.

4.5. Answer to the fifth question:

To answer the fifth question enquiring whether there is a correlation between verbal interaction and lateral thinking in teachers' professional development, the researcher tested the following alternative hypothesis: There is a correlation between verbal interaction and lateral thinking in teachers’ professional development.
To investigate this hypothesis, Pearson Correlation was used to measure the significance of differences. Table (4.9) describes the results.

**Table (4.9)**

Pearson correlation between teachers' verbal interaction and lateral thinking

<table>
<thead>
<tr>
<th>Scope</th>
<th>Verbal Interaction</th>
<th>Sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>lateral thinking</td>
<td><strong>0.597</strong></td>
<td>sig. at 0.05</td>
</tr>
</tbody>
</table>

r table value at df (20) and sig. level (0.05) = 0.388  
r table value at df (20) and sig. level (0.01) = 0.769

Table (4.9) shows that there was a positive correlation between verbal interaction and lateral thinking, (0.597) at (α ≤ 0.05) in the post treatment. It can be concluded that the teacher who got a high score in the post observation for the verbal interaction can be assumed to get a high score in the post lateral thinking test and vice versa. This can be attributed to the Lesson Study which provided participant teachers with the opportunities of sharing experiences concerning planning for a variety of subjects, besides the friendly atmosphere that encouraged teachers to search for better techniques for improving their ways of teaching and ways of creative thinking as well.

**4.6. Answer to the sixth question:**

To answer the study sixth questions inquiring about teachers’ attitudes towards the use of Lesson Study as a professional development process, the researcher interviewed (10) of the (20) participants and asked them about their opinions of and attitudes towards the use of Lesson Study as a means of professional development.

Many of the interviewee stated the Lesson Study Model was meaningful to them because when they planned and taught together, they thought about the essential goals and objectives of what they were teaching. The collaborative factor was a major advantage for teachers using Lesson Study. With other teachers attendance to observe and listen to teacher and students’ comments, teachers felt that a more vital evaluation of the lesson was taking place. When the researcher discussed
with the teachers the collaboration issue, it was apparent that the power of Lesson Study was in bringing teachers together working in groups and teams.

Teachers interviewed for the purpose of this study also concluded that collaboration was a necessary step for Lesson Study to fit into the existing working culture of their classrooms today. They also added that because collaboration time is not built into a traditional teacher’s schedule, Lesson Study implementation should be conducted in all schools as these lesson studies support collaborative team work and thus enhance teacher professional development.

In fact, throughout the implementation of the Lesson Study cycle, the participant teachers really respected each other as educators, observed each other and gave each other constructive feedback. So, when the participant teachers came to know the nature and exact features of the Lesson Study, the risk factor was not very great as they grow to respect and trust each other. Therefore, they become more open and willing to take new risks and be more involved in that new school culture that continued to grow among them capturing the whole process. What helped is that Lesson Study is collaborative team work. It is not like bringing a lesson to the table and then one teaches it and then others tell how he/she did on it.

A distinctive feature of Lesson Study that is missing in many other professional development initiatives is the collaborative part that the teachers themselves play. During some interviews, teachers also revealed to the researcher their beliefs and feelings regarding Lesson Study and professional development. They held that the premise behind Lesson Study as a professional development tool was simple. One participant teacher, Abu El- Enein said, “When I am exposed to different techniques my colleagues implement in their classes, I become acquainted with different teaching methods. This of course benefited me personally as a teacher who seeks self-professional improvement. Besides, the good effects will be reflected on my students as well and that’s the premise of the Model. Meanwhile, one thing I want to add is the puzzles that I have started to use while teaching. My way of thinking has changed as I have started looking at things from different and various angles. Also, my students liked them and they become familiar with these puzzles.”
In a similar vein, another participant teacher, Moamer stated “It is better to exchange ideas and experiences among teachers instead of being confined to one particular style of teaching. I do believe in working together in teams. This can improve my teaching abilities. (Interview, December 11, 2013). In her turn, Abu Zeid said, “I am totally for applying the Lesson Study Model in my school as it has the capacity to improve our instructional practices. When I exchanged observation lessons with my colleagues, my instructional practices became better and my students’ understanding was affected positively.” (Interview, December 11, 2013).

The majority of the interviewed teachers believed that if they wanted to enhance their professional development, the most effective place to do so would be the classroom – not a workshop, or listening to argue talk about teaching, but the actual performances that occur in the classroom. Lesson Study helped teachers see their teaching from all angles. It helped them think for solutions in different ways, self-reflect and other teachers’ feedback on the teaching and learning process.

In short, it can be clearly concluded from teachers’ responses that the experience of being involved in the Lesson Study Model helped them to develop positive attitudes towards teaching, their students and towards Lesson Study as an indispensable tool for professional development and the enhancement of the art of teaching.

4.7. Summary

This chapter has outlined the findings of the study by highlighting the relevant data obtained from observations of lesson studies, the lateral thinking test and individual interviews with ten participant teachers. The findings were organized in relation to the research different questions. The interpretations and conclusions drawn from the analysis of the study findings will be discussed in Chapter five.
Chapter V

Findings, Discussion,
Conclusions, Pedagogical
Implications and
Recommendations
Chapter V

Findings, Conclusions, Pedagogical Implications and Recommendations

This chapter discusses the study findings presented in Chapter Four. Then it sums up the conclusions drawn in the light of the discussion. It also includes some pedagogical implications reached throughout the research. In addition, this chapter outlines some recommendations which are expected to be beneficial for some stakeholders such as supervisors, teachers and researchers.

5.1. Findings

The purpose of this study is to determine whether Lesson Study Model could develop Palestinian EFL secondary school teachers’ professionalism. The researcher adopted the descriptive-analytical approach in his attempt to answer the research questions. Different tools and statistical analysis techniques, as outlined in the previous chapter, were used to collect and analyze relevant data. The main findings of the study were as follows:

1. Lesson Study proved to be one of the top professional development choices among teachers that is responsible for teachers’ sustainable professional development.
2. There were statistically significant differences between the pre and post observation card results in all domains and the total score of the observation card five domains in favour of the post observations.
3. There were statistically significant differences between the pre and post applications of the lateral thinking test and the total score of the test, in favour of the post application.
4. Lesson Study Model had a valuable impact upon teachers' content knowledge, collaboration, and enthusiasm towards their career.
5. There was a positive correlation between verbal interaction and lateral thinking in the post treatment.
6. Study Lesson Model helped teachers to develop positive attitudes towards teaching, their students and towards Lesson Study as a tool for professional development and the enhancement of the art of teaching.

5.2. Findings and Interpretations

Following is the interpretation of the study findings in connection with the different study questions.

5.2.1. Interpretation of the first question:

The study first question guiding this study was: **What is the general framework of 'Lesson Study'?** To answer this question, the researcher reviewed the literature concerning 'Lesson Study' in an attempt to develop the Palestinian secondary school teachers' professionalism. The best answer is as Stigler (1999) in The Teaching Gap says, “Unless we can change the way instruction is delivered in the classroom, we cannot significantly affect the learning process” (p. 15). Lesson Study is a professional development tool that builds teachers' instructional skills through increased content knowledge and research skills. It also provides a built-in time for collaboration on lesson planning, teaching and re-teaching individual lessons or units. The current research questions revolved around whether the existing teaching culture could support and sustain Lesson Study as a professional development tool. All reviewed studies and research suggest that Lesson Study could be a viable, significant and effective professional development tool.

Will Lesson Study “catch on” in Palestinian schools and fit into the existing teaching culture? Based on the literature reviewed for this study and the interviews conducted with participants engaged in Lesson Study, it can be concluded that Lesson Study could be a professional development tool that has a potential for Palestinian teachers' professional development. Most of the participants engaged in the Lesson Study process in the current study reported that Lesson Study was one of the top choices among teachers responsible for teachers’ sustainable professional development. In a similar vein, Lewis (2000) asserts that Lesson Study will continue to develop among teachers and school systems.

The final consideration is that Lesson Study should be understood as both regular practice and as process, and that problems will not be resolved after a single
session. Effective Lesson Study follows the teaching of pupils and their progress over a long period of time. This kind of long term and continuous research orientation situates Lesson Study at the heart of school culture. The researcher became convinced that Lesson Study was an effective professional development tool that can offer teachers effective and sustainable instructional skills. The researcher came to hold this belief as many researchers (e.g. Fernandez et al., 2003; Lewis et al., 2006; Lee, 2008; Sarkar Arani & Fukaya, 2009) did.

5.2.2. Interpretation of the second question:

The findings of the study second question asking about the effectiveness of 'Lesson Study' on improving secondary school teachers' verbal interaction showed that there were statistically significant differences between the results of the pre and post observations in all domains of the observation card five domains in favour of the post observations. This means that the Lesson Study Model was effective. It was also found that the participant teachers improved their instructional skills through the use of Lesson Study essential Cycle. In addition, the researcher found a sensible evidence of the effectiveness of Lesson Study on improving the teachers’ and students' verbal interaction (talk) per minute between the pre and post observations.

Thus, the findings of the first hypothesis proved that Lesson Study was more effective than the conventional teaching and learning techniques in improving teachers' instructional practices. This can be attributed to the systematic nature of the Lesson Study cycle, which embodies the core features of professional development experiences. These practices have significant positive effects on increased teacher knowledge and skills transferred to their instructional practices.

The sustained, on-going nature of the Lesson Study experience, involving the processes of researching, collaborating, active learning, observation, and focused reflection and discussion, led to professional development. All participants believed these major features would have lasting impact on their instructional practices. During many interviews, participant teachers told the researcher about their beliefs regarding Lesson Study effective teaching practices upon major factors such as teacher and student verbal interaction (talk). They also believed that the premise behind Lesson
Study as a professional development tool was simple. In this vein, one teacher Abu Al-Enein stated that:

When I am exposed to different techniques my colleagues implement in their classes, I become acquainted with different teaching methods. This of course has benefited me personally as a teacher who seeks self-professional improvement. Besides, the good effects will be reflected on my students as well and that’s the premise of the Model. Meanwhile, one thing I want to add is the proper time I assigned for every activity and the time needed for students’ responses (Interview, December 10, 2013).

Similarly, another participant, Moamer stated that “It is better to exchange ideas and experiences among teachers instead of being confined to one particular style of teaching. I do believe in working together in teams. This can improve my professional teaching skills (Interview, December 11, 2013). While emphasizing the effectiveness of Lesson Study Model, Abu Zeid said, “I am totally for applying the Lesson Study in my school as it has the capacity to improve our instructional practices. When I exchanged observation lessons with my colleagues my instructional practices became better and my students’ understanding was affected positively” (Interview, December 11, 2013).

The majority of participant teachers were of the opinion that if they wanted to improve teaching, the most effective place to do so is in the classroom, not at a workshop or listening to an argue talk about teaching, but the actual performances that occur in the classroom. Lesson Study helped teachers see their teaching from all angles. It helped them think for solutions in different ways, self-reflect and get feedback from others on teaching and learning.

It can be concluded from this that Lesson Study raised the quality of teachers’ instructional practices mainly the teacher and student integrated parts during class time. In addition, the significant benefit of Lesson Study professional development was the positive teachers' growth resulting from their participation in the whole cycle of the Lesson Study. Furthermore, Lesson Study professional development process granted teachers opportunities to develop their critical views for examining their practices and support teachers as they make changes in instructional practices for the sake of their students' better classroom involvement.

Concerning the well timed instructions, what most of the participants reported in their reflections included changing their lesson delivery; listening more and talking
less; and focusing on the instructions, rather than trying to teach many ideas at once and leaving time for students’ participation. One teacher who changed his lesson delivery discussed how critical the issue of timing was in “coherent instruction.” Another teacher commented how she learned the importance of listening “more thoughtfully to exactly what students thought versus just delivering instructions. In short, teachers articulated specific changes in their instructional planning which they attributed to their participation in Lesson Study. Also, teachers reported a significant transformation in their instructional practices as a result of Lesson Study.

To sum up, the researcher believes that Lesson Study could be a promising strategy for developing Palestinian teachers’ instructional practices. The findings of this hypothesis are in agreement with those reported in some other related studies such as those of Garet et al. (2001), Stigler and Hiebert (1999), Lewis et al. (2009).

5.2.3. Interpretation of the third question:

The findings related to the study third question inquiring the effectiveness of 'Lesson Study' on improving secondary school teachers' lateral thinking indicated that there were statistically significant differences between the pre and post applications of the lateral thinking test and the total score of the test in favour of the posttest application, which means that Lesson Study Model was effective. This means that Lesson Study was more beneficial than using traditional techniques while addressing problems and thinking out of the box using vertical ways of thinking. Teachers became well equipped with different samples of lateral thinking puzzles which they discussed with colleagues within their groups.

In addition the Lesson Study professional development process granted teachers opportunities to study their thinking in parallel with teachers’ study of students’ thinking to seize upon the immediacy of the results, and to support teachers as they make changes in their style of thinking. Perhaps the most significant transformation that occurred in participants’ thinking during the Lesson Study process was the realization of the need to focus on where students were having difficulty. As one participant Al- Agha noted on the confidential reflection, “I thought the Lesson Study was great as I realized all the places where my students got stuck. It helped me to evaluate the things I do – when I saw them being done in another class and by
another teacher.” Thus, I was able to recognize the problems and make changes in the next lesson (Interview, December 6, 2013). Another teacher Abu Labin stated, “In my experience, Lesson Study is the most important thing for me to improve my teaching methods and techniques. When teachers collaborate, we exchange ideas concerning the Lesson Study cycle, especially planning for specific subjects and difficulties that encounter our students (Interview, November 27, 2013).

Teachers began to focus more on where students were having difficulty in Lesson Study, and to examine the assumptions they were making about their students' problems. Over half of the participant teachers reported that participation in the Lesson Study model led them to reexamine their teaching instructions about students’ learning. Teachers reported that they realized they planned lessons with an assumption about their students’ background knowledge that was anchored in students' challenging situations requiring creative thinking.

Furthermore, the Lesson Study process helped to change teachers’ interaction with each other, their assumptions about what students knew and could do, their recognition of the value of time to observe colleagues, and their understanding of the importance of planning for where students might have difficulty. By providing participants with enough time training and tools needed, asking all teachers to share the risk of teaching in front of one another, and giving them the freedom to choose content closely connected to their classroom practice, the Lesson Study transformed both team dynamics and team outcomes for lesson planning and changing instructional practices, especially ways of thinking.

To sum up, the researcher believes that Lesson Study could be an initiative model for Palestinian teachers to alternate their traditional ways of thinking and train themselves and their students to look at problems from different angles they normally did not use. These findings of the third hypothesis are in agreement with those of Garet et al. (2001), Stigler and Hiebert (1999), and Lewis et al. (2009).
5.2.4. Interpretation of the fourth question:

The findings of the fourth question enquiring whether there is a correlation between verbal interaction and lateral thinking in teachers' professional development, indicated that the correlation between verbal interaction and lateral thinking was particularly positive. They also indicated that the teachers who improved their instructional practices in the post treatment proved to do better in the post lateral thinking treatment. In other words, the teachers who got high scores in the post observation for the verbal interaction got high scores in the post lateral thinking test and vice versa.

This can be attributed to the Lesson Study Model, which provided participant teachers with the opportunities to express their own ideas in a non-threatening environment. They benefited from the differing points of view raised by their colleagues. Most of the participants pointed out some of the most beneficial features of Lesson Study which were as follows:

- Hearing other people’s ideas and visions about improvement helped to make their teaching clearer.
- All teachers have different strengths and pedagogical beliefs to approach different topics. We could borrow from one another and craft a lesson that is part of each one of us.”
- Hearing others’ ideas and opinions helps us put things in perspectives and clarify them in our heads.

The most noteworthy thing was the opportunity to observe colleagues teaching a lesson that the teacher had either just taught him/herself or was going to teach later proved to be invaluable for helping teachers focus on the lesson, rather than merely on the teacher or students. By analyzing the lesson across contexts, teachers could closely examine how to revise the lesson in order to better communicate the content to the class as a whole or meet individual student needs.

Teachers articulated specific changes in their instructional practices, mainly the time allocated for every activity and giving students the adequate time to respond. Such changes were attributed to teachers’ participation in Lesson Study. In addition, teachers reported a significant transformation in their thinking skills as a result of Lesson Study. Al Agha, for example, reported that he, too, changed his individual
teaching instructions and his thinking and that of his students as a result of participating in Lesson Study (Interview, December, 6, 2013). According to Firwana the language she used made her teaching points explicit for her students. Another thing she could achieve was giving her students the opportunity to speak, decreasing her talk time to allow for more student-to-student interaction and student-teacher interaction as well (Interview, December, 11, 2013).

These examples indicate that participant teachers internalized some of the core practices of the Lesson Study process and were beginning to implement them in their classrooms. In other words, when teachers are guided to collaborate, plan and teach differently, it does have a positive impact on their teaching practices, ways of thinking and consequently on their students’ achievement. Thus, successful Lesson Study completely links between both teachers' verbal interaction and teachers' lateral thinking, so both of them are integrated and one leads to the other and they affect each other positively.

5.2.5. Interpretation of the fifth question:

The findings of the fourth question enquiring about the effectiveness of 'Lesson Study' on improving secondary school teachers' professional loyalty firstly indicated that the Lesson Study Model can serve as a means of teacher professional development and in the current study this was evident in the positive impact which the study had on the twenty teachers’ instructional practices. Study findings indicated that all the participant teachers considered that their practices became more effective as a result of their participation in the Lesson Study Model. Second, when (10) participant teachers from three different schools engaged in a complete cycle of Lesson Study were interviewed, they indicated that they were very eager to engage in the Lesson Study process and tackle the work with fervor and willingness.

However, two participants felt inadequate in their abilities and comfort levels with peer coaching and critiquing. But when the ground rules for engaging in Lesson Study were discussed, everything became clear through collaborative team work. Besides, the friendly atmosphere that prevailed shed light on the nature of the relationships between the participant groups. Thus, the majority of participants noted
that the risk factor was removed and they realized the teachers' critique of one another was not for hurting other teachers' feelings but for the sake of the improvement of their teaching practices and for their students’ better achievement. Foremost, teachers confidently believed that the Lesson Study Model had an impact upon their knowledge, collaboration, and keenness towards their profession, as stated in their comments.

All participant teachers in the Lesson Study Model gained beneficial experiences in terms of their career development, besides the quality of student achievement that resulted from the well-constructed planning developed by teachers of the same research lesson. Ninety percent of the teachers reported that the Lesson Study Model offered deeper visions into the needs of their students, the curriculum, teaching practices, new thinking styles particularly lateral thinking styles that opened new scopes for solving complicated teaching and learning problems. Of course, collaborative work between teachers removed all the barriers encountering their classes.

In summary, participant teachers reported that the transformational changes in lesson planning and instruction made during Lesson Study carried over into their individual instructional practices, allowing them to more effectively address students’ academic needs. For most teachers, Lesson Study is a positive transformative process. When teachers are guided to collaborate, plan and teach differently, it has a positive impact on their teaching strategies and their students’ achievement as well. One female teacher, Al-Agha said, “It is good to share ideas and not to work in isolation. Everyone does things differently. We learn so much from the way others do things – we can incorporate how others do things into our own lessons” (Interview, December 6, 2013). Another participant Abu Zeid concurred, “Working together helps the planning of a better lesson” (Interview, December 11, 2013).

Furthermore, Al-Astal reported that interpersonal relationships within the team were strengthened by participating in the Lesson Study cycle. As he explained, “What’s interesting is that we’ve gotten so much closer as 11th and 12th grade teachers. There’s more respect going back and forth. I think they’ve gained respect for what I have been doing in my classroom. Furthermore, I have so much more respect for what they’ve done, what they’ve accomplished, and I’ve gotten so many really good ideas
from them, which never happened before Lesson Study team work” (Interview, December 14, 2013). Another participant Al-Azar explained that “we felt comfortable and safe with each other” and “were open and accepting of one another”. As another female teacher, Al-Astal sharing her confidential reflection said, “Working collaboratively in groups made Lesson Study one of the most productive learning models. The people who work with us make a difference in what we experience in our instructional practices and thinking strategies” (Interview, December 15, 2013).

Clearly, the strongest indicator that Lesson Study process effectively assisted the teachers in improving their teaching practices and their career loyalty is that most of them declared the desire to engage in the process again next year. In addition, after sharing their Lesson Study experiences following the entire cycle, they intended to convince other colleagues in other schools to use more lesson studies in the future.

5.2.6. Interpretation of the sixth question:

To answer the study sixth question enquiring about teachers’ attitudes towards the use of Lesson Study as a professional development process, the researcher interviewed (10) of the (20) participant teachers and asked them about their points of view of and attitudes towards the use of Lesson Study as a means of teachers' professional development tool. It clearly appeared that Lesson Study came to constitute an essential aspect of the school culture that enhances teachers’ professional development by deepening mutual educational exchanges among teachers within the same school community and throughout other school communities.

The majority of participant teachers reported in their interviews that Lesson Study served to create a new educational culture in their schools and inspired many effective sensible features among them as educators. Most teachers indicated that collaborative engagement in Lesson Study remained a remarkable and a distinctive feature for them as secondary school teachers in Palestine. One participant teacher noted that Lesson Study Cycle encouraged mutual observation and the exchange of pedagogical views. Besides, it is one in which teaching and learning take place through voluntary activity that enhanced the professional competence of school teachers inside and outside the school. Indeed, one female teacher stated that the role Lesson Study played in the enhancement of professional development at secondary
schools was the practices which led to an increased motivation for learning and for further research.

Another female participant, Firwana, said, "Lesson Study groups were recognized by the teaching staff as vital spaces for the educational development of both teachers and students at the same time, and played an important role in supporting the essential function of school educational missions" (Interview, December, 11, 2013). Furthermore, Lesson Study encouraged teachers, through their observations of pupils’ learning activities, to reflect upon their own teaching practices, and so to accumulate teaching experience. For Al Behairy, "Lesson Study continuously urged teachers to examine their own professionalism and create goals that help maintain positive motivation." (Interview, December, 12, 2013). In fact, this understanding generated new teaching practices at schools.

Finally, Lesson Study emphasized collaborative research in classroom activities and enhanced the possibilities for teachers to reflect upon their own practice from multiple perspectives. This yielded benefits for the entire teaching and learning process in terms of pupil comprehension and the sustainability of quality teaching. All participants in fact acknowledged that engaging in Lesson Study had a deeper positive effect on our teaching practices, or even teachers’ collaborative learning. Al-Farra pointed out, "What seemed absolutely necessary for teachers to have is a significant degree of common understanding of educational practices as a source of reflection on the teaching and learning process. Lesson Study was really the answer" (Interview, December, 12, 2013).

Lesson Study enabled educators to observe pupils’ progress while improving their own teaching skills. In other words, teachers became more aware of the diversity in their pupils and more inclined to think in terms of lesson planning oriented to pupils’ learning activities rather than teacher focused rigid pedagogy. "Improvements in teaching transpired naturally through regular Lesson Study. Such conditions allowed for the possibility of teachers making new discoveries in the classroom. One consequence of Lesson Study was to negate the notion that a uniform style of teaching was effective. students’ inability to understand a lesson did not mean that the fault was in the students’ ability or motivation,” stated Al Farra. Also, the majority of participant teachers admitted that the careful collaborative examination of lessons
helped teachers generate awareness of their need to assume more responsibility in terms of their verbal interaction practices and their styles of thinking as well.

It can be concluded that Lesson Study proved to enhance teachers’ perceptions of pupils’ circumstances in the classroom. In the same way, it improved teachers’ professional skills. Teachers emphasized that Lesson Study was a great opportunity to set new goals for themselves and for their future lessons. Thus, Lesson Study was a core factor towards deepening teachers’ professional development.

5.3. Conclusions

In the light of the study findings, it can be concluded that the current study proved that using Lesson Study was highly effective and successful in articulating specific positive changes in secondary school teachers' instructional practices. Besides, Lesson Study showed a significant positive transformation in their thinking styles and their professional loyalty as well.

It was noticed throughout the study that teachers' performances, especially verbal interaction (teachers' talk during the class time and students' talk), was improved as a result of implementing Lesson Study Cycle instead of the conventional rigid methods. Moreover, Lesson Study enhanced teachers' lateral thinking styles which have a major positive impact on students’ thinking and motivation towards learning English as it created a friendly and enjoyable learning environment between teachers and students simultaneous.

Based on the results obtained throughout the current study, it can be concluded that Lesson Study:

1. had the superiority over the conventional methods of teachers’ instructional practices and thinking styles.
2. created a collaborative motivating teaching and learning environment where teachers could teach without any kind of pressure or tension.
3. created a friendly motivating atmosphere as teachers could plan, reflect, re-teach, and exchange views without the risk factor.
4. maximized students' participation (talk) and, minimized teachers' role (talk).
5. strengthened teachers' professional loyalty and their enthusiasm towards adopting new instructional practices.
6. enhanced students' motivation towards learning English as shown through the results of the interview, Lesson Study Cycle and the observation card.
7. enhanced the type of relationship between students and their English teachers.
8. added variety and enthusiasm to the English classes.

5.4. Pedagogical implications:

Findings of the current study proved the effectiveness of Lesson Study as a teachers' professional development model. The following implications can be drawn from the empirical investigation:

1. Lesson Study should be adopted by English language teachers of all levels as it improves teachers' instructional performances more than the conventional methods do.
2. Implementing Lesson Study cycle helps teachers enhance their collaborative teamwork.
3. The verbal interaction of the teachers involved in Lesson Study and their students significantly improved and the teachers’ exposure to different experiences had a positive impact on their students’ achievement.
4. Using Lesson Study cycle, especially self-reflection, provides teachers with suitable reinforcement and immediate feedback about their performances.
5. Teachers should be aware of the importance of using a variety of new thinking methods in tackling some curriculum problems and should encourage their students to try out different ways of thinking.
6. Using Lesson Study fosters less teachers' talk and increases students’ participation and active involvement in the classroom.
7. Lesson Study creates a relaxed and enjoyable teaching and learning atmosphere because it reduces stress and inflexibility.
8. Lateral thinking puzzles increase competition among students and groups in finding answers which require thinking out of the box.
9. Educators and teachers, particularly those who seek ways to improve their instructional practices and new styles of thinking, should understand that this change cannot happen overnight, but it needs real eagerness and inner willingness to this positive change.
10. Lesson Study cycle should be well-staged and well-sequenced. That is, it requires complete and systematic elements, from planning to evaluation.

5.5. Recommendations

In light of the study findings, the following recommendations are suggested to the different stakeholders for example (teachers, supervisors, Ministry of Education and researchers) involved in the process of teaching and learning English in Palestine.

5.5.1. Recommendations to the teachers:

English language teachers are recommended to:

5.5.2. Recommendations to the English language supervisors:

English language supervisors are recommended to:

1. prepare and distribute instructional materials that increase teachers' awareness of the significance of the Lesson Study Model and the necessity of implementing cycle within school communities.
2. convince teachers that Lesson Study Model can be used basically in teaching particular curriculum topics which teachers can select according to the needs of their students.
3. conduct training courses that may help teachers enhance their instructional practices in general and verbal interaction and thinking styles in particular.
4. provoke teachers' self-reflection and give top priority to teachers’ debriefing sessions.

5.5.3. Recommendations to the Palestinian Ministry of Education:

The Palestinian Ministry of Education is recommended to:

1. apply this professional development model broadly across schools and entire districts of the country.
2. raise the quality of teachers' instructional practices and lateral thinking practices by engaging teachers in a complete Lesson Study cycle for long periods of time.
3. encourage the adoption of Lesson Study by other schools and teachers of different levels; however, it is essential to carefully consider what parts are to be adopted and what formats and adjustments needed.
4. develop a culture conducive to collaborative practices and to give teachers a central role in developing such practices.

5.5.4. Recommendations for further studies:

In order to generalize the findings of this study, researchers are recommended to investigate the following topics:

1. The effect of Lesson Study Model on developing teachers’ professionalism, especially instructional practices.
2. The effect of Lesson Study on students’ achievement, especially their talk time and acquiring new ways of creative thinking.
3. The effect of integrating different teachers from different schools in discussions and debriefing sessions for better teaching and learning styles.
4. The effect of Lesson Study Model on developing teachers’ career enthusiasm.
5. A study to examine the impact of Lesson Study on teachers perception and professional practices resulted by the Lesson Study cycle.
6. A case study to examine the effect of Lesson Study on developing elementary and preparatory teachers' professionalism.
7. A study to investigate the impact of Lesson Study on improving other professional elements such as self-development and classroom management.
8. A study to investigate the effect of Lesson Study on improving passion in teachers’ conceptualization of teaching.
9. Studying the learners' attitudes towards teachers' implementation of Lesson Study Cycle.
RESOURCES

The Holly Quran

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Appendices
## Appendix 1

### List of Referee Committee of Study Tools

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<thead>
<tr>
<th>Name</th>
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<th>Degree</th>
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<tr>
<td>Prof. Awad Keshta</td>
<td>The Islamic University</td>
<td>PHD</td>
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<td>Dr. Ibrahim Al- Astal</td>
<td>The Islamic University</td>
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<td>Dr. Mohammed Musheer</td>
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<td>Dr. Basil Skeik</td>
<td>Al-Azher University</td>
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<td>Mr. Fikry Al-Faleet</td>
<td>Ministry of Education</td>
<td>MA</td>
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<td>Mr. Mohammed Al-Asoly</td>
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<td>Al-Quds Open university</td>
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<td>Ms. Zulfa Bader El-Deen</td>
<td>Gaza University</td>
<td>MA</td>
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<tr>
<td>Mr. Haidr Abu Shaweesh</td>
<td>Ministry of Education</td>
<td>BA</td>
</tr>
<tr>
<td>Mr. Mohammed Abu Al- Nada</td>
<td>Ministry of Education</td>
<td>BA</td>
</tr>
<tr>
<td>Mr. Salem Al-Massri</td>
<td>Ministry of Education</td>
<td>BA</td>
</tr>
<tr>
<td>Ms. Farhouda Firwana</td>
<td>Ministry of Education</td>
<td>BA</td>
</tr>
</tbody>
</table>
Appendix 2

Refereeing an Instructional & Self-reflection sheet

Dear professor, supervisor and expert teacher,

The researcher is conducting a study entitled "The Effectiveness of Using Lesson Study Model on Palestinian Secondary School Teachers' Professional Development and their Attitudes towards such a Model" to obtain a Master's Degree in Curriculum & English Teaching Methods.

One of the requirements of this study is to conduct an instructional and self-reflection sheet for secondary school teachers' verbal interaction. Please, you are kindly requested to look carefully at both attached sheets and tick the box against each item to reflect its suitability for study objectives. Your notes and responses will be highly appreciated and confidential.

<table>
<thead>
<tr>
<th>Item</th>
<th>High</th>
<th>Average</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The items in both sheets reflect the study objectives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>The items in both sheets meet secondary school teachers' instructional needs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The items in both sheets meet lesson study essential elements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The rubrics are clear.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The layout is acceptable.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Any further comments are highly appreciated.

.................................................................

.................................................................

Thanks a lot for your cooperation

The researcher / Mahmoud Hamza Firwana
Dear colleague:

While observing my teaching procedures, please tick the appropriate box against each item in the sheet according to its frequency in the lesson. Remember that 5 = Very Frequently, 4 = Frequently, 3 = Occasionally, 2 = Rarely, and 1 = Almost never. Your observations will be the basis for later on teacher (T) or students (SS) box depending on who are more active in each minute of class time.

Teacher: .................................  School: .................................

Class: .................................  Date: .................................

<table>
<thead>
<tr>
<th>LESSON PLAN</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. T. set clear and precise lesson objectives.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>2. T. stated varied lesson objectives.</td>
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<tr>
<td>3. T. prepared adequate materials and activities.</td>
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<tr>
<td>4. T. allocated adequate time for presentation, practice and evaluation of the learning points.</td>
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<tr>
<td>5. T. outlined lesson structures.</td>
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<tr>
<td>6. T. planned how to wrap up the lesson and assigned appropriate homework.</td>
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</tbody>
</table>

Others:

<table>
<thead>
<tr>
<th>OPENER</th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. T. used relevant lesson opener.</td>
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<tr>
<td>2. T. assigned suitable time for lesson opener.</td>
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<tr>
<td>3. T. connected lesson opener with Ss’ new learning</td>
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<tr>
<td>4. T. connected lesson opener with Ss’ daily life</td>
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<tr>
<td>5. T. used motivating lesson openers.</td>
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<tr>
<td>6. T. employed interactive opener.</td>
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</tbody>
</table>

Others:

<table>
<thead>
<tr>
<th>CLASSROOM PROCEDURES &amp; MANAGEMENT</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. T. played the role of a facilitator, monitor rather than a lecturer.</td>
<td></td>
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<tr>
<td>2. T. put Ss’ individual differences in consideration.</td>
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<tr>
<td>3. T. exposed SS to self-correction.</td>
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<tr>
<td>4. T. used real-life activities.</td>
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</tr>
<tr>
<td>5. T. encouraged learners’ inspiration, independence</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T-S Verbal Interaction</th>
<th>T</th>
<th>SS</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
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<td>8</td>
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<td>11</td>
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<td>22</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. T. provided SS with varied, motivating and relevant activities.  
7. T. created a friendly and co-operative atmosphere.  
8. T. explained what, why and how he was going to teach.  
9. T. organized the work clearly and efficiently.  
10. T. adapted flexible lesson procedures as lesson went on.  
11. T. left space for learners’ participation.  
12. T. assisted SS in carrying out activities when necessary.  
13. T. used different learning media and teaching aids that motivate high and low achievers.  
14. Minimize teacher’ talk time  
15. Maximize Student’ talk Time  

**LANGUAGE & MATERIAL**  
1. The language items taught were relevant to the needs.  
2. The language items naturally linked previous with new learning.  
3. The language items were interesting, challenging and personally involving.  
4. The language items were informative and new.  
5. The language items sparked thoughtful and personal involving.  
6. SS practise the language items functionally.  
7. T. mastered the language items being taught well enough.  

**EVALUATION**  
1. T. used different question types to check Ss’ achievement.  
2. T. checked Ss’ written work carefully.  
3. T. used formative evaluation.  
4. T. used summative evaluation.  
5. T. wrote down some important notes about Ss’ progress during the lesson concerning:  
   a). Things were achieved and others weren’t.  
   b). Thing were to be added and others to be deleted.  
   c). SS impression.  

---

**Suggestions & feedback:**  

………………………………………………………………………………………….  
………………………………………………………………………………………….  

---

Thank you for your cooperation.
### Teacher's self-reflection sheet (B)

<table>
<thead>
<tr>
<th>Class</th>
<th>Time</th>
<th>Period</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson content:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please tick where applicable:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### LEARNERS: Did I know the learners’ …………..?

1. motivation to learn English
2. language needs, expectations and interests
3. language proficiency level
4. opinions of their own strengths and weaknesses
5. personalities
6. preferred learning styles
7. interpersonal relationships

#### LESSON PREPARATION: Did I …………?

1. set clear objectives for the lesson
2. outline the lesson structure
3. prepare adequate materials and activities
4. allocate adequate time for …
5. prepare suitable evaluative tasks to check achievement of
6. organize the activities well
7. plan to ensure that all learners are actively involved

#### CLASSROOM MANAGEMENT: Did I………..?

1. create a friendly and co-operative atmosphere
2. explain what, why and how I was going to teach
3. organize the work clearly and efficiently
4. adapt the lesson flexibly as it went on
5. create space for learners’ contributions to the lesson
6. assist learners in carrying out activities when necessary
7. use effective learning and teaching aids

#### ACTIVITIES AND METHODS: Did I………..?

1. teach SS by using the language rather than by speaking about it
2. Set tasks that suit different levels of learners
3. give the learners the chance to find out their mistakes
4. use tasks that emulate real-life activities
5. implement tasks that encourage learners’ activity, independence and creativity
6. provide SS with a number of different activities
7. use various activities for groups with different abilities

#### TEACHER: Did I………..?

1. play the role of a facilitator rather than a lecturer
2. set clear criteria for evaluation and assessment of performance
3. challenge, encourage and praise learners where possible
4. regularly check whether learners mastered the language items being
5. adapt my language and explain or paraphrase where necessary
6. provide brief, easy explanations with examples
7. tolerate learners’ mistakes when appropriate
8. focus on some important and common mistakes and correct them
9. encourage shy SS to participate
10. praise SS when necessary

**CONTENT: Did I.........?**

<table>
<thead>
<tr>
<th>1. use language items that are relevant to learners’ needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. set language items that naturally link previous learning with the</td>
</tr>
<tr>
<td>3. use interesting, challenging and personally involving language</td>
</tr>
<tr>
<td>4. implement informative and new language items</td>
</tr>
<tr>
<td>5. use language items that spark thoughtful communication</td>
</tr>
<tr>
<td>6. help SS to practise the language items functionally</td>
</tr>
<tr>
<td>7. master the language items being taught well enough</td>
</tr>
</tbody>
</table>

**OVERALL Shall I.........?**

<table>
<thead>
<tr>
<th>1. implement ideas and suggestions from my previous evaluations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. encourage learners to practice meaningful language in meaningful situations</td>
</tr>
<tr>
<td>3. get evidence as to whether I attain my objectives</td>
</tr>
<tr>
<td>4. get evidence as to whether I meet learners’ expectations</td>
</tr>
<tr>
<td>5. get evidence as to whether I raise learners’ interest in further study</td>
</tr>
<tr>
<td>6. advise learners on their action plans and further study</td>
</tr>
<tr>
<td>7. learn from lessons what I would like to do differently next time</td>
</tr>
</tbody>
</table>
Appendix 3
Lateral Thinking Test

Dear colleague:

The researcher is conducting a study titled "The Effectiveness of Using Lesson Study Model on Palestinian Secondary School Teachers' Professional Development and Attitudes towards such a Model."

One of the requirements of this study is to conduct a lateral thinking test for secondary school teachers to assess and enhance their professional development. You are kindly requested to read and answer the thinking questions below. Please try hard to figure out the answers. You should come with creative answers and think out of the box.

(NOTE: There are probably many possible solutions which fit the initial conditions; only the canonical answer is truly satisfying.)

Thanks a lot for your kind cooperation.

The researcher: Mahmoud Firwana
1. There is a man who lives on the top floor of a very tall building. Everyday he gets the elevator down to the ground floor to leave the building to go to work. Upon returning from work though, he can only travel half way up in the lift and has to walk the rest of the way unless it's raining! Why?

Answer: ........................................................................................................................................

2. A man and his son are in a car accident. The father dies on the scene, but the child is rushed to the hospital. When he arrives the surgeon says, "I can't operate on this boy; he is my son! " How can this be?

Answer: ........................................................................................................................................

3. Jenny works in a fruit and vegetable shop. When she was born she weighed 3kgs. She is now aged 18 and is 1.6 metres tall. What does she weigh?

Answer: ........................................................................................................................................

4. If a red house is made from red bricks, and a blue house is made from blue bricks, and a pink house is made from pink bricks, and a blue house is made from blue bricks. what is a green house made from?

Answer: ........................................................................................................................................

5. A woman had two sons who were born on the same hour of the same day of the same year. But they were not twins. How could this be so?

Answer: ........................................................................................................................................
6. A farmer has 5 hay stacks in one field, 10 hay stacks in a second field and 8 in the third field. He brought them all together. How many hay stacks does he have?

Answer: ……………………………………………………………………………………………
…………………………………………………………………………………………

7. A murderer is condemned to death. He has to choose between three rooms. The first is full of raging fires, the second is full of assassins with loaded guns, and the third is full of lions that haven't eaten in 3 years. Which room is the safest for him?

Answer: ……………………………………………………………………………………………
…………………………………………………………………………………………

8. If you were alone in a deserted house at night and you only had one match and there was a lamp, a fire and a candle. What would you light first?

Answer: ……………………………………………………………………………………………
…………………………………………………………………………………………

9. If there are two monkeys in each corner of a room, how many monkeys can say they are looking at other monkeys?

Answer: ……………………………………………………………………………………………
…………………………………………………………………………………………

10. What is black when you buy it, red when you use it, and gray when you throw it away?

Answer: ……………………………………………………………………………………………
…………………………………………………………………………………………

11. Can you name three consecutive days without using the words Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, or Sunday?

Answer: ……………………………………………………………………………………………
…………………………………………………………………………………………
12. You're the pilot of an aeroplane that travels from New York to Chicago - a distance of 800 miles. The aeroplane travels at 200 m.p.h. and makes one stop for 30 minutes. What is the pilot's name?
Answer: ……………………………………………………………………………………
…………………………………………………………………………………………

13. How many animals of each species did Moses take on board the ark?
Answer: ……………………………………………………………………………………
…………………………………………………………………………………………

14. A truck driver is going down a one-way street the wrong way. A policeman looks over and waves a good morning to him. Why?
Answer: ……………………………………………………………………………………
…………………………………………………………………………………………

15. How can you throw a ball as hard as you can and have it come back to you, even if it doesn't hit anything, there is nothing attached to it, and no one else catches or throws it?
Answer: ……………………………………………………………………………………
…………………………………………………………………………………………

16. Where are the kings and queens of England crowned?
Answer: ……………………………………………………………………………………
…………………………………………………………………………………………

17. There are only two T's in Timothy Tuttle. True or false?
Answer: ……………………………………………………………………………………
…………………………………………………………………………………………

18. Jake was standing on one side of the river, and his dog Scruffy was standing on the other side. "Come on Scruffy, come, boy!" shouted Jake. Scruffy crossed the river, ran to Jake, and got a treat for being a good dog. The amazing thing was that Scruffy didn't even get wet! How did Scruffy do that?
19. What has roads but no cars, rivers but no water and hills but no trees? A map!
Answer: .................................................................
...................................................................................
20. All of Jenny's pets are dogs except one. All of her pets are cats except one. How many cats and dogs does Jenny have?
Answer: .................................................................
...................................................................................
21. How could a baby fall out of a twenty-story building onto the ground and live?
Answer: .................................................................
...................................................................................
22. If Mr. Smith’s peacock lays an egg in Mr. Jones’ yard, who owns the egg?
Answer: .................................................................
...................................................................................
23. A man and his wife raced through the streets. They stopped, and the husband got out of the car. When he came back, his wife was dead, and there was a stranger in the car.
Answer: .................................................................
...................................................................................
24. What was the highest mountain in the world before Mt Everest was discovered?
Answer: .................................................................
...................................................................................
25. You are driving down the road in your car on a wild, stormy night, when you pass by a bus stop and you see three people waiting for the bus:
1. An old lady who looks as if she is about to die.
2. An old friend who once saved your life.
3. The perfect partner you have been dreaming about.
Knowing that there can only be one passenger in your car, whom would you choose?
Answer: .................................................................
...................................................................................
Appendix 4

Refereeing an Interview Protocol

Dear professor, supervisor and expert teacher,

The researcher is conducting a study entitled "The Effectiveness of Using Lesson Study Model on Palestinian Secondary School Teachers' Professional Development and Attitudes towards such a Model" to obtain a Master's Degree in Curriculum & Instruction.

One of the requirements of this study is to conduct an interview for secondary school teachers to identify their attitudes towards the Lesson Study Model. Please, you are kindly requested to look carefully at the attached protocol and tick the box against each item to reflect its suitability for the study objectives.

Your notes and responses will be highly appreciated and confidential.

<table>
<thead>
<tr>
<th>Item</th>
<th>High</th>
<th>Average</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<td>2</td>
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<tr>
<td>5</td>
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<td></td>
</tr>
</tbody>
</table>

The Interview items reflect the study objectives.

The Interview items suit secondary school teachers' level.

The layout is acceptable.

The rubrics are clear.

The time assigned is suitable. ( 10 minutes )

Any further comments are highly appreciated.

........................................................................................................................................................................
........................................................................................................................................................................

Thanks a lot for your cooperation

The researcher / Mahmoud Hamza Firwana
Interview Protocol

Teacher's views towards the effectiveness of using Lesson Study Model.

1. Are you in favour of teachers' collaborative work? Why?

2. Do you think the Lesson study Model provides teachers with a friendly and safe atmosphere? why?

3. How has the implementation of Lesson Study Cycle affected the teaching learning process in your class?

4. What do you like/dislike most about Lesson Study?

5. How did you feel when you practiced Lesson Study?

6. Do you advise other teachers to follow the elements of Lesson Study? why?

7- Can the Lesson Study Cycle be an effective model for teacher's professional development? why?

8. Would you like to continue using Lesson Study Model in your classes? Why?

9. Do you have any suggestion that may contribute to making Lesson Study Model more relevant to the Palestinian context?
Appendix 5

Lateral thinking sample questions

The term 'lateral thinking' was coined by Edward de Bono to denote a problem-solving style that involves looking at a situation from unexpected angles. Lateral thinking involves a combination of skills and traits, a few of which are creativity, perceptiveness, and the ability to identify and apply new approaches. These questions involve some novel way of thinking or looking at the problem from an unexpected viewpoint.

Dear colleague,

Test yourself with these thinking questions. Try hard to figure out their answers; they'll be a lot more satisfying. (You should come with creative answers and think out of the box).

NOTE: There are probably many possible solutions which fit the initial conditions, only the canonical answer is truly satisfying.

Example: Why do Chinese men eat more rice than Japanese men?

Solution: There are more Chinese men than Japanese men.

1. Once a dog named Nelly lived on a farm. There were three other dogs on the farm. Their names were Blackie, Whitey, and Brownie. What do you think the fourth dog’s name was?

   Answer:

   …………………………………………………………………………………………………

2. A man rode into town on Friday. He stayed for three nights and then left on Friday. Explain.

   Answer:

   …………………………………………………………………………………………………

3. What does this represent: mce, mce, mce?

   Answer:

   …………………………………………………………………………………………………
4. Forward I am heavy, backwards I am not. What am I?
   Answer:
   ........................................................................................................................................

5. What starts with an E, ends with an E and usually contains only one letter?
   Answer:
   ........................................................................................................................................

6. A girl who was just learning to drive went down a one-way street in the wrong direction, but didn't break the law. How come?
   Answer:
   ........................................................................................................................................

7. There are six eggs in the basket. Six people each take one of the eggs. How can it be that one egg is left in the basket?
   Answer:
   ........................................................................................................................................

8. This is an unusual paragraph. I'm curious how quickly you can find out what is so unusual about it. It looks so plain you would think nothing was wrong with it. In fact, nothing is wrong with it! It is unusual though. Study it, and think about it, but you still may not find anything odd. But if you work at it a bit, you might find out.
   Answer:
   ........................................................................................................................................

9. A horse jumps over a tower and lands on a man, who disappears.
   Answer:
   ........................................................................................................................................

10. There are 8 crows on a wall and a farmer shoots one. How many are left?
    Answer:
    ........................................................................................................................................
11. stand
   ------------
   i

Answer:

12. 3. /t/e/a/d/i/n/g/

Answer:

Answers:

1. Nelly

2. Friday-The horse’s name was Friday

3. Three Blind Mice: they have no I’s!

4. A ton

5. Envelope

6. She was walking

7. The last person took the basket with the last egg still inside

8. The letter "e " which is the most common letter in the English language, does not appear once in the long paragraph

9. It’s a chess game -- knight takes pawn

10. One

11. I understand

12. reading between the lines
Appendix 6

Sample of Lesson Plan. (Twelfth Grade)
### Objectives

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activities</th>
<th>Time</th>
<th>Organization</th>
<th>Sources</th>
<th>Assessment procedure</th>
<th>Evaluation &amp; Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS turn in to El.</td>
<td><strong>Warming up:</strong> Lateral thinking puzzle: <em>(A strange Bet):</em>  - Two riders made a bet. The rider whose horse comes second in the race will win the bet. How can they carry out this bet?</td>
<td>3</td>
<td>T- SS- T SS-SS- T</td>
<td>T's NB</td>
<td>Answers</td>
<td></td>
</tr>
</tbody>
</table>
| -To consolidate the previous learnt material | 2 | - Check SS have done homework.  
  - SS answer homework aloud. | 4 | T- SS- T | Ss' NB | Answers |
|---------------------------------------------|---|------------------------------------------------|---|-----------|---------|---------|
| -Predict the content of part three | 3 | - T helps SS to predict the content of the second section of part three through discussing the picture & answering guessing questions.  
  - T facilitates by presenting the new active words on flashcards.  
  (shaggy / pluck / seals /easy-chairs)  
  - T uses a poster to present the following questions :  
  -SS try to answer them quickly  
  - T allocates 4 m" for the task :(L.47-54):  
  1- Who would be accused of killing the prisoner?  
  2- What did the banker use to see his way to the lodge? | 10 | T- SS- T | SS-SS- T | WB | Involvement participation |
| Skim the 1st paragraph to find answers | 4 | | 4 | T-SS-T | SS-SS- T | Flash cards | WB |
- T uses a poster to present the following questions:

1. Why do you think suspicion would fall upon the watchman?

2. When the match went out, the banker, [complete]

3. What did the banker see inside the lodge?

4. Did the prisoner do any movement? Why?

5. The banker entered the lodge by [complete]

5. On entering the lodge, the old man expected to hear [complete]

6. Describe the lawyer after 15 years of confinement?

7. There was a letter in front of the prisoner's head. [ ]

8. The banker would use a towel to stop the prisoner's life. [ ]
9- Any expert would find a sign of violent death of the prisoner. (   )

10- The banker decided to carry out his crime after ..................( complete)

- T checks Ss' understanding of the questions. Read to find answers. SS check with partners. T. collects oral answers.

- T allocates paragraphs, time for the task and the line of the answers.

A) Complete the table with the main event of the characters:

<table>
<thead>
<tr>
<th>Character</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Banker</td>
<td></td>
</tr>
<tr>
<td>The Lawyer</td>
<td></td>
</tr>
</tbody>
</table>
b) Implementing the following competition:
- T divides class into two teams, asks questions and takes points.
- T. rewards the winner.

1- What happened to the banker after 15 years have passed?
   (group a)

1- What happened to the lawyer after 15 years have passed?
   (group b)

2- By killing the prisoner, the banker......................
   (group a)
| SS review key points at home | 2- The watchman was not in the scene because..................
     (group b) 
     3- If you met the banker what would you say to him? (group a)
     3- If you met the prisoner what would you say to him? (group b) | Assignment: Answer:
     (worksheet) & (WB p. 20) | 1 | T- SS- T | T' NB |
Appendix 7

Photos of teachers during Lesson Study Cycle

Sample Teachers’ of Khanyounis Sec. School for Girls
Lesson Study Planning Session

Sample Teachers’ of Khalid AL-Hassan Sec. School
Lesson Study Discussion Session
Sample Teachers' of Khalid AL-Hassan Sec. School Lesson Study Self-reflection Session

Sample Teachers' of Al-Haj Mohammed Al-Najar Sec. School Lesson Study Planning Session
CURRICULUM VITAE (CV)

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