The Proceedings of
Suratthani Rajabhat University Conference 2016

Facilitating Autonomous Learning via Research-Based Approaches (FCAL)

October 27-28, 2016
Suratthani Rajabhat University

Organized by
Suratthani Rajabhat University, Surat Thani, Thailand

http://www.conference.sru.ac.th/international2016/
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About the Conference

Suratthani Rajabhat University International Conference
Facilitating Autonomous Learning via Research-Based Approaches (FCAL)
October 27-28, 2016
Suratthani, Thailand

Rational: To foster our relationship with the wider global community, we will hold the “Facilitating Autonomous Learning via Research-Based Approaches” conference in 2016. This international conference will discover how to best help our instructors and students to interact with speakers of other languages and cultures while sharing a mutual understanding. Another major focus of the conference will be areas of knowledge and understanding in various fields.

This conference will serve as a platform for researchers, educators, and participants to learn and exchange their ideas and research findings on selected topics of interest. Suratthani Rajabhat University, therefore, is pleased to invite researchers and educators from all over the world to contribute their knowledge and wisdom with regards to “Facilitating Autonomous Learning via Research-Based Approaches”.

The contributions can include research activities, case studies or practices which will help to inspire interest in both the theory and practice of various themes.

The objectives
This conference aims to:
- provide an opportunity for academics to present papers on traditional and contemporary features of their various studies
- promote academic research on traditional and contemporary features of their various studies
- share knowledge of traditional and contemporary features of their various studies
- enhance cooperation and promote better understanding among people of different culture

Responsible Organizer
Research Institute, Suratthani Rajabhat University, Suratthani, Thailand.
Email: parussaya@hotmail.com
http://research.sru.acath/sru_conference2016/
The topics of interest in this conference include:

**Area of Concentration**

- Science and Technology
- Linguistics, Culture and Education
- Social, Humanities and Liberal Arts
- Business and Management
- Tourist and Hospitality
- Natural Resource and Environment
- Others

**Presentation forms**
- Oral presentation (20 minutes)
- Poster presentation (W=80 CM / H=120 CM)

**Paper submission due date**

- Deadline for application and abstract: June 1st - August 15th, 2016
- Announcement of abstract selection outcomes: August 15th, 2016
- Deadline for Full Papers and registration fee: September 15th, 2016

Please check format guidelines and find the application form at FCALsru@hotmail.com and submit your paper to FCAL team via email.

**Target Group**

- Both Paper & Poster Presenters: 50 persons
- Participants: 35 persons

**Registration fee:**

- Oral presentation USD 100
- Oral presentation with student ID USD 70
- Poster presentation USD 60
- Poster presentation with student ID USD 50
- Participant USD 50

*** Only participants are allowed for late or on-site registration.***
This registration fee includes:

- lunch and coffee breaks
- conference materials (flash drive, bag, documents, and certificate of attendance)
- a half-day city tour on the final day of the conference

Accommodation and Venue
The conference will be held from October 27-28, 2016 at Suratthani Rajabhat University, Suratthani, Thailand.

A Suratthani Rajabhat University shuttle bus will transfer all participants in the morning and evening from the Wang Tai Hotel and the Bunjongburi Hotel. *For your convenience, please contact the hotels directly to make your own reservations.*

Participants who elect to stay at other hotels and guest houses will be responsible for their own transportation to and from the conference site at the university.
Dear Delegates, Faculty and Affiliates:

On behalf of Suratthani Rajabhat University, it is my honor to welcome you to the SRU International Conference: Facilitating Autonomous Learning via Research – Based Approaches (FCAL), which is held from 27 – 28 October 2016 at Suratthani Rajabhat University, Thailand.

This conference aims to develop mutual cross – cultural understanding and provide a platform for scholars within ASEAN countries. We are excited to announce that this conference has brought together the researchers from 7 countries in ASEAN to expand and discuss ideas on recent research findings and issues.

To this momentous event, I am confident that with the help of your contributions and participation, it will be an unforgettable experience.

Sincerely,

Asst.Prof. Dr.Prayote Kupganjanagool
President of Suratthani Rajabhat University
“Research” is vital for a national progress towards an economic and social sustainability. It also is the foundation of intellect and ability to develop innovations and inventions which consequently result in prosperity across disciplines. Additionally, they allow the recognition of new theories obtained through researches. Thus it is essential that the conclusions of researches be made public to extend the opportunity for future researches to resolve national issues. Such outcomes may also inspire other scholars to produce further beneficial researches.

The Research and Development Institute of the Suratthani Rajabhat University realized the importance of the aforementioned research dissemination. Hence “the 12th Suratthani Rajabhat Research” is established not only to provide an opportunity for researchers to publicize their enquiries but also to connect them with other Thai and international researchers.

Finally I would like to express an admiration to the staff who put forth every effort to make this occasion successful.

Sincerely,

Asst.Prof. Aphichat Phathanawiriyaphisan
Director of Research and Development Institute
Peer Review

List of Reviewers in SRU International Conference 2016
October 27-28, 2016

<table>
<thead>
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<th>Institute</th>
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</thead>
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<tr>
<td>1</td>
<td>Assoc. Prof. Dr. Thongchai Kruahong</td>
<td>Suratthani Rajabhat University</td>
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<tr>
<td>2</td>
<td>Assoc. Prof. Dr. Chusak Ekpetch</td>
<td>Suratthani Rajabhat University</td>
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<td>3</td>
<td>Assoc. Prof. Dr. Chirawat Nitjanet</td>
<td>Suratthani Rajabhat University</td>
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<td>4</td>
<td>Assoc. Prof. Dr. Praman Tepsongkroh</td>
<td>Thaksin University</td>
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<td>5</td>
<td>Asst. Prof. Dr. Preemon Nakarin</td>
<td>Songklanakarin University</td>
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<td>6</td>
<td>Asst. Prof. Dr. Sompoet Panawas</td>
<td>Suan Dusit University</td>
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<td>7</td>
<td>Asst. Prof. Dr. Maliwan Somsak</td>
<td>Nakhon Si Thammarat Rajabhat University</td>
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<td>8</td>
<td>Asst. Prof. Dr. Suthon Chuaygud</td>
<td>Suratthani Rajabhat University</td>
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<td>9</td>
<td>Asst. Seree Doungkamjan</td>
<td>Suratthani Rajabhat University</td>
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<td>10</td>
<td>Dr. Kanokkan Titipornpun</td>
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<td>11</td>
<td>Dr. Jittima Silprachawong</td>
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<td>12</td>
<td>Dr. Pimprae Buddhichiwin</td>
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<td>13</td>
<td>Dr. Siyathorn Khunon</td>
<td>Suratthani Rajabhat University</td>
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<tr>
<td>14</td>
<td>Dr. Salubsri Charoenwet</td>
<td>Suratpittaya School</td>
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<tr>
<td>15</td>
<td>Dr. Syaharom Abdullah</td>
<td>Universiti Malasia Perlis</td>
</tr>
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<td>16</td>
<td>Dr. Phananoii Rotchu</td>
<td>Suratthani School</td>
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<tr>
<td>17</td>
<td>Dr. Supanrigar Watthanabooboon</td>
<td>Suratthani Rajabhat University</td>
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<td>18</td>
<td>Dr. Parussaya Kiattheere</td>
<td>Suratthani Rajabhat University</td>
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<td>19</td>
<td>Dr. Kanokkan Kittichartchawalit</td>
<td>Suratthani Rajabhat University</td>
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<td>20</td>
<td>Dr. Sirirat Choophan Atthapornphiphat</td>
<td>Suratthani Rajabhat University</td>
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<tr>
<td>21</td>
<td>Mr. Chris Hawes</td>
<td>Suratthani Rajabhat University</td>
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<tr>
<td>22</td>
<td>Miss Lisa M. Putns</td>
<td>Suratthani Rajabhat University</td>
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</table>
Tentative Conference Program

Suratthani Rajabhat University International Conference
“Facilitating Autonomous Learning via Research-Based Approaches (FCAL)”
27th – 28th October 2016 at Graduate Building
Suratthani Rajabhat University

27th October 2016

08.00 – 09.00  Registration at Room GA 104
09.00 – 09.40  Opening ceremonies
09.40 – 10.30  Keynote Session “Engagement between Universities and Communities for Sustainable Development” by Assoc. Prof. Peeradech Thongampai, Ph.D., Director of Knowledge Network Institute of Thailand
10.30 – 11.45  Academic discussion “Universities and Services to Local Communities” by Emeritus Prof. Dr. Yongyut Watcharadul, M.D., Asst. Prof. Dr. Rawipha Yongprayun, Lampang Rajabhat University, and Asst. Prof. Dr. Prayote Kupkarnchanakul, Ph.D., President of Suratthani Rajabhat University, moderated by Asst. Prof. Buaphin Tosup, Suratthani Rajabhat University.
11.45 – 12.00  Presentation of tokens of appreciation to associate hosts and a photograph session
12.00 – 12.15  Exhibition opening ceremonies
12.15 – 01.00  Lunch break
01.00 – 04.00  Academic presentations:
   1. Education at  G803
   2. Sciences and Technology at  G804
   3. Creative Economy at  G805
   4. Social Development at  G807
   5. Health Sciences at  G806
   6. International Groups at  G705 and G706
## Conference Schedule

**Education, Humanities and Social Sciences**

**27th October 2016  Room G705**

<table>
<thead>
<tr>
<th>Time</th>
<th>ID</th>
<th>Presenter</th>
<th>Research Title</th>
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</thead>
<tbody>
<tr>
<td>1.00 p.m.</td>
<td></td>
<td>Welcome and introduction by Ms. Lisa M. Punts Peer Panel: Associate Prof. Dr. Chirawat Nitjanet and Dr. Phananoi Rotchu</td>
<td></td>
</tr>
<tr>
<td>1.30-1.50</td>
<td>126</td>
<td>Tatas Transinata</td>
<td>Character Values Integration in the Teacher’s Document as a National Teaching Requirement</td>
</tr>
<tr>
<td>1.50-2.10</td>
<td>128</td>
<td>Ahmad Fitri Al Amin</td>
<td>Local Culture Stories as Alternative Reading Materials for Students (A Contextual Teaching and Learning for High and Low Interest)</td>
</tr>
<tr>
<td>2.10-2.30</td>
<td>112</td>
<td>Wathit Suwansomboon</td>
<td>Developing Multiple Ways of Music Intelligence Measurement and Evaluation for Building Primary Student Music Instructional Program</td>
</tr>
<tr>
<td>2.30-2.40</td>
<td></td>
<td>Take a break for 10 minutes</td>
<td></td>
</tr>
<tr>
<td>2.40-3.00</td>
<td>101</td>
<td>Thitiphong Ketamon</td>
<td>A Study on the English Proficiency of English Teachers in Pattani Primary Educational Service Area Office 1, Thailand through the CEFR Assessment Test</td>
</tr>
<tr>
<td>3.00-3.20</td>
<td>108</td>
<td>Patcharawadee Promduang</td>
<td>Assessing Language Skills of DRIC Freshmen to Design an English Intensive Course underlying CEFR</td>
</tr>
<tr>
<td>3.20</td>
<td></td>
<td>Conference conclusion and certification</td>
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</table>
# Conference Schedule

**Education, Humanities and Social Sciences**

**28th October 2016   Room G705**

<table>
<thead>
<tr>
<th>Time</th>
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<td>9.00 a.m.</td>
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<td>Welcome and introduction by Ms.Lisa M. Punts</td>
<td>Peer Panel: Associate Prof. Dr.Chirawat Nitjanet and Dr.Phananoi Rotchu</td>
</tr>
<tr>
<td>9.30-9.50</td>
<td>115</td>
<td>Sakolwan Napaporn</td>
<td>The Development of Instructional Blended Learning Model on Contextual Based to Enhance Analytical Reading Skill for Secondary School</td>
</tr>
<tr>
<td>9.50-10.10</td>
<td>118</td>
<td>Pantipa Yuenyongwanitchakij</td>
<td>The Satisfaction of e-learning: A Case Study of Banyan Tree Hotels &amp; Resorts</td>
</tr>
<tr>
<td>10.10-10.20</td>
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<td>Take a break for 10 minutes</td>
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<tr>
<td>10.20-10.40</td>
<td>123</td>
<td>Piyamas Kingnamcha</td>
<td>Merging Phonics Instruction and Mnemonics to Promote English Vocabulary’s Achievement and Memory of Pratomsuksa VI Students</td>
</tr>
<tr>
<td>10.40-11.00</td>
<td>127</td>
<td>Syaharom Abdullah</td>
<td>Developing Independent and Autonomous Learning through Research Based Assignment</td>
</tr>
<tr>
<td>11.00</td>
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<td>Conference conclusion and certification</td>
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## Conference Schedule

### Business and Science

**27th October 2016  Room G706**

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<tr>
<th>Time</th>
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<tr>
<td>1.00 p.m.</td>
<td></td>
<td>Welcome and introduction by Mr. Manop Horpet</td>
<td>Peer Panel: Assistant Prof. Dr. Suthon Chuaygud and Dr. Salubsri Charoenwet</td>
</tr>
<tr>
<td>1.30-1.50</td>
<td>102</td>
<td>Neeranoot Weerawong</td>
<td>Studying of Heating Value for <em>Tillandsia usneoides</em> L. as Biofuel</td>
</tr>
<tr>
<td>1.50-2.10</td>
<td>103</td>
<td>Jutarat Kaewngam</td>
<td>Leave Area Index for Using Plant as Shading Curtain Concerning Illumination</td>
</tr>
<tr>
<td>2.10-2.30</td>
<td>104</td>
<td>Naruephon Duangchan</td>
<td>Using of <em>Tillandsia usneoides</em> L. as Dust Biomonitor around Natural Gas Separation Factory</td>
</tr>
<tr>
<td>2.30-2.45</td>
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<td>Take a break for 15 minutes</td>
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<tr>
<td>2.45-3.00</td>
<td>111</td>
<td>Jarea Lavanangkul</td>
<td>Internet of Things Using Software Defined Network</td>
</tr>
<tr>
<td>3.00-3.20</td>
<td>116</td>
<td>Joompon Bamrunwong</td>
<td>The Sound Frequency Analysis of the Khong Wong Yai by FEM</td>
</tr>
<tr>
<td>3.20-3.40</td>
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<td>Conference conclusion and certification</td>
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# Conference Schedule

## Business and Science

### 27th October 2016   Room G706

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<tr>
<td>2.45-3.00</td>
<td></td>
<td>Guest Speaker Sunyoung Han</td>
<td>Internet of Things Using Software Defined Network</td>
</tr>
<tr>
<td>3.00-3.20</td>
<td>111</td>
<td>Jarea Lavanangkul</td>
<td>The Development of an Instructional Model for Science, Using Constructivism for Learning Achievement and Higher Order Thinking Ability Applied to the Students in Lower Secondary Level</td>
</tr>
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<td>3.20-3.40</td>
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<td></td>
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<tr>
<td>9.30-9.50</td>
<td>117</td>
<td>Patjaree Petchsalubsri</td>
<td>The Reduction of Temperature on Opaque Wall by Arranging Surface – Covered Plant Beside the Building</td>
</tr>
<tr>
<td>9.50-10.10</td>
<td>119</td>
<td>Kanokkan Noisuk</td>
<td>Designing of the Air Plant Holding Equipment for Tillandsia Cotton Candy as Green Roof</td>
</tr>
<tr>
<td>10.10-10.30</td>
<td>120</td>
<td>Sedtanun Chofa</td>
<td>Appropriate Guiding Principle in the Interest of Land Using of People: A Case Study of Dutai Subdistrict, Muang District, Nan Province</td>
</tr>
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<td>Take a break for 10 minutes</td>
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<tr>
<td>10.40-11.00</td>
<td>121</td>
<td>Trịnh Thị Thùy Linh</td>
<td>The Antecedents of Intention to Share a Content on Facebook: A Study among Vietnamese Students</td>
</tr>
<tr>
<td>11.00-11.20</td>
<td>122</td>
<td>Panapak Panudechagrich</td>
<td>A Study to Develop Security Management Solutions in Border Province of Special Economic Zone, Sadao District, Songkhla Province</td>
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<tr>
<td>11.20-11.40</td>
<td>125</td>
<td>Sonam Tshering</td>
<td>Service Quality Measurement of Restaurants in Bhutan: A Case Study of Expectation and Perception of Tourist</td>
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<tr>
<td>11.40</td>
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<td>Conference conclusion and certification</td>
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## Poster Presentation

### 27th – 28th October 2016

**Photographic Confirmation:** 27th October 2016 at 1.00-1.30 p.m. (7th Floor)

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<th>Presenter</th>
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<tbody>
<tr>
<td>P102</td>
<td>Ganeb, Maribel D.</td>
<td>A Glimpse on the Food Pattern and Health Status of Selected Children from Butbut and Mabilong Tribes, Kalinga Based on Their Body Mass Index</td>
</tr>
<tr>
<td>P103</td>
<td>Gonzales, Raquel A.</td>
<td>Traditional Tattooing Practices in Tinglayan, Kalinga</td>
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<tr>
<td>109</td>
<td>Passanan Assavarak</td>
<td>The Resistance Process of Local Community Strives Against Phraek Sa Landfill Management: Case Study of Phraek Sa Landfill, Samutprakan Province</td>
</tr>
<tr>
<td>110</td>
<td>Wipawee Iemworamate</td>
<td>The Study on Environment and Need for Potentiality Development of Blue Light Community, Tungkhru District, Bangkok</td>
</tr>
<tr>
<td>113</td>
<td>Jureeporn Kanjanakaroon</td>
<td>Identifying Learning Resources of Mon Bang Kradi Community for Creative Tourism</td>
</tr>
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## Participant

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<thead>
<tr>
<th>No.</th>
<th>Participant</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Sajad Ali Qumbrani</td>
<td>United Nation Population Fund (UNFPA), Pakistan</td>
</tr>
<tr>
<td>002</td>
<td>Pattaraweerin Woraratsoontorn</td>
<td>King Mongkut’s University of Technology North Bangkok</td>
</tr>
<tr>
<td>003</td>
<td>Deeudom Mongkon</td>
<td>King Mongkut’s University of Technology North Bangkok</td>
</tr>
<tr>
<td>004</td>
<td>Putchana Wuttichai</td>
<td>King Mongkut’s University of Technology North Bangkok</td>
</tr>
<tr>
<td>005</td>
<td>Kodchakorn Muensakul</td>
<td>King Mongkut’s University of Technology Thonburi</td>
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<tr>
<td>006</td>
<td>Bùi Quang Thông</td>
<td>International University - Vietnam National University HCMC</td>
</tr>
<tr>
<td>007</td>
<td>Chulantha Jayawardena</td>
<td>University of Moratuwa, Katubedda, Sri Lanka</td>
</tr>
<tr>
<td>008</td>
<td>Preemon Nakarin</td>
<td>Prince of Songkla University</td>
</tr>
</tbody>
</table>
Half-day City Tour
28th October 2016: 12.30-19.00
By SRU Minibus with an English Speaking Tour Guide

12.30 Leave Graduate Building
13.00 Arrive at Wat Suan Mokkh, Chaiya: the Spiritual Theatre Visit
14.00 Leave Wat Suan Mokkh: Coffee Break at Amazon Coffee Shop
14.30 Cultural Visit at Wat Phra Boromathat Chaiya and Chaiya Folk Museum
15.30 Silk Weaving and Gift Shop at Phumrieng: an ancient community which is a home to both Thai Muslims and Buddhists in Chaiya district.
16.30 Seafood Dinner at a Resort
17.30 Leave Chaiya
18.30 Arrive downtown and hotels
Proceedings
Oral Presentation
A Study on the English Proficiency of English Teachers in Pattani Primary Educational Service Area Office 1, Thailand through the CEFR Assessment Test

Thitiphong Ketamon
Program in English, Didyasarin International College, Hatyai University, Songkhla, 90110, Thailand
Tel: 0-7420-0300 ext. 244, Fax: 0-7442-5467, E-mail: k_thitiphong@hu.ac.th

Abstract
The objectives of this study were to investigate and assess the English proficiency of English teachers in Pattani Primary Educational Service Area Office 1 through the Common European Framework of Reference for Languages (CEFR). Four main English language skills: listening, vocabulary, grammar, and reading were carried out to find out the level of their competency. A set of four multiple choices of the CEFR assessment test, consisting of 80 items, with the equal number of 20 items on each skill was employed to collect the required data. The number of 80 primary school English teachers was a random sample of population from the total number of 104 by Krejcie and Morgan sampling size table. The SPSS Statistical Package then was used to analyze the obtained data, focusing on the common types of descriptive statistics: frequency, percentage, mean, maximum and minimum, and standard derivation. The study disclosed that the level of English proficiency of primary schools English teachers in Pattani Primary Educational Service Area Office 1 was at “B1”, according to the CEFR standard proficiency ranking; which was recognized at the “Threshold” or intermediate level. The mean of the total scores of 80 was at 57.11 or 53.38% with the standard deviation at 8.59. The minimum and maximum of the whole group were found out at 34 and 74. Orderly arranged by the most prominent skill from the total scores of 20, the teachers performed best in vocabulary followed by reading, listening, and grammar respectively. The male English teachers’ performances were better than female English teachers on all kinds of skills. The finding of this study reflected that the English teachers in Pattani Primary Educational Service Area Office 1 overall were able to reach the level of English proficiency required by the Ministry of Education.

Keywords: CEFR assessment test, English proficiency, primary schools English teachers

1. INTRODUCTION
The global competitiveness report 2015-2016 shows that the top 10 high competitive countries are all developed countries such as Germany and the U.S.A (Schwab, 2015). Certainly, the issue of education is substantially used as the major indicator for the ranking. For Thailand, its rank is at 32 among 140 countries (Schwab, 2015). Although Thailand is obviously ranked at a leading figure, it still can’t stand on the top 10 or 20 as just only two nations in ASEAN (Association of Southeast Asian Nations) like Singapore and Malaysia. Thailand is facing with a severe problem of quality of education and also unstable politics, but what potentially weakens the competitiveness of Thailand must be the issue of quality of education. The quality of Thai education is very notorious when making a comparison with other developing
countries (Bangkok Post, 2015). It is still far lower than the international standard; whereas, a large number of resources and financial support have been spending every year (Na Mahachai, 2015). The Ministry of Education is allocated with the highest number of yearly budget, more than any other ministries, according to the yearly budget report of Office of Bureau of the Budget (Bureau of the Budget, 2015). This means the government pays most attention on education and the quality of education. However, when the national assessment on the competency of students is conducted, almost all kinds of test results are always very low. For example, the results of 2015 General Aptitude Test (GAT) show that the average scores of almost all kinds of tests are lower than a half (Admissions Live, 2015). Moreover, when comparing the quality of education of Thailand with ASEAN neighboring countries, Thailand is just outdoing Cambodia according to World Economic Forum. This signifies the culmination of failure of Thai education system without doubt.

With the unsuccessful management of education in Thailand, it puts up the heavy pressure for all sectors in solving this problem, especially the government and the Ministry of Education; and the so-called ASEAN Economics Community (AEC) that has been hyping up on all channels of media has also made all stakeholders in education management feel unease about this situation because the English proficiency of Thai students throughout the nation is in a critical condition. According to a report of Education First (EF Education First Ltd, 2015), the international organization evaluated the global workforce English skills, it clearly shows that the English proficiency of Thai people is really low. Among 70 countries, where the English language is not used as the first language, Thailand is ranked at 62; it is almost at the bottle line of ranking. To urgently improve the English proficiency for Thai people, the Ministry of Education has recently introduced the program for enhancing the quality of both teaching and learning English nationwide. The Common European Framework of Reference for Languages (CEFR) is then urgently put into use for all schools with the high expectation of lifting up the English proficiency for both teachers and students (The Ministry of Education 2014).

The researcher then is eagerly interested in carrying out a study to examine the results of the implementation of the CEFR for the primary schools English teachers because it will follow up the outcomes of the performances of the CEFR in teaching and learning English in Thai schools after such new strategy has been introduced into the system of Thai education. This will examine the primary schools English teachers’ English proficiency and also rank them by the CEFR assessment framework, as the international standard test for language skills. Eventually, the research outcomes will become both the reliable information and indicator for reflecting the potentialities of primary schools English teachers and the quality of education in the local area.

2. RELATED WORKS

2.1 Common European Framework of Reference for Language (CEFR)

The CEFR has been inititatively created and used as a framework for European citizens to learn other languages across European countries for more than 20 years (Tylor, 2004). Originally designed and served for European citizens, it is now well-known worldwide. Cambridge University Press’s the “Common European Framework of Reference for Languages: Learning, Teaching, Assessment” handbook is right now translated into the English language as long as published and available in 39 different languages (Council of Europe, 2015). The main objective of this language learning framework is intentionally used as a guideline for developing learning and teaching a
foreign language. At the same time, the CEFR can also be served as a standard test like TOEIC or IELTS for assessing the language proficiency. In fact, it is being currently used as an international standard benchmark for testing the proficiency of a foreign language (Cambridge English, 2015). According to the uniqueness of the CEFR, six levels of references; which are A1, A2, B1, B2, C1, and C2, are designed to be the indicators of proficiency.

2.2 The CEFR in Thailand

In the wake of low English proficiency among educational personnel and students, the Ministry of Education and Thai government have introduced the CEFR into the basic education system as an urgent national agenda to enhance their English skills. The former Education Minister, Chaturon Chaisaeng, insisted on the seminar entitled “Policy on the Reform of English Learning and Teaching” that “if schools put the CEFR into practice effectively, I believe Thai students’ English skills will be improved and students will be able to compete with foreign students in other countries” (Intathep, 2014). Reiterated by Mr. Watanaporn Rangubtook, director of the Office of the Basic Education Commission's English Language Institute, he said that all English teachers in the basic education system will need to take the CEFR assessment to evaluate their levels of English proficiency (Intathep, 2014). This action will ensure that those English teachers will be able to reach the level of standard of English which is required by the government. The Office of Basic Education Commission (The Ministry of Education, 2014) has designed the levels of English proficiency into six levels for students and English teachers as follows:

1) A1 is equal to the ability of primary schools students.
2) A2 is equal to the ability of junior schools students.
3) B1 is equal to the ability of senior schools students.
4) B2 is equal to the ability of university students.
5) C1 is almost equal to the ability of English speakers.
6) C2 is equal to the ability of English speakers.

For English teachers, although there is no requirement for them to reach the highest level of the proficiency, they need to reach at least one level higher than the class they teach such as the primary schools English teachers need to reach at A2 or B1, and; of course, the high schools English teachers need to reach at B2, according to the Secretary of Office of Basic Education Commission (Wanachayanont. 2015).

2.3 Roles of the CEFR and Related Studies

Since the CEFR was developed, it has been widely used and integrated into language learning systems in many countries, ranging from curriculum and syllabus design through managing teaching and learning materials, and assessment. Apparently, the CEFR plays more crucial roles at present rather than just being a test for foreign language proficiency (Council of Europe, 2015). The two-day (28-29 March, 2014) online conference, where more than 600 participants around the world brainstorm the key issues of the CEFR such as classrooms, courses, and tests as to figure out the insightful meaning of language learning, is evidenced (Seewald. 2015). Due to the convenient reference benchmark of the CEFR (Martyniuk. 2011) and the validity for testing the second language (Weir, 2005), it is marked as a new approach for mastering the second language.
With significant roles of the CEFR in language learning development, a large number of studies related to the implementation of the CEFR have been continuously conducted. For example, Nagai and O’Dwyer (2011) studied on “The actual and potential impacts of the CEFR on language education in Japan” to examine how the CEFR has been applied into language learning in Japan. They point out that the implementation of the CEFR is useful for score interpretation and helpful for enhancing the standard of foreign language proficiency, for developing curricula, and courses; but on the other hand, the CEFR may be unfit for a specific context because it can distract to the first language. A study conducted by Chen, Mohammadi and Benigno (2013) state that the CEFR can be used to develop a vocabulary list. For developing reading skill in English, a number of words ranged from 8,000-9,000 word families must be created, while the speaking skill need to be between 5,000-7,000 word families. They also state that there is a relationship between the implementation of the CEFR and knowledge of vocabulary. Ketamon (2016), who study the English proficiency of senior high schools students in lower southern Thailand through the CEFR assessment test on classes Mattayom 4-6, reveals that most students are just able to reach at A2, having low English proficiency. The study is conducted to follow up the results of the implementation of the CEFR on students in the remote region.

3. OBJECTIVES

1) To follow up the results of CEFR implementation on the English teachers in Pattani Primary Educational Service Area Office 1 by the CEFR assessment test.

2) To assess and rank the English teachers’ English proficiency in Pattani Primary Educational Service Area Office 1 by the CEFR assessment test.

4. RESEARCH METHODOLOGY

This study is systematically designed and carried out to assess the English proficiency of the English teachers in Pattani Primary Educational Service Area Office 1. The CEFR assessment test is employed to investigate four important English skills: listening, grammar, vocabulary, and reading; while both speaking and writing skills are excluded due to the limitation of management. The research procedures, therefore, comprise the following major parts.

4.1 Hypothesis

1) The English teachers in Pattani Primary Educational Service Area Office 1 presumably have a moderate level of English proficiency.

2) Personal factors of the English teachers in Pattani Primary Educational Service Area Office 1 will have an impact on their English proficiency.

4.2 Source of Data

The only source of data collected is from the English teachers in Pattani Primary Educational Service Area Office 1.

4.3 Population and Samples

The total number of participants is 104 English teachers in Pattani Primary Educational Service Area Office 1 from 4 districts: Mueang, Panare, Yaring, and Nong Chik on classes Prathom 1-6. The samples are selected by Krejcie and Morgan sampling size table, to become 80.
4.4 Research Criteria
The CEFR assessment test is used as a benchmark for examining the competency of four designed English skills. The findings will be described by normal descriptive statistics.

4.5 Collecting Data
To obtain the required data, a set of four multiple choices CEFR assessment test is employed to provide the opportunity for the primary schools English teachers to assess their four English skills. The reliability of is checked by Cronbach’s Alpha Method at 0.74 for the first pilot test and carefully adjusted to reach at 0.83 for the second pilot test. And the Pearson Product Moment Correlation Coefficient is used to test the correlation between the two sets of test at 0.81.

4.6 Analyzing Data
The collected data are analyzed by the Statistical Package for the Social Sciences (SPSS), using descriptive statistics: frequency, percentage, mean, maximum and minimum, and standard derivation.

5. FINDINGS
The findings of this study can be demonstrated and described as the following details. The figures of the table 1 show that the minimum and maximum of the total scores of 80 are found as 34 and 74; whereas, the mean is at 57.11 with the standard deviation at 8.59.

Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Scores = 80</td>
<td>80</td>
<td>40.00</td>
<td>34.00</td>
<td>74.00</td>
<td>57.1125</td>
<td>.961111</td>
</tr>
<tr>
<td>Listening = 20</td>
<td>80</td>
<td>9.00</td>
<td>10.00</td>
<td>19.00</td>
<td>13.9875</td>
<td>.19283</td>
</tr>
<tr>
<td>Vocabulary = 20</td>
<td>80</td>
<td>14.00</td>
<td>6.00</td>
<td>20.00</td>
<td>15.1000</td>
<td>.36222</td>
</tr>
<tr>
<td>Grammar = 20</td>
<td>80</td>
<td>15.00</td>
<td>5.00</td>
<td>20.00</td>
<td>13.4375</td>
<td>.37181</td>
</tr>
<tr>
<td>Reading = 20</td>
<td>80</td>
<td>12.00</td>
<td>6.00</td>
<td>18.00</td>
<td>14.5875</td>
<td>.27884</td>
</tr>
</tbody>
</table>

Closely looked on each skill, the listening skill appears with the minimum at 10 and the maximum at 19.00 with the mean at 13.98 and the standard deviation at 1.72. The minimum and maximum of the vocabulary skill are at 6 and 20 with the mean at 15.10 and the standard deviation at 3.23. The minimum and maximum of the grammar skill are at 5 and 20 with the mean at 13.43 and the standard deviation at 3.32. And the minimum and maximum of the reading skill are at 6 and 18 with the mean at 14.58 and the standard deviation at 2.49.
Table 2: Levels of Proficiency

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>47</td>
<td>58.8</td>
<td>58.8</td>
</tr>
<tr>
<td>B2</td>
<td>27</td>
<td>33.8</td>
<td>33.8</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The table 2 obviously shows that the majority of the English teachers, 47 teachers or 58.8%, from the total of 80 reach the level of B1; while only 6 teachers are at A2 or 7.5%, and 27 teachers are at B2 or 33.8%.

Table 3: Performances of Genders

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels (1=A1, 2= A2, 3=B1, 4=B2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>70</td>
<td>3.1857 (B1)</td>
<td>.57213</td>
<td>.06838</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>3.8000 (B1)</td>
<td>.42164</td>
<td>.13333</td>
</tr>
<tr>
<td>Scores = 80</td>
<td>Female</td>
<td>70</td>
<td>56.2143</td>
<td>7.92518</td>
<td>.94724</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>63.4000</td>
<td>10.81357</td>
<td>3.41955</td>
</tr>
<tr>
<td>Listening =20</td>
<td>Female</td>
<td>70</td>
<td>13.7857</td>
<td>1.49291</td>
<td>.17844</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>15.4000</td>
<td>2.54733</td>
<td>.80554</td>
</tr>
<tr>
<td>Vocabulary = 20</td>
<td>Female</td>
<td>70</td>
<td>14.8429</td>
<td>3.22866</td>
<td>.38590</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>16.9000</td>
<td>2.84605</td>
<td>.90000</td>
</tr>
<tr>
<td>Grammar = 20</td>
<td>Female</td>
<td>70</td>
<td>13.1714</td>
<td>3.17130</td>
<td>.37904</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>10</td>
<td>15.3000</td>
<td>3.94546</td>
<td>1.24766</td>
</tr>
<tr>
<td>Reading = 20</td>
<td>Female</td>
<td>70</td>
<td>14.1433</td>
<td>2.47593</td>
<td>.29593</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>11</td>
<td>15.7273</td>
<td>2.28433</td>
<td>.68875</td>
</tr>
</tbody>
</table>

On the table 3, the different performances between the female and male primary schools English teachers are presented. It is shown that male English teachers perform better than female English teachers, at 3.80 and 3.18, although they are able to reach the same level of proficiency at B1. It is also clear that male English teachers perform better on the whole than female English teachers with the mean at 63.40 and 56.21. Focusing on each separate skill, it is demonstrated that male English teachers perform better on every skill as these results: the listening skill with the mean at 15.40 and 13.47, the vocabulary skill with the mean at 14.84 and 13.94, the grammar skill with the mean at 15.30 and 13.17, and the reading skill with the mean at 15.72 and 14.41 respectively.

Table 4: Performances of Ages

<table>
<thead>
<tr>
<th>Ages</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>8</td>
<td>65.0000</td>
<td>3.58569</td>
<td>1.26773</td>
</tr>
<tr>
<td>31-40</td>
<td>39</td>
<td>58.7692</td>
<td>6.91475</td>
<td>1.10725</td>
</tr>
<tr>
<td>41-50</td>
<td>27</td>
<td>51.2222</td>
<td>9.06953</td>
<td>1.74543</td>
</tr>
<tr>
<td>51-60</td>
<td>6</td>
<td>62.3333</td>
<td>4.17931</td>
<td>1.70620</td>
</tr>
</tbody>
</table>

The table 4 shows that the English teachers with the ages between 21-30 have the best performance with the mean at 65.00, followed by the ages between 51-60 with
the mean at 62-33, the ages between 31-40 with the mean at 58.76, and the ages between 41-60 with the mean at 51.22 respectively.

6. CONCLUSION & DISCUSSION

Thailand is working hard to reform the quality of education, especially the English proficiency among students and teachers. This is because the competency of the English language of Thai citizens becomes a frantic worry for all sectors in education management. The CEFR then has urgently been implemented in learning and teaching English in all schools in Thailand and it is expected to be a potential tool for lifting up the English proficiency for both students and teachers. This then study is conducted to examine the results of the implementation of the CEFR on the real operational remote area in Thailand. The study reveals that the English teachers reach a satisfied level of English proficiency; that is, they are able to reach at “B1”, which is recognized as the intermediate level or “Threshold” according to the CEFR benchmark (Cambridge University, 2015); and they are able to pass the English requirement of the government.

Main interesting points can be discussed as follows. First, with the total scores of 80 marks, the mean of the whole group reaches at 57.11 marks (71.38%). It is quite acceptable and can be perceived as a satisfied or positive result for all parties in improving the quality of English teachers on the basic education. Second, the level of English proficiency at B1 fulfills the requirement of the Office of Basic Education Commission that expects the primary schools English teachers to reach one level higher than the level they teach, reaching at A2 at least or B1. This outcome can ease some worries for the government because the result can pinpoint the significant success of the CEFR implementation on the basic education system. Another interesting finding is that female English teachers represent the majority of the participants, 70 teachers (87.5%), while the male teachers are only at 10 (12.5%). In terms of performances, it is clear to point out that male English teachers have better performances than female English teachers with the mean at 63.40 and 56.21 from the total scores of 80. Finally, it is quite obvious that the youngest group of English teachers with the ages from 21 to 30 perform better than any other group of ages with the mean at 65.00, followed by the group of 51-60 (62.33), 31-40 (58.76), and 41-50 (51.22). Hence, the young generation of English teachers in this study will presumably become an important group of teachers who will develop students’ English proficiency onwards. And the results of this study will also become a positive signal for all people who get involved in the implementation of the CEFR.

REFERENCES


Studying of Heating Value for *Tillandsia usneoides* L. as Biofuel

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Abstract

Nowadays bringing nature back into the urban environment is the famous idea to enhance the building’s visuals and improve air quality as well as cleaning surrounding air. Many decorated plants have been used for green gardening. Spanish moss (*Tillandsia usneoides* L.) can grow in the hot and humid like Thailand. This plant is surrounded with tiny grey scales, which trap water until the plant can absorb it. Moreover, not only Spanish mosses are used to garden the green building, but also used for future biofuel. The aims of this study are focused on heating values of Spanish moss especially physical and chemical properties in term of biomass. The study used calorific method for determination of the heating values, the gravimetric method is used to analyse moisture content, and the chemical components are analysed by dynamic flash combustion technique. The results showed physical properties of 15.57 MJ/kg for heating value, moisture content 34.80%, ash content 8.84%, volatile matter 81.14%, and fixed carbon 8.07%; and chemical properties of carbon, hydrogen, nitrogen, and sulphur 42.86, 5.65, 0.76, and 0.05 respectively. The average weight is 0.51g/month/one-plant. These experimental heating values were not different from husk, bagasse, and rubber wood, but higher than rice straw. Spanish masses are growth retardant plants comparing to other biofuel so it is better to combine with other biomass.

Keywords: Spanish moss (*Tillandsia usneoides* L.), heating value, biomass

1. INTRODUCTION

Thailand imports energy resources, particularly, oil, natural gas, coal and electricity from neighbouring countries, causing the loss of foreign exchange, energy security and the economy of the country. The alternative energy development plan in Thailand for 2558-2579 BE by the Ministry of Energy has a clear goal to develop alternative energy sources. By supporting the use of alternative energy in the community, the ministry has presented to complete green community policy and develop energy-balanced on the environment. The power usages in the building are the key points of the energy consumption. Nowadays, the families in the city of a new generation has been changed from original life as a single house to town house included the condominium or mansion. When this occurs using the green area for relaxing decreases. Vertical garden is one of the interesting choices. It can reduce the heat inside and outside the building because the leaves block the sunlight which shines through the building. There are many kinds of plants used in vertical garden such as episcia, ivy gourd, Bengal trumpet, coral vine, and butterfly pea. Spanish moss (*Tillandsia usneoides* L.) can grow in the hot and humid area like Thailand. This plant is surrounded with tiny grey scales with tap water until the plant can absorb it. Moreover, not only Spanish moss are used to garden the green building, but also used for future biomass. However, this plant can adjust itself to survive in a new environment and there are fewer
diseases. The waste from vertical gardening of Spanish moss can be useful for biomass. Combustion is the main applied technology to produce heat and power from it which is generally economically feasible. The combustion of biomass as fuel has many environmental and economic advantages. The design and operation of biofuel combustion systems rely substantially on several biofuel characteristics, namely, heating value, moisture, ash content and elemental composition [1]. The calorific value is the most important property of a fuel which determines the energy value which can be determined by experiment or calculated from ultimate and/or proximate analyses results of it. The aims of this study are focused on heating values of Spanish moss especially physical and chemical properties in term of biofuel. The study used calorific method for determination of the heating values, the gravimetric method is used to analyse moisture content, and the chemical components are analysed by dynamic flash combustion technique.

2. RELATED WORKS

2.1 Spanish Moss

Spanish moss (*Tillandsia usneoides* L.) is an angiosperm which belongs to family *Bromeliaceae* in genus *Tillandsia*. It is colloquially known as air plant which grows upon tree branches, wire under the sun or partial shading. It originates from the southeastern United States and central Argentina. (Figure 1) It can grow to up 6 m in length [2]. It is planted both by seeds and fragments that blow on the wind and stick to tree branches. The Spanish moss consists of a slender stem in curved or curly with scaled leaves. The length of stem could be 2-6 cm. and 1 mm. diameter [3]. Spanish moss has trichome for absorbing moisture and nutrient in the air. Spanish moss is slow growing species plant and xerophyte which requires small amount of water for living. The photosynthesis is crassulacean acid metabolism (CAM) as cactus which uses water very efficiently. Spanish moss can grow without soil or called epiphytism and mostly found in drier habitats. The Sucking-Scale's Dome Cell of Spanish moss is covered by cutin, in order to reduce the discharge of water. (Figure 2) The wing cell helps to steam trap gas and other substances in the air then had passive transported to neighbour wing cell and other shield cells inside mesophyl laver [4]. Scale leaf is trigonal-dome-shaped-like which absorbs the heavy metals such that copper, cadmium, vanadium, manganese, iron, cobalt, and nickel [5]. Spanish moss has benefit in various ways such as decoration, heat reduction curtain [6], and bio-monitoring for heavy metal. Spanish moss has been proved to be an efficient atmospheric accumulator of the aerosols by the mechanism of phytoremediation [7]. The debris from trimming these plants could be used as biofuel for co-firing if the heating value and feeding amount is enough.
2.2 Composition of Biofuel

Many types of raw material can be used as sources of biofuel for the energy production such as plant, animal, dung, waste from agriculture and garbage. Heating value is one of the most important parameters regarding the evaluation of competitive energy generation from biofuel combustion [8]. A biofuel is defined as any fuel whose energy is produced directly or indirectly from organic material including plant materials and plant and/or animal waste. Mats of algae, kernels of corn, and stalks of sugar cane are all biofuels. The biofuel components that are of the greatest importance in energy processes are moisture, combustible substance, and non-combustible substance. Moisture refers to the amount of water that accumulates in the biofuel components as a percentage of the material’s weight which must be considerate in order to be used as the biofuel. High moisture content in biofuel components have not suitable for that will be used to burn as biomass and generated much lower net energy density too. The combustible substances can be divided into 2 groups that are volatile matter such as methane hydrocarbon, hydrogen carbon monoxide, carbon dioxide, and nitrogen and fixed carbon. Most biomass contains about 80% volatile matter and about 20% fixed carbon. Fixed carbon is the estimated constant value of heating value in combustible residue that is the final calculate from amount present in a biofuel after the percentages of moisture, ash, and volatile matter have been determined. The heating value refers to the amount of heat released during the combustion of a specified amount of its substances as the thermal energy of fuel when compared to a unit of weight or volume of fuel. It is measured in units of energy per unit of the substance (kJ/kg, kcal/kg, Btu/lb, kcal/L). The ashes is a by-product of the combustion process of ash affect the design of the furnace because the ashes can be diffused in the air. The ash of biomass should not exceed 10% as shown in Figure 3. If biomass has high moisture content, it is not suitable for use as energy production. The lower heating value means the higher of ash after burning. The moisture content of the biofuel also should not exceed 25%.
3. METHODOLOGY

This study analysed the properties and chemical components of Spanish moss by measuring the heating value, the moisture, and the chemical component. The growth of Spanish moss was reported in weight every month for 1 year growth. This study has been analysed the properties of chemical components which are carbon, hydrogen, nitrogen, and sulphur. This study also analysed the physical properties which are heating value, moisture content, ash content, volatile matter, and fixed carbon. The measuring the heat of chemical reactions or physical changes as well as heat capacity using Bomb calorimeters. In evaluating gasification feedstocks, the following properties are generally useful: proximate analysis and ultimate analysis. The proximate analysis in this study used ASTM D3173, D3174, and D3286 for moisture, ash content, and heating value, respectively. In addition, to calculate, the proximate analysis was selected the equation of Demirbas as shown in the equation 1. For the equations used to calculate the heat coefficient with correlation 0.99. The heat that is calculated from this equation is the difference of the average 2.2% and selects the equation of Jigisha as shown in the equation 2. The heat was calculated from the equation of Jigisha for the difference of the average 3.74% and bias error was 0.12%.

Equation Demirbas [9]
\[
\text{HHV} = 0.196(\text{FC}) + 14.119 \\
\text{MJ/kg}
\]  
(1)

Equation Jigisha [10]
\[
\text{HHV} = 0.3536(\text{FC}) + 0.1559(\text{VM}) - 0.0078(A) \\
\text{MJ/kg}
\]  
(2)

\[
\text{HHV} = 0.2949(C) + 0.8250(H) \\
\text{MJ/kg}
\]  
(3)

Equation García [12]
\[
\text{HHV} = -150.6(O) + 24660 \\
\text{kJ/kg}
\]  
(4)

The equation of ultimate analysis is more precise analysis than proximate analysis equation. For the calculation the heating value of Spanish moss Yin C.Y. equation (equation 3) was selected and García equation (equation 4) which have mean absolute error (MAE) under 5% and under 6%, respectively. The set of Spanish moss 1 m weight was hung along 1 m width on the rack. Each set of Spanish moss was placed at each side of the building of the Faculty of Environmental Management, Prince of
Songkla University, Hat Yai, Songkhla, Thailand (4 sides around the faculty) as showed in Figure 4. The samples of Spanish moss had been analysed and compared to the properties of other biofuel as shown in Table 1.

![Figure 4: Sample Set of Spanish Moss around the Faculty of Environmental Management](image)

Table 1: Comparison of Heating Value of Biofuel Species

<table>
<thead>
<tr>
<th>Biofuel</th>
<th>Heating Value (MJ/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bagasse</td>
<td>14.40</td>
</tr>
<tr>
<td>Rice husk</td>
<td>14.27</td>
</tr>
<tr>
<td>Rice straw</td>
<td>12.33</td>
</tr>
<tr>
<td>Corncob</td>
<td>18.04</td>
</tr>
<tr>
<td>Palm empty bunch</td>
<td>17.86</td>
</tr>
<tr>
<td>Palm fiber</td>
<td>17.62</td>
</tr>
<tr>
<td>Palm shell</td>
<td>18.46</td>
</tr>
<tr>
<td>Palm leaf</td>
<td>9.83</td>
</tr>
<tr>
<td>Tapioca rhizome</td>
<td>18.42</td>
</tr>
<tr>
<td>Parawood</td>
<td>14.98</td>
</tr>
<tr>
<td>Vetiver</td>
<td>16.74</td>
</tr>
<tr>
<td>Water hyacinth</td>
<td>16.00</td>
</tr>
<tr>
<td><em>Sorghum bicolor</em> L.</td>
<td>16.99</td>
</tr>
</tbody>
</table>

4. RESULT & DISCUSSION
4.1 The Components of the Spanish Moss

All sample of Spanish moss were collected from the garden not from forest. For the experimental samples of Spanish moss, it is independently from 4 sides of the faculty’s building. The results of heating value was calculated by calorific method, moisture content calculated by gravimetric method, and ash content also calculated by gravimetric method which were 15.57 MJ/kg, 34.80%, and 8.84%, respectively. The volatile matter showed 81.14% and fixed carbon showed 8.07% which is shown that there is not too long a fire of fuel burn (Table 2). With amount of element in different, heating value can be found from the relationship of the value of the chemical composition of the carbon (C) hydrogen (H) oxygen (O) nitrogen (N) sulphur (S) and physical elements of the moisture (M) of volatile meter (VM) fixed carbon (FC), and the amount of the ashes (A). There are the variant for calculation on proximate analysis.
and ultimate analysis equations. Proximate analysis of Spanish moss has been specified from volatile meter, fixed carbon, ash content, and moisture contents as 81.14%, 8.07%, 8.84%, and 34.80%, respectively. For proximate analysis of heating value calculated by Demirbas (Equation 1) and Jigisha (Equation 2) respectively showed 15.70 MJ/kg and 15.44 MJ/kg. The ultimate analysis equation will use the relationship of the main chemical elements of the fuel; the Spanish moss contains values which are used in the calculations for the heating values: oxygen, carbon, nitrogen, hydrogen, and sulphur as 50.68%, 0.76%, 42.86%, 5.65%, and 0.05%, respectively (Table 2). In the selection of the equation Yin C.Y. as shown in the Equation 3 and the equation of García as shown in the Equation 4, there was found that the equation of Yin C.Y., heating value was 17.30 MJ/kg and the equation of García, heating value was 17.03 MJ/kg. To get the heating value close to the experiment the equation with a parameter, oxygen, and carbon should be the main consideration due to its relationship with the heating value more than other parameters [10].

<table>
<thead>
<tr>
<th>Biofuel Components</th>
<th>Spanish Moss</th>
<th>Standard Physical Propeties (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating Value (MJ/kg)</td>
<td>15.60</td>
<td>-</td>
</tr>
<tr>
<td>Moisture (%)</td>
<td>34.80</td>
<td>50.00</td>
</tr>
<tr>
<td>Ash (%)</td>
<td>8.84</td>
<td>10.00</td>
</tr>
<tr>
<td>Fixed Carbon (%)</td>
<td>8.07</td>
<td>-</td>
</tr>
<tr>
<td>Volatile Matter (%)</td>
<td>81.14</td>
<td>-</td>
</tr>
<tr>
<td>Carbon (C)</td>
<td>42.86</td>
<td>0% ≤ C ≤ 92.25%</td>
</tr>
<tr>
<td>Hydrogen (H)</td>
<td>5.65</td>
<td>0.43% ≤ H ≤ 25.15%</td>
</tr>
<tr>
<td>Nitrogen (N)</td>
<td>0.76</td>
<td>0% ≤ N ≤ 5.60%</td>
</tr>
<tr>
<td>Oxygen (O)</td>
<td>50.68</td>
<td>0% ≤ O ≤ 50.00%</td>
</tr>
<tr>
<td>Sulfur (S)</td>
<td>0.05</td>
<td>0% ≤ S ≤ 2%</td>
</tr>
</tbody>
</table>

Note *Danish International Development Assistance, 2003 [13]

4.2 Comparison of Heating Value of Spanish Moss with Another

The study found that the heating value of the Spanish moss was similar to the rice husk, bagasse, and rubber wood. The heating value for this study also found that there was higher value than rice straw, which is widely used. The moisture content of the Spanish moss was also similar to the moisture content in other biofuels of wood chips as display in Table 1 and there was less moisture than wastes from the factory processing of agricultural products such as bagasse, palm bunch etc. From the table 1, vetiver and sweet sorghum are biofuel with physical characteristics similar to a Spanish moss but not popular used as biofuel. Because the vetiver and sweet sorghum have high moisture content at 47.3% and 54%, respectively.

4.3 The Growth of Spanish Moss

In this experiment has designed to study the growth of Spanish moss and obtained the various factors that affect the Spanish moss growth. The Spanish moss weight starts before the experiment at 15 g/one-plant. The study was located at 4 sides of the Faculty of Environmental Management and each side divided according to growth factors: (1) without water, (2) with water, and (3) fertilizer. All growth factors
had applied once a week at 18.00-19.00 because the Spanish moss is the CAM plant which opens stomata only in the night and close in the day time in order to prevent the water loss. The growth of Spanish moss during May to July, which is the summer, has low rainfall, the results of all groups had likely no growth and the weight of them reduced from the original. That is the result of an adaptation in an environment that is dry. In August it seems to be starting the changes of weight, especially the group feeding with water. However, the group feeding without water and with fertiliser had likely no weight change. There is suggested that the water is an important factor in the growth of Spanish moss. Since the early October is the beginning of the rainy season, a set of trial in the north side is the side where is able to receive the rain more than the other side so, result showed a change in the growth and weight of all experimental groups. The highest weight was recored in February which showed as 5.54, 16.24, and 11.00 g/month of group (1) without water, (2) with water, and (3) fertiliser, respectively (Figure 5). In early March is a summer, the factors of water feeding with Spanish moss gave only once a week. I had not enough demand, as a result, Spanish moss trended to reduce the weight. In February with little rainfall, Spanish moss was able to grow because the environment was close to the original weather that it can a living. The Spanish moss is generally originated in the North American continent from the state of Texas of the United States to the country in which is weather as well as Thailand in February.

![Figure 5: The Growth of Spanish Moss](image)

5. CONCLUSION & DISCUSSION
From the experiment result there had the heating values in the standard range of the standard of biofuel. The values was consistent with other biofuel types which used as primarily material at present such that rice husk, rubber wood, bagasse, and Spanish moss were more than rice straw. The growth of Spanish moss from the experiment that is small amount in each month if need to have more production it will add the factors that affect the growth which is the water. The study the heating value of Spanish moss to become the alternative biofuel of the future can be more useful because this plant has good characteristics of biofuel material properties. So it should be used Spanish moss as the biofuel combines with other primary biofuel to increase the combustion efficiency even more.

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Leave Area Index for Using Plant as Shading Curtain Concerning Illumination

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Abstract
Using plant as shading curtain or green wall can increase the green view and reduce heat transfer into the building but also the illumination would be dropped. The Leaving Area Index (LAI) should be used to specify the appropriate level of LAI that does not reduce the illumination to be lower than the minimum requirement or standard. Two types of climbing plant were selected i.e. Thunbergia grandiflora (Roxb. ex Rottler) Roxb. and Mandevilla amoena cv. The illumination in the unit of lux by lux meter was collected from Monday to Friday for 3 months in summer (March to May 2016 and 3 months in raining season (June to August 2015). In each day, the data were collected three times a day (09.00, 12.00, and 15.00 hr.) so as to see the profile during working hour. The range of illumination drop from both types of plants around 45-68% was happened at LAI not more than 15% leading to the illumination on the table in the building still be higher than 300 lux as standard. From the result, it is roughly to recommend the building owner to use the plant as shading curtain by concerning the LAI at 15-20% to keep the 300 lux at inside of the room. It is not necessary to calculate the exact LAI but estimate to have the leaves area around one fifth of the window frame.

Keywords: lighting intensity, green curtains, Thunbergia grandiflora (Roxb. ex Rottler) Roxb. and Mandevilla amoena cv.

1. INTRODUCTION
Natural light source from the sun is very important to humans especially for illumination. The light however comes together with the heat. The temperature outside surface of building walls is higher from the sunlight and transfer to the indoor temperature. The solution of air conditioning system causes the burden energy [1]. The reduction of light shining to the building is therefore one way to reduce heat to the building. The building insulation could reduce the heat transfers to the building but the material selected should have no impact on the environment and can be used in an office building to lead to the cool and comfortable condition [2]. Using plants as shading curtain for the building envelop is a solution for both reducing of heat and increasing green view for the building [3]. In addition to plants the reflectance or shading, evapotranspiration of leaves is the mechanism of heat reduction [4]. Plants also absorb the carbon dioxide and make the air quality improved at the appropriate level for the residents of the building [5]. As shading device of plant leaves, the illumination in the buildings is also dropped [6]. The application of plant as shading device would be
studied in this paper in order to find the appropriate level of the leave area index to avoid the dropping of illumination in the building. They are particularly useful to guide the practical application of design with decorative plants.

2. RELATED WORKS

The research is conducted on the use of plants. To achieve a natural way, it is tested the heat from the vegetation-covered building in the form of a wall covered with a roof terrace that looks at natural. Some countries such as the USA, Canada and Japan have developed a guide to saving energy. The evaluation criteria of green building has initiated research on the use of the new plant. The technique of using plants is to shade mirror two wall layers of shading louvers. To lower the temperature, it is better to use shading louvers, [7] but in covering the plants. As a result, the shading of glass plant has to be considered a seasonal shading coefficient Dynamic Shading Coefficient wall of ivy on the window glass [3]. The evaluate of heat transfer wall green and its results have been applied in the simulation [8].

3. METHODOLOGY

The building location is at the Faculty of Environmental Management, Prince of Songkla University, Thailand. The building cross section is rectangle with the 27 meters width and 45 meters length. The experiment was taken at the west side of the building [9] as shown in Figure 1.

![Figure 1: Faculty of Environmental Management, Prince of Songkla University, Thailand.](image)

The local plants were selected by concerning of the growth rate and the frequency of maintenance. To use as shading curtain, two types of climbing plant were selected i.e. *Thunbergia grandiflora* (Roxb. ex Rottler) Roxb. And *Mandevilla amoena* cv. [9], [10]. The *Thunbergia* and *Mandevilla* were planted by hanging the end of plant as curtain as shown in Figure 2a and 2b [8]. From Figure 2c, the distance between the plant and the building wall (window panel) was set at 1.5 m. The illumination drop was measured between in front of the plant and behind the plant with the distance of 0.5 m. The illumination levels to be compared with the standard were measured at 5 points (to be one average number later) on the working table.
The illumination in the unit of lux by lux meter was collected from Monday to Friday for 3 months in summer (March to May 2016 and 3 months in raining season (June to August 2015). In each day, the data were collected three times a day (09.00, 12.00, and 15.00 hr.) so as to see the profile during working hour. The Leave Area Index (proportion of leave area to the considered frame area [11]) will be measured every month.
The illumination at the position in front of the plant and at the table must be measured in the situation of having no plant. This measurement can be called background measurement. This will be used for the analysis of the data that the illumination drop contributed from the distance or by the plant.

4. RESULT

In case of having no shading curtain plant, for the background of dropping by the distance or the measurement of the lighting illumination drop between at 0.5 m. in front of point which is supposed to be the shading curtain plant and at 0.5 m. behind the point which is supposed to be shading curtain plant is 16-32%.

In case of having the shading curtain plant, the lighting illumination drop was compared between at 0.5 m. in front of the shading curtain plant and at 0.5 m. behind the shading curtain plant. The study of the different intensity of the light curtain front and rear curtain of Thunbergia at 9.00 hr. is 52-63%, 12.00 hr. is 57-62% and 15.00 hr. is 57-68%. For Mandeville, at 9.00 hr. is 45-61%, 12.00 hr. is 56-61% and 15.00 hr. is 55-64%. The average figures per month were plotted as shown in Figure 3a and 3b for Thunbergia and Mandevilla respectively.

![Figure 3a: The Average Illumination Drop 3 Times during 6 Months of Thunbergia](image1)

![Figure 3b: The Average Illumination Drop 3 Times during 6 Months of Mandevilla](image2)
From Figure 3a and 3b, the dropping in the afternoon is higher than midday and morning because the sun shines directly to the west side of the building and dropped by the plant. The data in April 2014 seems to be obviously abnormal, the illumination drop at 15.00 hr. for both type of plants were lower than 9.00 hr. and 12.00 hr. because there were raining in the afternoon of April 2014 causing the dark sky in the afternoon around two third of the month. It is not normal condition for the summer. The trend of illumination drop was going up corresponding to the growth of LAI as in Figure 4. *Thunbergia* growth rates are close to the Mandeville. It also found that weather atmosphere including wind speeds was in the range of 0-14.48 m/s, temperatures in the range of 24.30-39.40 °C, relative humidity in the range of 68.50-93.40%, and rainfall in the range of 0-65.2 mm.

![Figure 4: Growth of LAI](image)

The illumination behind shading curtain and window, on the table closed to the window inside the building was plotted compared to the standard or 300 lux requirement for general working area. According to the study, the intensity of the light in the office for the *Thunbergia* at 9 am. was 319-366 lux, 12.00 am. is 328-388 lux and 15.00 pm. was 358-405 lux respectively as in Figure 5a For *Mandevilla* 9 am. was 310-342 lux, 12.00 am. was 364-389 lux and 15.00 pm. was 349-415 lux respectively as in Figure 5b.
From Figure 5a and Figure 5b, both type of plants had the highest LAI not more than 15% and dropped the illumination which is not lower than 300 lux.

5. CONCLUSION & DISCUSSION

The ranges of illumination drop from both types of plants around 45-68% were happened at LAI not more than 15% leading to the illumination on the table in the building still are higher than 300 lux as standard. (Thunbergia tree at the leaf area index in the range 7.30-11.16% and for the Mandevilla tree at the leaf area index in the range 6.30-14.73%). It would be applicable to recommend the building owner to use the plant as shading curtain by concerning the LAI at 15-20%. It is not necessary to calculate the exact LAI but estimate to have the leaves area around one fifth of the window frame.

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Using of *Tillandsia usneoides* L. as Dust Biomonitor around Natural Gas Separation Factory

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Abstract

This research aimed to study the Total Suspended Particulate, (TSP); lower than 100 µm, by using *Tillandsia usneoides* L. as biomonitor. It was placed at the natural gas separation plant Trans Thai-Malaysia (Thailand) Limited, Chana district, Songkhla. The size and amount of dust in TSP was analyzed by the LS Particle Analyzer in the unit of % (number of particle lower than 100 µm compared to all). This research had also used the Scanning Electron Microscope: SEM in order to see the dust on plant leaves. The experiment by placing plants had been done during May-June, 2014 for the raining season and February-March, 2015 for the summer season by storing data on a monthly basis and bimonthly basis. For monthly basis of May and June, 2014, the average amount of TSP was 25% and 33% bimonthly, whereas the bimonthly basis was 27%. For monthly basis of February and March, 2015, the average of TSP was 38%, and 62%, whereas the bimonthly basis was 39%. The period of one month could collect dust close to two months. Because of the rainy season, the rain might wash the dust on the surface of the *Tillandsia usneoides* L. The north and west of the gas separation plant showed high amount of dust on the *Tillandsia usneoides* L.

Keywords: *Tillandsia usneoides* L., biomonitor, TSP

1. INTRODUCTION

The air pollution problem occurs from various industries. One of the important industries is the gas separation plant in Songkhla, Thailand. Because of the part of energy industries in Thailand, it is monitored seriously by the post Environmental Impact Assessment. The air pollution measurement regulation commonly measures within certain hours, days, or weeks. The real operation, however, is happening for the whole year. The double check of the dust problem by using plant would be one of the economical solution comparing to the measurement by equipment. There are many kinds of plants used in monitoring the dust. For this study, the *Tillandsia usenoides* L. is used because the plant is epiphyte, xerophyte, and growth retardant which is easy for growing (without soil, no need to water and fertilize).

2. RELATED WORKS

Almost all types of industries, including transportation are the source of the air pollution, particularly the dust. PM2.5 means the dust size is not larger more than 2.5 µm. The ranges of size 2.5 to 10 µm are PM10, and from larger than 10 to 100 µm are large dust or Total Suspended Particulate size from 100 µm (TSP).

These dust particles from industrials sources e.g. Incinerator, combustion engine, and machine can blow for thousands of kilometers [1], [2]. It can suspend in the...
atmosphere for a year [4]. The effects of dust to human are the respiratory diseases such as asthma, allergies, lung disease, and scabies in the heart. When the dust moves into the circulatory system, it can affect blood system [4].

The dust may come together with, heavy metals, bacteria, parasite eggs and other particles. The dust can deteriorate building. It can seduce the photosynthesis of crops. It can affect the tourism economy, because particles of dust can cover the visual picture.

The problems mentioned above can be seen that the dust is a big problem that occurs worldwide and affects many aspects. There are some plants that are commonly used as biomonitoring. The most widely used in the research is T. usneoides L. [3]. It is easy to grow up because it can be grown up without soil, [9], [10], and little water to requirements [6]. The plants survive by absorbing nutrients from dust in the air, moisture in the air, and gas CO$_2$ for photosynthesis [5], [8], then release O$_2$. The cost of biomonitoring is cheap compared to other types of sensors buy not exactly like standard measurement.

3. METHODOLOGY

3.1 Physical and Morphological Analysis

3.1.1 Prepare the small piece of plant for physical and morphological analysis by using Scanning Electron Microscope (SEM).

3.2 Analyzing the Quantity and Size of Dust

3.2.1 Preparation process: Wash T. usneoides L. was washed with clean DI water (Deionized water).

3.2.2 Transplant procedure: Put the T. usneoides L. on the rack at four corners around the gas separation plant (at 4 corners as shown in Figure 1). Each corner has three sets (1 m. between of each set) to be used for the three composite sample in order to avoid the variance of dust on the plant. The study period is 4-months for each season (February to April 2014 and May to July 2015).

3.2.3 Experimental procedure: Wash the Sample plant with water (DI) 250 ml. The washed water is therefore tested by LS particle size analyzer.
Figure 1: Activities in Natural Gas Separation Plan and the Position of *T. usneoides* L. as Biomonitor

Figure 2 shows the activity of natural gas separation plant. The first point of biomonitor is the north entrance of the factory. The second point of biomonitor is the east at CO₂ removal unit. The third point of biomonitor is the south at power generator. The fourth point of biomonitor is the west for unloading and transportation gas NGV.

4. RESULT

4.1 The Results of Total Suspended Particulate (TSP)

The experiments was done by using plants as a *T. usneoides* L. for biomonitoring around the area of natural gas separation plant Trans Thai-Malaysia (Thailand) Limited, Chana district, Songkhla. Table 1 and Figure 2 shows the amount of dust both raining and summer season.

Table 1: The TSP amount of dust smaller than 100 µm monthly basis (in the raining season) May-June 2014 and (in the summer season) February-March 2015.

<table>
<thead>
<tr>
<th>South</th>
<th>Amount (%) of TSP Compared to All Size Particle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raining Season</td>
</tr>
<tr>
<td>North (N)</td>
<td>36.5</td>
</tr>
<tr>
<td>East (E)</td>
<td>24.0</td>
</tr>
<tr>
<td>South (S)</td>
<td>16.9</td>
</tr>
<tr>
<td>West (W)</td>
<td>23.8</td>
</tr>
<tr>
<td>Average</td>
<td>25.1</td>
</tr>
</tbody>
</table>

Figure 2: Compare the amount of dust in the raining season and summer season (May-June 2014 and February-March 2015) the fourth of the natural gas separation plant.
Figure 3: Weather data period May-June 2014 (raining season) and February-March 2015 (summer season) include is Rainfall (mm), temperature (°C), humidity (%), wind speed (Knot), and the initials of the 16 wind directions.

Figure 3 shows the initials North (N), North-northeast (NNE), Northeast (NE), East-northeast (ENE), East (E), East-southeast (ESE), Southeast (SE), South-southeast (SSE), South (S), South-southwest (SSW), Southwest (SW), West-southwest (WSW), West (W), West-northwest (WNW), Northwest (NW) and North-northwest (NNW).
Figure 4: Sea breeze and land breeze is the distribution of dust particles.

In the day, when the sun raised, the land was heated up very quickly and the air above it was warmed more than the air over the water. The warm air over the land with less dense begins to rise. Low pressure is created. The air pressure over the water is higher with cold dense air, moving to occupy the space over the land. The cool air that comes along is called a sea breeze as shown in Figure 4a.

In the night, the reverse happens. The land quickly loses its heat whiles the water retains its warmth. This means the air over the water is warmer, less dense. It begins to rise. Low pressure is created over the water. Cold and dense air over the land begins to move to the water surface to replace the warmer rising air. The cool breeze from the land is called a land breeze [7] as shown in Figure 4b.

4.2 Results Physical Characteristics of TSP

The physical appearance of the T. usneoides L. before exposing to the dust with a scanning electron microscope (SEM), showed small hairs (trichomeos scale leaves) covering intensively. It consists of dome cell, with cutin in the middle. The dust can be nutrient for T. usneoides L. as shown in Figure 5.

Figure 5: Physical Appearance of the T. usneoides L.
5. CONCLUSION & DISCUSSION

5.1 Discussion

In Figure 2 in the North, East and West respectively. The East side gained influence by the cool breeze from the sea to shore. The North and West side gained influence by the South and Southwest wind and the activities of the gas separation plant. In the North or front gate of the factory for all office coordination. For West area, there were loading and unloading ooh NGV trucks. During February to March 2015 (summer season), the amount most of TSP is highest in West, North and East respectively which was influenced by the Northeast monsoon and the activities of the gas separation plant. Activities in natural gas separation plant and the position of T. usneoides L. as biomonitor are shown in Figure 1.

Figure 6 shows the structure of the particles of dust that sticks to the surface of the T. usneoides L. The experiments show the large size of dust particle in the middle of the dome cell. It was attached by cutin in the middle. The small dust particles are inserted to the wing cell of T. usneoides L.

5.2 Conclusion

T. usneoides L. as biomonitor can show the amount of TSP compared to all size of dust. The amount of TSP in the north was affected by the activities of the gas separation plant. In the north of a gas separation plant, there is transportation of car and truck. The side transportation and unloading of natural gasoline NGV made the distribution of dust higher than other sides. The amount TSP in summer season is higher than raining season because the rain can wash the dust on the surface of the T. usneoides L. well.
REFERENCES
Assessing Language Skills of DRIC Freshmen to Design an English Intensive Course underlying CEFR

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Abstract
Due to high number of student dropout rate, most students have inadequate English language skills which impede their study. English language is used as a medium in teaching. Although Hatyai University provides them the Remedial English during the first semester along with other courses in English, it seems insufficient because students have to study Remedial English and other courses simultaneously. Hence, the present study aims to design a preparatory course to enhance English skills of students who are studying in both international and bilingual programs in Didyasarin International College at Hatyai University before the semester starts. The sampling group was 40 freshmen of Didyasarin International College in academic year 2016. The research instrument was the test validity and reliability conceptualized by CEFR. The test consists of language skills and subskills such as listening, speaking, reading, writing, vocabulary and grammar. The data were statically analysed by utilizing paired t-Test to compare the difference between pretest and posttest along with the average to examine which skills should be emphasized. Once the weakest skill was found, the skill will be tested the efficient correlation with subskills such as grammar and vocabulary to examine whether these subskills predominate the skill in order to design the weight of the importance of each skills. The salient findings were shown as follows: First, student performance in writing was the poorest part of all skills. Their writing are incomprehensible and ungrammatical. Though the best students performed well in writing, there were lots of grammatical errors. Secondly, the emphasis was heavy on writing. After taking the course, students can perform far better in the writing part comparing to the pretest. However, in the end of the course, the majority of students develop slightly from the level A1 to the level A2. Interestingly, few are able to attain B1 and B2 after merely taking the two-month course.

Keywords: CEFR Test, course design

1. INTRODUCTION
Typically, Didyasarin International College (DRIC) enforces students whose score of placement test lower than the setting standard to enroll course, Remedial English which is a compulsory course for the first semester. It pointed out that high number of students’ retirement rates become a perpetual problem. Regarding the information obtained from TQF.7 of the curriculum of International Business English
Department (IBE), the fourth year students of Department of International Business English, for instance, are only five students left today comparing to the number of intake in academic year 2013 at 26 students. A fourfold retirement becomes general to all batches. Previous year, the SAR committees gave suggestion that a preparatory course should be excluded in the curriculum and extraneous from the typical semesters. Then, the Intensive English Program is taken place. Students who are attain the level A1 and A2 (low) in the placement test are mandatory to take the program. It is such a controversial issue what skills and subskills should be improved indeed. Since the Ministry of Education is exerting effort towards to reform English teaching and learning and raise the standard of students’ English proficiency. CEFR (Common European Framework Reference) is enforced at all levels of education to conceptualize learning and teaching of English language. Undergraduates must be able to listen, speak, write, and read for the gist. They are capable of speaking about familiar and interesting topics. (Ministry of Education, 2014) At the meantime, DRIC is enthusiast to adopt CEFR to learning, teaching, and assessment. Consequently, CEFR was implemented as a DRIC placement test in recent years. This year, it was implemented as a tool to design the Intensive English Program.

Objectives
Upon completing data analysis, the result was used to design an Intensive English Program for DRIC freshmen.

2. RELATED WORK
2.1 Definition of CEFR
Common European Framework of Reference for Languages (CEFR) is described by European Council (2014) that it was designed to provide a transparent, coherent and comprehensive basis for the elaboration of language syllabuses and curriculum guidelines, the design of teaching and learning materials, and the assessment of foreign language proficiency. The European council also describes CEFR as six-level foreign language proficiency namely A1 and A2, B1 and B2, C1 and C2.

2.2 Role of CEFR Test in Course Design
As CEFR provide a guidance to educational institutes design course and assessment precisely with description into a certain number of levels. Once students are placed into the level they attain, then lecturers are able to provide the specific needs to elevate students’ English proficiency level. A multitude of previous studies implemented CEFR to design their curriculum. Lynch & McKeurtan (2012), for instance, created language teaching software based on CEFR in order to help their non-English major students who have low proficiency level of English language in Japan as a compulsory classes and to classify them to class C and D. It showed that those students performed better. Reteriated by Elshoff (2014) designed a curriculum for intensive language training by utilizing CEFR as a crucial tool for assessing language skills as well as for developing courses for students. Later on, Oberhofer, M. & Colpaert, J. (2015) created TLC Pack stands for Teaching Languages to Caregivers ranged from A2 to B2 level of the Common European Framework of Reference for Languages (CEFR) to support migrants working or hoping to work in the care giving sector. Consequently, no research showed the emphasis on a specific language skill in course design. Instead, they implemented CEFR as a reference for their course not for diagnosing students’
language skills. So far, only Shaarawy (2013) specifically designed her course of writing.

3. METHODOLOGY

3.1 Research Instruments

The research implemented CEFR test as a benchmark to measure students’ proficiency of four English language skills and two subskills: listening, speaking, writing, reading, grammar and vocabulary. The test was adopted from the book, Common European Framework Assessment (Timesaver). Moreover, the test was piloted with 26 students and statistically analyzed the content of the test. The test consists of six parts with four levels: A1, A2, B1, and B2. There are 80 items in the test excluding writing and speaking parts. Writing part was designed as three different tasks according to the CEFR level while speaking part adopted criteria and rubrics provided by CEFR (Ewards, 2008).

3.2 Population

26 DRIC freshmen for semester 0/2016 was the sampling group of this study. According to the announcement imposed by Ministry of Education, secondary school students must attain the level B1. Hence, DRIC announces that students have to achieve the level B1 unless they have to enroll the Intensive English Program provided by DRIC for two months before the real semester starts (Ministry of Education, 2014).

3.3 Data Analysis

Then, the test results were statistically analyzed. First, paired t-Test was used to examine the significant difference between pretest and posttest if the students’ language skills are improved. Second, the implementation of coefficient correlation was to consider the relationship among skills and subskills. For instance, if a majority of students performed poorly in a skill, which subskills predominate the specific skills. Lastly, an average was used to compare among skills which skills and subskills students need improvement indeed.

4. IMPLEMENTATION

The result of this study was utilized as an assessing tool in an attempt to design an Intensive English Program to give an emphasis on the right track. The course is used to reinforce DRIC students’ foundation of English language skills to be ready to study in Didyasarin International College which English language is used as an instruction in a classroom. The fruitful consequence of the research leads to possibly avert student’s retirement rate.

5. RESULT

5.1 The Skill that Needs Immediate Attention and Improvement

Table 1: Average Score of CEFR Test

<table>
<thead>
<tr>
<th>Listening</th>
<th>Vocabulary</th>
<th>Grammar</th>
<th>Reading</th>
<th>Writing</th>
<th>Speaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.11538462</td>
<td>7.346153846</td>
<td>6.30769231</td>
<td>9.038462</td>
<td>3.288462</td>
<td>7.307692</td>
</tr>
</tbody>
</table>
According to the information from the table above, it gives the summary of the average of DRIC students’ language skills in the pretest. It indicates that the lowest performance of students contributed to writing part at 3.28 which is approximately 100%-200% lower than other skills. It can be considered that writing skill should be given more emphasis on the course while listening skill outnumber the other skills at 8.12.

5.2 The Relation between the Poorest Language Skill and Subskills (Grammar and Vocabulary)

Table 2: CEFR Level of DRIC Freshmen

<table>
<thead>
<tr>
<th>Grammar</th>
<th>G1</th>
<th>W1</th>
<th>Writing</th>
<th>W1</th>
<th>V1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.676**</td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.681**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>26</td>
<td>26</td>
<td>N</td>
<td>26</td>
<td>26</td>
</tr>
</tbody>
</table>

More specifically, table 3 indicates the significant linkage between writing skill subskills in terms of grammar and vocabulary at 0.001. It can be interpreted that grammar and vocabulary are considerably dominant in writing skills. If learners need to improve their writing skill, they have to be given more emphasis on vocabulary and grammar as well.

5.3 Post-Course DRIC Students’ Development

Table 3: CEFR Level of DRIC Freshmen

<table>
<thead>
<tr>
<th>CEFR Level</th>
<th>Pretest (n=26)</th>
<th>Posttest (n=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of people</td>
<td>Percent</td>
</tr>
<tr>
<td>A1</td>
<td>4</td>
<td>15.38</td>
</tr>
<tr>
<td>A2 (Low)</td>
<td>17</td>
<td>65.38</td>
</tr>
<tr>
<td>A2 (High)</td>
<td>3</td>
<td>11.54</td>
</tr>
<tr>
<td>B1</td>
<td>2</td>
<td>7.69</td>
</tr>
<tr>
<td>B2</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1 illustrates the frequency of DRIC freshmen’s level of proficiency underlying CEFR and compares students’ levels between pretest and posttest. Within a two-month program, it revealed that most DRIC freshmen had a slight development level of language proficiency. It is notably seen that 65.38 % of students who got A2 (low) in the pretest elevated to A2 (high) at 42.30% for the posttest. Remarkably, a small number of students are able to raise their proficiency level to B1 and B2 at 23.08% and (3.85%) respectively.
Table 4: Paired Two Sample t-Test of CEFR Placement Test between Pretest and Posttest

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 Pre-test</td>
<td>41.40</td>
<td>26</td>
<td>15.45</td>
</tr>
<tr>
<td>Posttest</td>
<td>55.26</td>
<td>26</td>
<td>15.30</td>
</tr>
</tbody>
</table>

Paired Differences

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig.(2-tailed)</th>
<th>Sig.(1-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1 Posttest-Pretest</td>
<td>13.86</td>
<td>5.76</td>
<td>1.13</td>
<td>12.2748</td>
<td>25</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

From table 4, it gives the information of the average score of 26 DRIC freshmen’s score between pretest and posttest were at 41.40 and 55.26 respectively. It reveals that average score of the posttest is a bit higher than of the pretest with statistical significant calculated by using sample paired t-Test at the .001. Hence, it was proved that the course successfully assisted students to enhance their English proficiency level.

6. CONCLUSION & DISCUSSION

As per the result mentioned above, it reflects languages teaching in high school that writing skill are less paid attention in classroom disregarding the score of grammar and vocabulary. Though it shows the correlation among grammar, vocabulary, and writing skill, students did the test in the parts grammar and vocabulary far better than writing. It envisions that despite knowledge of subskills, students were unable to write well. Vocabulary and grammar, however, plays the significant role in writing. Besides language subskills, other elements of writing skills such as structure of sentences or sentence patterns should be taken into consideration. Moreover, this consequence may raise educators’ awareness of concerning why writing is the weakest skill of a majority of students today. It is questionable why writing is the least skill emphasized in classrooms.

Since CEFR placement test has been recently gained popularity to utilize as a tool to place students into specific attainability levels of language proficiency, the educator is able to group students and design the course to help them which language skills or subskills should be prioritized in the course. Upon designing the course English Intensive Course as an English language treatment for DRIC students, it stated that the Course can be helpful to improve students’ language ability. The course combines the receptive and productive skills which divided into two sessions: listening-speaking, and reading-writing. While macro skills were taught, the subskills were also taught together. Topic adjustment was based on the weak skills that most students did on the placement test. After taking the course, the most prominent and noticeable contributed to writing skills. In spite of small mistakes, students were able to construct sentences which are better than they did in the pretest because most of student left the writing part blank, wrote irrelevant content, or made ungrammatically wrong. Therefore, if the teacher teach writing and speaking skills, the teacher can teach sub skill especially grammar as a mini lesson. This can help the students more clearly how each skill required grammar and vocabulary. Chin (n.d.), a professor of English at the University of Montana, has also supported that integrating grammar instruction into their revising and editing process helps students make immediate applications, thus allowing them see the relevance of grammar to their own writing.
6.1 The Future Study

The study should be constantly tested DRIC freshmen to examine the similarities and differences of students’ English language proficiency each batch in order to obtain a stable course design for DRIC Intensive English Program. Setting aside from testing students’ language skills, the test should be conducted as a long term research to reflect DRIC teaching or curriculum whether they are capable of elevating students’ English proficiency level when they are in the last year. The most importance thing is whether Intensive English Program is able to decrease the student retirement rate or not. Moreover, this intensive program focused on teaching language skill rather than teaching approaches or methodology simultaneously. In the future projection, teaching is probably considered as one of a key variable to reinforce students’ language skills.

REFERENCES
Development of a Science Instructional Model Based on the Using Constructivist Theory Affecting Learning Achievement and Higher Order Thinking Ability of Mathayomsuksa II Students

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Abstract
The purposes of this study were to (1) develop an instructional model for science, using constructivism for learning achievement and higher order thinking ability of Mathayomsuksa II Students; (2) conduct a literature review of the development model and implementation model of the instructional model for science, using constructivism for learning achievement and higher order thinking ability of Mathayomsuksa II Students by applying the research and development. The research segments consisted of three distinct stages as follows: Stage 1: a literally review of literature review of current basic data, ideas and theories from current published literature in order to fully develop the instructional model for science. Stage 2: developing the instructional model for science which check of the suitability by experts and proved by trying out. Stage 3: Implementing the instructional model for science employing an experimental design: the pre-test and post-test, control group design.

The student samples were taken from two classes of Mathayomsuksa II, student form Bannasan School, Surat Thani Province; during the second semester of the 2015 academic year; a class of 37 students was selected to be the experimenting group; the second class of 40 students was selected to be the control groups. We selected two research instruments for evaluating the effectiveness of the instructional model for review and analysis was done by percentages statistic, arithmetic mean, standard deviation and finally the T-test.

The research findings can be summarized as follows: 1) the final instructional model that we developed consisted of principles, objectives, instruction steps and results. 2) The evaluation of the effectiveness of the developed instructional model for science was obtained by reviewing the results of the implementation of the instructional model as follows: (1) The final post-test scores on achievement and higher order thinking ability of the experimental group were significantly higher than the control group at the 0.1 level. (2) The post-test score on achievement and higher order thinking ability of the experimental group were significantly higher than the pre-test scores at the .01 level.

Keywords: instructional model, constructivism, higher order thinking ability

1. INTRODUCTION
The concept of learning management with learning process emphasizing students to create knowledge of the Constructivist educators is the widespread popular idea. This theory suggests that the knowledge is created by students based on the reasoning process. The learning is a change of the cognitive structure by using reason on the existing knowledge fundamental structure (Phye & Andre. 1986: 2). The ultimate goal of this concept is to encourage students to love learning, learn by themselves.
independently, recognize their role and self-control capability and have the logical thinking as well as understanding the studying subjects deeply and applying the knowledge (Janya Phuudom. 2011: 3). The learning management changes the main emphasis of learning from a specific content to cognitive development process by placing importance for students’ role in learning their interesting subject that they are enthusiastic to learn. It expects the confrontation with situation, thinking, management, practice and implementation of acquired knowledge to solve the problem. Students has their role from planning the study, practice, research, collecting data by methods from various study center, analyzing data by themselves, having interaction with environment and person to create explanation about the searched and collected data in order to lead to answer of such problems or questions. This is knowledge created by student themselves (Department of Curriculum and Instruction Development. 2013: 215-216).

The higher-ordered thinking is an objective of required education reform for students according to the Science Learning Area management under the Basic Education Core Curriculum B.E. 2551 which emphasizes the higher-ordered thinking development. It deems the higher-ordered thinking is a cognitive ability requiring development during students studying in the school namely; analytical thinking, critical thinking, creative thinking, logical thinking and scientific thinking. Typically, these types of the higher-ordered thinking cannot separate and should develop at the same time along with other abilities. It is not necessary that which subject should be developed before or after (Department of Curriculum and Instruction Development. 2013: 227).

According to this concept, it leads to the important science learning models encouraging students to have ability in creating knowledge and thinking coexisting as follows: knowledge seeking model and cooperative learning model; and promoting learning activity arrangement to develop the higher-ordered thinking ability (Department of Curriculum and Instruction Development. 2013: 218-224). Those who apply these study models recognize and adapt their role from reader, lecturer and demonstrator to planner of activity for students’ knowledge, supporter of students’ role from selecting studying subjects, planning study, collecting data by methods from various study centers, analyzing data and promoting the interaction and exchanging knowledge and summarizing educated knowledge by themselves. However, students fail to understand contents by themselves due to the curriculum limitation about time requiring lecturers to teach all learning standards. It does call into question whether students have required knowledge. Learning condition which still emphasizes memory lacks of practice causes a problem on science process teaching skill in high level, teachers lack of understanding of contents; point linking lacks of raising question urging thinking and most experimental activities are to prove knowledge defined in the curriculum within limited time. These issues prevent students from thinking and reasoning development according to existing knowledge, thinking and belief and fundamental agreement. Teachers’ study management has no an inducement for problem which leads to inspection and creates new knowledge. As aforementioned, we conclude that implementation of self-created knowledge theory in science learning fails to achieve the expected result (Suwit Khongpakdi.2553: 42).

The researcher is of the opinion that the suitable teaching model development affecting the development of ability in creating knowledge, learning achievement and higher-ordered thinking and regards that the teaching model emphasizing students to create knowledge by themselves is the supportive model for thinking development. The
thinking development supports the knowledge creation and learning achievement as well as the teaching model emphasizing students to create knowledge leading to changing idea about study subject to student-centered education management subject to the National Education Act of B.E. 2542 (1999). Thus, the researcher is interested in studying and applying the instruction activity management based on learning process emphasizing students to create knowledge according to the Constructivist educators’ concept in development of the learning achievement and higher-ordered thinking ability for science instruction activity management in lower secondary school at the same time so that students have learning in accordance with the curriculum purpose.

**Objectives**

1) To develop the science instructional model subject to the self-created knowledge theory for development of ability in the knowledge creation, learning achievement and higher-ordered thinking of Mathayomsuksa II Students.

2) To evaluate result of the science instructional model implementation subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability of Mathayomsuksa II Students.

### 2. RELATED WORKS

#### 2.1 Scope of Study

1) Population used in this research consists of 360 students who study in Mathayomsuksa II at Bannasan School, Secondary Educational Service Area Office 11 (Surat Thani).

2) Samples used in this research consist of Mathayomsuksa II students at Bannasan School, Secondary Educational Service Area Office 11 (Surat Thani) who study during the 2 semester, 2558 academic year; separated into 38 samples in the experimental group and 40 samples in control group, 78 samples totally. The samples were taken by the cluster sampling.

3) Content used in the teaching model is science subject of Mathayomsuksa II on Substance and Change.

#### 2.2 Research Instrument

Instruments applied in this study include:

1) The science instructional model subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability.

2) The learning management subject to model step on Substance and Change of Mathayomsuksa II.

3) Learning achievement pre-test and post-test on Substance and Change of Mathayomsuksa II.

4) Four sets of higher-ordered thinking ability test include analytic thinking test, critical thinking test, problem solving thinking test and creative thinking test.

### 3. METHODOLOGY

This research was conducted subject to the research and development methodology containing 5 research stages as follows:

#### 3.1 Development of the science instructional model subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability conducted by
1) Study the concept about the instructional model development to analyze and synthesize the qualities and elements of the instructional model.

2) Analyze and synthesize concept and content about the self-created knowledge to use as data in defining the main content of model’s element and model’s instruction management method.

3) Study and analysis the theory about instruction management to develop students’ higher-ordered thinking which it found that the major thinking development namely analytic thinking, critical thinking, problem solving thinking and creative thinking.

4) Create the science instruction model according to the self-created knowledge theory conducted by analyzing the main point of the theory to be used in developing students for their self-created knowledge ability, synthesizing the main point of each element of model and prepare the instruction plan in accordance with the model.

### 3.2 Checking the Validity of Model by Expert

1) Content validity check of instructional model and management plan was conducted by 3 experts by checking the suitability and congruence of element and point of model’s each element. The suitability assessment test is the 5-level assessment as follows: Highest, High, Moderate, Low and Lowest. The suitability value was analyzed by mean and Standard Deviation (x̄ and SD). The instructional model and management plan was improved by the experts’ suggestions.

2) The instruction plan was used and adjusted. The developed instruction plan was used with 40 Mathayomsuksa I students at Bannasan School during the 1 semester of 2558 academic year. The 1-3 instruction plans was used for 9 hours. Then, the result from the instruction test was improved for more suitability.

### 3.3 Creating Instructional Instrument

namely learning achievement pre-test and post-test and higher-ordered thinking ability test.

### 3.4 Implementation of Instructional Model

to compare the learning achievement and higher-ordered thinking ability of experimental group and control group which were Mathayomsuksa II students at Bannasan School during the 2 semester of 2557 academic year. Of these, 38 samples were instructed with the developed instruction model and 40 samples in the control group studied the normal model. The experimental plan was the Randomized Pretest and Posttest Control Group Design by using content according to Science Learning Area curriculum on Substance and Change.

### 3.5 Assessment of Effectiveness of Instructional Model

was conducted as follows:

1) Analysis points from the learning achievement and higher order thinking ability pre-test and post-test of samples with T-Test (Dependent Sample).

2) Analysis and compare points from the learning achievement and higher order thinking ability pre-test and post-test of samples with T-Test (Independent Sample).

### 4. RESULT

4.1 Development of science instructional model subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability.

4.1.1 Model Principle
Science instructional model subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability has 5 main principles as follows:

1) Arranging the learning activity supporting the thinking ability while working all stages.

2) Arranging the learning activity encouraging students to learn with the learning and practicing process as encouraging students to choose the learning method and problem-solving with suitable method and acquiring skills from their learn activity.

3) Arranging the activity supporting the interactive creation in learning process as encouraging students to know teamwork and learn each other both inside and outside of group.

4) Supporting ability in building knowledge by evaluation and synthesis of knowledge by themselves with connecting their existing experience and new data through analysis, consideration and organization for new knowledge.

5) Supporting ability in using knowledge.

4.1.2 Objective of Model as follows:

1) To develop the higher-ordered thinking ability.

2) To develop the learning and knowledge collection ability.

3) To develop the cooperative skill in learning and communication, expressing opinion, discussing, arguing and exchanging knowledge.

4) To develop the ability in synthesizing data from meaningful learning, knowledge organization and broadening.

4.1.3 Instructional Model Stage received from model’s objective analysis with 7 stages as follows:

1) Confronting Problem is arranging the activity encouraging students’ thinking by situation or question so that students have issue, determine the main point of learning subject and raise a question for answering.

2) Exploring Problem is arranging the activity encouraging students to plan for answering systematically from defining the group’s learning goal and choosing suitable method in seeking knowledge as well as allocating responsibility.

3) Investigating Knowledge is a stage which students’ research and investigate problem in accordance with the defined plan by group cooperation.

4) Exchanging Knowledge is a stage which students analyzes and study data together to confirm the analysis, conclusion, organization and presentation results to exchange knowledge.

5) Reflecting Thought is analyzing the knowledge exchanging result for each group’s receiving knowledge and their own learning result and choosing reliable data.

6) Summarizing is managing the receiving knowledge and analyzing, summarizing, organizing and ordering to be communicative knowledge.

7) Applying is arranging the activity encouraging students to apply knowledge with new problematic situation.

4.1.4 Result and Model Result Assessment is the required quality for students during activity arrangement and post activity as follows:

1) Students have knowledge about content learnt according to the curriculum’s expectation by test with the learning achievement test.
2) Students have ability in higher-ordered thinking by test with the higher-ordered thinking test.

4.2 Analysis of science instructional model subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability.

According to implementation of the science instructional model subject to the self-created knowledge theory for development of the learning achievement and higher-ordered thinking ability.

4.2.1 Comparison of the pre-study and post-study science learning achievement and higher-ordered thinking ability of students studying with the instructional model.

According to the result of comparison of the pre-study and post-study learning achievement and higher-ordered thinking ability by science instructional model with the developed self-created knowledge theory, it found that the post-experiment learning achievement and higher-ordered thinking ability with the researcher-developed instructional model had higher result than pre-test instructional model at significance level of 0.1. It indicated that the science instructional model subject to the self-created knowledge theory could be used in developing the learning achievement and higher-ordered thinking ability for lower secondary students as stated in the Table 1.

Table 1: Comparison of the pre-study and post-study science learning achievement and higher-ordered thinking ability by using the instructional model of experimental group

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>N</th>
<th>X</th>
<th>∑ D</th>
<th>∑ D²</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>38</td>
<td>11.184</td>
<td>247</td>
<td>1787</td>
<td>18.091</td>
</tr>
<tr>
<td>Post-test</td>
<td>38</td>
<td>17.684</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Critical Thinking</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre-test</td>
<td>38</td>
<td>13.711</td>
<td>266</td>
<td>2108</td>
<td>16.735</td>
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<tr>
<td>Post-test</td>
<td>38</td>
<td>20.711</td>
<td></td>
<td></td>
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<tr>
<td>Analytic Thinking</td>
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<tr>
<td>Pre-test</td>
<td>38</td>
<td>12.026</td>
<td>159</td>
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<td>9.415</td>
</tr>
<tr>
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<td>38</td>
<td>16.211</td>
<td></td>
<td></td>
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<tr>
<td>Problem-solving Thinking</td>
<td></td>
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<tr>
<td>Pre-test</td>
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<tr>
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<td>38</td>
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<td>Creative Thinking</td>
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<td></td>
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<tr>
<td>Pre-test</td>
<td>38</td>
<td>75.315</td>
<td>418</td>
<td>6125</td>
<td>10.555</td>
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<tr>
<td>Post-test</td>
<td>38</td>
<td>86.316</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ t (.01 : df 37) = 2.423 \]

4.2.2 Comparison of the pre-study and post-study science learning achievement and higher-ordered thinking ability of students in the experimental group and control group.

According to result of comparison of the post-experiment learning achievement and higher-ordered thinking ability, it found that students in the experimental group had higher average learning achievement, critical thinking, analytic thinking, problem-solving thinking and creative thinking ability than students in the control group in all aspects at significance level of 0.1 as stated in the Table 2.
Table 2: Comparison of the learning achievement and higher-ordered thinking ability after using instructional model of students in the experimental group and control group

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>Experimental group (38)</th>
<th>Control group (40)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$S^2$</td>
<td>$\bar{X}$</td>
</tr>
<tr>
<td>Learning Achievement</td>
<td>17.684</td>
<td>11.303</td>
<td>14.925</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>20.71</td>
<td>10.373</td>
<td>13.125</td>
</tr>
<tr>
<td>Analytic Thinking</td>
<td>16.211</td>
<td>8.279</td>
<td>13.450</td>
</tr>
<tr>
<td>Problem-solving Thinking</td>
<td>20.605</td>
<td>6.732</td>
<td>18.80</td>
</tr>
<tr>
<td>Creative Thinking</td>
<td>86.316</td>
<td>59.249</td>
<td>81.275</td>
</tr>
</tbody>
</table>

$t (.01 : df \ 76) = 2.379$ ; $F (.01 : df_1 = 37, df_2 = 39) = 2.14$

5. CONCLUSION & DISCUSSION

The result of developing science instructional model according to constructivist theory for developing learning achievement and higher order thinking ability found that the science instructional model is consistent with the theory that researcher analyzed four factors such as principle, objective, learning and teaching process and result of model. Researcher has determined the purpose of developing of learning and teaching clearly, systematically and related each other. The detail of composition was synthesized by several theories such as a concept of instructional and a concept of developing higher order thinking. These compositions were checked by expert for finding suitable model and they were improved upon the recommendation of experts. Besides, the development models were brought to teach and improved them about time, activity and evaluation until they had suitable for learning and teaching which according with Joyce and Weil's concept. Joyce and Weil said that developers should use several concepts for developing learning and teaching model, they should not use only concept. They must check the effectiveness of model by research method after they developed them for checked their theories and principle in order to correct the mistakes. Then apply learning and teaching model according their objectives.

In considering the result of science instructional model according to constructivist theory for developing learning achievement and higher order thinking ability of Matthayomsuksa 2 students to apply it found that it has effectiveness for developing learning achievement and higher order thinking ability. The researcher’s science instructional model according to constructivist theory can help the students to create their own knowledge with understanding by thinking and practice according to the learning procedure such as student analyzed the important issue of situation, the students planned to survey knowledge that they need to know, they considered to choose reliable data, they considered the argument that they want to study, they planned and solved the problems by using scientific process such as observation, record, analysis, discussion, conclusion, Prepare and Customize data to show the discovery, they exchanged their knowledge each other, they considered the reliability of data that
they got it and they incorporating new ideas to blend with the old ideas. All of these things help the student to understand the content well and correctly by themselves. All of these things contribute to the experimental group had scores on learning achievement and higher order thinking ability higher than the control group that they according to the learning and teaching model of constructivist theory of Anthony, Driscoll, Gredler and Woolfolk. They said that knowledge is something that student can be learned from the experiences built up on the basis of existing knowledge and wisdom and creation of joint of the member that language and culture contributes learning.

6. SUGGESTION

6.1 Suggestion for Instructional Development

6.1.1 As in the instructional management model subject to the self-created knowledge theory, students must be thinker from defining the main points and problem, planning solution and doing practice by themselves, having discussion and exchanging knowledge, instructor should arrange sufficient time for students’ learning.

6.1.2 In the instructional activity arrangement, students should be free from teachers’ supervising and control their own activities direction the most. Students should have chance to decide and consider their interesting by themselves which supports the maturity development and the instructional discipline.

6.1.3 Students should have the best support for their answer seeking from knowledge sources such as technology usage or personal or expert as the instructional tools.

6.2 Suggestion for Next Research

6.2.1 Result of learning from the instructional model subject to the self-created knowledge theory should be studied in other aspects including scientific quality of students, instructional discipline or instructional endurance.

6.2.2 Research on the instructional model with higher students subject to the self-created knowledge theory should be studied in order to compare the result and develop the model suitable for students.

REFERENCES


Developing Multiple Ways of Music Intelligence Measurement and Evaluation for Building Primary Student Music Instructional Program

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Abstract
The purpose of this study was to examine quality of the music intelligence tests for primary students which are constructed and developed to be multiple dimensions for primary school students in Thailand. The test comprised 3 parts of Music Intelligence test, Music Aptitude test and Music Ability test. The samples of 70 primary students were selected by purposive random sampling technique. The qualities of tests were examined by item validity, reliability, difficulty and discrimination. The research findings were: (1) validity of music intelligence test was between .50 to 1.00., (2) the discriminating power of test was between .67 and .68., (3) the difficulties of the test were between .50 and 1.00., and (4) reliability of music intelligence test was .862.

Keywords: music, music education, music aptitude, aptitude, intelligence, primary, elementary, child

1. INTRODUCTION
Music has been evolved with human being since human were born in this world of music. Music was created for various purposes and, transformed from generation to generation and still continue this procedure with material from their local environment. Music is also used as self-identity in order to express and communicate humans’ complicated emotional feelings. Even aural aesthetic, only humans can detect it. Therefore, humans have this particular and precious sense of music.

Music, as culture and art, appears in any cultural communities around the world. It is part of human life. In addition, music is similar to linguist. They are plenty of languages; the human brain can increase potential to create their own specific talent.

In 1989, Howard Gardner, music intelligences from his multiple intelligences theory convinced the educational, community of one of eight intelligences which anyone available. However, the range of speed of achieving music talent is different depending individual potential. (Beginning from music aesthetic to music ability to music talented.) Music intelligence or in another word, Genius, is ability of students who achieves music ability much faster than average.

In 1998, Ministry of Education, (1998) Thailand set a music subject in school’s arts department which aimed to increase aesthetic of Thai students. Music subject is not the main point to study, when compared to science, mathematics, and linguistics because those are the main subjects required for to higher education admission. In addition, the value and belief that music is for special talented persons convinces parents and students to ignore this valuable subject.

2. RELATED WORKS
2.1 The Related Intelligence Test
Guidance education is very important to prepare students for choosing their area depend on their aptitude but most parent and teacher who do not have tools to evaluate their student are used to select area of study by their favorite, not by students themselves. For music education, it is similar to the case; there are tools for helping students and parent to decide what they should study in the future. Concept of IQ by (William Stern: 1914), Intelligence test by Youngstrom (2003), Music aptitude test Seashore (1919), MI test (Multiple Intelligences test), MAP (Music Aptitude Profile) are used in the same way.

In Thailand, Thai music aptitude test has been founded but for western music in Thailand, this research is going to be original. Concepts of this research are three factors of test. First, every student has music aptitude but different and measure by MAT (Music Aptitude Test). Second, Music intelligence is able to be test by MI Test which students shows their decision from virtual circumstance. Third, Music ability, music is skill, so researcher are able to test them by observe them at classroom, music learning behavior and music performance which are different by individual nurture.

2.2 Use of Music Aptitude Test in School
Teacher necessary to know about their student aptitude and potential in order to put their student on the right area of education. By the way, psychologists are interested in construct and develop aptitude test for more than fifty decades. Suchart (1972) proved that aptitude test is able to shows student how high of their potential in music.

In 1930, music aptitude was worldwide used as standard test for music institute. Gordon (1971) Psychologists believe that aptitude were influent to music teaching methodology and arguing that music potential was from nature or nurture.

2.3 Theory and Conceptualization of Music Intelligence and Aptitude
European research methodologists in early aged who worked with music for more than decades gave the opinion that aptitude was nurture. For example, children whose parents have music aptitude both, children are going to have high potential in music. In addition to Gordon, (Seashore: 1919) confirmed that music ability is heritage.
Figure 1: Conceptual Framework of Music Intelligence Test Development

On the other hand, musician, for example, Toscanini, Rubinstein, Schnabel who are world famous musician were not born from musician family. Conclusion, children were born from musician parents who had high music aptitude, they rarely had music aptitude at all.

European education based on Gestalt Theory gave an idea that music ability is combination between music ability, music aptitude and intelligence which have to be totality. The test will not effective if it was isolated test.

In addition to the theory, Seashore, Lewis and Seatveit (1960) shows that music ability is not include in aptitude test. The music ability they use for indicate music aptitude are very basically. Also Lehman (1968) claim that music aptitude is not music ability which is various types.

The important of this research is to create a selection of tools for music teacher which can be helpful for student who prefer high level of music instead of screen only science student by IQ test only which is not effective for arts ability.

Carl seashore’s aptitude test was used as nation test. It was beneficial for teacher to plan what music to teach student. This music intelligent test is very important for developing enhancing music ability in world class. The students have opportunity in appropriate screening test and to prove themselves and having promoted the right way with stand quality aptitude test.

In conclusion, constructing music intelligent test is design to part in order to cover music intelligence, aptitude and ability. This test is including decision, listening, learning ability and performs music.

3. METHODOLOGY

3.1 Population

The research populations were students from primary school in Thailand academic year 2558 BE. The students are from various types of school such as Bangkok Metropolitan School, private school and international school.

3.2 Sample Group

The samples in the study were divided into two groups: First stage, pratomsuksa 1-3 and Second stage, pratomsuksa 4-6 for 70 students by purposive random sampling.

a) Music intelligent test: Students are asked which way they decide to do for each situation.

b) Music aptitude test by aural, listening and singing: Students shows their potential of aural inside by sing out from reading memorizing and beating rhythm.

c) Music ability test by learning practicing and performance: Students join music class with performance, one who show music ability within time limited is talented.

4. IMPLEMENTATION

Researcher had designed the instrument from every type of intelligent test. Then divided student into two groups: outstanding standing and normal student by the following step. First, researcher collects music intelligence test and create situation for decision choosing music. This stage is paper based test. Second, music aptitude test, researcher creates music for aural test. Students have to participate music class by
following listening and reading question. Using musical sense to sing out the correct pitch and beat on the percussion available which show out how they understand music in common sense. This is certified by Edwin E. Gordon, audiation theory. Third, music ability, this stage researcher provide music classroom one hour a day, there are eight classes such as music reading and composition, music skill with instrument depends on student choice, basic conducting for children.

Researcher as observer recorded each result from each stage, evaluate student in marks using criteria attached in document to ensure that it is validate and reliable.

5. RESULT

Statistical Data Analysis was conducted by ready-use-program. The analyses were the following:

5.1 Validity (IOC) - Validity of Music Intelligence Test for primary school students, through MI, Aptitude test and Music Ability test were between .50 to 1.00.

5.2 Discrimination Power - The discriminating powers of test were between .67 to .68

5.3 Difficulty - Item difficulties were between .59 to .60.

5.4 Reliability (α - Coefficient) - Reliability of Music Intelligence Test for primary school students, through MI, Aptitude test and Music Ability test were .862.

6. CONCLUSION & DISCUSSION

The following is a discussion of the development of music intelligent test for primary school students’ research.

Quality of instrument, the music intelligent test for three parts is valid follow in Gardner’s theory of MI and Gordon’s MAP. However, using this test with student from folk music culture might get the error result for listening case because folk music uses different temperament.

The discriminating power of test were between .67 to .68 conform to use it together and apply result of test for teaching plan how each students learn music. In addition, result can be used to promote their intelligences by further step. Case study from researcher, music students who play music accurately and quickly but they rarely play beautiful music because of non-musicianship. Therefore, this instrument is effective.

The difficulties of the test were between .50 to 1.00. It shows that the tests are suitable with music intelligent students. Because this is music intelligent test, therefore, the test should not too easy. Researcher create music question more difficulty than general test.

Reliability of Music Intelligence Test for primary school students α – Coefficient), through MI, Aptitude test and Music Ability test were .862 means results from this test can be confirm that the particular students are intelligent in music obviously and those students can achieve the highest music talented.

This research was the pilot study of music intelligent test using three dimensions. Music intelligence is different from any other kind of intelligent because it include psychomotor skill and art of play music which come up with individual potential and attitude in order to classify students who would be excellent musician in the future.
REFERENCES


The Development of Instructional Blended Learning Model on Contextual Based to Enhance Analytical Reading Skill for Secondary School

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Abstract

The research aims to investigate the Development of Instructional blended learning model on contextual based, to enhance analytical reading skill for secondary school. The purpose of this study was to: development of Instructional blended learning model on contextual based to enhance analytical reading skill. The research procedure was Model Research by Richey & Klein (2007) in phase one, 1) Process development, the first step was analysis process. It was carried through 3 steps: 1.1) Theories analysis, 1.2) a study of model and teaching process and 1.3) interview Analysis. The result revealed that: 1) The result revealed that the theoretical framework consists of 5 concepts: (1) Psychological Theory, (2) Contextual Learning Theory, (3) Blended learning, (4) Instructional to Reading and (5) Analytical reading skill. 2) The designing framework of development of Instructional blended learning model on contextual based to enhance analytical reading skill comprises 3 stages as follows: (1) Preparation Stage (2) Intermediate Stage and (3) Concluding Stage.

Keywords: blended learning, contextual learning, analytical reading skill

1. INTRODUCTION

The world of globalization, at the present time, analytical reading skill becomes essential and noteworthy for learners. To explain this, the Analytical reading skill can acquire successful learning especially in the world with rapid advancement of education and technology. This is because the ability to read, particularly with analytical thinking, is in great demand and continues to spread in order to develop their proficiency to achieve personal, occupational, professional or even educational goals [1].

In the case of Thailand, noticeably, Analytical reading skill becomes one of the most vital skills in languages’ learning for Thai students especially in the school level. This is because it becomes the road to knowledge as ‘the more they read, the more they learn’ [2]. In addition, reading is one of the most important communicative skills in any academic or professional field because it can greatly expand vocabulary, improve writing, and enhance general language competence [3]. With the aforesaid importance of reading, it is stated that reading is important for Thai students because they have to get involved with reading every day, in everywhere. And they need to concentrate on it
in order to complete their academic education and careers; as a result, this makes reading one of the most significant skills to acquire the successful learning, especially in the rapidly changing information-driven technological world.

Blended learning is referred to the integration of traditional teaching methods and online learning tools is offered as a solution. Face-to-face learning can create energy and enthusiasm, build relationships, and cultivate a sense of community in the classroom while online learning offers scheduling flexibility, promote interactivity, foster community building, and provide a permanent record and expand time [4]. Furthermore, blended learning can support opportunities for teacher-student interaction, increase students’ engagement in learning, add flexibility in the teaching and learning environment, and opportunities for continuous improvement [5]. An arrangement of learning activities focused on linking content with real-life events, including Contextual learning is contextual learning takes place when students associate with the experience and the environment to lead to understanding. Teaching the context of teaching methods to link the concept of academic and real-life conditions and encourages students to see that what they learn is associated with the life of them [6].

Accordingly, blended learning model on contextual based becomes an effective and appropriate alternative to enhance analytical reading skill instruction since it can enhance the teacher’s teaching method, benefit the students’ learning ability, and power up the students’ satisfaction.

2. RELATED WORKS

Rapid developments in technology on one hand and approaches to language teaching and learning on the other hand require learning institutions to assess and evaluate their approaches and methodologies to pedagogy. E-learning has now gone toward a new direction. It is evolving by using a variety of models, the result of which is stepping into a world of multi-channel learning known as hybrid or blended learning. Like most dichotomies, the present and most probably future of learning lies somewhere in the middle. Learning is multi-dimensional, and it is enhanced through multiple inputs and through different sources. No wonder there has been a major shift from instructor to learner-centered approach [7]. The traditional face-to-face learning system has been around for centuries, and pure e-learning might not meet the needs of all language learners in different communities since the Web cannot replace a human instructor. But by mixing these two, we come up with an approach which both fits the individuals’ needs and makes use of new technology in teaching.

The researcher development of instructional blended learning model on Contextual based to enhance Analytical reading skill for Secondary school. In the forms of activity plans. These plans are aimed to develop classroom-based action research to improve the quality of reading activity management. The implementation of pedagogical purposes required the emergence of new educational approach that includes the use of technological devices as the didactic tools. Such an approach is often referred to blend learning, which was defined by Graham as a learning system that “face-to-face instruction with computer-mediated instruction” [8]. Out of several skills that can be developed in all types of environments including BL, reading appears to be crucial. As implied in Atkinson and Longman reading is “perceiving a written text in order to understand its contents” [9].
3. METHODOLOGY

3.1 Purposes of the Study

The purpose of this study was to: development of instructional blended learning model on contextual based to enhance analytical reading skill for secondary school.

3.2 Research Methodology

The research procedure was Model Research by Richey & Klein in phases one [10] First, Process Development, the first step was analysis process. It was carried through 3 steps:

3.2.1 Theories analysis:

Theoretical analysis of relevant studies and research related documents below.
- Information theory to the Psychological Theory consisting of constructivism theory, cognitive theory, connectives theory.
- Information theory and research papers related to teaching blended. The level and scale of learning. Blended Teaching design, Blended learning management, Procedures blended learning. The advantages and limitations of the blended learning.
- Information theory and research papers related to the activities, using as a base contextual learning. The process of teaching contextual learning.
- Learn concepts, theory, and research papers related to enhance of analytical reading skill.

3.2.2 A study of model and teaching process:

A model analysis and teaching process involved an analysis and synthesis of information. By performing a detailed consideration of the documents and related research in each subject. Used to correlate and summarize the key points of concepts and theories related to the teaching framework of activities associated with integrated process of contextual learning.

3.2.3 Interview Analysis:

The analysis of data, interviews with experts on the concept of integrated development of the teaching process with a connect the idea to enhance of analytical reading skill.

4. IMPLEMENTATION

4.1 Research Data Collection Instruments

4.1.1 Recording checks form and analyze documents. Created for the purpose of monitoring and analyzing documents. A procedure is to create the details.

4.1.2 Record for synthesis of theoretical framework. To create Theoretical Framework for the purpose of monitoring and analyzing documents about principles, theories and research related to the environment of learning on the network.

4.2 Research Data Analysis

4.2.1 Study of context about the analytical thinking of students. The results are the basis for designing environmental learning to enhance analytical reading skill.

4.2.2 Analysis principle Theory and research on the constructivist theory, cognitive theory, connective theory, blended learning, contextual learning, instruction to reading and analytical reading skill. To involve study this between theories research considering interviews with information experts teaching process its associated processes. The synthesis of a concept and bring the foundation to that the theoretical
framework and designing framework develop of instructional blended learning model on contextual based to enhance analytical reading skill.

4.2.3 The synthesis result of a concept to that the theoretical framework and designing framework develop of instructional blended learning model on contextual based to enhance analytical reading skill is shown in the Table 1 below:

Table 1: Synthesis result of a concept to that the theoretical framework.

<table>
<thead>
<tr>
<th>Psychological Theory</th>
<th>Contextual Theory</th>
<th>Blended Learning</th>
<th>Instruction to Reading</th>
<th>Analytical Reading Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitivist</td>
<td>Contextual</td>
<td>Classroom</td>
<td>Preparation Stage</td>
<td>Comprehension</td>
</tr>
<tr>
<td>Constructivist</td>
<td>Experience</td>
<td>Cloud Computing</td>
<td>Intermediate Stage</td>
<td>Interpretive</td>
</tr>
<tr>
<td>Connective</td>
<td>Componential</td>
<td></td>
<td>Concluding Stage</td>
<td>Analytical Thinking</td>
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<td>- Knowledge</td>
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<td>- Meta Component</td>
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<tr>
<td></td>
<td>- Performance</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

From the Table 1, the synthesis result of a concept to that the theoretical:

4.2.3.1 Psychological Theory are included: Cognitivist is learning goes beyond extremal is an internal process short and long term memory. Constructivist is learner builds on personal experience, active and social in the learning process. Connective is learning is self-directed learning via nodes (content source, people, groups) within network.

4.2.3.2 Contextual Learning Theory building relationships between content knowledge to real life experiences. The corresponding A Triarchic Theory of Human Intelligence of using Triarchic Theory [11]. The theory is Contextual Sub theory, Experience Sub theory and Componential Sub theory intellectual abilities related processes. There are three important components parts. (1) Knowledge – Acquisition Component: The process of Knowledge information related Methods various. Compared with the same information in order to obtain new knowledge accumulated in the system memory. (2) Meta Component: A thinking process which incorporates the processing knowledge, problem solving, planning, and evaluation. And (3) Performance Component: Action a process to follow.

4.2.3.3 Blended learning is teaching process a combination of blended teaching and learning process in the face to face and online classes. Which in research process blended learning using Classroom and Cloud Computing is teaching through the Internet network including search, show, and information to share with classmates on group shared.

4.2.3.4 Instruction to Reading to promotion analytical reading skills using teaching PANORAMA model to be familiar with a book. Activities are linked to the actual experience consisting of Preparation Stage, Intermediate stage and Concluding Stage. Preparation Stage: Teachers and students mutually define purpose to read the questions is process consists of Purpose (P), Adapting rate to material (A), Need to pose questions (N). Intermediate stage: Students try to answer the questions, ideas and stories. Connection with their previous experience to understand is process consists of Overview (O), Read and Relate (R), Annotate (A).

Concluding Stage: Students is reading the story order to assess whether the student straight purpose set at the beginning. Can keep important data to
translate, interpret, comprehend, and concluded is process consists of Memorize (M) and Assess (A).

4.2.3.5 Analytical reading skill ability to distinguish elements of story reading must consider things to read carefully consists of Comprehension Reading is understanding of the text reading by the author. Interpretative Reading can translate into what the author is not mentioned directly as predictions based on information from the story then making generalization. Analytical Thinking assess what able read it Understanding this level require the reader. Prior knowledge base about the reading must have think, analysis, compare, judgment, to Assess what able be read.

5. RESULT

5.1 The result revealed that the theoretical framework consists of 5 concept: (1) Psychological Theory, (2) Contextual Learning Theory, (3) Blended learning, (4) Instructional to Reading and (5) Analytical reading skill. The researchers synthesized a Theoretical framework as follows.

![Diagram of Theoretical Framework](image)

**Figure 1: The Framework of Theoretical Framework**

5.2 The designing framework develop of instructional blended learning model on contextual based to enhance analytical reading skill. Review of the literature concept is theory and research related researchers introduced a specific framework develop of instructional blended learning model on contextual based to enhance analytical reading skill.
6. CONCLUSION & DISCUSSION

The purpose of this study was to: development of instructional blended learning model on contextual based to enhance analytical reading skill for secondary school. The research procedure was Model Research by Richey & Klein in phases one, 1) Process Development, the first step was analysis process. It was carried through 3 steps: 1.1) Theories analysis, 1.2) A study of model and teaching process and 1.3) Interview Analysis. The result revealed that:

1) The result revealed that the theoretical framework consists of 5 concept: (1) Psychological Theory, (2) Contextual Learning Theory, (3) Blended learning, (4) Instructional to Reading and (5) Analytical reading skill. For use in development of instructional blended learning model on contextual based to enhance analytical reading skill for secondary school.

2) The designing framework of development of instructional blended learning model on contextual based to enhance analytical reading skill. Process blended learning using Classroom and Cloud Computing. Instruction to Reading to promotion analytical reading skills using teaching consists of 3 stage in Preparation Stage, Intermediate stage and Concluding Stage. Affect ability to enhance analytical reading skill consists of Comprehension Reading, Interpretative Reading and Analytical Thinking. In an environment contextual learning building relationships between content knowledge to real life experiences.

REFERENCES


The Sound Frequency Analysis of the Khong Wong Yai by Finite Element Method (FEM)

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Abstract

The Khong Wong Yai is a percussion instrument used in the music of Thailand. It composes many gongs as a circle of a rattan frame. The bossed or nipple gong embossed in center of a gong generates one key sound. In a large rattan frame consists 16 different size gongs, the Khong Wong Yai has 16 keys. The player has to percuss the gongs to create the sits in the middle of the circle and rhythm with two hard rubber mallets or soft padded mallets as beaters. The gongs are individually tuned with beeswax under the circular metal disc. The sound of the gong usually involves vibration of its own structure. However, the engineering principles were not applied to design and produce the gongs by handmade, while they were constructed with the experiences and skills of the maker. The aim of this analysis was to study the modes shape characteristics of the gong’s sound using finite element method (FEM) and compare the simulation result with the experiment result. From the simulation, the sound of the gong was originated from moving up and down of entire top surface of the bossed gong. Moreover, the inertia relief method with FEM is quite suitable for analysis the sound frequency of the gong.

Keywords: Khong Wong Yai, gong, percussion instrument, finite element method

1. INTRODUCTION

Rhythms are very necessary to all forms of music of all cultures. The percussion instrument is importance to generate them. The percussion instrument basically involves some kind of striking to the object and then makes vibration that produces the sound. Although there are many percussion instruments in the traditional Thai musical instruments, the Khong Wong Yai which is a type of the percussion instrument is structured as the circle with the many gongs in a rattan frame. It is frequently appeared in the piphat ensemble to provide the skeletal melody with the other instruments of the elaborate ensemble [1]. The bossed or nipple gong is a gong that is embossed in center. The sixteen key sounds are generated from the sixteen different size bossed gongs in a rattan frame. The gongs are individually tuned with beeswax under the circular metal disc. A player sits in the middle of the circle and holds two hard rubber mallets or soft padded mallets for hitting the gong for beating [2]. However, the engineering principles were not applied to design and produce the gongs by handmade, while they were constructed with the experiences and skills of the maker.

Bor-Tsuen Wang studied the Chinese gong by finite element method and attempted to verify by experimental modal analysis (EMA) [3]. However, the theory of Euler-Bernoulli equation is most commonly used for studying the vibration of the object which four parameters are required for the solution of governing equation for
only fixed supports [4]. Actually, the gong is suspended vertically by a cord passed through two holes adjacent to the top rim of the bowl structure that can be assumed as free in the space, and a not fixed support. Thus, it is impossible to determine the natural frequency of the gong by Euler-Bouroulli beam theory [2]. This research proposed to investigate the modes shape characteristics of the gong’s sound with no constraint body using FEM. The simulation result achieved was validated by comparison with the experiment result.

2. MATERIALS

Normally, an individually gongs is tuned with beeswax under the circular metal disc. In this study, the first and the last bossed gongs comprised in the Khong Wong Yai without beeswax thoroughly were analyzed to generate the most difference of frequency among the gongs. The first bossed gong is larger size than the last one which can generate the lower frequency than another. Although the general shapes of both gongs are same, their sizes are different. Therefore, the modes shape characteristics were validated by sound spectrum analyzer. However, the 3D model actual size and shape of two gongs were created for analysis by FEM. The Khong Wong Yai is shown in figure 1. The figure 2 shows the first gong and the last gong used in this study. The Khong Wong Lek is not considered in this study because of the difference of the number of gong composed.

![Figure 1: The Khong Wong Yai](image1)

![Figure 2: The first gong (left) and the last gong (right)](image2)
In this investigation, both bossed gongs were made of the brass. The engineering data of material properties used for FEA are shown in figure 3.

3. METHODOLOGY

The governing equation most used to explain the vibration frequency is Euler-Bornoulli beam theory [5] that start from the equations of motion of the object and can be written down using Newton’s second law of motion. Figure 4 shows the diagram of a gong with the transverse direction of vibration.

The gong is not applied by the external force. If $EI(x)$ and $A(x)$ are assumed to be constant, Eq. (1) is governing equation of free vibration.
\[
\frac{\partial^2 w(x,t)}{\partial t^2} + \frac{EI(x)}{\rho A(x)} \frac{\partial^4 w(x,t)}{\partial x^4} = 0
\]  

(1)

The general solution of Eq. (1) can be calculated to be written in the form as shown in Eq. (2)

\[X(x) = a_1 \sin(\beta x) + a_2 \cos(\beta x) + a_3 \sinh(\beta x) + a_4 \cosh(\beta x)\]  

(2)

Then the frequency of the gong in hertz can be written in the form as shown in Eq. (2)

\[f_n = \frac{\beta_n^2}{2\pi} \sqrt{\frac{EI(x)}{\rho A(x)}}\]  

(3)

The sound waves propagating through an elastic medium define as speed of sound was equal to the square root of the elastic property divided by its density, and from definition of radius of gyration the Eq. (3) can be written in the form

\[f_n = \frac{\vartheta \beta_n^2 R(x)}{2\pi}\]  

(4)

Where

\[\vartheta = \sqrt{\frac{E}{\rho}}\]

and

\[R(x) = \sqrt{\frac{l(x)}{A(x)}}\]

Notice the natural frequency depends on the constraint of the boundary condition thus Euler-Bournoulli beam theory is impossible to be used to determine the natural frequency of the gong. Due to the gong has free vibration that can be considered as no constraint on the gong. Nevertheless, the gong defined as two masses is shown in figure 5.

![Figure 5](image-url)

(a) The gong is defined as two masses. and (b) The gong is simplified with two masses and a spring.
The two masses (m1 and m2) were being connected by a spring having the stiffness k and there is no an external force is applied. Assume that both masses have the same weight, in which W1 and W2 are the weight of m1 and m2, respectively. And assume the spring and two masses can only move vertically (y direction in Figure 5). Since there is no the applied force thus the system will free moving in vertically that’s all. The mass m1 starts moving downwards compressing the spring, while the mass m2 is at the rest while also compressing the spring. When the spring is compressed enough to produce the reaction force more than W1+W2, m2 will start moving downwards. After some time, the system will arrive at a steady state, in which both m1 and m2 are moving in constant acceleration together. Considering the overall spring mass system, the equation of motion for free vibration can be written in the form

\[
\begin{bmatrix}
  m_1 & 0 \\
  0 & m_2
\end{bmatrix}
\begin{bmatrix}
  x_1 \\
  x_2
\end{bmatrix}
+ \begin{bmatrix}
  k & -k \\
  -k & k
\end{bmatrix}
\begin{bmatrix}
  x_1 \\
  x_2
\end{bmatrix}
= \begin{bmatrix}
  0 \\
  0
\end{bmatrix}
\]  

(5)

Theoretically, it is impossible to determine the position of the two masses because they are not constrained in the system. Nevertheless, it can find the relative displacement by restraining either \(x_1\) or \(x_2\).

\[
if \ x_1 = 0 \ then \ x_2 = \frac{am_1}{k}
\]

\[
if \ x_2 = 0 \ then \ x_1 = \frac{am_2}{k}
\]

This shows that the relative displacements \(x_1 - x_2\) is the same for either constraint and the result of the acceleration and the deformation of systems are not affected by the selection of constraints in this system which is called that inertia relief analysis. Inertia load distribution relies on the assumption of constant rigid body acceleration. Inertia relief can be used in hand calculation of simple structures only. Most frequently, inertia relief approach is combined with finite element analysis in the modeling and analysis of unconstrained systems. In this study, the commercial finite element packages ANSYS is used for analysis.

4. RESULTS

In this study, when inertia relief method with FEM was used, the sound frequency generated from the gong was provided closer actual frequency than Euler–Bournoulli beam theory with FEM because the gong does not need fixed support. From the simulation result found that the inertia relief method and Euler–Bournoulli theory give sound frequency for the first gong at 1714.6 Hz and 1248.6 Hz, respectively as shown in figure 6 while the actual frequency of the first gong provided by spectrum analyzer is 1755.4 Hz.
Figure 6: The sound frequency of the first gong was analyzed by (a) inertia relief method and (b) Euler–Bournoulli theory.

Figure 7: The sound frequency of the last gong was analyzed by (a) inertia relief method and (b) Euler–Bournoulli theory.

Furthermore, the sound frequency of the last gong analyzed by inertia relief method and Euler–Bournoulli theory is 2929.9 Hz and 1786.2 Hz, respectively as shown in figure 7 while the actual frequency of the first gong provided by spectrum analyzer is 2955.68 Hz.

The figure 6(b) and figure 7(b) revealed FEM simulation result of fixed support. Obviously, Euler–Bournoulli theory was not suitable for the limited vibration of the structure of the gong. In practice, although the gong is suspended with the rattan frame by a cord, the inertia of the cord is quite petit so it can be not regarded.

5. CONCLUSION

In this study, the sound frequency of the percussion instrument such as the Khong Wong Yai (Thai percussion instruments) has the vibration modes generated from bending mode that is moving upwards and downwards of the entire top surface of the bossed gong. The application of inertia relief method with FEM is quite suitable for analysis the sound frequency of the percussion instrument. The cord for holding the gong with the rattan frame cannot be considered in analysis because the inertia of the gong much more than the cord. In other words, the FEM of unconstrained structural systems can be properly used to investigate the sound frequency of the gong. The mode shape of the constrained object was not easily determined.

In addition, from this initial study found that the thickness of the gong is a parameter related to the generated the sound frequency of the gong. Fixing the gong’s body leads to fast decay of the sound or dead sound. In the 3D model with fixed support around the circular shaped did not excessively impact to the characteristics of the gong but the authors recommend to puncture the holes far a bit from the top of embossed surface at center of the gong. In the future work the all structure of the gong will be studied to find out the key parameter to generated sound frequency.

REFERENCES
The Reduction of Temperature on Opaque Wall by Arranging Surface – Covered Plant beside the Building

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Abstract
This study aims to reduce the heat reflecting from floor to the building wall by using plants to cover the outside floor. The plant used for this research was Pothos (climber type). The test was conducted at the west-side of Faculty of Environmental Management, Prince of Songkla University. This test was done in two rooms with the same condition. The first testing room was designed to be the control area of study. The second room was used for the case study with the floor–covered by plant outside the building. The temperatures of wall outside the building of these two rooms were recorded by using the thermocouple type K and data logger. From this experiment, the Pothos can reduce the heat reflecting from the floor to the wall, according to the result of which the difference temperature, which is 2.5 degree Celsius of the wall comparing with another testing room.

Keywords: Pothos, reduction of temperature, wall and plant

1. INTRODUCTION
Nowadays, the using rate of natural resources and energy continuously increases. This is the major reason causing global warming and also unpredicted climate change, which be seen from the significant increase of global temperature. Human realizes and tries to cure by putting an effort to the activity and research in order to reduce temperature back to normal. A popular tool is the Air-Conditioner, but it has many side effects to outside temperature. One of them is the heat released by the compressor. Moreover, using of air-conditioner directly affects global warming because it releases Chlorofluorocarbon (CFCs) to the atmosphere [1-2]. It is also another factor that causes the overconsumption of energy. The study shows that more than half of the energy used in household is the use of air-conditioners [3].

Thailand is located near the equator and received high rate of Solar Radiation continuously and constantly throughout the year. Solar Radiation is one of the major reasons, which affects the temperature inside the building. By that, Solar Radiation to Earth’s surface would have a value 3.854×1026 Watt [4] when it comes to surface and reflexes to the building. The heat occurs and transfers through wall, raising the inside temperature. Typically, the load of air conditioning caused by heat transfers from the outside into the building rather than the heat generated inside of the building itself. [5] This leads to the idea that reducing the heat at the walls could minimize cooling load of air conditioning systems.

At present, the using of plant in order to reduce the heat from the wall is still popular. People are more likely to turn their focus to environment and come up with the idea to design the building that is environmental friendly or called Green Building. Benefits of growing plant on the wall are not only to cover but also to absorb CO₂ that damages the atmosphere, which is the cause of Global Warming. However, there are many studies and implements of using plant to cover part of building and to reduce heat
from the wall. However, there is yet research that aims to grow a plant cover on concrete, wall surface or outside the building.

2. METHODOLOGY

2.1 Plant Material

In this study, the Pothos plant species (so called in various name e.g. Australian native Monstera, Centipede Tongavine, Devil's Ivy, Golden Pothos, Hunter's Robe, Ivy Arum, Money Plant, Silver Vine, Solomon Islands Ivy, and Taro Vine) had been used. Pothos plant is Climber type and becomes popular as it can be grown in every condition and easy to take care and endurable.

![Pothos Plant](image1.jpg)

Figure 1: Pothos

2.2 Site

The two testing rooms on the west side building of the Faculty of Environmental Management (Prince of Songkla University) were used. [6] The first room was designed to be the control study. The second room was designed to be the testing room with plant. The arrangement is on the side of the room, takes 1.5×3.0 meters (4.5 Square Meters) of the areas as shown in Figure 2.

![Testing Room Layout](image2.png)

Figure 2: Layout of Testing Rooms

2.3 Instrument and Data Collection

The temperatures on the wall were recorded by using the thermocouple type K and data logger. The temperatures on the wall both of testing rooms were recorded at 0.5 meters high in every hour then compared with another record from September 2015.
to May 2016 (9 months). To find the certain data, this research also collected data of ambient temperature, humidity, and solar radiation.

3. RESULT

3.1 The Reduction of Temperature on Opaque Wall by Arranging Surface-Covered Plant on the Building

From the testing, the using of Pothos grown covering surface outside the building can reduce the temperature of the wall. In April, the reduction rate is 3.7 degree Celsius (Maximum). And during November can be reduced to 1.1 degree Celsius (Minimum). So, the average is 2.5 degree Celsius.

Figure 3: The Average Monthly Temperature of the Wall of the Ambient Temperature in the Control Room and Testing Room

3.2 Factors that Affect the Temperature on Opaque Wall

The study of factor that affects to the temperature of the wall, by using data collected in April which is the best record in temperature reduction.

Figure 4: Relations between Relative Humidity and Temperature of the Wall of Testing Room
Figure 4 is a study of the Relations between Relative Humidity and Temperature of the wall of the testing room that there is a negative correlation.

\[
y = 11.567x + 900.41
\]
\[R^2 = 0.9535\]

Figure 5: Relations between Solar Radiation and Temperature of the Wall of Testing Room

Figure 5 is a study of the relationship between Solar Radiation and Temperature of the wall of testing room showing that there is a positive correlation.

4. CONCLUSION & DISCUSSION

Most of the heat in atmosphere occurred by solar radiation, this is when the radiation touches the surface and reflects to the wall. [7] Next is comparing the wall temperature between those 2 testing rooms. We can see that the Pothos can reduce the heat reflecting from the floor to the wall which can be seen from the different temperature 2-3 degree Celsius of the wall between two testing rooms. Moreover, the temperature has relation with relative humidity and volume of Solar Radiation.

In conclusion, the use of plant to cover the surface outside the building can truly reduce the temperature of the wall. Also the covering plant can easily grow and demand very little care. Lastly, it makes the building look much better in its appearance.

REFERENCES

The Satisfaction of e-learning: A Case Study of Banyan Tree Hotels & Resorts

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Abstract
The objectives of this study were (1) To identify the learning behavior of e-learning of employees of Banyan Tree Hotels and Resorts (2) To examine the Banyan Tree employees’ satisfaction of e-learning program and (3) To investigate the factors affecting the trainees’ satisfaction. As Banyan Tree Hotels and Resorts is one of the hotels which provided e-learning for their associates in the property. So, it shows that the company focuses on employees’ training. The research methodology was done by survey method using questionnaires. The statistics used in this study were related to the objectives of the analysis and the characteristic of the data. Descriptive statistics (frequencies, Percentages, S.D. and Means). The results showed that the majority of the e-learning trainees perceived that the e-learning program they had attended could help them improve the skills and worked better. Most of they also agreed that e-learning was as effective as classroom training or face-to-face learning but they would like to have online interaction with the facilitators in class. In addition, the perception toward the e-learning program was significantly different among trainees who work in different department, the number of e-learning courses they had taken and the class duration.

Keywords: e-learning satisfaction, e-learning, training

1. INTRODUCTION
Nowadays not only physical classroom training but also e-learning is chosen for training people. Banyan Tree Hotels and Resorts is also one of the hotels providing e-learning for the associates to improve and develop their skills and knowledge. There are many hotels provide e-learning for their associates to improve their knowledge because training plays an importance role to create the good associates. Gunasekaran (2002), explain that e-learning is being implemented by many organizations to meet the new training demands of changing technology and demographics because it can provide access to high quality training from numerous sources around the world. Although computer-based training is seen as commonplace to younger workers who have grown up with technology, many older workers who have had to adapt to technological changes throughout their careers have not yet embraced or adopted the newer training model of e-learning as an effective alternative or addition to standard classroom training. Banyan Tree Hotels and Resorts is also one of hotel that provides e-learning program for associates but there is no one studies on the satisfaction of e-learning for their associates.

As Banyan Tree Hotels and Resorts is one of the hotels which provided e-learning for their associates in the property. The company has invested on this kind of training but never receive feedback from their associates who had attended. It is interesting to measure the satisfaction of their associates since they have provided
online training. Therefore, the objective of this study is to determine the satisfaction of e-learning in Banyan Tree Hotels & Resorts.

The objectives of this research were:
1) To identify the learning behavior of e-learning trainees.
2) To examine the Banyan Tree Hotels and Resorts employees’ satisfaction of e-learning program.
3) To investigate the factors affecting the trainees’ satisfaction.

2. RELATED WORKS

Training is an aspect of human resources development function of the organization (Rajeev, et al. 2009). Dessler (2008) defined training as a process that applies different methods to strengthen employees’ knowledge and skill needed to perform their job effectively. Other researchers on human resources development literature defined training with similar perspectives (Mondy & Noe. 2005; Yong, 2003; Beardwell & Holden. 2003). There were also some previous researchers stated that training is very necessary to all employees in order to ensure that they can perform well in their given task (Vasudevan. 2004).

E-learning is an alternative way of learning which requires technology such as computer system, network. It also requires techniques such as computer skills, communication skills, self disciplines and time management. It is one way of delivering information instead of a sitting in a physical classroom. In the Canadian Council on Learning’s recent report was stated that e-learning is “the development of knowledge and skills through the use of information and communication technologies (ICTs), particularly to support interactions for learning – interactions with content, with learning activities and tools, and with other people” (Abrami, et al. 2008).

An attractive side of e-learning is the flexibility and convenience. Flexibility refers to the classical mantra of e-learning being learning for “anyone, anytime, anywhere”. The factor concerns many issues, such as whether students should be allowed to learn at self-pace and take the examinations when they want and if they should be allowed to choose the medium of content delivery. Above all, flexibility in assignment pace and course delivery has proven to lead to good results (Li, Irby, 2008). Learners are not require being in the physical classroom and can set the most convenience time to learn. The courses are designed as online and delivered to the learner via the internet and learner need to access to the computer or laptop to learn.

3. METHODOLOGY

The researcher collected the data by using census method in this study. The respondents were the employees of Banyan Tree Hotels and Resorts who have attended e-learning.

3.1 Questionnaire Design

The survey was conducted by distributing the questionnaires to 154 employees of Banyan Tree Hotels and Resorts. The questionnaires were designed to find examine, the satisfaction of e-learning. It was divided into three parts:

Part 1: The subjects were required to their background and general information related to gender, age, education, position, department, years of service, number of e-learning course, time of attendance, course duration and the interested course.
Part 2: Contents of the Course(s) that the employees have taken which were provided by the company. This part was based on a five-point scale ranging from: (1) very disagreed, (2) disagreed, (3) neutral, (4) agree, and (5) very agree.

Part 3: The satisfaction of e-learning. It was designed to measure the satisfaction of e-learning of the employees of Banyan Tree Hotels and Resorts. This part was based on a five-point scale ranging from: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree.

3.2 Data Collection

The research methodology was done by survey method using questionnaires. The researcher distributed 154 questionnaires to target sample in Banyan Tree Hotels & Resorts who based in Phuket. The questionnaires were written in English. The researcher handed questionnaires to the targets directly and also sending the questionnaires via personal email to the target. In addition, seventy of the questionnaires were distributed to the human resource departments in the hotels and human resource officers distributed to the targets.

4. RESULT

The result of this study was based on the responses of 154 Banyan Tree Hotels & Resorts’ employees who based in Phuket were asked to complete the research questionnaires.

4.1 Personal Information

From Table 4.1, out of 154 employees who have taken the e-training program provided by Banyan Tree Academy, the majority of the respondents were female (97 or 62.99%), in the age of 30-40 years (84 or 54.55%), and held a bachelor degree (106 or 68.83%). In terms of their position, 62 (40.62%) were assistant manager level/section head (JG3) while 48 (31.17%) were manager level/department head (JG4). Moreover, 25 (16.23%) were senior manager/ director/ hotel manager, 17 (11.04%) were supervisory and 2 (1.30%) were assistant vice president and above.

45 (29.22%) respondents worked in human resource & training department while 28 (18.18%) worked in front office department. Besides, 20 (12.99%) respondents worked in food & beverage, 16 (10.39%) respondents worked in sales & marketing, 14 (9.09%) respondents worked in financial & marketing. Furthermore, there were 13 (8.44%) respondents worked in others department, 10 (6.5%) security & engineering, 8 (5.19%) worked in housekeeping, 6 (3.90%) worked in engineering and 4 (2.60%) worked in security department.

According to the number of online courses, 85 (55.19%) respondents attended 1 course, 41 (21.62%) attended 2 courses, 22 (14.29%) attended more than 3 courses and 6 (3.90%) attended 3 courses. 80 (51.95%) attended the course during night time (9 p.m.-4.59 a.m.), 41 (26.62%) attended the course in the evening (5 p.m.-8.59 p.m.), 27 (17.53%) attended the course in the afternoon and 6 (3.90%) attended the course in the morning (5 a.m.-11.59 a.m.).

According to the class duration, 128 (83.12%) were the highest number of respondents who took 1-2 hours, 13 (8.44%) took less than 1 hour, 12 (7.79%) took 2-3 hours and there were only 1 (0.65%) took more than 3 hours.
Table 1: Background and General Information of the Respondents

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<tr>
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<td>Above 45 years old</td>
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<td><strong>Total</strong></td>
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<td><strong>100.00</strong></td>
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<td>1-2 hours</td>
<td>128</td>
<td>83.12</td>
</tr>
<tr>
<td>2-3 hours</td>
<td>12</td>
<td>7.79</td>
</tr>
<tr>
<td>More than 3 hours</td>
<td>1</td>
<td>0.65</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>100.00</td>
</tr>
</tbody>
</table>

4.2 Contents of the course(s) the respondents have taken.

From table 2, mean and S.D were calculated to measure the respondents’ perception toward the usefulness of e-learning program. The results showed that the highest mean belongs to “the online experience has help to improve your skills” (mean = 3.89), followed by “the content was always useful” (mean = 3.81) and “the online experience has helped you work better” (mean = 3.80) when the lowest mean score belongs to “online courses are as effective as face-to-face courses” (mean = 3.42).
Table 2: Contents of the course(s) that you have taken which provided by the company.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The content was always useful.</td>
<td>3.81</td>
<td>.807</td>
</tr>
<tr>
<td>2. Has the e-learning experience helped improve your skills?</td>
<td>3.89</td>
<td>.555</td>
</tr>
<tr>
<td>3. Has the e-learning experience helped you work better?</td>
<td>3.80</td>
<td>.598</td>
</tr>
<tr>
<td>4. Did the e-learning meet your learning needs.</td>
<td>3.79</td>
<td>.615</td>
</tr>
<tr>
<td>5. Did you learn much in the e-learning course compared to a face-to-face course?</td>
<td>3.49</td>
<td>.734</td>
</tr>
<tr>
<td>6. Are the e-learning courses as effective as face-to-face courses?</td>
<td>3.42</td>
<td>.823</td>
</tr>
</tbody>
</table>

4.3 The Satisfaction of e-learning

From table 3, mean and S.D were calculated to measure the satisfaction of e-learning of respondents. The results showed that the highest mean belongs to “Would like to have online interaction with the facilitator.” (mean = 3.92), followed by “satisfaction level of the course content” (mean = 3.83) and “satisfaction level of the online course(s) which you have taken” (mean = 3.82) when the lowest mean score belongs to “satisfaction level of the assignments in the course facilitated your learning.” (mean = 3.81).

Table 3: Your Satisfaction of e-learning

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rate your satisfaction level of the online course(s) which you have taken.</td>
<td>3.82</td>
<td>.473</td>
</tr>
<tr>
<td>2. Rate your satisfaction level of the course content</td>
<td>3.83</td>
<td>.509</td>
</tr>
<tr>
<td>3. Rate your satisfaction level of the assignments in the course facilitated your learning.</td>
<td>3.81</td>
<td>.549</td>
</tr>
<tr>
<td>4. Would you like to have online interaction with the facilitator?</td>
<td>3.92</td>
<td>.498</td>
</tr>
</tbody>
</table>

4.4 Statistical Comparisons of Factors between “Department” and Satisfaction of e-learning in Banyan Tree Hotels and Resorts

The F-test’s result by ANOVA (One-Way ANOVA) with a level of significance 0.05 shows that there is a statistical significance at 0.05 between Engineering department (mean = 4.17) and Housekeeping department (mean = 3.25), responding to the question “Did the e-learning meet your learning needs?” This can be indicated that Engineer department had higher scores than Housekeeping department in this question.

Moreover, between Finance & Accounting department (mean = 3.79) and others (mean = 2.85) responding to the question “Did you learn much in the e-learning course compared to a face-to-face course?” This can be indicated that Finance & Accounting had higher score than others in this question.

Furthermore, Human Resources & Training department (mean = 3.98) and others (mean = 3.46) responding to the question “Rate your satisfaction level of the course content”. This can be indicated Human Resources & Training had higher score than others for this question.
However, there is no statistically significant among other departments toward the satisfaction of e-learning. Therefore, there is no difference in the satisfaction of e-learning in other departments as it's shown in Table 4.

Table 4: Statistical Comparisons of Factors between “Department” and Satisfaction of e-learning in Banyan Tree Hotels and Resorts

<table>
<thead>
<tr>
<th>Factors</th>
<th>Human Resources &amp; Training</th>
<th>Front Office</th>
<th>Sales &amp; Marketing</th>
<th>Finance &amp; Accounting</th>
<th>Food &amp; Beverage</th>
<th>Housekeeping</th>
<th>Security</th>
<th>Engineering</th>
<th>Others</th>
<th>ANOVA</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did the e-learning meet your learning needs.</td>
<td>3.69</td>
<td>4.00</td>
<td>3.88</td>
<td>3.79</td>
<td>3.90</td>
<td>3.25</td>
<td>3.75</td>
<td>4.17</td>
<td>3.54</td>
<td>2.119</td>
<td>0.038*</td>
<td></td>
</tr>
<tr>
<td>2. Did you learn much in the e-learning course compared to a face-to-face course?</td>
<td>3.38</td>
<td>3.75</td>
<td>3.44</td>
<td>3.79</td>
<td>3.65</td>
<td>3.38</td>
<td>3.75</td>
<td>3.33</td>
<td>2.85</td>
<td>2.544</td>
<td>0.013*</td>
<td></td>
</tr>
<tr>
<td>3. Rate your satisfaction level of the course content</td>
<td>3.98</td>
<td>3.89</td>
<td>3.75</td>
<td>3.79</td>
<td>3.90</td>
<td>3.50</td>
<td>3.75</td>
<td>3.83</td>
<td>3.46</td>
<td>2.026</td>
<td>0.047*</td>
<td></td>
</tr>
</tbody>
</table>

Remarks:* indicates statically significant of differences between groups at p < 0.05
4.5 Statistical Comparisons of Factors between “Number of Online Courses” and Satisfaction of e-learning in Banyan Tree Hotels and Resorts

The F-test’s result by ANOVA (One-Way ANOVA) level of significance 0.05 shows that there is a statistical significance at 0.05 between the respondents who have taken 2 online courses (mean = 4.10) and the respondents who have taken 3 online courses (mean = 3.50) responding to question “The content was always useful”. This can be interpreted that the number of respondents who have taken 2 online courses had higher scores than the respondents who 3 courses in this question.

Additionally, between the respondents who have taken 2 online courses (mean = 4.09) and the respondents who have taken 3 online courses (mean = 3.67) responding to question “Has the e-learning experience helped improve your skills?” This can be shown that the number of respondents who have taken 2 online courses had higher score than the number of respondents who 3 courses in this question.

Moreover, between the respondents who have taken 1 online course (mean = 3.73) and the respondents who have taken 3 online courses as well as whom have taken more than 3 online courses which reached the same value (mean = 4.00) responding to question “Rate your satisfaction level of the course content”. This can be indicated that the number of the respondents who have taken 3 online courses as well as whom taken more than 3 online courses have had higher score than the respondents who have taken 1 online course in this question.

In addition, between the respondents who have taken 1 online course (mean = 3.80) and the respondents who have taken 3 online courses (mean = 4.17) responding to the question “Would you like to have online interaction with the facilitator”. This can be indicated that the number of the respondents who have taken 3 online courses was higher than the respondents who have taken 1 online course in this question.

However, there is no statistically significant toward the satisfaction of e-learning in other questions in term of the number of online courses. Therefore, it can be said that the satisfaction towards e-learning is not affected by the number of courses that the respondents have taken as it’s shown in table 4.5.

Table 5: Statistical Comparisons of Factors between “Number of Online Course” and Satisfaction of e-learning in Banyan Tree Hotels and Resorts

<table>
<thead>
<tr>
<th>Factors</th>
<th>Number of Online Course</th>
<th>Mean</th>
<th>&gt;3</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The content was always useful.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>&gt;3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.67</td>
<td>4.10</td>
<td>3.50</td>
<td>3.91</td>
<td>3.113</td>
</tr>
<tr>
<td></td>
<td>3.79</td>
<td>4.02</td>
<td>3.67</td>
<td>4.09</td>
<td>3.168</td>
</tr>
<tr>
<td>2. Has the e-learning experience helped</td>
<td>3.73</td>
<td>3.93</td>
<td>4.00</td>
<td>4.00</td>
<td>2.734</td>
</tr>
<tr>
<td>improve your skills?</td>
<td>3.80</td>
<td>4.00</td>
<td>4.17</td>
<td>4.14</td>
<td>4.109</td>
</tr>
<tr>
<td>3. Rate your satisfaction level of the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>course content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Would you like to have online</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>interaction with the facilitator?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks: * indicates statically significant of differences between groups at p < 0.05

4.6 Statistical Comparisons of Factors between “Class Duration” and Satisfaction of e-learning in Banyan Tree Hotels and Resorts
The F-test result in ANOVA (One-Way ANOVA) level of significance 0.05 shows that there is a statistical significance at 0.05 between the respondents who have taken the class less than 1 hour as well as 2-3 hours (mean = 2.92) and the respondents who have taken the class 1-2 hours (mean = 3.60) responding to the question “Did you learn much in the e-learning course compared to a face-to-face course.” This can be said that the number of the respondents who have taken the class 1-2 hours higher than the respondents who have taken the class less than 1 hour and 2-3 hours in this question.

Moreover, this is a statically significance between the respondents who have taken the class 1-2 hours (mean = 3.51) and the respondents who have taken the class 2-3 hours (mean = 2.83) responding to the question “Are online courses as effective as face-to-face courses”. This can be interpreted that the number of the respondents who have taken class 1-2 hours higher than the respondents who have taken class 2-3 hours in this question.

Furthermore, there is a statically significance between the respondents who have take less than 1 hour (mean = 3.46) and the respondents who have taken 2-3 hours (mean = 4.08) responding to the question “Rate your satisfaction level of the assignments in the course facilitated your learning”. This can be said that the number of respondents who have taken 2-3 hours had higher score than the respondents who have taken less than 1 hour in this question. However, there is no difference in other questions between the satisfactions of e-learning and the difference of class duration as it’s shown in table 6.

Table 6: Statistical Comparisons of Factors between “Duration of Class” and Satisfaction of e-learning in Banyan Tree Hotels and Resorts

<table>
<thead>
<tr>
<th>Factors</th>
<th>(Duration of Class) Mean</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1</td>
<td>1-2</td>
</tr>
<tr>
<td>1. Did you learn much in the e-learning course compared to a face-to-face course?</td>
<td>2.92</td>
<td>3.60</td>
</tr>
<tr>
<td>2. Are online courses as effective as face-to-face courses?</td>
<td>3.08</td>
<td>3.51</td>
</tr>
<tr>
<td>3. Rate your satisfaction level of the assignments in the course facilitated your learning.</td>
<td>3.46</td>
<td>3.81</td>
</tr>
</tbody>
</table>

Remarks: * indicates statistically significant of differences between groups at p < 0.05

5. CONCLUSION & DISCUSSION

From the results of the survey, there are some outstanding aspects that the research has found and would like to point out. The findings can be discussed in accordance with the research’s observations and objectives of the study.

Most of the employees of Banyan Tree Hotels and Resorts who attended the online course were female and the majorities of the employees were at assistant manager level and followed by the manager level respectively. Most of employees in Human Resource took an interest in learning online but the operation staff or back of house staff such as housekeeping, security and engineering did not take much interest in learning online. Most of them spent 1-2 hours for each class.
Also, this study found that the factors in satisfaction show some differences in terms of class duration. The respondents who took the class 1-2 hours (mean = 3.60) were satisfied that they learn much in the e-learning courses compared to a face-to-face course but those who took the class less than 1 hour as well as 2-3 hours (mean = 2.92) were neutral on this matter. Moreover, the respondents who took the class 1-2 hours (mean = 3.51) were satisfied that online courses as effective as face-to-face courses while the respondents who took 2-3 hours (mean = 2.83) were neutral on this. Furthermore, between the respondents who took the class less than 1 hour (mean = 3.46) and those who took the class 2-3 hours (mean = 4.08) were very satisfied that the assignments in the course facilitating their learning.

Most of the employees who have experience about e-learning were satisfied with the content of the courses and they agreed that learning online can help them improve the skills and worked better. Most of them agreed that e-learning was as effective as class room training or face-to-face learning but they would like to have online interaction with the facilitators in class. This can be concluded that even e-learning was satisfied among the employees of Banyan Tree Hotels and Resorts but the interaction between facilitators and learners still play an importance role of learning. This result can refer to the study of Olga, et al. (2015) who stated that electronic learning cannot replace face-to-face communication between a teacher and a student: for example, lectures, which are especially important to students who study mathematics in a non-native language. Personal attendance at lectures does not only mean better digestion of subject material by such students, but also extra language practice.

From the study, the researcher found that the majority of employees who had attended the e-learning course were satisfied with the e-learning program but the program was still lack of interaction between the facilitators and learners. Therefore, they should focus on the interaction in the e-learning program to satisfy their employees. The company should convince their employees from other departments to participate in e-learning course by designing the e-learning courses which related to their work in each department and also the course should be supported their works. If the company provides variety of e-learning courses, it would attract more employees in different department to participate.

REFERENCES
Designing of the Air Plant Holding Equipment for *Tillandsia cotton candy* as Green Roof

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Abstract

This paper presents an experimental study on the designing of the air plant holding equipment for the *Tillandsia cotton candy* known as Green Roof, the properties of resistance to weather, plants grow normally, and the cost is minimal. The selection of materials on properties must not have the effect to the growth of plants and environment friendly. In experimental models have built roofs meters long, one meter wide and one meter high, one of the three rear-mounted roofing tile roofs with a slope of 30 degrees. The study found that these three types of materials used do not affect the plant's growth forecast. The roof is made of plastic water bottles. Aluminum rod and plastic cladding aluminum rod can remain dormant in hot weather and rain. To experiment with plants for 12 months (from May 2015 to April 2016). The results showed that plastic cladding aluminum rod, plastic bottles and aluminum rod, total leaf area increased by 9-12%. This shows that the material 3 types not have the effect to the growth of *Tillandsia cotton candy*. In conclusion, roof plastic cladding aluminum rod, plastic bottles and aluminum rod, respectively were suitable for the production of prototype air plant holding equipment for air plant green roof.

Keywords: eco design, green roof, air plant

1. INTRODUCTION

In developed countries there is legislation regulating building to save energy. The concept of cause planting trees covered building area in order to reduce CO₂ emissions, [1] pervasive around the world. Thailand is located near the equator, humid tropical climate. Most of the population lives in urban areas. Building materials on properties absorb heat, [2] accumulating heat and transfer the heat from the sun through roof and walls of concrete into the heat and humidity in the building. [3] So I decided to install air conditioning in the building to cool the building. The use of air conditioning is the most popular, but as a way to lose the most energy were just move the heat away outside, does not reduce the heat, [4] literally. It also increases the heat and pollution to the environment. [5] The green roof and green walls is another way to reduce heat transfer through the walls and roof with the use of insulation, causing thermal comfort inside and outside. [6]

In the past, using plants to decorate building focused on beauty. But the plant is useful for more than just a decorative building. Property photosynthesis and transpiration of plants reduce heat to cool down the area around. The plant has thick leaves provide shade to reduce heat. Is the origin concept of bringing the plant be used to reduce heat the buildings. Although the rooftop garden has been used since Babylon,
It has been used in Europe for a long time. But for Thailand it was just starting to be known approximately 25-30 years ago. A commonly used style is the intensive roof garden, style semi-extensive green roof extensive roof garden and the unpopular. Due to no studies on the academic side, there is a lack of knowledge about the materials for green roofs with appropriate climate in Thailand. The traditional green roof always face a problem the weight of the plant material and maintenance, in particular the plants on the slope roof. So, one is interested in studying and finding a way to bring Tillandsia cotton candy which is in the Bromeliad family as lightweight, tropical weather-resistant, easily taken care without watering, fertilizing, and other maintenance. The air plant which is xerophyte, epiphyte, and growth retardant seems to be solution to reduce the confront problem. The Tillandsia cotton candy is able to be used as a green roof but there is the problem of holding it on the roof. This study therefore aimed at designing the holding equipment to be used as green roof. The holding equipment must be cheap, holdable, weather proof, and not interfere the growth of plant.

2. OBJECTIVES
   To design the air plant holding equipment for Tillandsia cotton candy as air plant green roof, which has the properties of resistance to weather. Plants grow normally and the cost is minimal.

3. LITERATURE REVIEW
   *Tillandsia* is a kind of air plant in the Bromeliaceae. It native to the hot and dry climate of South America. Most common in Mexico, Brazil, Peru, Colombia and Chile. Thailand has imported it since a long time ago. Because, the plant is easy to raise, one can care less. There is also a small, stems short and beautiful blossom. The leaves one permanently attached the trunk until death. Arranged in a layer around the trunk from left to right be used for water retention. [7] It has white fur that looks like ice pellets sparkles across trunk. Which is characterized of the drought-resistant plants called Trichrome. It serves to absorb moisture and nutrients from the air and then transported from the outside into the cells retain water inside the leaf. In addition, trichrome serves to reflect sunlight and heat during the day. [8] Photosynthesis is different from general plant. Because, the plant CAM (crassulacean acid metabolism) special form to open stomata to absorb carbon dioxide at night and to close stomata to reduce water loss in the daytime. [9] In this study the *Tillandsia* cotton candy is used because it is an epiphyte and growth retardant. The scale leaves on the plant can absorb the dust and mineral for plant and also moister. The maintenance for the plant is therefore almost zero if the plant is placed in the right condition. Trichrome is therefore appropriate to be the air plant green roof.
Figure 1: Tillandsia cotton candy

4. METHODOLOGY

Locations used in this experiment is a Faculty of Environmental Management. University PSU. The rooftop of Environmental Management has installed a data logger for measuring weather. It is a place with a proper trial in Figure 2.

Figure 2: Faculty of Environmental Management, Prince of Songkla University, Thailand

Search the material and cost from the construction database. The property for selection is cheap, rustproof, weather proof, light, low conductivity, easy to process, and environmentally friendly. Bring the selected material and design as air plant holding equipment for 3 options. The 30 degree inclined angle roof is used in the experiment. The holding equipment should leave the distance between air plant and roof around 15 cm to avoid the mold growth. The 3 options of holding equipment are attached to the experimental roof and place in the real weather for 12 months.
5. RESULT & DISCUSSION

The property of the material used as holding equipment must be antirust, light, low thermal conductivity, reasonable price, formability, and environmental friendly as shown in table 1.

Table 1: The Property of the Material Used as Holding

<table>
<thead>
<tr>
<th>Design Type</th>
<th>Antirust</th>
<th>Density (kg/m³)</th>
<th>Conductivity (W/mK)</th>
<th>Price Baht/m²</th>
<th>Processing</th>
<th>Environmental Friendly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic Cladding</td>
<td>Antirust</td>
<td>2.22</td>
<td>0.023</td>
<td>15.6</td>
<td>easy</td>
<td>0.43 Yes</td>
</tr>
<tr>
<td>Aluminum Rod</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic Bottle</td>
<td>Antirust</td>
<td>1.22</td>
<td>0.15</td>
<td>0.5</td>
<td>easy</td>
<td>1.91 Yes</td>
</tr>
<tr>
<td>Aluminum Rod</td>
<td>Antirust</td>
<td>2.00</td>
<td>0.023</td>
<td>12</td>
<td>easy</td>
<td>0.78 Yes</td>
</tr>
</tbody>
</table>

Analysis results the features and limitations of the materials used to produce a prototype air plant holding equipment. The results showed that, the material use antirust, light no more than 1 kg/m³, low conductivity no more than 1.0 W/mK, price no more than 50 Baht, forming easy, Emission Factor (EF) no more than 2.0 kgCO₂eq, in design processes has selected plastic cladding aluminum rod, plastic bottle, aluminum rod, the primary material in the manufacture of prototype air plant holding equipment for use as a material in further experiments.

Design simple air plant holding equipment, easy use, adhesive and costing less. The development of a material that were selected one material on one piece. Type 1 Plastic cladding aluminum rod, type 2 plastic bottle, type 3 aluminum rod.

Figure 3: Type 1 Plastic Cladding Aluminum Rod
Figure 4: Type 2 Plastic Bottle
Figure 5: Type 3 Aluminum Rod
The holding equipment has no effect to the growth of plant which can be seen from comparing the growth rate of the controlled set and the experiment for 3 types of holding equipment (see table 2).

<table>
<thead>
<tr>
<th>Design</th>
<th>Mass before Trial (g)</th>
<th>Mass after Trial (g)</th>
<th>Increase in Mass (g)</th>
<th>Mass %</th>
<th>LAI before Trial (cm)</th>
<th>LAI after Trial (cm)</th>
<th>Difference LAI</th>
<th>LAI %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controlled Set of</td>
<td>0.14</td>
<td>0.246</td>
<td>0.106</td>
<td>+28</td>
<td>9.72</td>
<td>11.80</td>
<td>4.30</td>
<td>+17</td>
</tr>
<tr>
<td>Experiment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic Cladding</td>
<td>0.14</td>
<td>0.244</td>
<td>0.104</td>
<td>+28</td>
<td>9.72</td>
<td>11.62</td>
<td>4.12</td>
<td>+12</td>
</tr>
<tr>
<td>Aluminum Rod</td>
<td>0.14</td>
<td>0.228</td>
<td>0.88</td>
<td>+24</td>
<td>9.72</td>
<td>11.08</td>
<td>3.58</td>
<td>+9.7</td>
</tr>
<tr>
<td>Plastic Bottle</td>
<td>0.14</td>
<td>0.238</td>
<td>0.98</td>
<td>+26</td>
<td>9.72</td>
<td>11.54</td>
<td>4.04</td>
<td>+10</td>
</tr>
<tr>
<td>Aluminum Rod</td>
<td>0.14</td>
<td>0.238</td>
<td>0.98</td>
<td>+26</td>
<td>9.72</td>
<td>11.54</td>
<td>4.04</td>
<td>+10</td>
</tr>
</tbody>
</table>

Result plant *Tillandsia cotton candy* on holding equipment and on the controlled set of experiment. Table 2 shows a comparison of the leaf area index, conducted before and after the experiment. The results showed that, growth rate of plant on controlled set of experiment weight increase 28% and LAI increase 17%, type 1 Plastic cladding aluminum rod weight increase 28% and LAI increase 12%, type 2 Plastic bottle weight increase 24% and LAI increase 9.7%, type 3 Aluminum rod weight increase 26% and LAI increase 10%.

6. CONCLUSION

In conclusion, after installation of air plant holding equipment on roofing tile roofs with a slope of 30 degrees. To experiment with plants for 12 months (from May 2015 to April 2016) covers both hot weather and rain. The results showed that, total leaf area increased by 9-12%. This shows that the material 3 types not have the effect to the growth. *Tillandsia cotton candy* resistant the hot weather well. Especially, rooftop of high temperature, less humidity, windswept, weather is always changing. Plant
selection to suit the weather is another factor that affects the growth of plants. In conclusion, roof plastic cladding aluminum rod, plastic bottles and aluminum rod, respectively were all suitable for the production of prototype air plant holding equipment for air plant green roof.

7. BENEFITS
The prototype air plant holding equipment *Tillansia cotton candy*, for air plant green roof on the existing roof tiles. To lead to the choice in reducing the energy consumption of buildings in the future.

8. ACKNOWLEDGEMENT
This environmental management research was accomplished with support from the Faculty of Environmental Management, Prince of Songkla University. The financial support for the research was from the Energy Planning Policy Office, Ministry of Energy Thailand.

REFERENCES
Appropriate Guiding Principle in the Interest of Land Using of People: A Case Study of Dutai Subdistrict Muang District Nan Province

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Abstract

The study of an appropriate guiding principle in the interest of land using of people: a case study of Dutai subdistrict, Muang district, Nan province aimed to 1) study of the interest of land using of people focusing on Dutai subdistrict, Muang district, Nan province 2) analyze an appropriate guiding principle in the interest of land using of people: a case study of Dutai subdistrict, Muang district, Nan province. This study was mainly conducted by mixed methods process. This research used a chain or snowball approaching from 3 government organizations which were responsible for Dutai area, including Dutai municipal district, Nan’s department of forest and Nan’s land developing the unit. This project also used the in-depth interviewing from key informants by specific target selecting to collect important information from 15 local community leaders, together with observation, questionnaires from 150 local samples and also literature reviewing in 3 main subjects consisting of 1) Land using theory 2) Community forest theory and 3) Participation Theory.

The study found that there were 3 factors affecting the change of land using, consisting of 1) Community leaders 2) Community citizens 3) Government sector, the private sector, and other organizations. Dutai subdistrict had its own public areas and community forests management. It could be summarized into 3 dimensions including 1) Areas Management 2) Development and Improvement 3) Rules and Regulations.

In conclusion, this study can be applied to the similar areas including government sector and other organizations. The related bureaus can use this research to plan and set the areas management approach and public areas and community forests management. This research will benefit the communities and leads to further areas management approaches.

Keywords: land using, community, forest management, participation

1. INTRODUCTION

Now, Thailand has the problem of land using is a various pattern. There is the cause-effect from land or environment and human. There are factor effects by economic factor and social factor. A factor is making to problem conflict in land using. In consequence, land using permanently concept is solve this problem. Because, land using permanently to increase productivity, a reduce risk to productivity, protection to environment, be able to grow up economic, be able to acceptability by land using permanently concept to equality between physical, environment, economic, social and political beneath 3 principles is zoning, pattern, participation of local people.

However, Land is considered that is wealth, commodity, resource, community resource, environmental and sustainable development. Land Administration System:
LAS is happened mean at present to be related mission for several of government dimensions.

For, Nan province Strategy 2016 have environmental management issue by participation for community water source is happy town to exist environmental but is some area to conflict between community and trespasser area from government or private organization so far Nan province is a various natural resource and water source of Nan river into Chao Phraya river is a major river in Thailand, with its low alluvial plain forming the centre of the country. It flows through Bangkok and then into the Gulf of Thailand. Land using in the province is various. Dutai subdistrict is part Muang district because of Dutai subdistrict is suburban zone. There is high mountain range area, have agriculture because of the community be attached Nan river, have community forest and public land. Because of, the main purpose province principle city plan is aimed development province to the tourism industry that will make have tourist get in the province. Tourism Authority of Thailand (TAT) to rank is Nan province of tourist attraction of new interest. To cause capitalist into purchase land from village take land to build a house, homestay that make using the land to change from the part.

Therefore, bring to importance purpose research process management to “appropriate guiding principle in the interest of land using of people” is model to other province or same character area into sustainable development in land management of community.

2. RELATED WORKS
According to other related researchers, other researchers have attempted to study the land and land using and public areas. One study reported on land using and public areas enhance their retail land using were studied in terms of their land using in Thailand’ land management, community resource and participate. Another study looked at land uses, relative advantage and a significant effect on water quality [13]. In Thailand, there are many types of research on land using were studied. The management public areas focused on activity areas and community forest was evaluated using of people [5], [17], [18].

3. METHODOLOGY
The mixed methods research is chosen as the method of collecting data in this study, together with the data comparison and data analysis for better results of the whole research. There are 2 main steps of the research method. The step is conducting surveys for the “Appropriate guiding principle in the interest of land using of people: A case study of Dutai subdistrict Muang district Nan province” to analyze process in land using management of people into research that has details according to;

3.1 Step 1: Data Collection and Questionnaire
The first surveys conducted to find the appropriate guiding principle in the interest of land using of people among samples in the data group and to find the appropriate guiding principle in the interest of land using of people. The 150 participants who are asked to do the questionnaire are local peoples, which consists of 64 males and 86 females. There are 4 group questions in a questionnaire including the personal information, the land management and public areas or community resource, the community problems and the concept is solved this problem.
3.2 Step 2: Surveys and Field Interview

The second surveys conducted to this research also used the in-depth interviewing and together with observation. In the in-depth interview with a chain or snowball approaching from 3 government organizations which were responsible for Dutai area, including Dutai municipal district, Nan’s department of forest and Nan’s land developing the unit. This project also used the in-depth interviewing from key informants by specific target selecting to collect important information from 15 local community leaders, together with observation, questionnaires from 150 local samples.

4. IMPLEMENTATION

Regression analysis is used to measure how much the six factor has an effect on management. The result is in figure 1.

![Six Factors Diagram](image)

**Figure 1: Six Factors**

5. RESULT

The result showed that there were 3 factors affecting the change of land using, consisting of 1) Community leaders 2) Community citizens 3) Government sector, the private sector, and other organizations. Dutai subdistrict had its own public areas and community forests management. It could be summarized into 3 dimensions including 1) Areas Management 2) Development and Improvement 3) Rules and Regulations.

6. CONCLUSION & DISCUSSION

In this paper, we proposed a study of the interest of land using of people focusing on Dutai subdistrict, Muang district, Nan province and analyze an appropriate guiding principle. We used six factors the proposed.

Moreover, the result in this study can also be used in developing in conclusion; this study can be applied to the similar areas including government sector and other organizations. The related bureaus can use this research to plan and set the areas management approach and public areas and community forests management. This research will benefit the communities and leads to further areas management approaches.
REFERENCES
The Antecedents of Intention to Share a Content on Facebook: A Study among Vietnamese Students

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Abstract
The research aims to investigate the antecedent of intention to share a content on social network Facebook. Base on four previous models (Theory of Planned Behavior (TPB), Technology Acceptance model (TAM), Viral Marketing model and Model of Participation, this study proposed that attitude and intention to share a content on Facebook, are affected by nine factors: subjective norms, perceived behavioral control, perceived usefulness, perceived pleasure, perceived cost, perceived expressiveness, enjoyment, self-development and reputation building. The sample of 301 respondents was collected among Vietnamese students in many different universities. CFA and SEM are used to analyze data. The result showed that Perceived Pleasure, Perceived Expressiveness and Personal Perceived Utilities affect the intention to share. Discussions and practical implications are also discussed.

Keywords: online sharing, social network, Facebook sharing, viral marketing, Facebook marketing

1. INTRODUCTION
Facebook was established in 2004 and has become the world largest social network with around 1.5 billion active users around the world. In Vietnam, there are 28 million Facebook users, 41% of them spend about 3 hours per day on Facebook for some activities such as post status, check in, “like”, “comment”, “share” on the others posts, etc. Sharing others posts is the most common activity on Facebook.

Before, Facebook policy is quite easy for marketers to create viral marketing on Facebook. Every action of users to a content on Facebook makes it appear on the friend’s timeline and can be seen. However, since January 2015, due to users’ complaints, Facebook has changed their policy to prevent unexpected contents appearing on user friends’ timeline. As a result, marketers who want their content to reach as large amount of audiences need to put more effort in interacting with their audiences, and sharing is one of the best way to spread information. Thus, it is important to understand factors that affect intention to share and their level of impact.

2. LITERATURE REVIEW
2.1 Theory of Planned Behavior (TPB)
Theory of Planned Behavior first developed by Ajzen’s in 1991 [3] and had been applied in quite a few research about how consumer adopt new behaviors, especially in the cyberspace (e.g. George. 2004 [4]; Lim & Dubinsky, 2005 [5]; Pavlou & Fygenson, 2006, [6]; Jalilvand & Samiei, 2012 [7]; Yang & Zhou, 2011[8]). It proposed that the intention to perform a behavior can be predicted through the attitude
toward the behavior, the subjective norms and perceived behavioral control (Ajzen's 1991) [3].

In our context, we define the attitude toward sharing on Facebook is the overall evaluation of the desirability of sharing. Subjective norms is described as the perception of the expectation of subject's important others toward sharing. Perceived behavioral control is defined as the willingness and the feeling of freedom to share. We proposed three hypotheses:

H1, 2, 3: Attitude, subjective norm and perceived behavioral control positively affect the user’s intention to share online.

2.2 Technology Acceptance Model (TAM)
Technology Acceptance Model (TAM) helps predict the acceptance of technology (Davis, 1989) [9]. We believe that in the context of Facebook, ease of use is not a big issue, but perceived usefulness matters in attracting users. Perceived usefulness is described as the values being perceived when sharing. They can be entertainment, usefulness, connecting to the individual and other people relevant to them on Facebook. Thus, our fourth hypothesis is as follows:

H4: Perceived utilities positively affect the intention to share

2.3 Viral Marketing Model
Yang and Wang (2015) [8] proposed perceived pleasure, perceived cost and perceived expressiveness affect attitude and intention to share online videos. In our context, perceived pleasure is defined as the enjoyment and fun of a Facebook user when share a content. Therefore, our other six hypotheses are suggested:

H5, 6, 7: Perceived pleasure, cost and expressiveness affect the attitude toward sharing online.

H8, 9, 10: Perceived pleasure, cost and expressiveness affect the intention to share online.

2.4 Model of participant in online photo-sharing community
Deci and Ryan (1985) [11] proposed that enjoyment, self-development and reputation building affect on intention to share photos online. Enjoyment was defined as the excitement, willingness of sharing. Self-development refers to the reward of learning from others and self-improvement. Reputation building is defined as the enhancement of status in the community (Lakhani & Wolf. 2005 [12]; Roberts, et al. 2006 [13]). Our last three hypotheses are as follows:

H11, 12, 13: Enjoyment, self-development, reputation building positively affect the intention to share.

Based on the above hypotheses, our conceptual framework is as follows:
3. METHODOLOGY

We used survey method with measurement scales adapted from previous research. Questionnaires were sent directly to students in 10 universities in Ho Chi Minh City in Vietnam. Respondent have to be 18-24 aged, have Facebook account activated, online Facebook at least once a day and do share a content on Facebook.

4. DATA ANALYSIS & FINDINGS

Results of Cronbach test for all factors are in good range. Exploratory factor analysis (EFA) was run twice. All items measuring attitude loaded in other factors, thus were removed. For items that loaded in other factors, we review their scale content and if their content meanings are close to the hosted factors, we merged them in, if not, we deleted them.

The first CFA test show good results: (CMIN/DF is 1.573, CFI: 0.929, TLI = 0.915, RMSEA: 0.044), except for Average variance extract (AVE) value (.446) We check The Modification Indices and draw a covariance between necessary error items and run a second CFA. The result is better (Chi-square = 1.576, CFI = 0.927, RMSEA = 0.044, TLI = 0.914).

Then, we ran the Structural Equation Modeling (SEM) with Amos software. The first round is with poor model fit. We created some covariance paths with
theoretical justifications (Hair et al, 2010) [22] and did the second run. The second result is far better (CMIN/DF = 2.137, Comparative Fit Index = .846) but The Tucker Lewis Index = .83 which is still not good. We checked the Modification Indices, fixed covariance line for error items with high MI value and rerun the SEM. The third round of SEM provided model fit that satisfy the criteria (CMIN/DF = 2.379 < 3, Comparative Fit Index = .929, TLI= .91 > 0.9, RMSEA = 0.068.

Table 1: The hypotheses tests demonstrated that four factors (Perceived expressiveness, Personal Perceived Utilities and Perceived Pleasure) have impact on the intention to share.

<table>
<thead>
<tr>
<th>H</th>
<th>Relationship</th>
<th>Path</th>
<th>Regression Weight</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Estimate</td>
<td>P value</td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Negative</td>
<td>Int ↯ PP</td>
<td>-2.764</td>
<td>0.004</td>
</tr>
<tr>
<td>H8</td>
<td>Positive</td>
<td>Int ↯ PPU</td>
<td>0.703</td>
<td>0.016</td>
</tr>
<tr>
<td>H9</td>
<td>Positive</td>
<td>Int ↯ PE</td>
<td>3.244</td>
<td>***</td>
</tr>
</tbody>
</table>

5. DISCUSSION & RECOMMENDATION

Perceived expressiveness have the highest impact on the intention to share. According to Davision (2012) [2], besides the real world that we are living, the development of internet and technology has created an “Online world” where people online, connect to each other, sharing and express themselves. This is one of the key ingredients for digital marketers to create the content for viral marketing on social network. Base on the demand of self – expression, digital marketers have to define deeper the characteristic of their audient, the insight and expectation.

Perceived Pleasure has negative impact on the intention to share. Thus, the more user feel pleasure, enjoyable, the less they share. Why people do not share the content that they feel enjoyable? The reasons may be the content itself. The content may be fun, enjoyable, however, it does not reflect the users’ characteristic and worse, it may negatively reflect the self image, then it should not be shared.

Personal Perceived Utilities refers to the benefits that user perceived for themselves when sharing on Facebook. A small interview was conducted to see how this factor affects the intention. Sharing a content that they care about is a way to express their concern and interest to their friends on Facebook. Another benefit that users concern when sharing online on Facebook is the connection with the self. This explains why content which touch to the feeling of love, heart broken, sadness, etc. are easily shared thanks to the sympathy it created to audiences. Therefore, in order to make audiences share the contents they wants, marketers should understand their antecedents of the motivation.

Theoretical Implications:

The result of our study is not consistent with those of previous studies. This suggests that conceptual framework in other context may not be true in Vietnam context. Another possibility is there may be some biases in the data collection process, or the misunderstanding of respondents of the meaning of the measurement items, which may be due to translation. This is also another weakness of this study.
REFERENCES


A Study to Develop Security Management Solutions in Border Province of Special Economic Zone, Sadao District, Songkhla Province

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Abstract
This study is intended to study (1) the security issues in the dimension of the crime and the insurgency in the Special Economic Zone, Sadao Distric, Songkhla Province, and (2) the development of the safety management in the Special Economic Zone, Sadao District, Songkhla Province in order to suit the areas and the people. The research methodology combined research methods, including quantitative, survey and qualitative researches, as well as in-depth interviews with key informants. There were three phases in this study. Phase 1 was to study public attitudes towards the problems and ways to prevent and suppress the insurgency and crime in its special economic zone. Phase 2 was to investigate the development guidelines to the potential and appropriate border security management in the special economic zone, Sadao Distric, Songkhla Province for the areas and the people. The third phase was purposed to determine the suitability of the approach to development for crime and security problems in the border city's special economic zone. The subjects of the study were divided into three groups: a group of 380 people, 100 government officials and 100 interested investors in the special economic zone by quota sampling. The study results indicated that the majority of respondents agreed with the current security management model. Also, most of them agreed that the form of security management is consistent with the today’s security issues. However, some problems have to be adjusted. It is defined as a form of security management in a special economic zone in the border town to sample and see it as a form which is suitable for uses. The experts and scholars to reviewed the advantages of the areas and it was found that the security problems should be dealt managed with by developing management model for safety. The trial was done in the following areas. In terms of feedback, there are two additional stages in this framework. In the stage 1, it is urgently recommended that the authorities should adopt a plan for restoring the relationships between citizens and government officials. Secondly, it is a long-termed recommendation that the authorities take the knowledge based on this study under the concept “2PV-Go.”, and it was applied to “PAMS to POS-t-Di-CoRe-BE”. Review of the literature could accompany with the long-termed application deployment in order to viable and appropriate to the public and the next area.

Keywords: model management, security, special economic zone, border town

1. INTRODUCTION
Thailand is located on the same terrain as the regional center of Southeast Asia. Surrounded by neighboring countries, including Myanmar, Laos, Cambodia and Malaysia, there are 91 points of the blockade of the border crossing points, 38 permanent spots and
53 relief trade points (Chattiros, 2014). There are six major borders, namely Padang Besar, Sadao checkpoint, Aranyaprathe checkpoint, the checkpoint in Mae Sot, Baan Khlong Luek checkpoint and the canal house checkpoint, with these major problems affecting the stability of the country: drug trafficking. Terrorism, arms trafficking, human trafficking, maritime fraud, economic crime, computer crime, forged travel documents, international fraud and so on. (The Southern Coast. 2013) For checkpoint southernmost borders with neighboring countries such as Malaysia, there are two main border checkpoints, i.e. Thailand – Kedah, Malaysia (Sadao Checkpoint) and Thailand – Perlis, Malaysia, which are like the gateways to Thailand, Malaysia and Singapore. (Padang Besar Checkpoint (Municipality of Sadao. 2015). On the other hand, more than ten times of crime and security problems, especially the unrest problems since 2547 B.E, has happened in the special economic zone border, Sadao District, Songkhla Province, as well as Kham and Padang Besar Subdistrict, Sadao District, Songkhla Province. As a result, the economy and the confidence of the people, investors and authorities gaining the benefits have been damaged, and there have been disadvantages of the crime caused from other external factors in the special economic zone. In consequence, Dannok and Padang Besar Subdistrict, Sadao District, Songkhla Province play an important role in the economy and suit this research in order to develop the potential and suitable security management models in Border Province of Special Economic Zone, Sadao District, Songkhla Province.

2. OBJECTIVES
This study was aimed to (1) study the security issues in the dimension of the crime and the insurgency in the Special Economic Zone, SA-DAO District of SONGKHLA Province, and (2) find out the development of safety management in the Special Economic Zone, Sadao District, Songkhla Province to suit the areas and the people.

3. METHODOLOGY
The research methodology combined research methods, including quantitative, survey and qualitative researches, as well as in-depth interviews with key informants.

3.1 The Population and Sample Size
The population of the study population involved in the special economic zone border, Sadao district, Songkhla province was public officials and those who interested in investments in the special economic zone border, Sadao District, Songkhla Province. The population chose to study was people at 18 and more, living Kham (outside) and Padang Besar Subdistrict, Sadao District, Songkhla province (based on the references of the voters population in Songkhla Province). The size of the samples from 17,052 people (the population) and will use the equation to calculate the sample size of Taro Yamane, which uses a confidence level of 95% until a sample of 380 person and the sample officials. And those interested in investing in special economic zone the border city, of Songkhla province. The researchers used a method selected purposively (Purposive Sampling), a total of 200 people. The details are as follows:
- Those who are interested in the special economic zone of 100 person.
- Police / Military of 50 person.
- Government staff of 20 person.
- Local government staffs said of 20 person.
- Civil servants / officials of 10 other officers.
There were seven interviewees attending the in-depth interviews.
3.2 Research Instruments

The research instruments used in this study were as follows:
- Questionnaire

The questionnaire was divided into two phases.

In Phase 1, the data were analyzed and incorporated from the study of the concept, theories and related research documents. To create management models for the new security, the details are as follows:

Phase 1: A survey to study the problems and the security management.

Part 1: The questionnaire was about some general information of the respondents, including genders, ages, religions, origins, status, occupations, incomes, occupations, and sufficient incomes. The character of the questions in the questionnaire is a kind of checklists.

Part 2: The questionnaire asking about the comments on the issues and factors affecting the management style security was divided into two fields:

1) Comments on the issues causing the unrest and crime problems in the special economic zone.

2) Comments on the form of security in its special economic zone.

Phase 2: The appropriate forms of the security management.

Part 1: The questionnaire contained some general information of the respondents, including genders, ages, religions, origins, status, occupations, incomes, occupations, and sufficient incomes. The character of the questions in the questionnaire is a kind of checklists.

Part 2: The questionnaire was about the appropriateness of the security management style of the special economic zone in Sadao District, Songkhla Province, which the respondents must be submitted by valuation scales. (Ratting Scales).

- In depth Interview Model

Interview questions from the survey of Phase 2 were reviewed, conducted by using the research data from studies of concepts, theories from the books and relevant textbooks and research papers, Jacob's on purpose. The interview was conducted for seven key informants who were requested to provide some important information. The interview topic was “the present proper management model of the border security in the special economic zone, Sadao District, Songkhla Province and how this model should be continued in the future.”

3.3 Inspection of the Tool Quality for Data Collection

The structure of questions in the dimensions of contents and language was determined whether they covered all objectives. Plus, to check the quality of the questionnaire, the index for consistency among the questions and purposes (Item-Objective Congruency index or IOC) was employed. All questions must have 0.5 or more of IOC.

The reliability of the questionnaire was also done. The questionnaire was taken to try out with the samples in Samnak Thaw and Sadao Subdistrict, who as similar as the samples of this study. There were two phrases of the questionnaire. Each phrase of district in order to find out the reliability through the alpha coefficient. (α coefficient) based on the method of Cranbach. The reliability of the questionnaire in the first phrase was 0.812, followed by 0.876 for the questionnaire in the second phrase.
3.4 Data Analysis
The research methodology applied in this study was a quantitative research with descriptive statistics including percentage, arithmetic, standard deviation, t-test statistics (Independent Samples T-test) and one-way analysis of variance.

4. RESULTS
The results revealed that the majority of the respondents were single male at 31-45, who respect Buddhism. Most of them have own business, earning 15,001-25,000 Baht of gross monthly incomes. Additionally, they have no extra jobs and satisfy their monthly incomes.

The security management models of the special economic zone, Sadao District, Songkhla Province were at the agreed level (x̄ = 3.96, S.D. = 0.29169). When the models were classified, it was found that all sides were also at the agreed level.

Table 1: The average standard deviation of the comments on the security management models in the special economic zone.

<table>
<thead>
<tr>
<th>Lists</th>
<th>Level Comments</th>
<th>x</th>
<th>S.D.</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security management model in the special economic zone, Songkhla.</td>
<td></td>
<td>3.96</td>
<td>0.29169</td>
<td>Agree</td>
</tr>
<tr>
<td>The unrest and crime problems in the special economic zone, Songkhla province.</td>
<td></td>
<td>3.67</td>
<td>0.37734</td>
<td>Agree</td>
</tr>
<tr>
<td>Security form of special economic zone in the border, Songkhla province.</td>
<td></td>
<td>4.27</td>
<td>0.39886</td>
<td>Agree</td>
</tr>
</tbody>
</table>

4.1 The analysis of the adequacy of safety management model in its special economic zone.
In the study, an average of each of the following issues: the process for the integration and setting the rules was done. As considered, the draft of the security management model in the special economic zone border, Sadao District, Songkhla Province was appropriate and effective. Problems were also quoted in the draft of the security management model in the special economic zone. The details are as follows:
- The unrest and criminal problems
  3.67 sets of the total average of the criteria were under Article 3.50.
- A form of security in the special economic zone.
  4.26 sets of the total average of the criteria were under Article 4.50.

From the overall opinions, regarding the cause of the unrest and the crime scenes, the threshold was lower than 3.50, there were 6 questions. Details can be concluded that Respondents opinions about issues served to prevent violence in the area should be the duty of all parties. And citizens should have the support of government officials as well. The respondents also commented that policy. Management issues smuggled goods and illegal oil along the border. Government should resolve to take action to reduce the cost of living. Increase revenue and reduce the prices of certain essential items to the nearest neighbors. The public sector and the private sector can reduce the cost of living and business costs. For business stable. The solution will also help reduce the illegal employment of foreign workers. The problem of crime and vice.
It was found that the security management model of the sample special economic zone border, Songkhla Province were at the right level ($\bar{x} = 4.19$, S.D. = 0.6267) the questionnaire showed the appropriateness form of the security management in its special economic zone. The information from the questionnaire in the issues of violence and unrest, crime and a review of the security form in the special economic zone, Sadao District, Songkhla Province was compiled and synthesized.

4.2 The results of in-depth interviews in the security management models in the special economic zone

This in-depth interview under the topic “the present proper management model of the border security in the special economic zone, Sadao District, Songkhla Province and how this model should be continued in the future.” Was conducted to interview seven key informants as follows.

Dr. Theamsap Terakul (Director of the Border 1 of Office of Economic Development National Society) stated and concluded that there are more advantages in the dimensions of the areas in Sadao District, Songkhla Province than other areas in other provinces due to the suitability of energy, natural resources and environment. Moreover, the area is suitable for cultivation, production and process raw materials for industrial factories both inside and outside the country, for example, rubber and palm oil. The potential for transportation with a variety of dimensions, such as rail transport, water transport, air transport and large trucks transport, etc. is also represented in the areas.

Mr. Danai Muasa (Director of Office of the National Security Council) summarized that diverse cultures, ideas, beliefs, races and religions are found in the areas the area near the Customs in Sadao District, Songkhla Province. Sometimes criminals do a variety of crime and the insurgency in the area due to the lack of connection among the government sectors and the areas.

Mr. Songpon Savastham (Provincial governor of Songkhla) said that the government sectors has set up a special economic zone policy concentrated in Sadao District to stimulate the economy for people’s better quality of life by having jobs. Furthermore, the quality of services for people has been developed, and related government sectors need to improve their security management models to have reliability, stability of the people’s quality of life in the areas in order that some terrible situations can be controlled.

Lt.Gen. Rangsak Suwannaka (Captain at least four and Deputy Director of Internal Security Operations Command, Region 4) concluded that the military along the border between Thailand - Malaysia have good cooperation with each other. In the past, security information, mixed practice and cooperation was exchanged to each other and well-developed. Thus, these actions are very useful to cope with some terrible situations and security inside and outside the country.

Pol.Lt.Gen.Verapong Cheanpakdee (Commander of Provincial Police Region 9) concluded that many unrest situations happened in the special economic zone, Sadao District, Songkhla Province, affecting the reliability of the security partly because of the lack of cooperation among sectors, especially the people sector. Hence, the past security management models could not control some factors and situations completely, and people were not convenient for their living.

Mr. Nipol Boonyamanee (Chief Executive of the of Songkhla province) concluded that due to the cultural diversity in Songkhla Province, sectors within the province has implemented a variety of cultures through a variety of business process, such as the opening of the floating market in the tourism areas, the walking street in the old town...
and promotion of traditional and religious activities, etc. The feedback is also done to survey people’s opinions in order to develop all mentioned things.

Mr. Apinan Srisamanuwat (Chairman of the Federation of Songkhla province) concluded that the spaces where the sectors have established as special economic zones contain natural resources and environment, including the appropriate labors. It is also necessary to create energy and natural resources security. The effects on the environment and management of crime scenes and insurgents should be studied to develop models through various processes, together with the serious and continuous cooperation of all sectors for both advantages and disadvantages.

5. DISCUSSIONS

The development of the areas should result in a better way and be conducive to the interest public. However, a good understanding of the deep development should be done. Also, we have to admit the basic fact that is the definition of targets for development and all the values of the fundamentals. The research showed the better understanding of the people’s needs on the issue of the security management models. This is a factor that people have to be involved firstly. Although today's both public and private organizations interest in the establishment of the special economic zone, but the security management models are important. Expansion was more important than ever. Due to the economic dimension, both inside and outside the country to get involved. Therefore, the format of this research study was appropriate to the sample.

The comparative analysis on the form of security in the special economic zone in terms of the opinions regarding the problems caused unrest and crime in the special economic area. This was compared to study the appropriateness of the security management model at present. Although the group agreed to form the security in the areas which is consistent with problems caused unrest and crime in the special economic area in a good direction. On the other hand, the problems remain and are likely to increase. The management model that reflects the current security cannot eliminate or control the problem decisively. The group is also concerned about the safety and determined crime of state officials, both in terms of instruments and processes. The problems, in particular various dimensions and urged the relevant authorities to draft the new security management model that was appropriate for the public. Investors and authorities have a powerful theoretical and practical. To build confidence and faith of the authorities from the government was restored to the people and investors. The tap root is in the development of the economy and reduces corruption. The issues concern the public, investors and most of the problems causing unrest in the area.

The agency's operations are related to the management of the firm opinion that in accordance with data from surveys of a sample of the importance of the deal to security the cooperation of all sectors seriously and continuously. If the security of instability would affect the confidence of investors and the public, the proper form to all sectors need to coordinate all agencies and recognized the importance of joint problems.

So that Surveillance and prevention of such problems, it is the local people and government officials, both public and private, should have taken precautions against such an increase. The understanding of the impact of economic development on border security in the area was done. According ideas about crime in the area and the theory of crime control environment (Theory of Crime control through Environmental Design - CED) said the changes in the socio-economic impact on the community. The transformation into an industrial society to make the lives of person in social change. There was a man in form. A separation of the people from the community. The nature of the social impact
of the destruction of social relationships and community. Community members are abandoned people do not survive to prevent crime. Finally, crime or safety issues in the community are increasing.

Finally area in Sadao district will be expanded into a special economic development zone and HatYai district, Songkhla province, which is the city's economy, which is vital to economic development. Both cities will have some form of life will change dramatically. Becoming an industrial society with increasing labor mobility. There are lots of tourists and granting incentives to investors in the various areas of the economy. These affect the safety of all. If the community does not work together to prevent security issues. It will come into effect on the course. The operational management of the firm. Requires the involvement of both public and private sector in the form of security in special economic development zone border city of Songkhla province. Using participatory research mission. (Participatory action research) and participatory planning techniques. (Participatory planning), which is a technique used in the development community to contribute to sustainable development. An opportunity for individuals and representatives of various organizations. In the community local involvement and is responsible for directing the development community. The process consists of three stages, including the creation of knowledge. (Appreciation) to create a development plan (influence), and establishing guidelines (control). The findings are expected to be in the study to draft security management model will lead to a set format and guidelines for the protection and security in the area of special economic development zone, border Songkhla Province sustained further.

6. CONCLUSION AND RECOMMENDATIONS
The problem that people have come to see that reflected. The beginning of the real issue is the distance between government officials and citizens. Lack of communication the lack of cooperation and harmony, which is a small issue. If the omissions that cause the problem and to determine the problem becomes more difficult to resolve. The summary of the problems leading to improvements. Editing and development of special economic zone for optimum handling security, and consistent with national security problems. By improving Editing and development of such The pattern can be 2PV-Go. Pattern “The relationship between people and the representatives of the state.” That is required to determine the direction and management model security in special economic zone border Sadao district of Songkhla Province potential and the right to public space and as much as possible to bring stakeholders together to talk. Discuss and network performance. By recognizing the impact of the crime and the insurgency has on people and the economy in the area.

The work is important in this scheme. The talk Discuss and create a network of public and government officials at all levels. Through intermediaries, the key is Volunteer as a medium for promotion and support. Including repair relationships when government officials restrictions on access to the public. At present, the special economic zone border Sadao district of Songkhla Province is facing many problems. The problem of the relationship between citizens and government officials. The origin and development may become a problem in other crime areas.

And review of literature the study consisted of concept application. “PAMS to POSt-Di-CoRe-BE”. Which will be used to define the framework in a normal government officials of all units in the special economic zone border Sadao district of Songkhla province, to enhance the effectiveness and efficiency of policy or mission agencies are working to address and reduce factors issues that will affect the traditional
relationship "relationship between the people and the representatives of the state." In addition, the transfer function of each component must be priorities. So that each element to have good relationships with each other. As important in the prevention of crime and the potential.

REFERENCES
[3] Central Investigation Bureau. (2010). It was the police...servant community. Bangkok: Publisher Police.
Merging Phonics Instruction and Mnemonics to Promote English Vocabulary’s Achievement and Memory of Pratomsuksa VI Students

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Abstract
The purposes of this research were to investigate English vocabulary’s achievement and memory between two groups of students. The experimental group was instructed phonics instruction merged with mnemonics, and the control group was instructed traditional method. The sample consisted of two classrooms which have 40 students in each class, enrolling first semester of Pratomsuksa VI at Chumchon Wat Khan Ngoen School, which was drawn by sample random sampling method. The pre-test was administered before the experiment. And after the experiment the post-test was run twice, first for the vocabulary’s achievement, and after two weeks for the vocabulary’s memory. The results revealed that the English vocabulary’s achievement and memory level of the experimental group was significantly higher than the control group at P<0.01.

Keywords: phonics instruction, mnemonics, English vocabulary

1. INTRODUCTION
There are many different problems in teaching English in Thailand. However, one main problem which all schools are facing is students do not know enough English vocabulary according to their grade which affects the English achievement. The important factors are the students themselves and the teaching method which being use in classroom. (Witiprod. 2009: 7) Teacher often focuses on remembering vocabulary which makes students get bored of the class and has poor attitude towards learning English. According to Nguyen and Khuat (2003) and Uberman (1998), students are tired of learning vocabulary through rehearsing, writing words on papers or learning passively through teacher’s explanations, and this has created severe problems with learning skills. Hence, the teacher should provide a relaxed environment and proper method for vocabulary learning which students can participate in the class. (Sukkrong. 2010: 2) Also, the content which are linked to students’ daily lives, can improve the level of English achievement.

Phonics instruction is a method for teaching reading and spelling which focuses on the relationship between sounds or phonemes and letters or graphemes in an alphabetic writing system. In the English language, there are 44 phonemes. A phoneme is the smallest unit of sound in a language. It’s not necessarily a single letter, for example, ‘oo’ in look is a phoneme. (Lyle. 2014:69). Phonics instruction can help children to read quickly and skillfully. Children will be taught how to recognize the sounds that each individual letter makes, identify the sounds that different combinations
of letters make - such as ‘kn’ or ‘ee’; and blend these sounds together from left to right to read a word. (UK Government. 2012: 1).

Meanwhile mnemonics are techniques or devices such as a rhyme or an image that serves to enhance the storage and the recall of information contained in memory (Solso, 1995, p. 257). Using mnemonics is a potential approach to address problems related to students’ poor retention. (Balbuena & Buayan. 2015: 15). Mnemonics instruction is a way to help students remember information/vocabulary more effectively and easily. It involves linking unfamiliar information with already known information through the use of a visual picture or letter/word combinations. (Bakken. 2011: 79-80).

Furthermore vocabulary is the collections of phonemes which has meaning and is used to communicate. Vocabulary has two major components, namely spelling and meaning. (Sripor. 2007: 128). Vocabulary is an important element in language (Hoshino. 2010). Because vocabulary is a key element in language learning skills: listening, speaking, reading, and writing. Learning vocabulary is important in learning any language. (Puangwipart. 2011: 20). Also, vocabulary is central to English language teaching because without sufficient vocabulary students cannot understand others or express their own ideas. “...while without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (Wilkins. 1972: 111-112).

As the researcher has faced that the Pratomsuksa VI students in the researcher’s school have problems in learning and remembering the new vocabularies which affect the English achievement. Considering the students’ need for vocabulary learning and recalling, the purposes of this study were to investigate the English vocabulary’s achievement and memory by merging phonics instruction and mnemonics in teaching English vocabulary.

2. OBJECTIVES
1) To investigate the English vocabulary’s achievement of Pratomsuksa VI students who study English vocabulary through phonics instruction merged with mnemonics and Pratomsuksa VI students who study English vocabulary through traditional method.
2) To investigate the English vocabulary’s memory of Pratomsuksa VI students who study English vocabulary through phonics instruction merged with mnemonics and Pratomsuksa VI students who study English vocabulary through traditional method.

3. METHODOLOGY
The research instruments, participants, procedure, data collection, and data analysis are addressed respectively in this section.

3.1 Instruments – Teaching English vocabulary lesson plans, one for merging phonics instruction and mnemonics, and another for using traditional method. Each lesson plan contained of 18 hours. Pre-test was used before the experiment. Post-test was used for testing the vocabulary’s achievement. Retention-test was used for testing vocabulary’s memory.

3.2 Participants – A total of 80 students of Pratomsuksa VI students from Chumchon Wat Khan Ngoen School in Chumphon were the participants in this study. They were enrolled in the first semester of 2016 academic year.

3.3 Procedure – The simple random sampling method was constructed to drawn the samples. One room was for the experimental group which was taught English vocabulary through merging phonics instruction and mnemonics. The other was for the
control group which was taught English vocabulary through the traditional method. The pre-test, post-test, and retention-test were used to compare the vocabulary’s achievement and memory. The experiment carried out in 21 hours, 3 hours for tests and 18 hours for the instruction. The classes were held twice a week. 60 English vocabularies were taught during the study. The experimental group and the control group had the same condition in terms of the text book, number of vocabularies, and hours of the instruction. Students in both groups were not told that they were supposed to take the retention-test after 2 weeks of the experiment in order to measure their vocabulary’s memory.

3.4 Data Collection – Data sources of this study included the scores from the pre-test, post-test, and retention-test.

3.5 Data Analysis – T-test was used to determine the significant difference in the English vocabulary’s achievement and memory between the experimental group and the control group.

4. RESULT

The results of this study are represented in the following tables.

Table 1: Descriptive of statistics of the post-test.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>(\bar{x})</th>
<th>S.D.</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spelling</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>7.75</td>
<td>1.765</td>
<td>4.554</td>
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<td>6.15</td>
<td>1.350</td>
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</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
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<td>1.733</td>
<td>3.859</td>
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</tr>
<tr>
<td>Control</td>
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<td>5.08</td>
<td>1.913</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>1.446</td>
<td>7.253</td>
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</tr>
<tr>
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<td>1.228</td>
<td></td>
<td></td>
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<td>Total</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>19.65</td>
<td>4.312</td>
<td>6.243</td>
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<tr>
<td>Control</td>
<td>40</td>
<td>14.30</td>
<td>3.283</td>
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<td></td>
</tr>
</tbody>
</table>

*Sig. < 0.01

Table 1 presents the means and S.D. of post-test scores which was the English vocabulary’s achievement test. It illustrated that the experimental group is higher than the control group at \(P<0.01\). As seen on the table 1 that the experimental group has higher means and S.D. in vocabulary’s spelling, meaning, and usage than the control group.

Table 2: Descriptive of statistics of the retention-test

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>(\bar{x})</th>
<th>S.D.</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spelling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>6.95</td>
<td>2.480</td>
<td>6.372</td>
<td>0.000*</td>
</tr>
<tr>
<td>Control</td>
<td>40</td>
<td>3.95</td>
<td>1.648</td>
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<td></td>
</tr>
<tr>
<td>Meaning</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>6.45</td>
<td>1.739</td>
<td>4.060</td>
<td>0.000*</td>
</tr>
<tr>
<td>Control</td>
<td>40</td>
<td>4.63</td>
<td>2.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>5.08</td>
<td>1.900</td>
<td>3.669</td>
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</tr>
<tr>
<td>Control</td>
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<td>2.399</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>40</td>
<td>18.48</td>
<td>5.053</td>
<td>5.903</td>
<td>0.000*</td>
</tr>
<tr>
<td>Control</td>
<td>40</td>
<td>11.88</td>
<td>4.947</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Sig. < 0.01
Table 2 presents the means and S.D. of retention-test scores which was the English vocabulary’s memory test. It illustrated that the experimental group is higher than the control group at P<0.01. As seen on the table 2, the experimental group has obtained a higher means and S.D. in spelling, meaning, and usage as compared to the control group.

5. CONCLUSION AND DISCUSSION

According to the result found in this study, the significant difference suggests that merging phonics instruction and mnemonics can promote the English vocabulary’s achievement and memory levels of students. Students under the experimental conditions were exposed to phonics instruction merged with mnemonics. Undoubtedly, they learned effectively from these strategies on how to spell and pronounce the word using phonics instruction, and how to remember the words’ meaning and usage using mnemonics. The mnemonics strategy which used in this study such as songs, rhymes, pictures, and diagrams helped participants in the experimental group to easily retrieve the English vocabulary data from their memory. So they performed well in both post-test and retention-test. Hence, the use of merging phonics instruction and mnemonics is an effective strategy for supporting students’ English vocabulary’s achievement and memory.

6. RECOMMENDATIONS

Based on the results of this study, it is recommended that the teacher use phonics instruction in spelling and reading the words, and use mnemonics to remember the words’ meaning and usage. But to use them perfectly in the classroom, the teacher should study and practice these two strategies thoroughly.

REFERENCES


Service Quality Measurement of Restaurants in Bhutan: A Case Study of Expectation and Perception of Tourists

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Abstract

Bhutan has opened its door to international tourist from 1974 with the tourism policy of high value low volume. Since then, the country saw increase in tourist that demanded for more hotels and restaurants. Tourism Council of Bhutan has identified many of them as tourist standard. Many reports about service being poor despite restaurants are considered important part of Bhutanese tourism. However, no explicit studies have been carried out regarding their services quality. The purpose of this study is to assess restaurant service quality using five dimensions, Tangibles, Reliability, Responsiveness, Assurance, and Empathy of the SERVQUAL Model (Parasuraman, et al. 1985). The main aims are to: (a) Analyze the relationship between service quality and tourist satisfaction, (b) Analyze the GAP between expectation and perception of tourist on service of restaurants in Bhutan, and (c) Identify the GAP in service quality of restaurants. The study uses personally administered structured 5-point Likert scale questionnaire. The study found that several factors related to knowledge and skill of restaurant employee could not meet the expectation of tourists. The other factors as cleanliness, politeness, gestures and restaurant facilities shows higher perception level from tourists. The result aims to help the authorities to improve service provided by restaurants. The findings of the study could be used as guideline and reference for hoteliers and restaurateurs for recruitment criteria. The result also can be used in hospitality institutes in the country to focus more on knowhow about the service quality. Moreover, this study will prove to provide basic foundation of service study in future.

Keywords: service quality, expectation, perception, SERVQUAL

1. INTRODUCTION

Bhutan began to open up to outsiders in 1970s with first international tourist in 1974. Internet and television came only in the late 90s (BBC. 2015). A population of 757, 042 with 1.3% annual birth growth rate, Bhutan is unique and unspoiled country on an area of 38, 394 sq.km with 70% of land covered with natural forest (NSB. 2015). “High Value, Low Impact” is the tourism policy with far-sighted vision for sustainability. The policy calls sustainability as environmentally and ecologically friendly, socially and culturally acceptable, and economically viable. Tourist has to pay a minimum daily all-inclusive package rate of US$200-US$250 per day per person. The country’s central tourism authority, the Tourism Council of Bhutan, coordinates all aspects of tourism policy and regulation.

Without any international chain and international fast food chains, restaurants in Bhutan offer international cuisines to authentic Bhutanese cuisines. However, there are restaurants that came along with international hotels like Aman, Le Meridian, Uma and
Taj. Increase in number of tourist and living style changes of people in Bhutan saw many restaurants come to live only in few cities like Thimphu and Paro. According to Norbu and Chaisawat (2011), increase in number of restaurants in few cities creates uneven distribution of job opportunity.

Bhutan Tourism Monitor, (2015), reports that about 45.8% tourist marked restaurant service as “important”, and 42.1% marked as “very important” and 40.7% of tourists highlighted on requirement for better restaurant services. Tourist does not comment or criticize food and service much for they are satisfied with amazing nature and tradition of the country (Sloan, Legrand & Simons-Kaufmann. 2014). High rate of untrained service employees and lack of professionalism in the service were the major drawbacks of service industry in the country with more concern in the areas of cleanliness, restaurant facilities, food quality, and other attributes of service (Norbu & Chaisawat. 2011; Dorji & Chaisawat. 2011). The national news broad casting service also mentioned about repetitive complaints of bland food and poor service quality from restaurants (BBS. 2013). Only few studies report very little about service quality in Bhutan. Until today, no explicit study was conducted fully based on service quality of restaurants or hotels. Therefore, the research intends to find answers of the service quality of restaurants with the following questions:

1) What are the tourists’ expectation and perception of service quality of restaurants?

2) Are tourists satisfied with service quality of the restaurants?

3) What are the gaps of service quality of restaurants?

2. LITERATURE REVIEW

Service quality is defined as the judgment of customer on overall service received. It is the customer who evaluates the performance contained with expected and perceived values. Service is the comparison of customers’ expectation with the performance of service provider. Therefore, assessing customer satisfaction is the measure of service quality (Ha & Jang. 2010; Naseem, Ejaz & Malik. 2011; Naik, Gantasala & Prabhakar. 2010). Customer satisfaction is defined as a post-evaluated conclusion, which is related to the purchase decision made. It is also spelled out as experienced positive feeling of a customer after the decision has been made (Ha & Jang. 2010; Hapsari, Clemes & Dean. 2016).

According to Benhura, et al. (2012), customers are satisfied and happy if their expectation is met or exceeded by what they got in offer over a period of time. Time and product together makes the service acceptable, such as fast food outlets where food is good and the time taken is less. However, quality of product and time is easier to measure, but other aspects of intangible services, time and place are the real challenges (Caruntu & Ditoiu. 2014; Ko & Su. 2014; Sumaedi & Yarmen. 2015). With much same and many better companies and firms dedicating to service the same purpose, it has become essential for all the service providers to be the best with quality to provide maximum satisfaction (Zangmo, Liampreecha, & Chemsripong. 2014).

This SERVQUAL Models’ Gap 5 was used to study service quality of restaurants in Bhutan. The Gap 5 is the result of difference in the expectation and perception of the customers. It is also the result of failure on the part of service provider.
Based on the study model and literature reviews of service quality, the following hypothesis is developed:

H₀: There is no significant difference between the perception and expectation in service quality of restaurants.

H₁: There is significant difference between the perception and expectation in service quality of restaurants.

3. METHODOLOGY

The research used quantitative methods to collect all the information and required data. A structured questionnaire with 5-point Likert scale was used to collect data from tourists at exit points in the country. The population for the research is international tourists as per the report from Bhutan Tourism Monitor issue of 2015.

This study used Taro Yamane’s sample calculation methods to determine the sample size of about 400 samples for the quantitative data collection. The structured questionnaire with 5-point Likert scale was used to collect required data monitored and
administered personally. Based on SERVQUAL dimensions and statements (Parasuraman, et al. 1985), and other literature reviews, the study developed questionnaire suitable and applicable to restaurants in Bhutan. Statements were adopted from the literature review and findings of the study done by Norbu & Chaisawat (2011) and Dorji & Chaisawat (2011). Statements of service quality from the study of Nameghi & Ariffin (2013), Goranczekwski & Puciato (2011), and Butt & Murtaza (2011) were referred, paraphrased and modified.

In order to test the validity and understanding of the questionnaires, a pilot questionnaire test was conducted with a small sample of 25, then the questionnaires were edited, modified to make it more clear and suitable for the study. The Cronbach’s Alpha of 0.99 was achieved. According to Bahadori, et al. (2013), a reliability coefficient of .70 or higher is considered good for most of the research study.

Out of 450 questionnaires distributed at three exit points in the country, a total of 377 complete and valid questionnaires were used to analyze using SPSS. The first section, descriptive statistics was used to analyze demographic characteristics of respondents. The second part consists of travel behaviors of tourist. In part three, paired t-test was used to find out if there is any gap in expectation and perception of service quality provided by restaurants. Independent sample T-test was also used to compare the differences between groups. The level of expectation and perception between male and female was compared to measure service quality of restaurants. Pearson’s product moment correlation r was used to determine whether there is significant relation between expected and perceived service quality.

4. RESULTS

Females dominated with 53.3% over males with 46.7% and the age range of 31-40 years and 41-50 years are the highest with 25.7% and 24.1% respectively. The highest number of tourist came to Bhutan were South Asian followed by European, South East Asian, American, Chinese, Japanese, and Australian. Most of the tourists to Bhutan were self-employed/entrepreneur with maximum of them having degree in education. Majority of tourist 84.1% were visiting Bhutan for the first time with word of mouth being the highest source of information about Bhutan.

From the table 4.1, it is clear that the Assurance Dimension of SERVQUAL had the widest gap of -0.38 that resulted in overall gap of -0.08 indicating that expectations were not met. The wide gap in the assurance resulted from not having trained and professional employees with lack of confidence and knowledge in their job. From the data, the following statements showed low level of perceptions;

1) Service is performed correct at all times.
2) Employee informs about the service time.
3) Trained and professional staffs.
4) Employees are confident in their work.
5) Ability of employee to answer doubts.
Table 1: Comparison of GAP between Perception and Expectation of Service Quality

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Means Perception</th>
<th>Means Expectation</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibles</td>
<td>3.67</td>
<td>3.60</td>
<td>0.07</td>
</tr>
<tr>
<td>Reliability</td>
<td>3.72</td>
<td>3.78</td>
<td>-0.06</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>3.77</td>
<td>3.73</td>
<td>0.04</td>
</tr>
<tr>
<td>Assurance</td>
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<td>3.76</td>
<td>-0.38</td>
</tr>
<tr>
<td>Empathy</td>
<td>3.71</td>
<td>3.77</td>
<td>-0.06</td>
</tr>
<tr>
<td>Total</td>
<td>3.65</td>
<td>3.73</td>
<td>-0.08</td>
</tr>
</tbody>
</table>

Pearson product-moment correlation coefficient between overall expectation and overall perception shows a positive relationship between the two ($r = .129$, $n = 377$, and $p < 0.05$).

Table 2: Correlation between Overall Expectation and Overall Perception

<table>
<thead>
<tr>
<th>Correlations</th>
<th>Overall Expectation</th>
<th>Overall Perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Expectation</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.129**</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>377</td>
</tr>
<tr>
<td>Overall Perception</td>
<td>Pearson Correlation</td>
<td>.129**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>377</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.05 level (2-tailed).

The paired sample t-test in table 4.3 shows decrease in overall perception on restaurant service ($M = 3.69$, $SD = .557$), $t (367) = 1.458$, $p < 0.05$ (2-tailed). The mean decrease in score was 0.06, 95% confidence level from lower bound of -0.023 to upper bound 0.156. The eta squared of 0.01 indicated very small effect.

Thus, it is concluded that there is no significant difference between overall expectation and overall perception of restaurant service quality.
Table 3: Paired Sample T-test for Bap between Overall Expectation and Overall Perception of Restaurant Service

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Expectation</td>
<td>3.7533</td>
<td>377</td>
<td>.74744</td>
<td>.03850</td>
</tr>
<tr>
<td>Overall Perception</td>
<td>3.6870</td>
<td>377</td>
<td>.57673</td>
<td>.02970</td>
</tr>
</tbody>
</table>

Paired Samples Test

<table>
<thead>
<tr>
<th></th>
<th>Paired Differences</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Pair 1 Overall Expectation - Overall Perception</td>
<td>.06631</td>
<td>.88327</td>
</tr>
</tbody>
</table>

Overall, tourists are satisfied (M = 3.69) with the service quality of restaurants in Bhutan (61.8%) though there are much required hard work to be done in term of knowledge and skills of employees.

Table 4: Overall Satisfaction Level of Restaurant Service Quality

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsatisfied</td>
<td>6</td>
<td>1.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>122</td>
<td>32.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied</td>
<td>233</td>
<td>61.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Satisfied</td>
<td>16</td>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>377</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. CONCLUSION & DISCUSSION

The intent of the research was to find out about the service quality of restaurants in Bhutan through perception of tourist. The result showed that in general, tourists are happy and satisfied. However, the expectations were higher than the perception in “Reliability”, “Assurance”, and “Empathy” among which “Assurance” had the widest gap. This widest gap occurred mainly due to lack of knowledge and professional employees. In order to minimize the gap between the tourists’ expectations and perceptions of restaurant service, the managers and concerned personnel in the firm have to ensure that every employee are well equipped with required knowledge, well-groomed and appropriately cared to render appropriate service to guests. Developments of restaurants depend on how the employees provide service to guests, and how employees provide service depend on their working conditions.

In “Tangibles” dimension of SERVQUAL model, the perception is more than expectation, which clearly indicated that guests do not care much about furniture, attractiveness, and physical appearance of restaurants. It is not the physical facilities
that makes quality service, but it the employees who make difference in quality service. The concerned authority could play a very important role in implementing rules to recruit trained and experienced employees to those properties, which are registered as tourist standard restaurants and at the same time working on the remuneration and benefits provided to the employees must be visited as well.

According to chairman of Hotel and Restaurant Association of Bhutan (HRAB), there are service gap due to many reasons associated with personal choices of job. Working in restaurants and hotels in Bhutan are not seen as a decorated job for many youths. Many graduates of hospitality and tourism seek job in other countries due to the very fact that restaurant and hotels in Bhutan are still very new and the salary and benefits are not attractive. This resulted in recruitment of untrained employees for the service purpose, which adds up to negative gap in perception and expectation of service quality. The proprietor of Chha Bistro and bar, a popular restaurant in Thimphu points out that there is high rate of staff turnover. Hiring and recruiting again takes time to teach new staffs the essence of service quality, which in meantime creates the gap.

In recent years, the Ministry of Labor and Human Resource have sent more than 400 Bhutanese youths to work in service industry in Middle East countries, majority of them in Kuwait and Dubai due to rising unemployment rate among youths. It is not that there are no employment opportunities in Bhutan, there are many choices in hospitality firms but there seems to be a problem with blue color and white color jobs available. Many choose to opt for vacancies in offices rather than vacancies for hotels and restaurants. According the student alumni report of Royal Institute for Tourism and Hospitality, some of the graduates from the institute are currently working in financial institution across the country because they found offices much more appealing than F&B, Housekeeping or Kitchen jobs, and some have already travelled out of country with better job offers.

Conversation with few students of Yarab Institute of Tourism and Hospitality brought in some issues of current pay and benefits of working in hotels and restaurants in the country. Either they are paid very less or working hours are too long, there is no spirit and passion in already existing employees which in turn drain down the interest and passion of new employees as well. Some of the past graduate of hospitality and tourism institutes pointed out quite a huge concern about the service charge practices in few of the hotels in Bhutan, “not transparent”, “not paid on time”, “too less”, “lots of deduction” are common phrases used when asked about service charges. On the other hand, interview with hoteliers, namely, Gyelsa Boutique Inn, Migmar Hotel, and Drupchu Resort pointed out that most of the employee take their current job as provisional while they are in look out for something better. The proprietor of Gyelsa Boutique Inn said, “I have only two staffs who have been with me since day one, rest of my staffs are new and they have to be monitored frequently”.

Taking in all the aspects of problems and gaps of service quality, the concerned managers, proprietors and authorities must work together to make sure the gaps in service of hospitality are the same as the perceptions of tourist on nature, culture and tradition of Bhutan. Authorities can invite professional to talk on importance of service quality, conduct workshop and seminars regarding service quality and the importance of it in growing hospitality industry in the country.

Further, this research will serve as a groundwork for future researchers to study and explore more in depth into service provided by hospitality firms in the country. Current remuneration and pay scale of the hospitality industry, the working conditions in the hotels and restaurants, youths’ attitudes towards working in hotels and
restaurants, and governments’ efforts and plans to solve the issues if any, are few of the interesting topics related to current hospitality industry in the country. The future researcher can consider taking the perception of fellow citizens to study hospitality industry in Bhutan.

REFERENCES


Character Values Integration in the Teacher’s Document as a National Teaching Requirement

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Abstract
The purposes of this study were to examine how the teachers implement character education, to explain the types of the character education values integrated in the lesson plans, and to explain how the teachers construct the Character Education values integrated in the lesson plans. This study used descriptive qualitative. The researcher interviewed 3 teachers, which is the very core of this education. The results of the study showed how the teacher integrated character education in lesson plan, what the types of character education values integrated and the implementation of character education have been already suitable and appropriate with the guideline. This study provides numerous values about courage, loyalty, justice, respect, hope, honesty, and love that can coincide with the six character traits. This study could help to improve the entire school environment. Finally, an additional way to improve better integration character education in lesson plan, the teachers have to be more care with the student’s problem or situation in the school and pay much attention to the guideline. In order the teacher can implement the most important values in their lesson plan.

Keywords: character education, lesson plan, vocational high school

1. INTRODUCTION
Most students often come to school with problematic behaviors and attitudes. Schools need to support students in learning character education in order for students to become successful, contributing members at school, at home, and in their daily activities. Character education can also be a proactive way of helping those students who may be at risk of not finishing school.

According to Wings: Helping Kids Soar (2008) [1], those students who are most likely to drop out before they graduate, demonstrate violent behavior, exploit weapons, and/or use drugs, alcohol, tobacco are the students who do not feel comfortable attending school, and cannot associate or attach with anyone in school. This problem has produced many programs and approaches to start the character education. In this concern, school tries to create or apply the values of character education in their curriculum and classroom. Teacher teaches materials that inserted with character education. The teacher teaches student how to respect, help, and discipline to themselves and other people.

The education and development of students' character, specifically targeting social betterment and helping others as a means to personal growth, is essentially absent in many school's curriculum (Ryan & Bohlin. 1999) [2]. With character education program integrated into the curriculum, schools have the ability to make a difference in the lives of student. We believe that the teachers need to focus on developing positive morals and eliminate all negative actions that do occur at school. One of strategy to help re-engage our students, deal with conflict, keep students on task in the learning
environment, and reinvest the community with active participation, by integrate character education into the school community.

According to Otten (2000) [3], “character education integrated into the school community is a strategy to help re-engage our students, deal with conflict, keep students on task in the learning environment, and reinvest the community with active participation”. In this research, the writer delivers a research that investigates, observes, and analysis how the teachers create and conduct their Lesson Plans in the classroom, that included with values of character education.

2. RELATED WORKS

Character Education Values
To improve the student’s habit, teacher needs some values in their teaching learning process. Based on “Pendidikan Karakter” by Dinas Pendidikan Pemerintah Indonesia (2010: 8-9) [4], teridentifikasi sejumlah nilai untuk pendidikan budaya dan karakter bangsa sebagai berikut ini, religius, jujur, toleransi, disiplin, kerja keras, kreatif, mandiri, demokratis, rasa ingin tahu, semangat kebangsaan, cinta tanah air, menghargai prestasi, bersahabat/komunikatif, cinta damai, gemar membaca, peduli lingkungan, peduli sosial, tang gung-jawab”

Based on Dinas Pendidikan, 2010, the values that implemented in the lesson plan are courage, good judgment, integrity, kindness, perseverance, respect, responsibility, and self-discipline.

Lesson plan is a written document composed of learning objective. According the book by SABES and ACLS (2008: 4-6) [5], a lesson plan describes how learning is to be organized and facilitated in the classroom and documents specific plans for teaching. This document is specific plans for teaching made by the teacher based on the competence.

3. METHODOLOGY

3.1 Research Design
This research examined character education as it was implemented in the lesson plan and used through daily activities by the participants of one Vocational High School Askhabul Kahfi Semarang. The research was conducted on May 2013. This research gave some answers based on above problem, by these objectives the studies to explain the types of the character education values integrated in the lesson plans, to explain how the teachers construct the Character Education values integrated in the lesson plans, and to explain how the teachers implement the character education in lesson plan in classroom teaching learning process.

Patricia Z. Salahuddin (2011) [6] conducted an action research about Character Education in an Islamic School: A Case Study of a Comprehensive Islamic School's Curricula. The purpose of this study was to examine how the Islamic school’s curricula implemented character education. This study used a qualitative single-case methodology to examine character education as it was used by the participants in a private Islamic school.

A Descriptive qualitative evaluative study was used to examine how character education was integrated in the lesson plan at Askhabul Kahfi Vocational High School, an accredited Islamic Vocational High School in the Semarang region of the Central Java. Document analysis, observations and interviews were used to understand how
English teachers at SMK Askhabul Kahfi made the meaning of their Lesson plan or used character education. The goal of qualitative research is to understand a subject from the perspective of the participants (Bogdan & Biklen, 2003) [7].

A single-site study was chosen to observe the character education in this Vocational high school. The nature of the study allows parameters for the research question to be transferred to other Vocational High School providing comparative and contrasting data (Miles & Huberman, 1984) [8]. This study sought to understand the phenomenon of character education as it was used in the lesson plan of a vocational high school.

3.2 Classifying, categorizing, and ordering these units of meaning

The researcher observed the lesson plan. Then, the researcher counted the value in a meeting. For one value in a meeting was counted one. Total of the meeting is 34 meetings. To account the percentage, the researcher counted per values in percentage from 34 meetings. The status was filled by “teacher has integrated” or “the teacher has not integrated”.

4. FINDINGS & DISCUSSION

4.1 Types of character education values that integrated in lesson plan.

In this finding, the researcher found the character education values which were used by the teacher. The types of character education values used by the teacher were in lesson plan, which they adjusted from Dinas Pendidikan, 2010.

Table 1: The Amount of Character Education Value Based on Teaching Learning Activities

<table>
<thead>
<tr>
<th>No</th>
<th>Values</th>
<th>Quant (times)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Religious</td>
<td>34</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Honest</td>
<td>8</td>
<td>23%</td>
</tr>
<tr>
<td>3</td>
<td>Tolerance</td>
<td>12</td>
<td>35%</td>
</tr>
<tr>
<td>4</td>
<td>Disciplinary</td>
<td>34</td>
<td>100%</td>
</tr>
<tr>
<td>5</td>
<td>Hard Work</td>
<td>11</td>
<td>32%</td>
</tr>
<tr>
<td>6</td>
<td>Creative</td>
<td>34</td>
<td>100%</td>
</tr>
<tr>
<td>7</td>
<td>Independent</td>
<td>7</td>
<td>20%</td>
</tr>
<tr>
<td>8</td>
<td>Democratic</td>
<td>8</td>
<td>23%</td>
</tr>
<tr>
<td>9</td>
<td>Curiosity</td>
<td>34</td>
<td>100%</td>
</tr>
<tr>
<td>10</td>
<td>Nationalism</td>
<td>10</td>
<td>29%</td>
</tr>
<tr>
<td>11</td>
<td>Respect</td>
<td>16</td>
<td>47%</td>
</tr>
<tr>
<td>12</td>
<td>Friendly</td>
<td>14</td>
<td>41%</td>
</tr>
<tr>
<td>13</td>
<td>Peace-loving</td>
<td>8</td>
<td>23%</td>
</tr>
<tr>
<td>14</td>
<td>Joy of Reading</td>
<td>34</td>
<td>100%</td>
</tr>
<tr>
<td>15</td>
<td>Environmental Care</td>
<td>30</td>
<td>88%</td>
</tr>
<tr>
<td>16</td>
<td>Social Care</td>
<td>7</td>
<td>20%</td>
</tr>
<tr>
<td>17</td>
<td>Responsibilities</td>
<td>12</td>
<td>35%</td>
</tr>
<tr>
<td>18</td>
<td>Love the Country</td>
<td>7</td>
<td>20%</td>
</tr>
</tbody>
</table>

Based on the data, the teacher used 18 character education values. It means that the teachers have been already integrated all the values in their lesson plan. They inserted the values at least 20% in each teaching learning process. The result has
answered that all the values has been integrated by the teacher in the teaching learning process. The most used by the teacher are Religious, Curiosity, and Joy of Reading as 34 times, it has 100 percent. We can say that the teachers always use those three values in their teaching learning process. And, the less used is Independent that only has 7 times in 34 meetings.

So, by the interview and the observation, the researcher got some values that teacher could mention good enough. All of the values have already inserted in the lesson plan. Moreover, the values have been adjusted with the school need. The values are “Religious, Honest, Tolerance, Disciplinary, Hard Work, Creative, Independent, Democratic, Curiosity. The spirit of Nationality, Appreciate, Friendly, Peace-loving, Joy of Reading, Environmental care, Social care, Responsibilities, and Love the country.” Those values are found in the teacher’s document of lesson plan. All of the values usually are used by the teachers in the teaching learning process.

4.2 Integration Character Education in the Lesson Plan

In integration character education values in the lesson plan, the researcher got some technique and strategies. The teacher also used some principle. They have already done the method in guideline from the Dinas Pendidikan. This part is about the data that was gathered by interview. In interview, the researcher did to 3 participants. They are English teacher at SMK Askhabul Kahfi.

Table 2: The Character Education Values Integration Indicator

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Evidences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Integration Principles</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Character Education is Part of every subject</td>
<td>Syllabus</td>
</tr>
<tr>
<td>2</td>
<td>The School and Community are Vital Partners</td>
<td>Syllabus</td>
</tr>
<tr>
<td>3</td>
<td>A Positive Classroom Environment.</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Empowered Teachers</td>
<td>Observation</td>
</tr>
<tr>
<td>5</td>
<td>Administrative Policy and Practice.</td>
<td>AD/ART</td>
</tr>
<tr>
<td>6</td>
<td>Character Education is Action Education.</td>
<td>Lesson Plan</td>
</tr>
<tr>
<td></td>
<td>The Step Used</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Analyzing the Indicators</td>
<td>SK/KD</td>
</tr>
<tr>
<td>2</td>
<td>Determining the condition and the need</td>
<td>Document</td>
</tr>
<tr>
<td>3</td>
<td>Analyzing the relationship</td>
<td>Document</td>
</tr>
<tr>
<td>4</td>
<td>Choosing the appropriate values</td>
<td>Document</td>
</tr>
<tr>
<td>5</td>
<td>Identifying Character Education values</td>
<td>Document</td>
</tr>
<tr>
<td>6</td>
<td>Inserting in the syllabus and lesson plan</td>
<td>Lesson plan</td>
</tr>
<tr>
<td>7</td>
<td>Integrating in the learning activities plan</td>
<td>Lesson plan</td>
</tr>
<tr>
<td>8</td>
<td>Integrating and adjusting with the learning process</td>
<td>Lesson plan</td>
</tr>
<tr>
<td>9</td>
<td>Checking and Evaluating the values</td>
<td>Lesson plan</td>
</tr>
<tr>
<td></td>
<td>The Consideration in Integrating the Values</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Concerning with the Individual Differences</td>
<td>AD/ART</td>
</tr>
<tr>
<td>2</td>
<td>Supporting the student’s habit</td>
<td>Document</td>
</tr>
<tr>
<td>3</td>
<td>Improving reading and writing cultures</td>
<td>Document</td>
</tr>
<tr>
<td>4</td>
<td>Giving response and interactive</td>
<td>Document</td>
</tr>
<tr>
<td>5</td>
<td>Making relationship with the knowledge</td>
<td>Lesson plan</td>
</tr>
<tr>
<td>6</td>
<td>Applying the information and technology</td>
<td>Lesson plan</td>
</tr>
</tbody>
</table>
So, from the indicator above, the teacher did kinds of method and step to integrate character education values in the lesson plan. The data shows us that the teacher did a lot of indicator. The teacher did action based on the guideline is about 30%. We can say that it is good integrated for the teacher. The teachers have done the integrated as the guideline as 48%. It means all the teacher did that allowed the guideline is 78%. By 78%, it can say that they have well done in integrating character education values. Although, we can see that there is any 22% the step or the method from Dinas that the teachers have not done yet.

In integration character education values, the teachers did some steps. This step consists of 5 steps. First, they concerned with the principles of implantation character education in lesson plan. Second, they determined the character education values that inserted in lesson plan. Third, the inserted the character education values in lesson plan by some ways. The next step, Forth, they reviewed their character education and lesson plan by the consideration points. The last, they adjusted with the format of lesson plan.

From the above indicator, we can say that the entire indicator has been done by the teacher. This fact gives us information that the teachers have allowed the guideline. Based on the data; the teacher did 12steps in the implementing character education values. They implemented 33% of the method correctly, and 67% of the method with very good way. From the percentages, it was obtained 100% completely. It means that the teachers as totally have already done 100% in doing implementation the character education values as the guideline from Dinas Pendidikan, 2010.

4.3 Types of character education values that are integrated in lesson plan.

Based on lesson plan made by the teachers, the researcher got about 18 types of character education values. All of the values were integrated in each grade. The following paragraph will give the information about the types of character education values. The teacher used 18 Character Education values.

The most used by the teacher are Religious, Curiosity, and Joy of Reading as 34times, it has 100%. We can say that the teachers always use those three values in their teaching learning process. Every meeting the teacher always used the values, because those values have important role in the children’s character.

Second rate that teacher implemented are Environment, respect, friendly, tolerance, responsibilities, hard work and nationalism. Those values were often used by the teacher in lesson plan. From the interview about this fact give meaning that the teachers and school believe the student is good in those values.

The third and the less integrated values are honest, democratic, peace loving, independent, social rate, and love the country. Those values were seldom integrated by the teacher. It is because those values have been success and they have good character in the students.

The teachers used the values because the values needed to solve the classroom problem. It was about moral, attitude and condition. From those explanations, it gives evidence that the teacher has implemented all of the types of character education values. The values are also suitable with the guideline from Dinas Pendidikan 2010. In a qualitative study of character education, Nielsen (2003) [9] found that having a common language enables teachers and students to communicate the definition of good citizenship and the behaviors that demonstrate it.
5. CONCLUSION & SUGGESTION

For the first conclusion is about character values used. Character Education values used by the teachers in the lesson plan adjusted from Buku Pedoman Pengembangan Pendidikan Berakaracter Dinas Pendidikan 2010. There are 18 character education values are religious, honest, tolerance, disciplinary, hard work, creative, independent, democratic, curiosity, the spirit of Nationality, appreciate, friendly, peace-loving, joy of reading, environmental care, social care, responsibilities, love the country.

Based on the observation to the teachers, in integrating character education, teachers did some steps. They reviewed Competency Standards (SK) and the Basic Competency. Then, the teachers adjusted relationship between SK and KD values and indicators to determine the value to be developed. Next, they stated character values in the lesson plan. After that, the teachers inserted the values that are listed in the syllabus into the RPP (Lesson Plan).

The last conclusion is about how the implementation of character education integrated in lesson plan Character development. Through active learning in the observation result, it can be divided into three stages, namely planning, implementation, and evaluation. The teacher has implemented the values in every activity.

REFERENCES
Developing Independent and Autonomous Learning through Research Based Assignment

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Abstract
This study investigated the implementation of task-based instruction in an ESP course in promoting independent and autonomous learning. Data were collected using post-survey and final interview. The results indicate that the research-based task fostered learner autonomy. Structured research-based tasks enabled students to work independently to create content and afford the freedom in exploring the understanding of a particular topic through social interaction. Teacher scaffolding through timely feedback affected student self-regulated efforts in completing the task. The study concludes that research-based task contributed to the promotion of learning autonomy and the social interaction in learning.

Keywords: independent learning, autonomous learning, research-based task

1. INTRODUCTION
The ability to learn independently and autonomously is a key graduate quality. The globalised and competitive economies need autonomous and flexible workers who possess the capacity to become a critical and autonomous learner, that is, to be aware of and be able to interpret the signs of change and to adapt in a continuously evolving labour market. Higher education should prepare citizens for the labour market. That is why increasing student autonomy must be one of the goals of every higher education institution. It is essential that our students are educated for knowledge creation, lifelong learning and leadership. They will take on leading roles in their future working environments: directing change, asking important questions, solving problems and developing new knowledge.

Autonomous learning is often equated with independent learning. It can be used to describe the ability to arrange and organise the learning environment without help, directions and guidance. It is also denotes the ability to create a supportive environment for learning based on the personal needs: the choice of the curriculum, the methods and techniques of learning, the schedule and the ability to set goals and accomplish tasks and projects as parts of the courses (Koivista and Jokinen, 2006).

This study investigated the implementation of task-based instruction in an ESP course in promoting independent and autonomous learning using data collected from some students who enrolled in ESP course.

2. LITERATURE REVIEW
2.1 Learner Autonomy
Researchers have different descriptions for learner autonomy. Holic (1981) thought that learner autonomy is learners' ability of managing their own study, including setting learning objectives, self-monitoring and self-evaluation. Little (1991) treated learner autonomy as learners' psychological reaction to learning content and process. For learner autonomy, attitude and ability are kernels, key factors to decide
learner autonomy. Dickinson (1995) listed autonomous learners’ basic features as can understand teaching objectives and teaching methods, set their own leaning target, choose suitable learning strategies, monitor their own learning strategies and establish their own learning outcome. Betts and Knapp (1981) defined an autonomous learner as one who solves problems or develops new ideas through a combination of divergent and convergent thinking and functions with minimal external guidance in selected areas of undertaking. Nguyen Thanh Nga (2016) has succinctly defined learner autonomy as a learner’s willingness and ability to take responsibility to plan, implement, monitor and evaluate his/her learning in tasks that are constructed in negotiation with and support from the teacher.

Two major factors involved in the development of learner autonomy

An autonomous learner has developed the capacity to take at least some control over their learning. Developing capacity requires a set of personal qualities: confidence, motivation, taking and accepting responsibility, and ability to take initiative. It also involves a set of skills: academic, intellectual, personal and interpersonal. In short, the learner:

- has well-founded conceptions of learning
- has a range of learning approaches and skills
- can organize their learning
- has good information processing skills
- is well motivated to learn

Besides, the learning environment has to provide the opportunities for the learner to take control of their learning.

The Sheffield Hallam’s definition of learner autonomy starts with the premise that an autonomous learner takes responsibility for his/her own learning. In doing this, they can identify:

- their learning goals (what they need to learn)
- their learning processes (how they will learn it)
- how they will evaluate and use their learning

While learner autonomy emphasizes independence and self-regulation, it is not the same as self-study or self-access learning. Rather, it concerns embarking on the path of self-directed learning through which the learner takes initiatives, monitors progress, and evaluates individual learning outcomes (Benson, 2013).

### 2.2 Enquiry Based Learning (EBL)

EBL represents a shift away from passive methods, which involve the transmission of knowledge to students, to more facilitative teaching methods through which students are expected to construct their own knowledge and understanding by engaging in supported processes of enquiry, i.e. learning in ‘research mode’.

Hutchings (2007) asserted that Enquiry-based learning in its widest sense can be seen as an umbrella term, covering a range of approaches to learning that are driven by a process of enquiry. As such, it would include problem-based learning, project work, field-work, case studies, research based learning, etc. The various approaches subsumed under the Enquiry Based Learning (EBL) are depicted in the figure below.
Enquiry-Based Learning aims to ensure to get students to acquire their knowledge by means of a process of active learning. The learning is self-directed because it is driven by students’ own decisions about appropriate ways in which an issue or scenario might be approached. They carry out research and investigations into areas that they decide are essential for a proper response to the issue. Thus they discover how to research by engaging in practical examples (Hutchings, 2007).

The Centre for Promoting Learner Autonomy (CPLA) of Sheffield Hallam University states that learning is driven by a process of enquiry or investigation, often involving complex, intriguing ‘real-life’ stimuli. It is student-centred, requires active participation, and supports the connections between theory and practice. It is a supported process that develops a range of skills in students:

**Academic:** Research and information skills

**Professional:** Team, leadership and inter-personal skill; communication skills, project management, entrepreneurship, idea generation and innovation.

**Personal:** Taking and accepting responsibility, planning, balancing creativity with resilience

In addition, learning is a social activity. Socialising their learning requires learners to recognise the benefits of working with others and to be able to share and negotiate with other learners.

### 3. RESEARCH QUESTIONS

The central questions addressed in this study are as follows:

1) How do students view research based assignment in support of autonomous learning?
2) What is the relationship between research based assignment and learner autonomy?
4. METHODOLOGY

4.1 Context of the Study
The UVW312 English for Technical communication offered during the second semester of academic year 2015/2016 was used in the study. The students were required to conduct a small scale research using a questionnaire to gather information for a report. Task-based research activities were created for the collaborative report writing assignment. The instructor provided students with guidance and corrective feedback throughout the course to support their research activities. It was hoped that a shift from a teacher-driven to a learner-centered approach through TBI would motivate and engage them in learning tasks independently and collaboratively and would foster students’ autonomous learning.

4.1.1 Course Design
UVW312 English for Technical Communication is a required ESP course for all engineering programme students. The main objective of the course is to familiarise the students with the technical writing process to enhance their technical writing proficiency. In the course the students are required to write a report in small group besides sitting for test and final examination which test the theoretical concepts of technical writing. The students are also required to present their reports orally after the submission of the report.

4.1.2 Participants
Sixty-two students participated in the study. All participants were non-native speakers of English.

4.2 Data Collection and Analysis

4.2.1 Post-Survey
The post-survey was designed to capture learners’ viewpoints of the task-based research activities on autonomous learning processes. 43 of the students (70%) completed the survey given at the end of the semester. The survey consisted of 11 statements that elicited responses in relation to learner autonomy adapted from the one used in Lee’s study (2016) on the relationship between autonomous learning and online task-based instruction. The survey used a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree to gauge different viewpoints. Students indicated their level of satisfaction by ranking the questions from 1 to 5 (5 being the highest score).

4.2.1 Interviews
The instructor interviewed several students who had indicated a low perception of the research activities to gather explanation on their perception.

5. FINDINGS & DISCUSSION
Table 1 reports student views on the use of research based assignment in relation to autonomous learning. The overall mean of 3.97 indicates that the students responded positively to the. More than 70% of the responded agreed positively to all the statements in the survey. This suggests that most students agreed that using TBI was an able to help them become more independent and autonomous in their learning.
### Table 1: Students Perception of RBI in Support of Autonomous Learning

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>StD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I usually made plans and thought about how to best carry out the task-based research assignments.</td>
<td>3.97</td>
<td>0.64</td>
</tr>
<tr>
<td>2. I spent time in learning lecture materials and completing assignments in a timely fashion.</td>
<td>3.91</td>
<td>0.53</td>
</tr>
<tr>
<td>3. Doing the research task, I become more independent in managing my learning.</td>
<td>3.88</td>
<td>0.62</td>
</tr>
<tr>
<td>4. I used the instructor’s feedback to made revisions on my assignments and monitor my own progress.</td>
<td>4.00</td>
<td>0.71</td>
</tr>
<tr>
<td>5. I found the research tasks interesting and kept me motivated throughout the course.</td>
<td>3.75</td>
<td>0.67</td>
</tr>
<tr>
<td>6. Using task-based research activities allowed me to interact and collaborate with my group members in a meaningful manner.</td>
<td>4.07</td>
<td>0.64</td>
</tr>
<tr>
<td>7. I felt comfortable carrying out the research activities.</td>
<td>4.12</td>
<td>0.65</td>
</tr>
<tr>
<td>8. I found working in a group useful to develop skills that will make me more independent in learning.</td>
<td>4.26</td>
<td>0.44</td>
</tr>
<tr>
<td>9. I enjoyed sharing and exchanging ideas with my group members.</td>
<td>4.07</td>
<td>0.73</td>
</tr>
<tr>
<td>10. Reading my group members’ work and discussing with them allowed me to think more about the chosen topic.</td>
<td>3.83</td>
<td>0.65</td>
</tr>
<tr>
<td>11. Overall, I had a positive experience doing the research task.</td>
<td>3.67</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Students managed to adjust their own schedules accordingly in order to complete the assignments (Statement 1). The weekly schedule was very useful to them because they were able to make plans ahead of time. However, it was observed that a few students fell behind in the course schedule. As might be expected, some students were more self-determined and self-regulated than others. Self-regulation is pivotal to the success of autonomous learning. As to time investment, more than 70% of the students reported that they spent time learning new materials and completing the coursework (Statement 2). There appeared to be a clear indication that the students learned on their own initiative (Statement 3). Moreover, 80% of the students noted that they took up teacher feedback to make error correction and to monitor their own progress (Statement 4).

Despite the positive results, the mean (3.62) for statement 11, which asks whether the students had a positive experience is the lowest mean among all. The interview with students showed that they were not too positive about the type of research actives rather than about the research process. One student said that “I found the topic somewhat repeated and boring. The topic of the research is restricted by time and as a result we could only select issues that are, in my opinion, rather trivial. There is no actual impact. This has affected the experience that I had in doing the research.”

### 6. CONCLUSION

While the use of research based tasks’ benefits on learner autonomy is limited in scope and depth, the findings of this study demonstrates that learner autonomy was
fostered through doing the research based tasks. The taks also allow the students to collaboratively exchange ideas with their peers within a socially bounded learning environment.

Although the findings of this study have deepened our understanding of the impact of research based tasks on learner autonomy, much more research is still needed. Future research would need to look at using a longer course length to determine how RBI affects learners individually and collaboratively. A future study using the pre- and post-surveys together with a larger sample and weekly self-reflections will contribute a clearer understanding of the effectiveness of research based instruction in promoting autonomous learning.

REFERENCES
Local Culture Stories as Alternative Reading Materials for Students (A Contextual Teaching and Learning for High and Low Interest)

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Abstract

The purpose of this study is to examine the effectiveness of contextual learning using local culture based stories to improve the skill in reading comprehension especially for narrative texts for students with higher and lower interest in MTs Nahdlatul Muslimin Kudus. The study was conducted using factorial design with two research groups and two control groups. The participants of this study were two classes. The number of subjects was 30 in a class. The data were collected by using a pretest and a posttest. Statistical Package for Social Sciences (SPSS) was used for analyzing the tabulated data. The result shows that there was a significance improvement between pretest and posttest in both control and experimental group with the level of significance 0.000. This means both methods are effective in improving the students’ reading skills both for the students with higher and lower interest. The analysis of covariance shows that there was no significant interaction between the contextual learning using local and non-local culture based stories, students’ interest, and reading comprehension skills with the level of significance 0.380.

Keywords: contextual teaching and learning, local culture, reading comprehension, narrative

1. INTRODUCTION

The growing importance of English as an international language and as a global lingua franca is observable in nearly all countries around the world. Learning English involves the mastery of four language skills. Reading takes a big role for students in learning English because they can get good understanding about a certain text through their ability in reading.

In Indonesia, teaching and learning English mostly emphasizes on the reading skill. It is proven in English National Examination. Reading text becomes the major part of test. Reading is the dominant skill which is tested in teaching and learning process because reading proficiency is regarded as a major objective in teaching English. According to the book entitled Pusat Kurikulum (2007) [1] published by Ministry of Education of Indonesia, in English as a Foreign Language (EFL) subject, students should be able to read and write many kinds of texts or genres. The term genres or texts here refer to the definition according to the theory of Systemic Linguistic Functional (SFL). Genres are defined as kinds of text, such as narrative, procedure, and exposition (Paltridge, 2001) [2].

Reading is very essential in teaching and learning process because the source of knowledge is derived from reading literatures. But reading is not an easy skill, especially in English. Many students get some difficulties when they read English texts. Regarding the importance of reading comprehension skill, an English teacher has significant roles to make the students interested in reading. Here, it is not enough for the teacher asking the students to read any reading material and answer the questions
following the text. The teachers must be active and creative in searching and finding innovative teaching learning strategies to help the students in improving their reading skill. The teachers must provide good and interesting teaching materials using local culture.

The study was conducted in MTs Nahdlatul Muslimin Undaan Kudus in the academic year 2014/2015. The subject of this study is eighth graders. For the material which is used in the study, the researcher determines narrative text as the main material because it is adapted from standard competence for grade eighth.

2. RELATED WORKS

2.1 Contextual Teaching and Learning

Contextual Teaching and Learning (CTL) is a constructivist approach to learning in that it focuses on knowledge that is highly contextualized and relevant to students (Driver, et al. 1994 [3]; Johnson, 2002 [4]; Morrel, 2003) [5]. CTL emphasizes using concepts and process skills in real world contexts that are relevant to students from diverse backgrounds. This approach “motivates students to make connections between knowledge and its applications to their lives as family members, citizens, and workers and to engage in the hard work that learning requires” (Sears & Hersh, 2000, p.4) [6]. CTL includes (1) inquiry learning, (2) Problem-based learning, (3) cooperative learning, (4) project-based learning, and (5) authentic assessment.

2.2 Reading Comprehension

Reading is known as a process of interaction among the reader, the text, and the context. Reading is an active process in which the readers interact with the text to reconstruct the message of the author. In addition, Nunan (2003:8) [7] defines that reading is a fluent process of readers combining information from a text and their background knowledge to build meaning. According to Oxford Dictionary (2010), “Story is a description of events and people that the writer or speaker has invented in order to entertain people”. The events which occur in the story are highly related to people’s belief, custom, and culture. Therefore, providing stories to the children, who are based on their background knowledge and culture, will stimulate them to pay more attention in learning process.

According to Mark Anderson and Kathy Anderson (1997:8) [8], a narrative is a piece of text which tells a story, and in doing so, entertains or informs the reader or listener”. The social function of narrative text is to amuse, to entertain and to deal with actual or vicarious experience in different ways. Narratives deal with problematic events which lead to a crisis or turning point of some kind, which in turns finds a resolution. The generic structures of narrative text as stated by Linda Gerot and Peter Wignell (1995:204) [9] are orientation, evaluation, complication, resolution, and reorientation.

2.3 Interest and Reading

There are many different definitions of interest, especially in language learning. Harmer (1991:3) [9] explains the meaning of interest as “the internal drive” that pushes somebody to do something. If we that our goal is worth doing and attractive for us, then we try to reach that goal; this is called “the action driven by interest”. Lightbown and Spada (1999:56-57) [10] note that interest in second language learning is quite complicated to study which can be explained in terms of two factors; learners’ communicative needs and their attitudes towards the second language community. Interest has a strong influence on learning. Individuals display more persistence, engagement, and positive affect toward tasks that they are interested in. Interest
influences the use of learning strategies and choices for the direction and duration of attention. Interested individuals exhibit higher levels of recall. Capacities important to learner autonomy, such as the ability to attend and find meaning, set goals, and use effective learning strategies, are enhanced by interest.

3. METHODOLOGY

3.1 Research Design
This study will use quantitative approach which uses statistical data. This study will be conducted using factorial design. It is one kind of experimental method.

3.2 Population and Sample
This study will be conducted in MTs Nahdlatul Muslimin Undaan Kudus because the researcher is an English teacher in this school. The population of the study is the students of MTs Nahdlatul Muslimin in eighth grade. The numbers of them are 220 students. They are divided into seven classes. The sample of this study is eighth graders A and B with 30 students in each class. It was determined using purposive sampling technique.

3.3 Technique of Obtaining Data
In obtaining the data, the researcher used three instruments. They are questionnaire, pre-test, and post test. Students’ interest was identified using Guilloteaux’s Questionnaire (2007) [11]. This determined students with higher and lower interest.

3.4 Technique of Data Analysis
The researcher analyzed the data using the Statistical Package for Social sciences (SPSS) for analyzing the tabulated data. The results of pretest and posttest were input into the software. The descriptive statistics were reported for the experimental group to compare the pretest scores and post test score. The result of this study was a description of the implementation of stories based on local culture on the improvement of students’ reading skills based on the numerical data.

4. FINDINGS & DISCUSSION

4.1 The Students’ Interest
Students’ interest was identified using Guilloteaux’s Questionnaire (2007). The results of the students’ interest were showed in the table below.

<table>
<thead>
<tr>
<th></th>
<th>High-Interest</th>
<th>Low-Interest</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Experiment</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
</tbody>
</table>

4.2 Try out of the Instruments
The instruments of pretest and posttest were tried out to 35 eighth grader students in class C of MTs Nahdlatul Muslimin Undaan Kudus in Academic Year of 2014/2015 which has same level and characteristic. It consisted of 30 items of multiple choice of reading comprehension test. The time allotment was 60 minutes. In this study, 5% of the significance level was taken. The value r table with n = 35 (number of try out participants) was 0.482.
4.3 The Result of Validity and Reliability in Try out the Pre-test

Pretest instrument consists of 30 multiple choices items. The validity test of the pretest instrument shows several items which the $r_{xy}$ are higher than $r_{table} = 0.482$, are number 1, 2, 3, 4, 5, 6, 7, 9, 10, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, 24, 27, 28 and 29. The KR-20 reliability test of the pretest instrument shows $r_{xy} = 0.872$ which is higher than $r_{table} = 0.482$. Based on the result, it could be concluded that the instrument is reliable which 87.2% are.

4.4 The Result of Validity and Reliability in Try out the Post-test

Post-test instrument consists of 30 multiple choices items. The validity test of the post-test instrument shows several items which the $r_{xy}$ were higher than $r_{table} = 0.482$, are number 1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 24, 25, 26, 27, 29 and 30. The KR-20 reliability test of the pre-test instrument shows $r_{xy} = 0.914$ which is higher than $r_{table} = 0.482$. Based on the result, it could be concluded that the instrument is reliable which 91.4% are.

4.5 The Homogeneity of the Data

The homogeneity test is conducted to find out whether the samples of the data were homogenous or heterogeneous. This test is used only to find out the data from the population, so only pretest score will be used. However, since the number of control and experimental group were the same, without SPSS calculation, it can be concluded that the populations of control and experimental group in this research are homogenous.

4.6 The Normality of the Data

Table 2: The Results of Tests of Normality

<table>
<thead>
<tr>
<th>Groups</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>0.361 - normal</td>
<td>0.539 – normal</td>
</tr>
<tr>
<td>Low</td>
<td>0.689 - normal</td>
<td>0.938 – normal</td>
</tr>
<tr>
<td>High-low</td>
<td>0.937 - normal</td>
<td>0.573 – normal</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>0.378 - normal</td>
<td>0.364 – normal</td>
</tr>
<tr>
<td>Low</td>
<td>0.930 - normal</td>
<td>0.549 – normal</td>
</tr>
<tr>
<td>High-low</td>
<td>0.886 - normal</td>
<td>0.023 – not normal</td>
</tr>
</tbody>
</table>

4.7 The Effectiveness of Contextual Teaching Using Local Culture Based Stories for Students with Higher and Lower Interest (Experimental Group)

Table 3: The significance score for the students with higher and lower interest in experimental group.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Descriptive statistic</th>
<th>The results of significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>Paired samples T-test</td>
<td>0.000</td>
</tr>
<tr>
<td>Low</td>
<td>Paired samples T-test</td>
<td>0.000</td>
</tr>
<tr>
<td>High-low</td>
<td>Paired samples T-test</td>
<td>0.000</td>
</tr>
</tbody>
</table>
The results show that in descriptive statistic, the results can be said as significant if $p < 0.05$. So, it can be said that according to the results, all the results of experimental groups are significant.

**4.8 The Effectiveness of Contextual Teaching Using Non Local Culture Based Stories for the Students with High and Low Interest (Control group)**

Table 4: The significance score for the students with higher and lower interest in control group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Descriptive statistic</th>
<th>The results of significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>Paired samples T-test</td>
<td>0.000</td>
</tr>
<tr>
<td>Low</td>
<td>Paired samples T-test</td>
<td>0.000</td>
</tr>
<tr>
<td>High-low</td>
<td>Paired samples T-test</td>
<td>0.000</td>
</tr>
</tbody>
</table>

The results show that the significance score of students in all groups is 0.000. In descriptive statistic, the results can be said as significant if $p < 0.05$. So, it can be said that according to the results, all the results of control groups are significant. The detail calculation of this group can be seen in Appendix 9.

**4.9 The Interaction between Contextual Teaching Using Local Culture Based Stories and Using Non Local Culture Based Stories, the Students’ Interest and Reading Comprehension Skills**

Table 5: The Analysis of Variance

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>480599.844</td>
<td>5</td>
<td>96119.969</td>
<td>444.785</td>
<td>.000</td>
<td>.927</td>
</tr>
<tr>
<td>Intercept</td>
<td>1807608.02</td>
<td>1</td>
<td>1807608.022</td>
<td>8364.52</td>
<td>.000</td>
<td>.980</td>
</tr>
<tr>
<td>Method</td>
<td>480173.144</td>
<td>2</td>
<td>240086.572</td>
<td>1110.97</td>
<td>.000</td>
<td>.927</td>
</tr>
<tr>
<td>high_low interest method * high_low interest</td>
<td>5.689</td>
<td>1</td>
<td>5.689</td>
<td>.026</td>
<td>.871</td>
<td>.000</td>
</tr>
<tr>
<td>Total</td>
<td>2325810.00</td>
<td>180</td>
<td>216.104</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>518201.978</td>
<td>179</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the table, it can be seen that the significance score for the method is 0.000 which means there was a significant interaction between methods (Contextual teaching using local and non-local culture based stories) and the reading comprehension skills which was represented by the pretest and posttest scores. On the other hand, the significant score for higher and lower interest was 0.871 which shows it was not significant since it was above 0.05. This means there was no interaction between
interest and the reading comprehension skills. Then, the significance score for the methods (experimental and control group) and the interest was 0.380. Since \( P > 0.05 \), that means there was no interaction between the methods, students’ interest and reading comprehension skills.

5. CONCLUSION

Based on the data analysis which was discussed in the previous chapter, it can be concluded that firstly, contextual teaching using local culture based stories was effective to improve the skill of students with higher interest in reading comprehension of narrative text with the significance result \( 0.000 < 0.05 \). The mean score of pretest was 55.5 and the posttest was 72.8. Secondly, contextual teaching using local culture based stories was also effective to improve the skill of students with lower interest in reading narrative text with the significance result \( 0.000 < 0.05 \). The mean score of pretest was 53.5 and the posttest was 75.6. Third, contextual teaching using non-local culture based stories was effective to improve the skill of students with higher interest in reading skill with the significance result \( 0.000 < 0.05 \). The mean score of pretest was 55.9 and the posttest was 67.2. Fourth, contextual teaching using non-local culture based stories was also effective to improve the skill of students with lower interest in comprehending narrative text with the significance result \( 0.000 < 0.05 \). The mean score of pretest was 56.7 and the posttest was 72.3.

The fifth conclusion was contextual teaching using local culture based stories was effective to improve both the students with higher interest and students with lower interest. This is shown in the significance score of both groups with 0.000. Sixth, contextual teaching using non-local culture based stories was also effective to improve the writing skills of students with higher and lower interest. The significance score of these methods was also 0.000. The last, there is no big difference between the effectiveness of contextual teachings using local and non-local culture based stories for students with higher interest. Furthermore, according to the analysis of variance, there was no significance interaction between contextual teaching using local and non-local culture based stories, the students’ interest, and reading comprehension skills.

6. SUGGESTIONS

Based on the results of the data analysis, there are some suggestions that can be drawn:

1) The English teacher should apply the effective technique to help students in improving the writing skills by considering many factors, such as interest.

2) The students both high and low interest ones should aware the importance of reading comprehension skills to improve their ability in mastering English.

3) The result of this research can be used to reinforce other researchers to improve their researches, especially to improve the students’ reading comprehension skill. Hopefully the research can be beneficial for the Indonesian education.

REFERENCES


Poster Presentation
A Glimpse on the Food Pattern and Health Status of Selected Children from Butbut and Mabilong Tribes, Kalinga Based on Their Body Mass Index

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Email: jumpahead@yahoo.com; luisitoevangelista@yahoo.com

Abstract
The food pattern of an individual may have impact to one’s health status. Technology has changed and increased the food sources worldwide for more than fifty years. As a result, diets changed significantly. This caused several diseases such obesity and diabetes. Surprisingly, people who are overweight or obese today are mostly found in the developing, rather than the developed countries. The Philippines is considered as one of the developing countries in the world. However, Kalinga, a landlocked province of the Philippines in the northern part of Luzon has preserved its food dynamics. The Municipalities of Lubuagan and Tinglayan have been frequently visited by both local and international tourists due to the amazing landscape, prevailing weather, tattooing and originality of the houses in the community. As such, introduction of new types and sources of food in these areas is inevitable which could result to changes in food pattern. Interviews were conducted and supplemented by photo-documentation of food intake and sources documented the food patterns. In the initial findings of the study, it was observed that the basic food pattern of the community is simple, yet enough to sustain their basic needs. In addition, the children of these two municipalities have sustained their normal body mass index (BMI). Further studies on food pattern, is recommended to fully document the food patterns of the province. Moreover, it is recommended to formulate a policy that will control introduction of other foods in the area to assure that there will be no alteration on the food pattern of the place.

Keywords: Kalinga Province, food sources, food pattern and body mass index

1. INTRODUCTION
The source of food has increased across nations over fifty ears. Diets have changed equally, with increased consumption of food energy, which are mostly derived from animal foods, fat and sugar [1]. Moreover, a France based nutritionist mentioned that the “The rise of the industrial model of agriculture has contributed greatly to people being disconnected from the food on their plates,” [2]. The diet of the indigenous peoples defends on the resources available in their respective places. They eat simple food and mostly not meaty. Well-established evidences prove that obesity, together with excessive consumption of fat and salt, is linked to the rising global incidence of non-communicable diseases including some cancers, diabetes, heart disease and strokes [1]. In the Philippines, one place has preserved its food dynamics because it is considered a landlocked province in the North. The author refers to Kalinga Province.
It is one of the provinces in Cordillera Autonomous Region (CAR). According to [3], by oral tradition, the Kalingas have preserved and enriched their culture to honor their grandparents’ hard work to defend their territory. The traditional food system of indigenous peoples is defined as being composed of items from local, natural environment that are culturally acceptable [4]. The Butbut tribes reside in Buscalan, Tinglayan and the Mabilong tribe inhabit in Lubuagan, Kalinga. Studying the food pattern is necessary because, “Next to breathing, eating is perhaps the most essential of all human activities, and one with which much of social life is entwined” [5]. However, according to the thorough study of [3]. “The Kalingas have no nutritional information about the vitamin and mineral content of food, no food guide pyramids, no calorie counters, and no dietitians”. Chiefly, the food pattern of the Kalingas is focused on what resources they have. The traditional food system of indigenous peoples is defined as being composed of items from local, natural environment that are culturally acceptable [6]. Food pattern as one of the material culture of the Kalingas has been preserved. Eating habits that are practiced during childhood has a lot of impact on how a child grows into adult; that is why it is important to know the BMI (Body Mass Index) of a child to determine whether to take necessary measure and to ensure that the child will have a normal adult life [7]. It can help identify or predict a child’s healthy weight.

1.1 The Problem

The indigenous peoples from Buscalan and Lubuagan have their own unique food pattern thus, it must not be altered instead they should be properly documented and listed. Thus, this study sought to document, describe the food pattern of the two subtribes in Kalinga Province, determine the BMI of children ages 6-12 and find out whether these BMI of the children are normal, obese or undernourished.

1.2 The Research Locale

Figure 1 shows Buscalan, Tinglayan with its map. This place is not accessible to everybody due to the difficult terrain along the way. People who are living in Buscalan are known to be the Butbut tribes. This tribe is one of the indigenous peoples in Kalinga. Figure 2 is Lubuagan Kalinga used to be the center of Kalinga Province. Lubuagan is around 2 hours by public transport from Tinglayan. They were residents of two Kalingas sub-tribes from Buscalan and Lubuagan.

2. METHODOLOGY

This employed a mixed method-concurrent design. The BMI of the informants which gave a quantitative data was further supported with the qualitative data from the survey questionnaire to describe the food pattern of the two tribes. The participants of this study were children ages 6-12. There were 30 informants, 10 were boys and 20 were girls. A purposive sampling was employed in this study. The researcher conducted a semi-structured interview to the residents of Buscalan, Tinglayan and Lubuagan, Kalinga Province. Interviews and observations on the food pattern and food habits were
made in two different sites. The gathering of data came in four phases. The children answered a questionnaire on the food they ate from breakfast to dinner. Then, a face to face interview with these kids was made to verify their answers in the questionnaire. Lastly, the BMI of each respondent had computed.

3. RESULTS & DISCUSSION

The food resources of both tribes are derived from both animals and plants resources of the place. These resources may either be their harvested plants, raised animals or naturally growing plants from the surroundings. The results below provide qualitative and quantitative data.

3.1 Food Sources from Animals

Figure 3 shows a native pig. It is domesticated in the two visited places. According to many informants, pigs are slaughtered for food as well as during occasions or rituals. Although considered as a secondary source of food, meat from this boar is rarely consumed as compared to legumes or vegetables. This indigenous pig has along snout, and almost approaching the wild pigs in terms of appearance. It is highly adapted to the local environment, very resistant to pests and diseases, eat almost anything, and require little care. In Butbut, it is prepared with as pork soup with a little of salt. It has no other ingredients. When served, the soup is separated from the meat. Sometimes, soup of pork is being served during lunch sometimes. Figure 4 is grilled native pork. The preferred food in Kalinga. Figure 5 shows a mini eel found in the rice field of Butbut. It is also considered a secondary food in the areas. Although Kalingas do not rear fish in the rice paddies, a small fish called palispis inhabits the fields. The fish are harvested with a bamboo trap called a kobkob-ong. Before, such fish was admittedly a less valued item in the Kalinga’s diet, however, with the growing population and also an increasing terraced rice system, these fish are becoming more important in the diet. Figure 6 shows small snails. These snails called Kulippo could also be collected from the rice fields in both places. It is considered a secondary food in the areas. This is a protein and iron rich food. Figure 7 is the most common fowl is the chicken. Cooking chicken as a secondary food is rarely done. In most cases, this becomes a treat to the visitors or only during very special occasion as part of their tradition. Figure 8 is a special delicacy known as Pinikpikan is the popular way of cooking chicken meat.
3.2 Food Source from Plants

Figure 9 is a Taro leaves. It is a kind of tuber is mostly the Kalingas source of snack. This species is found in the locality of Buscalan. According to the kids interviewed, the tuber can be their breakfast or afternoon snack while the leaves can be used as vegetable. During off season of rice and corn can also serve as the source of an alternative core food. Figure 9 and 10 are wild pigeon bean (Cajanus flavus) locally known as “orchis” in Tinglayan and kardis in Lubuagan is a shrub and pods respectively. The seeds from the pods are removed boiled and eaten. This species is the most consumed secondary food in the area. Figure 12 and 13 are tubers (Dioscorea esculenta) and potato (Solanum tuberosum). They are considered primary food for breakfast and snacks. Figure 14 is papaya shrub. They consume the fruit as a secondary food and served with rice as the core food. Figure 15 is rice which is a primary food while figure 16 is bean with orchis topping. The vegetable bean is considered a secondary food. Bean is usually served half boiled with a little salt. This combination is the most common lunch of the tribes.

Figure 17 is a blanch fern with tomato and onion toppings. Figure 18 is served as another viand. Known as boiled sayote. Figure 19 are cups of coffee served about three times a day, or even more. Coffee is served as a welcome drink to visitors, as a past time drink while chatting, as part of breakfast and even before going to bed. Figure 20 is a coffee shrub known as Arabica.
Table 1: The Body Mass Index of Male Informants

<table>
<thead>
<tr>
<th>Male</th>
<th>Age</th>
<th>Mass</th>
<th>Height</th>
<th>BMI</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7</td>
<td>22</td>
<td>1.21</td>
<td>16.4</td>
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<tr>
<td>B</td>
<td>11</td>
<td>33</td>
<td>1.15</td>
<td>25.0</td>
<td>Obese</td>
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<tr>
<td>C</td>
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<td>25</td>
<td>1.12</td>
<td>19.9</td>
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<tr>
<td>D</td>
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<td>1.24</td>
<td>15.6</td>
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<td>16.3</td>
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<td>1.21</td>
<td>15.0</td>
<td>Below normal</td>
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</table>

Mean 9 25.3 1.204 17.6 Normal

Table 1 shows the Body Mass Index (BMI) of the male informants from Mabilong and Butbut, two known sub tribes of the Kalingas. The respondents were represented by letters to maintain anonymity of the informants. The value of BMI can be interpreted as below normal, normal, overweight and obese [8]. In terms of the informants, the BMI revealed eight informants to be normal, one is below normal, while there is one considered obese. However, when taken as a group, the mean BMI of the male respondents is normal. With this data, the traditional food pattern of the indigenous people sustains the boys with the available resources. This could mean that the traditional food patterns the indigenous people like them can still sustain the boys with enough food resources.
Table 2: The BMI of Female in Butbut and Mabilong Tribes, Kalinga

<table>
<thead>
<tr>
<th>Female</th>
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<th>Height</th>
<th>BMI</th>
<th>Interpretation</th>
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<td>C</td>
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<td>29</td>
<td>1.3</td>
<td>17.2</td>
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<td>I</td>
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<td>1.43</td>
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<tr>
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<td>1.228</td>
<td>15.8</td>
<td>Normal</td>
</tr>
</tbody>
</table>

Table 2 shows the BMI of the girls in two subtribes. The value of BMI can be interpreted as below normal, normal, overweight and obese [8]. The table shows that among the 20 female informants, seven (7) of them are below normal BMI, thirteen (13) of them normal BMI. However, the mean BMI of the girls is normal. This means that, generally the informants have normal BMI.

4. DISCUSSION

A qualitative research was conducted to narrate and document the eating habits of the informants. Based on the data gathered, the children do not skip meal. They have breakfast which can be camote, taro, potato, corn or rice with a bean or orchis. A cup
of coffee is a part of their breakfast. Few informants mentioned that they sometimes drink another beverage such as chocolate drink. Taros and camotes, are the major snack for Kalingas. Sometimes, they have maize. Another alternative for children’s snacks are biscuits or crackers which could easily be purchased in school. They brought along with their lunch which can be a combination of rice and vegetables, rice and palispis (small eel) rice and kulippo (small snail). Then, they can have an afternoon snack similar to the morning snack with a cup of coffee. For dinner, the whole family usually have the same viand taken during lunch. This study found out that the typical meals of both tribes consist of rice and boiled bean soup with a little salt. The core ingredient is rice. A variation would be a meal with rice and a secondary ingredient which could be a vegetable or a legume. Sometimes, they include a secondary ingredient would be meat. Peripheral foods would include canned items such as sardines that would probably be purchased from travelling vendors or a mini store in the community. Canned goods are rarely consumed items. Most of the time, these items are often stored and offered to special guests. They also have coffee as a typical beverage anytime of the day. The mean BMI of both male and female informants are normal. The result showed that the traditional food patterns of the indigenous people like that of the two tribes in Kalinga can still sustain the children with enough food resources.

5. CONCLUSION & RECOMMENDATION
This study concluded that the food pattern of the research locale showed that the children have a normal body mass index. This denotes that the indigenous resources they have can actually sustain their basic need. The food patterns of both tribes are basic, simple, inexpensive, yet, very important for their survival. Furthermore, this proves that the kind of food they have should be properly documented and preserved. It is recommended that the food pattern of both tribes should be properly documented and preserved so that, in the future, the food patterns of both tribes would still be enjoyed by the future generations. Moreover, formulate a policy that would prevent introduction of other foods in the areas that may trigger the alteration of food patterns.

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Traditional Tattooing Practices in Tinglayan Kalinga

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ABSTRACT
The Butbut Tribe from Buscalan in Tinglayan, inhabits the southern half of the province of Kalinga–Apayao, in the Cordillera Administrative Region, Philippines. They have a long history of the traditional art of tattooing sustained to the present through the indigenous artistic skill of the “Last Mambabatok,” Apo Whang Od Oggay, a 98 year old woman elder of the tribe. In this study, an in-depth analysis on the materials used, beliefs and traditions of indigenous tattooing was done. In addition, a survey on the impact of tattooing on the economic and social augmentation of the people was also conducted. Based on the results, tattooing was found to play a significant role in the economic and social life of the tribe. Hence, conservation and preservation of the traditional knowledge of the plants utilized is recommended as well as the indigenous practice of tattooing as it faces threats from synthetic dyes and acculturation.

Keywords: tattooing, Butbut tribe, traditional practices, Apo Whang Od

1. INTRODUCTION
Research literature claims that human dependence on plants can be traced back in the history of civilization. The vital dependency of human on plants for their livelihood primarily started by domestication [1]. Indigenous knowledge on plants began when people started and learned how to use them [2]. From plants, humans can obtain food, medicine, fuel, construction materials, tools, and spiritual and aesthetic fulfillments. In addition, as valuable plant resources are discovered, indigenous knowledge-based services (e.g. ecotourism) increased. The people are able to observe traditional practices to promote knowledge conservation of natural resources.

Tattooing can be traced from the first voyage of Captain Cook to the island of Tahiti in 1769. The word tattoo came from the term “tatow” which means markings on the skin of Polynesians. In 1521, Magellan had a voyage to the Philippines and landed in the Visayas region where they encountered the ‘Pintados’, or the painted ones [3].

According to foreign ethnographers, tattooing was done primarily and solely in connection with the practice of headhunting. The tattooing activity in the Kalinga province can still be correlated to headhunting. However, anthropologist Ikin Salvador-Amores [4] had pointed out that Kalinga tattooing is a complex practice. She said that “tattooing is correlated to cultural symbols of intricate rituals”.

However, the researcher in this study considered tattooing as a traditional knowledge on the essential use of plants in the locality. The tattooing activity is essential in the economic, social and cultural dimensions of the Butbut Tribe. It also
highlights the significant role of Apo Whang Od in preserving the culture of traditional art tattooing in the province, being the oldest “mambabatok”.

2. METHODOLOGY

The study was conducted in Barangay Buscalan, Tinglayan, Kalinga, Mt.Province, Philippines. The participants were the Butbut people who live on the mountain ridges and plateaus of Chico River at the Southern boundary of Kalinga, and Mountain Province, Northern Luzon.

Qualitative method of research was used in the study. Semi-structured interview was carried out to get essential information from the local informants in the area. They were thoroughly oriented on the objectives of the study and formally requested their permission to participate in the research. They were asked regarding the traditional knowledge in tattooing. In addition they were also requested to share any information on the use of plant dyes.

To give more impact on this traditional practice, beliefs and related folklores were asked pertaining to issues like legends connected with dyes and tattooing and occasions on which natural dyes are used from plants and the like. Observations were also done regarding the importance of pine and orange trees in tattooing. Traditional artistically inclined people like Apo Whang Od and Grace were also interviewed.

The researcher also had observations on the actual procedure of tattooing done by Apo Whang Od and Grace together with the other tattooists. The people in the village together with the local tourists were asked about their reasons why they decided to have body tattoos as well as the meaning of the designs they prefer to have.

3. RESULTS

For most of the members especially the old folks of the tribe in Buscalan, prefer to have their bodies tattooed. The tattoo is not just an art or design on the body but represent certain meaning to the members. The tattoo for men is a sign of social status and a token as a warrior for beheading an enemy. However, for women, it denotes beauty and elegance. Even the young, younger men and women of the tribe boast body tattoos. Apo Whang Od, a member of the Butbut tribe, popularized traditional tattooing both locally and internationally. Many young artists of the tribe are motivated to do tattooing as a means of preserving their culture [5]. New breed of tattooists are inspired to follow her footsteps like Grace and Daphnie. They have valued the significance of tattooing in improving the tourism sector of the locality. The indigenous knowledge of tattooing also served as source of livelihood for the people. Through the tattooing activity, social relationships are established between the people in the community and the tourists. Figure 1 shows the photos of the well-known artists of the tribe - Whang Od and Grace.

Figure 1: Well-known Tattooists - Whang Od and Grace
With the conducted interview with the local informants together with the tourists in the area; the major motivations for the acquisition of tattoos can be expressed by nine categories: beauty, art and fashion; individuality; personal narrative; physical endurance; group affiliations and commitment; resistance; spirituality and cultural tradition; and no specific reason. The frequently mentioned reasons are the expression of individuality and the embellishment of the own body. Other motivations mirror personal attributes and values. Figure 2 shows some tattooing designs of the tribe.

Figure 2: Tattooing Designs

4. CONCLUSION

The findings of this research highlighted the traditional knowledge of plant use in tattooing among Butbut Ethnic Tribe in Tinglayan, Kalinga. This traditional art is beneficial in expressing themselves as indigenous people with rich culture. With the traditional knowledge, well-known tattooists like Whang Od will continue to inspire future generations to continue to prosper. Generally, tattooing was found to play a significant role in the economic and social life of the tribe.

REFERENCES


The Resistance Process of Local Community Strives Against Phraek Sa landfill Management: Case Study of Phraek Sa landfill, Samutprakan Province

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Abstract
This research aimed to illustrate the resistance process of local community that strives against Phraek Sa landfill management. Over two years since the first toxic garbage dump fire, the local community is waiting for restoration of Phraek Sa landfill and healing those affected. At present, the problem still exists. The population of the study is Sansuk cooperative villagers who stay in the area affected both directly and indirectly. This research collected the data by using participatory action research (PAR: Participatory Action Research). The instruments used in the research are community map, risk map and interview. The result of this study is the local community’s resistance process which could be classified into three types: firstly, knowledge system, local community has knowledge but knowledge management as well as presenting knowledge to public is still limited. Secondly, they struggled to seek justice through lawsuits. Last but not least is to build the network in order to exchange the knowledge between those who have a similar problem as well as the external group such as scholar, NGO and jurist, moreover, strengthen the network in the community is also essential, The villagers expect that their struggle will lead to Phraek Sa landfill restoration, also pushing the government for finding a practical approach to cope with the landfill problem in the future.

Keywords: resistance process, Phraek Sa landfill, participatory action research, community map, risk map

1. INTRODUCTION
The acceleration the economic development, resulting in thousands of factories and industrial estates took place in Samutprakan Province. Since 1976, the excavation and disposal of contaminated waste were lead to environmental problem and health risk in this area. Illegal dumping of industrial waste was generating garbage dump fire. The statistics shown that the area had been fire for 4 times, especially, in hot season (March,
2014, April, 2014, May 2014 and February 2015). However, over two years since the first toxic garbage dump fire, the local community is waiting for restoration of Phraek Sa landfill and healing those affected.

Since 1975, the project that could affect the environment and society must be approved by the Environmental Impact Assessment: EIA Board according to National Promotional and Reserved Environment Act, B.E. 2518 (1975), later on, National Promotional and Reserved Environment Act, B.E.2535 (1992). Although, the current Constitution was repealed, the project owner still have to go through EIA process as it is abide by environmental law. EIA is being used as a tool to protect communities that could be affected by development projects. However, in practice, EIA still have problems, especially in term of participation dimension. Phraek Sa landfill is an example of EIA drawback.

The concern of the landfill potential impact is continuity increase. Although, the National Council for Peace and Order (NCPO) imposed waste management as a national priority, the problem still exists. Therefore, the villagers expect that their struggle will lead to Phraek Sa landfill restoration, also pushing the government for finding a practical approach to cope with the landfill problem in the future.

2. OBJECTIVE

This research aimed to illustrate the resistance process of local community that strives against Phraek Sa landfill management.

3. METHODOLOGY

The study collected the data by using PAR (PAR: Participatory Action Research). The instruments used in the research are:

(1) Community map, to scope the area and study geographic information, surrounding environment and way of life. The villagers, who have been affected, draw the community map by using PAR method. After that, the graphic was made by both community and researcher, then, community will check the accuracy as well as complete the data. The final step, the researcher and community work together on analyzed and concluded the result.

(2) Risk map, to determine the extent of risk area and risk type that stemming from the landfill fire, health impact, environment and way to life, wind flow pattern, area of food production and water resources. The risk map concerned about the negative impact in all seasons.

(3) Interview with local people, to study the community history and the impact of landfill fire.

3.1 Select the target groups by using maximum variation sampling which are different in gender, age, occupation and role in the community. The group consists of eleven key persons:

- two Sansuk cooperative leaders
- two elderly
- two women affected with landfill problem
- two men affected with landfill problem
- one pregnant woman
- two children

3.2 The group had informal talk with using open-ended questions requiring a discussion point on community timeline.

3.3 Summarized the data and draw community timeline.
The Population of the Study is Sansuk cooperative villagers who stay in the area affected both directly and indirectly.

Analysis

The data was analyzed by using dialectic, community map, risk map and interview that were reflect their thoughts, concerns and their knowledge. This research is a way to encourage people in the community to generate and manage their knowledge by themselves and researchers’ play role as facilitators.

Framework of the Study

![Diagram](image_url)

Figure 1: Framework of the Study
4. RESULT

4.1 Phraek Sa’s History

Phraek Sa’s district has total area of 13 square kilometers, most of the area is the site of the factory plants and community small business such as selling fish and shrimp. Nowadays, with rapid economic growth, this area has approximately 737 industrial plants including chemicals manufacturing and chemical products, rubber and plastic products as well as factories which produce machinery and industrial equipment. (Department of Industrial Work, 2015) The growth of city and industry during the decade 1977-2007, particularly the emergence of Bang Poo Industrial Estate in the year
1977, Phraek Sa has been affected in various dimensions such as local economy, way of life and environment, particularly, the pollution, which directly affects the villagers’ health.

4.2 Fire on Garbage Dump

- March, 2014, Phraek Sa landfill continued fire for 7 days, the villagers were temporarily evacuated to Phraek Sa sub-district administrative organization (SAO) and Phraek Sa temple. Some locals have lung problem and on March 17, 2014, community and lawyers discuss and compile a list of those affected to sue Phraek Sa SAO due to the fact that Phraek Sa SAO ignored to ameliorate the villagers living conditions, health and surrounding environment. They also sue landfill owner and demanded for the restoration as well as healing people who have been affected.
- April, 2014, fire at the landfill for one full day, there were a numerously of smoke and bad smell
- May 2014, fire at the landfill, local villagers were evacuated to the nearby places
- February 2015, firemen tried to extinguish the fire throughout the night.

4.3 Participatory Action Research (PAR.)

PAR is focusing on deep and comprehensive understanding of the complex human behaviors (Mason, 2006) which could lead to social change. This is an approach to enable local people to share, enhance and analyze their knowledge (Chambers, 1994). A fundamental Community PAR is the commitments to give the study findings back to the community and facilitating strong community involvement in making a decision about the use of findings. (Meredith Minkler, 2004) PAR could conduct through diagram, secondary data, interview, observation, questionnaires, stories, map, focus group and workshop. Community map, risk map, interview and stories for making community’s timeline were used in this research.

4.4 The process of Phraek Sa’s PAR

1. Motivate community – encourages the Phraek Sa’s community to attend the meeting to talk, tell community stories and exchange their feelings, thoughts and knowledge.
2. Identify issue/concern – identify their concern and point out their risk about fire on garbage dump near their community
3. Collect data – survey their community by walk along the community and canal, collect the relevant document and photo then draw a community map as well as risk map (villagers draw maps by themselves). Interview and stories telling was used for making community’s timeline
4. Analyze data – dialectic on community map, risk map and interview to reflect their thoughts, concerns and knowledge
5. Present and reflect – community’s representatives presented the map and timeline to the community and motivate them to reflect on the data
6. Check the accuracy and complete the data – have a community meeting to check the data
7. Design – community designed the maps
8. Use results – they are able to use the community map, risk map and timeline to share their knowledge with others who had similar problem like Phraek Sa.
4.5 The result of community’s resistance process could be classified into three types:

1. Knowledge system - Local community has knowledge but knowledge management as well as presenting knowledge to public is still limited. Therefore, community map, risk map and timeline are able to assist them construct and concrete their knowledge.

2. Lawsuits - They struggled to seek justice through lawsuits. The villagers feel that they are not yet receive justice from the government and landfill owner. Therefore, they sue them in civil and administrative court. The risk map is able to help them understand the risks more precisely.

3. Building the network – They have alliances, thus, they could exchange the knowledge between those who have a similar problem as well as the external group such as scholar, NGO and jurist. By using community map and risk map, it is convenient to share the network about their stories. Moreover, timeline process will strengthen the community itself due to the fact that they shared their history and experiences and they feel community solidarity.

5. CONCLUSION & SUGGESTION

Conclusion
This research aimed to illustrate the resistance process of local community that strives against Phraek Sa landfill management by using PAR technique (community map, risk map and community timeline). The resistance process consists of knowledge system, justice through lawsuits and building the network.

Suggestion
1. The government should assist to resolve the problem as become one of the parties to build the cooperation.
2. For the next research, it could assess the resistance process whether its success or fail and how it become lesson learned for other communities.

6. EXPECTED BENEFITS & APPLICATION

6.1 This study is able to determine the resistance process of local community that strives against Phraek Sa landfill management.

6.2 Community map and risk map are regard as knowledge management (transform intangible to tangible knowledge).

6.3 This research is able to empower the community and to explore the community capital through PAR technique.

7. ACKNOWLEDGEMENTS
I would like to express my sincere gratitude to Sansuk cooperative (Phraek Sa) villagers, for giving immense knowledge and patience. This research was supported by The Centre for Research and Services, School of Liberal Arts, King Mongkut's University of Technology Thonburi.

REFERENCES


The Study on Environment and Need for Potentiality Development of Blue Light Community, Tungkhru District, Bangkok

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Abstract
This research aimed to study environment and need for potentiality development of Blue Light community, Tungkhru District, Bangkok Metropolitan towards the five areas, i.e., community physical environment; safety in life and properties; relationship in community; rights, roles, and respect among community members and between the members and the officers; and the need for potentiality developments of oneself and the community. Approach used in this study was questionnaire. The samples were 110 households which were more than 25 percent of Blue Light community population, 139 households. The data were analysed with percentages and averages. Results of the study found that the averages of the opinions towards the five areas were 2.87, 2.78, 3.63, 3.70 and 4.68 respectively.

Keywords: community environment, community relationship, safety in life and property, potentiality development

1. INTRODUCTION
Bangkok is the centre of all dimensions of development, such as, administration, economic, education, cultures. Its population comprises of various groups which are different in ethnics, religions, careers, types of life style, cultures, and social status. In addition, its social inequality was very high and people were alienated from their neighbours and also their living environment. All these situations lead Bangkok Metropolitan to face with environmental management problem in addition to social and economic deterioration.

Blue Light is a community in Bangmod sub district of Tungkhru district. The sub district is an outer area on the southern part of Bangkok. Its characteristics were mixed with city and rural styles. (Tungchonlatip, 2007) The original landlord of the area, which the community located, was Khun Yai (grandma) Chalam Saithong. The land was originally paddy field, then changing to orange orchard whose fruits were very famous in taste. Later the area had been faced with flood and brine constantly. Thus the orchard could not yield good fruits. The tenants of the orange orchard had to desert the area. Until 1977 people from rural area had been moving to work with the Blue Light factory which located nearby the area. Since then the community had grown rapidly and the community was over crowded. Ms. Natdhiwan, Khun Yai Chalam’s heir, then developed the community which was named after the Blue Light factory and erected it as a formal community in 1991. (CDMU, n.d.).

In this research, I aimed to study the community environment and the need of potentiality development of the community which covered in five areas, namely, community physical environment; safety in life and properties; relationship in community; rights, roles, and respect among community members and between the members and the officers; and the need for potentiality developments of oneself and...
the community in order to understand the community environment in which the lower income urbanist lived. These data will be information for community problem solving and improving the community inhabitants’ quality of life.

2. OBJECTIVE
The aim of this research is to study the environment and need for potentiality development of Blue Light Community, Tungkhru District, Bangkok on 5 areas as follow:

1) Community physical environment
2) Safety in life and properties
3) Relationship in community
4) Rights, roles, and respect among community members and between the members and the officers
5) Need for potentiality developments of oneself and the community

3. METHODOLOGY
Tools used in this research were questionnaires. A questionnaire composes of 2 main parts. The first part had 13 questions about general information. The second part had 28 questions about the samples’ opinions on the 5 areas. The questionnaires doing with 110 samples which were 79.14 percent of the total number 139 households population in Blue Light community, Bangmod, Thung Khru, Bangkok. The data were collecting by simple random sampling. One questionnaire was completed by one dweller from each household. The data were analysed by percentage and average.

The study based on two theories, the Gemeinschaft and Gesellschaft of Ferdinand Tönnies and “Urban Villagers” of Herbert Gans. Ferdinand Tönnies had described social groups in two types: Gemeinschaft (rural society) and Gesellschaft (urban society). One of the differences between these two types was the social groups’ will. Those of the habitants in Gemeinschaft saw themselves as a mean to group’s interest. While those of the latter saw their groups were means to their own interest. (Sociology Guide, n.d.) Herbert Gans, a symbolic interactionist, had classified urban habitants into 5 groups, the cosmopolites, the unmarried and childless, the ethnic villagers, the deprived, and the trapped. The cosmopolites were attracted to city because they found that a city can satisfied their need of cultural or educational resources. The unmarried and childless were attracted to city because it provided them with jobs and careers. However, when they had children they will move to suburb of the city. The ethnic villagers were those groups of people who shared a particular racial or cultural group moving to live together in a community. As they belonged to the same culture and belief, this group quite had good relationship in their community. The fourth group, the deprived, was those jobless, underemployed, or had jobs with low incomes. Some people of this group might be criminals or criminals’ victims. They lived in poor or slum areas. The last group, the trapped, was those uneducated, jobless, disables, drug addicts, alcoholics, or the poor elderly. They lived under poverty line in rotten houses and poor environment. They did not leave the community as they could not afford better houses. (Barkan, 2012) Both Tönnies’ and Gans’ theories showed that urban society trend to have problems, such as, those of community’s relationship and environmental deteriorate especially in the group of people who had low incomes and were disabilities.

Besides the sociological theories, the concept of social capital was used in this study. Social capital means relationship system and norms which lead to quantitative
and qualitative social interaction. Social capital composes of human capital, social institutions or organizations, and intellectual or cultural capital. (Department of Social Development and Quality of Life, 2003) Sinad Treevanchai (2005) defined social capital as a social relationship or social structure, such as, trust, network, or institution from which we can take economic interest. It can be categorized as inside and outside capitals. The inside capital was those of feeling, mind, belief, and attitude. The other was those of roles, behaviours, actions, and groups’ relation, such as, cousins, patronage system, organizational network which were both formal and informal types.

A study of Pongsatorn Khamjainuk (2006, 171-179) on “Participatory Environment Management of Lamphum Urban Communities”, found that the communities had various problems, such as, air pollution caused by traffic congestion, garbage management, and wastewater. Meanwhile the large number of population and human indiscipline made the problem situation more severely. The problem management by the governmental units, e.g. supporting meeting and various activities, would be successful if the communities acknowledged the activities’ advantages. Besides that kinship and governmental supporting would encourage communities’ participation in solving their problems.

From a study of Siriwanna Detvithee (2001, 116) on “Urban Community Residents’ Participation in Environmental Quality Management in Khon Kaen Municipality” found that the influent factors towards the communities' participation were local politicians’ support, ages, advantage expectation from the activities, and careers. Meanwhile the factors impeding communities’ participation were lacking of budget, resources, and governmental support in arranging communities’ development activities.

4. RESULT & DISCUSSION

4.1 General Information of the Samples

The samples, male and female, were 45.45 and 54.55 percent respectively. Their ages, lower than 20, 20-30, 31-40, 41-50, 51-60, and more than 60 years old were 5.45, 16.36, 24.55, 20.00, 18.18, and 15.45 percent respectively. Their domiciles in Bangkok, northern part, middle part, north-eastern part, and southern part were 74.55, 4.55, 7.27, 10.91, and 0.91 percent respectively. Their incomes lower than 10,000, 10,001-15,000, 15,001-25,000, 25,001-35,000, and more than 45,000 baht were 34.55, 49.09, 8.18, 2.73, and 0.91 percent respectively. They rented and owned their houses 36.36 and 63.64 percent respectively. Their education, lower than junior high school, junior high school, high school, bachelor degree, and other were 36.36, 36.36, 16.36, 8.18, and 2.73 percent respectively. Their jobs, daily hire employees, worker, vendor governmental servant/state enterprise employee, business, and other were 24.55, 30.00, 22.73, 2.73, 7.27, and 11.82 percent respectively. Their commuting by public transportation, motorcycle, car, and walk were 44.55, 40.91, 13.64, and 0.91 percent respectively. Their roles in the community, as being a community committee, constantly, occasionally, and never joining the community’s activity were 0.91, 2.73, 31.82, and 64.55 percent respectively. (See table 1).
## Table 1: General Information (n = 110)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
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</tr>
<tr>
<td>female</td>
<td>60</td>
<td>54.55</td>
</tr>
<tr>
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<td>Lower than 20 years old</td>
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</tr>
<tr>
<td>20-30 years old</td>
<td>18</td>
<td>16.36</td>
</tr>
<tr>
<td>31-40 years old</td>
<td>27</td>
<td>24.55</td>
</tr>
<tr>
<td>41-50 years old</td>
<td>22</td>
<td>20.00</td>
</tr>
<tr>
<td>51-60 years old</td>
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<td>18.18</td>
</tr>
<tr>
<td>More than 60 years old</td>
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<tr>
<td><strong>Domicile</strong></td>
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</tr>
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<td>Bangkok</td>
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<td>Northern part</td>
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</tr>
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<td>Middle part</td>
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<td>7.27</td>
</tr>
<tr>
<td>North-eastern part</td>
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<td>34.55</td>
</tr>
<tr>
<td>10,000-15,000 baht</td>
<td>54</td>
<td>49.09</td>
</tr>
<tr>
<td>15,001-25,000 baht</td>
<td>9</td>
<td>8.18</td>
</tr>
<tr>
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<td>2.73</td>
</tr>
<tr>
<td>More than 45,000 baht</td>
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<td>0.91</td>
</tr>
<tr>
<td>Missing</td>
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<td>4.55</td>
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<tr>
<td><strong>House</strong></td>
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<tr>
<td>Rent</td>
<td>40</td>
<td>36.36</td>
</tr>
<tr>
<td>Owner</td>
<td>70</td>
<td>63.64</td>
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<tr>
<td><strong>Education</strong></td>
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<td>Lower than junior high school</td>
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<tr>
<td>Junior high school</td>
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</tr>
<tr>
<td>High school</td>
<td>18</td>
<td>16.36</td>
</tr>
<tr>
<td>Bachelor degree</td>
<td>9</td>
<td>8.18</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.73</td>
</tr>
<tr>
<td><strong>Job</strong></td>
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<td></td>
</tr>
<tr>
<td>Daily hire employees</td>
<td>24.55</td>
<td>24.55</td>
</tr>
<tr>
<td>Worker</td>
<td>30.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Vendor</td>
<td>22.73</td>
<td>22.73</td>
</tr>
<tr>
<td>Governmental servant/state enterprise employee</td>
<td>2.73</td>
<td>2.73</td>
</tr>
<tr>
<td>Business</td>
<td>7.27</td>
<td>7.27</td>
</tr>
<tr>
<td>Other</td>
<td>11.82</td>
<td>11.82</td>
</tr>
<tr>
<td>Missing</td>
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<td>0.91</td>
</tr>
<tr>
<td><strong>Commuting</strong></td>
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</tr>
<tr>
<td>Public transportation</td>
<td>49</td>
<td>44.55</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>45</td>
<td>40.91</td>
</tr>
<tr>
<td>Car</td>
<td>15</td>
<td>13.64</td>
</tr>
<tr>
<td>Walk</td>
<td>1</td>
<td>0.91</td>
</tr>
<tr>
<td><strong>Role in community</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being a community committee</td>
<td>1</td>
<td>0.91</td>
</tr>
<tr>
<td>Constantly joining the community’s activity</td>
<td>3</td>
<td>2.73</td>
</tr>
<tr>
<td>Occasionally joining the community’s activity</td>
<td>35</td>
<td>31.82</td>
</tr>
<tr>
<td>Never joining the community’s activity</td>
<td>71</td>
<td>64.55</td>
</tr>
</tbody>
</table>
4.2 The Opinion of the Samples on the 5 Areas

The opinions of the Blue Light community towards their environment on 4 areas, community physical environment: safety in life and properties: relationship in community: and rights, roles, and respect among community members and between the members and the officer were at middle, middle, high, and high level (2.87, 2.78, 3.63, and 3.7 from 5). The sum average on these four areas was at middle level (3.25 from 5). The last area, need for potentiality development of the community, was at very highest level (4.68 from 5). (See table 2).

Table 2: Opinions towards the 5 areas (n = 110)

<table>
<thead>
<tr>
<th>Area</th>
<th>Mean</th>
<th>Sd.</th>
<th>Opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community physical environment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tab water quality</td>
<td>3.85</td>
<td>0.56</td>
<td>High</td>
</tr>
<tr>
<td>Clean and liveable of the community</td>
<td>3.08</td>
<td>0.79</td>
<td>Middle</td>
</tr>
<tr>
<td>Garbage management</td>
<td>3.10</td>
<td>0.63</td>
<td>Middle</td>
</tr>
<tr>
<td>Waste water in canal and drain management</td>
<td>2.20</td>
<td>0.97</td>
<td>Low</td>
</tr>
<tr>
<td>Air pollution</td>
<td>2.76</td>
<td>0.97</td>
<td>Middle</td>
</tr>
<tr>
<td>Health care system access</td>
<td>3.09</td>
<td>0.63</td>
<td>Middle</td>
</tr>
<tr>
<td>Affordable and qualified housing access</td>
<td>3.13</td>
<td>0.61</td>
<td>Middle</td>
</tr>
<tr>
<td>Recreation places</td>
<td>1.72</td>
<td>0.91</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>2.87</td>
<td>0.76</td>
<td>Middle</td>
</tr>
<tr>
<td><strong>Safety in life and property</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety from criminal’s threatening</td>
<td>2.47</td>
<td>0.85</td>
<td>Low</td>
</tr>
<tr>
<td>Safety in commuting</td>
<td>3.04</td>
<td>0.63</td>
<td>Middle</td>
</tr>
<tr>
<td>Safety from conflagration</td>
<td>2.99</td>
<td>0.72</td>
<td>Middle</td>
</tr>
<tr>
<td>Safety from narcotic drugs</td>
<td>2.11</td>
<td>1.04</td>
<td>Low</td>
</tr>
<tr>
<td>Safety from industrial chemical leaking</td>
<td>3.27</td>
<td>0.69</td>
<td>Middle</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>2.78</td>
<td>0.79</td>
<td>Middle</td>
</tr>
<tr>
<td><strong>Relationship in community</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship among neighbours</td>
<td>3.76</td>
<td>0.54</td>
<td>High</td>
</tr>
<tr>
<td>Cooperation of the people in community’s activity</td>
<td>3.57</td>
<td>0.61</td>
<td>High</td>
</tr>
<tr>
<td>Feeling of being a part of the community</td>
<td>3.56</td>
<td>0.57</td>
<td>High</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>3.63</td>
<td>0.57</td>
<td>High</td>
</tr>
<tr>
<td><strong>Rights, roles, and respect among community members and between the members and the officers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being careful not to infringe neighbours’ rights</td>
<td>3.61</td>
<td>0.59</td>
<td>High</td>
</tr>
<tr>
<td>Respecting each other</td>
<td>3.67</td>
<td>0.58</td>
<td>High</td>
</tr>
<tr>
<td>Following the community rules</td>
<td>3.59</td>
<td>0.63</td>
<td>High</td>
</tr>
<tr>
<td>Being respected by governmental officers when contacting the office</td>
<td>3.73</td>
<td>0.68</td>
<td>High</td>
</tr>
<tr>
<td>Process of solving people’s and community’s complaints</td>
<td>3.66</td>
<td>0.75</td>
<td>High</td>
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<tr>
<td>Asking for community’s comments to solve the community’s problems by the officers</td>
<td>3.77</td>
<td>0.71</td>
<td>High</td>
</tr>
<tr>
<td>Giving useful information by the officers</td>
<td>3.80</td>
<td>0.73</td>
<td>High</td>
</tr>
</tbody>
</table>
Giving people chances to take part in assess the governmental community 3.80 0.70 High development project

<table>
<thead>
<tr>
<th>The need for potentiality developments of oneself and the community</th>
<th>Average</th>
<th>3.70</th>
<th>0.67</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for community environment development budget</td>
<td>4.74</td>
<td>0.48</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>Need for the community school’s quality development</td>
<td>4.65</td>
<td>0.53</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>Need for useful knowledge to develop oneself and community</td>
<td>4.67</td>
<td>0.49</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td>Need for laws knowledge involving community</td>
<td>4.65</td>
<td>0.55</td>
<td>Very high</td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>4.68</strong></td>
<td><strong>0.51</strong></td>
<td>Very high</td>
<td></td>
</tr>
</tbody>
</table>

The study result on the opinion towards the four areas of environment found that safety in life and property area was the lowest at middle level. Those of physical environment, community relationship, and rights, roles, and respect among community members and between the members and the officer were higher than the former respectively at middle level. Need for potentiality development of the community was at the highest at every level.

The opinion towards safety in life and property in this study was similar to the result of the study on “The Opinions of Tai Saparn Zone1 Community, Bangmod Subdistrict, Tungkhru District, Bangkok toward the Community’s Environments and Potentiality Development” (Iemworamate, 2016, 251) and “The Study on Environment and Need for Potentiality Development of Klong Kao Hong Community, Tungkhru District, Bangkok” (Iemworamate, 2016, 1158-1170) as the averages of this part were the lowest of the other areas. Especially Blue Light community had lowest opinions on the safety from narcotic drugs like Tai Saparn Zone1 community did. Even though Blue Light’s sum opinion towards physical environment was not the lowest but the average on the recreation places and waste water in canal and drain management showed their community serious problems in addition to safety from drug. These situation showed their types of city dwellers which similar to the deprived of Herbert Gans. However, Blue Light had high opinion on rights, roles, and respect among community members and between the members and the officers and relationship in community showed that they had both inside and outside social capital which will support them to develop the community. Moreover they also had very high need in developing their community’s potentialities. These showed that the people’s attitude did not see their community was a tool or mean to their own benefit but it was goal to be developed for the benefit for all. These characteristics are similar to the Gemeinschaft of Ferdinand Tonnies.

5. CONCLUSION AND SUGGESTION

People in Blue Light were mostly in their early adulthoods. They were born in Bangkok with lower middle class family, had lower education which could not afford them good career with high incomes. However, they did not rent houses and they still had jobs with salary. Nonetheless, as their ages, they had to work and take care of their families; thence they hardly join the community’s activities. Their living environment was rather not pleasant as they had to live with narcotic neighbours, endure flood and...
dirty waste water in the community’s ditches, and had no recreation area for relaxing. Nevertheless, they had outside social capital, such as, relationship and respecting of community’s norm with their neighbours and inside social capital, namely their desires to develop their community.

As Pongsaturn Khamjainuk suggested that the problem management by the governmental units would be successful if the communities acknowledged the activities’ advantages, the Bangkok Metropolitan or governmental units should take benefit from the community’s need of community development by let them recognize the advantages of the activities. Moreover, the impeding factors preventing communities’ participation which were lacking of budget, resources, and governmental support, as Siriwanana Detvithee said, should be corrected in order to enhance the community’s potentiality in their environment development. If the community had their potentiality to improve their well-being, it would empower the people to solve the problems by themselves. This would be in accordance with Suwimon Thongkorn’s suggestion (2005, 150-152) that the governmental units should encourage people to aware and try to solve their problems instead of leaving all problems to the government units.

6. BENEFITS
This study provided background information for anyone who concerned or involve in urban communities’ development.

7. ACKNOWLEDMENT
This research was supported by CRS (Centre of Research Study), the school of Liberal Arts, KMUTT. I thank people from Blue Light community who provided information and cooperation in doing questionnaires that greatly assisted the research.

REFERENCES


Identifying Learning Resources of Mon Bang Kradi Community for Creative Tourism

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Abstract
The main purpose of this research was to study the learning resources of Mon Bang Kradi community and identify them for creative tourism. This research used qualitative methodology and documentary study. Field data came from observation, focus group discussion and in-depth interview with key informants; twelve local Mon people in the community. Data analysis and synthesis involved content analysis and inductive analysis with a percentage analysis. The results of this research showed that the main learning resources of Mon Bang Kradi community are Bang Kradi temple, Mon art and cultural center of Bang Kradi and other museums, Mon Songkran festival, Mon wedding ceremony, Mon funeral rite and Mon ordination ceremony (100 percent, 100 percent, 100 percent, 83.33 percent, 83.33 percent and 83.33 percent respectively). Additionally, the most learning resource that should be promoted for creative tourism is Songkran Mon tradition in the Bang Kradi Community.

Keywords: learning resources, community, creative tourism

1. INTRODUCTION
Mon Bang Kradi community is located in Samae Dam sub-district, Bang Khun Thian district, Bangkok. It is a huge village gathering Mon ethnic together. These Mon people migrated from Myanmar and passed through the west of Thailand since the beginning of Rattanakosin period. It is said that the people in the community expanded from Mon ethnic in Samkok district, Pathumtani. Most of Mon Bang Kradi people have their house near Sanam Chai canal. (Thanatchaporn Suksumek, 2014). Additionally, the Mon temple along Bang Kradi canal works as the lifelong learning resource for people in the community (Kanjanakaroon, 2007). It was built in the late-Rama IV’s reign in Mon style. (http://www.bangkok-bangkok.com/unseen-in-bangkok/the-mon-temple-and-community-along-khlong-bang-kradi.html).

The Mon community in Bangkradi is an example of an ethnic group who retain their own characteristics and indigenous culture through time. Their community must be a very strong and stabilized one. Linkages exist between the Bang Kradi communities and many other Mon communities and establishments still exhibit their traditional ways of life. Because of the idea of preserving things that constituted their cultural heritage or their learning resources, the Mon Art and Cultural Center of Bang Kradi was established in 1995 by Thawatpong Monda, the Director of the Center. The idea was to transform the empty space under a raised house as well as a waterfront pavilion or sala into a cultural center. The center features, among others, a photo exhibiting, the Mon ordination ceremony, the wedding ceremony, the funeral rite, and some Mon things such as kitchenware, garments, utensils used daily in the households and in religious or cultural rites. Moreover, the excellent administration earned the Bang Kradi community a Thailand Tourism Awards in 2007. The village has been
welcoming visitors to see many scenes of their traditional life. (http://www.sac.or.th/databases/museumdatabase/-en/review).

Consequently, it is interesting to study the learning resources of Mon Bang Kradi Community and identify them for creative tourism.

2. OBJECTIVE
• To study the learning resources in Mon Bang Kradi Community.
• To identify the learning resources of Mon Bang Kradi Community for creative tourism.

3. RELATED WORKS
“Creativity” has emerged as a key concept in linking the production of cultural content in creative goods and services with expanding market opportunities for all sorts of cultural products (Thorsby, 2010). The works of the creative imagination have often been utilized for a public purpose; cultural heritage has served as a long standing generator of economic growth and local prosperity (Smith, 2000). Moreover, cultural heritage has provided the basis for the evolution of cultural tourism. The emergence of creative tourism is a re-conception of cultural tourism. In practice, being intrinsically intertwined with the cultural and creative traits of the place, creative tourism should be a natural progression from cultural tourism – a form of interactive cultural tourism. (Daniela and Ana. 2012).

It can be said that the creative tourism develops out of the need to enhance the experience for travellers by creating a participatory form of cultural tourism. Firstly, by linking culture with tourism in order to find additional sources of financing because of the growing cuts in public expenditure for culture. Secondly, by generating tourism income in a rather narrow specialized market of cultural tourists. Thirdly, by enhancing the experience for postmodern tourists, which is one of their main requirements while travelling.

In addition, Richards (2001) indicated that creative tourism is the way of life of a people or a region. Raymond (2003) defined creative tourism as a development from cultural tourism, which involves learning a skill on holiday that is part of the culture of the country or community being visited. Creative tourists develop their creative potential, and get closer to people, by actively participating in workshops and learning experiences that draw on the culture of their holiday destinations.

According to the discussion report of the planning meeting for 2008 international conference on creative tourism, Santa Fe, New Mexico, U.S.A., on October 25-27, 2006, the definition of creative tourism was clearly determined. Therefore, this research study has adopted this creative tourism definition: “Creative tourism is travel directed toward an engaged and authentic experience, with participative learning in the arts, heritage, or special character of a place, and it provides a connection with those who reside in this place and create this living culture (UNESCO: Creative Cities Network, 2006).”

4. METHODOLOGY
This research used qualitative methodology and documentary study. Field data were collected by observation, informal focus group discussion and in-depth interview with key informants. By purposive sampling, the samples (key informants) of this study were twelve local Mon people—nine students, two teachers and a Mon leader—in the Mon Bang Kradi community. The main frame of the interviews was based on the
research questions, e.g. “what is the main learning resources in Mon Bang Kradi Community?”, “which learning resources in Mon Bang Kradi Community should be promoted to the visitors for participating?” Data analysis and synthesis involved content analysis and inductive analysis with a percentage analysis.

To keep the ethical consent process in this study, the following information has been given to the subjects of the study: the right to participate in the research study, the confidentiality of information shared in this study, the guarantee of anonymity.

5. RESULT

The results of data analysis and synthesis obtained from the samples’ focus group discussion, and in-depth interviews are summarized as follows:

Table 5: The Frequency and Percentage of Samples’ Profiles when grouped according to Gender and Age

<table>
<thead>
<tr>
<th>Personal Information</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
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<tr>
<td>Male</td>
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<tr>
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</table>

<table>
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<tr>
<th>Ages</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 years to 16 years</td>
<td>9</td>
<td>75.00</td>
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<tr>
<td>More than 16 years to 25 years</td>
<td>1</td>
<td>8.33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personal Information</th>
<th>Number</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>2 Ages</td>
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<td></td>
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<tr>
<td>Over 25 years</td>
<td>2</td>
<td>16.66</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 2: The Main Learning Resources in Mon Bang Kradi Community identified by the Samples

<table>
<thead>
<tr>
<th>List of main learning resources</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bang Kradi Temple</td>
<td>12</td>
<td>100.00</td>
</tr>
<tr>
<td>Mon Art and Cultural Center of Bang Kradi and other museums</td>
<td>12</td>
<td>100.00</td>
</tr>
<tr>
<td>Songkran festival</td>
<td>12</td>
<td>100.00</td>
</tr>
<tr>
<td>Wedding ceremony</td>
<td>10</td>
<td>83.33</td>
</tr>
<tr>
<td>Funeral rite</td>
<td>10</td>
<td>83.33</td>
</tr>
<tr>
<td>Ordination ceremony</td>
<td>10</td>
<td>83.33</td>
</tr>
</tbody>
</table>
Table 3: The Learning Resources of Mon Bang Kradi Community for Creative Tourism identified by the Samples

<table>
<thead>
<tr>
<th>List of learning resources for creative tourism</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bang Kradi Temple</td>
<td>10</td>
<td>83.33</td>
</tr>
<tr>
<td>Mon Art and Cultural Center of Bang Kradi and other museums</td>
<td>10</td>
<td>83.33</td>
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<tr>
<td>Songkran festival</td>
<td>12</td>
<td>100.00</td>
</tr>
<tr>
<td>Wedding ceremony</td>
<td>6</td>
<td>50.00</td>
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<td>-</td>
</tr>
<tr>
<td>Ordination ceremony</td>
<td>6</td>
<td>50.00</td>
</tr>
</tbody>
</table>

6. CONCLUSION & DISCUSSION

This research was a pilot study of creative tourism in Mon Bang Kradi community by using qualitative methodology and documentary study. It contained twelve local Mon people (purposive sampling) — nine Mon Bang Kradi students, two Mon Bang Kradi teachers and a Mon Bang Kradi leader—in the community. The research findings revealed that the majority were females (66.66 percent) with ages of 11 years to 16 years (75.00 percent).

According to the above research findings (Table 2), the main learning resources of Mon Bang Kradi community were Bang Kradi temple, Mon art and cultural center of Bang Kradi and other museums, Songkran festival, wedding ceremony, funeral rite and ordination ceremony (100 percent, 100 percent, 100 percent, 83.33 percent, 83.33 percent and 83.33 percent respectively). This means that these community resources are available for the Mon Bang Kradi people to learn and make a success of their personal lives because a community resource is anything that has the potential to improve the quality of life in a community. (https://www.reference.com/world-view/meaning-community-resources).

The research findings (Table 3) showed that Songkran festival was identified to be the most learning resource for creative tourism. The percentage score of their agreement is a hundred (See also, Table3). From the perspective of the tourists, creative tourism may mean such an activity which includes learning a skill on holiday that is part of the culture of the country or community being visited. (Daniela and Ana., 2012). Additionally, if considering the meaning activities of Bang Kradi Songkran festival compared to the definition of the creative tourism (UNESCO: Creative Cities Network, 2006), it appears that they are a good match.

Every year, the prevalent Mon festivals can be seen during the Songkran which usually falls on April 5 through April 19. As a result, visitors will get to see activities such as the kalamae making (kalamae is a black caramel-like dessert), rice cooking for khao-chae (a special rice dish), the rite of bathing Buddha images, the alms giving ceremony, the rite of sprinkling holy water (a kind of blessing) on the elderly, the khao-song or the rite of inviting the village female spirit to come and dwell in the body of a human, etc. Moreover, some other activities related to local games called the ta-yae mon and the sa-ba mon can be seen. Visitors are also welcome to join in the alms giving,
the practice of observing the Buddhist precepts, and eating local dishes. (http://www.sac.or.th/databases/museumdatabase/en/review_inside.php?id=1)

Because of the potential of its cultural activities, a special travelling program should be set during that period for creative tourists and they can have a learning experience about Mon culture. Therefore; the most learning resource that should be promoted for creative tourism is Songkran Mon tradition in the Bang Kradi Community.

7. RESEARCH RECOMMENDATIONS

As a result of the study, the following are recommended for further research:

Development of a special guidance program of Mon Bang Kradi Songkran festival for creative tourists or target market.

A similar survey study to include various samples such as tourists, more Mon Bang Kradi people, and others.

REFERENCES


## Participants

<table>
<thead>
<tr>
<th>No.</th>
<th>Participant</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Sajad Ali Qumbrani</td>
<td>United Nation Population Fund (UNFPA) Pakistan</td>
</tr>
<tr>
<td>002</td>
<td>Pattaraweerin Woraratsoontorn</td>
<td>King Mongkut’s University of Technology North Bangkok</td>
</tr>
<tr>
<td>003</td>
<td>Deedom Mongkon</td>
<td>King Mongkut’s University of Technology North Bangkok</td>
</tr>
<tr>
<td>004</td>
<td>Putchana Wuttichai</td>
<td>King Mongkut’s University of Technology North Bangkok</td>
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<td>005</td>
<td>Kodchakorn Muensakul</td>
<td>King Mongkut’s University of Technology Thonburi</td>
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<tr>
<td>006</td>
<td>Bui Quang Thong</td>
<td>International University - Vietnam National University HCMC</td>
</tr>
<tr>
<td>007</td>
<td>Chulantha Jayawardena</td>
<td>University of Moratuwa, Katubedda</td>
</tr>
<tr>
<td>008</td>
<td>Preemon Nakarin</td>
<td>Prince of Songkla University</td>
</tr>
</tbody>
</table>
Notification on Appointment of Working Group Members
คำสั่งมหาวิทยาลัยราชภัฏสุราษฎร์ธานี
ที่ ป.ธ.ก / 6551
เรื่อง แต่งตั้งคณะกรรมการจัดประชุมวิชาการระดับชาติและนานาชาติ รายปี 2559 วารสารวิจัย ครั้งที่ 16

ด้วยมหาวิทยาลัยราชภัฏสุราษฎร์ธานี โดยความร่วมมือกับสำนักงานกองทุนสนับสนุนการวิจัย
เครือข่ายดูงานศึกษาภาคใต้ ต่อมาจึงได้จัดประชุมวิชาการระดับชาติและ
นานาชาติ รายปี 2559 วารสารวิจัย ครั้งที่ 16 ระหว่างวันที่ 27-28 ตุลาคม 2559 ณ มหาวิทยาลัยราชภัฏ
สุราษฎร์ธานี เพื่อเผยแพร่ผลงานวิจัยของนักวิจัย อาจารย์ บุคลากร และนักศึกษาระดับปริญญาตรี ปริญญาตรี เปรียบเทียบ
ผลการดำเนินการ และพัฒนาเครื่องมือวิจัยแนวทางการวิจัย

เพื่อให้การจัดประชุมวิชาการดังกล่าวนำไปสู่ความเรียบร้อยและสุจริต จึงแต่งตั้ง
คณะกรรมการจัดการประชุม ดังนี้

1. คณะกรรมการอำนวยการ ประกอบด้วย
   1.1 อธิการบดีมหาวิทยาลัยราชภัฏสุราษฎร์ธานี ประธานกรรมการ
   1.2 รองอธิการบดีฝ่ายวางแผนและพัฒนาการศึกษา รองประธานกรรมการ
   1.3 รองอธิการบดีฝ่ายวิจัย กรรมการ
   1.4 รองอธิการบดีฝ่ายบริการวิชาการ กรรมการ
   1.5 รองอธิการบดีฝ่ายพัฒนาและบริการนักศึกษา กรรมการ
   1.6 รองอธิการบดีฝ่ายสหกิจการวิชำการ กรรมการ
   1.7 รองอธิการบดีฝ่ายบริการทรัพยากรมนุษย์ กรรมการ
   1.8 ผู้ช่วยอธิการบดีพิเศษ กรรมการ
   1.9 คณบดีบัณฑิตศึกษา กรรมการ
   1.10 ผู้อ nominating สำนักงานมหาวิทยาลัย กรรมการ
   1.11 ผู้อำนวยการสถาบันวิจัยและพัฒนา กรรมการและเลขานุการ

มีหน้าที่ อำนวยการ ให้คำปรึกษา สำนัก การตัดสินใจ ตลอดจนการแก้ไขปัญหาให้ดีอย่าง ตั้นเจรจากับไปด้วยความเรียบร้อย

2. คณะกรรมการสั่งการงบประมาณและเอกสารการประชุมวิชาการ ประกอบด้วย

2.1 ระดับนานาชาติ
   2.1.1 ดร.สุทธิพรนิธิหัว วิวัฒน์บุญ ประธานกรรมการ
   2.1.2 Assoc.Prof. Dr. Syahrom Abdullah กรรมการ
   2.1.3 ดร.ทวีศักดิ์ กิติศิริชีวะศักดิ์ กรรมการ
   2.1.4 ดร.ศิริลักษณ์ ชูพันธ์ รองфессоหร์พันธ์ กรรมการ
   2.1.5 ดร.ปัทมาพร เบญรัดชี กรรมการ
   2.1.6 ดร.ธีรศักดิ์ ฉัตรเก้า กรรมการ
   2.1.7 ดร.อภิชาต ปานประภัสสร กรรมการ

2.1.8 อาจารย์...
~ 2 ~

 violating formality

1.1.4 อาจารย์ภัทรศิลป์ รองคิด กระบวนการ
1.1.3 นางสาวกฤษณ์วัฒนา สักภาพ กระบวนการและเลขานุการ

1.2 ระดับชาติ
1.2.1 ผศ.อภิชาติ พิเศษวิทยศิลป์ ประธานกรรมการ
1.2.2 ดร.สมศักดิ์ พฤกษ์ลักษ์ กรรมการ
1.2.3 อาจารย์พิชญ์ พิมพาน กรรมการ
1.2.4 อาจารย์ภัทรศิลป์ ชัยสวัสดิ์ กรรมการ
1.2.5 นางสาวจุฑิณี แสนทิ้ง กรรมการและเลขานุการ

มีหน้าที่
1) กำหนดแนวทางและแผนการจัดการศึกษาเป็นหลัก
2) พิจารณาเหตุผลเพื่อพิจารณาเป็นหลัก
3) พิจารณารายละเอียดหลักสูตรและข้อกำหนด
4) กำหนดนโยบายการประชุม วางแผนการจัดทำและส่งมอบผล
5) นำความสำเร็จมาพิจารณา ที่มีผลให้เป็นปรับปรุงแบบเดียวกัน กลับถึงงาน สร้างสิ่งที่จำเป็นแก่ ท่านทางผลและ USB proceedings
6) ส่งบทความที่ได้รับการคัดเลือกให้นำเสนอในรูปแบบเอกสารส่งให้สำนักงานคณะกรรมการ
7) แปลสารคัดบัตรของผู้จัดงาน รองผู้จัดงาน

3. คณะกรรมการดำเนินงานภายนอกๆ ดังนี้
3.1 ฝ่ายเลขานุการ ประกอบด้วย
3.1.1 ผศ.อภิชาติ พิเศษวิทยศิลป์ ประธานกรรมการ
3.1.2 อาจารย์พิชญ์ พิมพาน รองประธานกรรมการ
3.1.3 ดร.สมศักดิ์ พฤกษ์ลักษ์ กรรมการ
3.1.4 อาจารย์พิชญ์ พิมพาน กรรมการ
3.1.5 นางสาวจุฑิณี แสนทิ้ง กรรมการ
3.1.6 นางสาวกฤษณ์วัฒนา สักภาพ กรรมการ
3.1.7 นางสาวบัญชร จีโนประดิษฐ์ กรรมการ
3.1.8 นางสาวธนกฤต นิสิกพล กรรมการ
3.1.9 นางสาวกฤษณ์วัฒนา นาทฤทธิ์ กรรมการ
3.1.10 นางสาวกฤษณ์วัฒนา สมจุรี กรรมการ
3.1.11 นางสาวกฤษณ์วัฒนา สักภาพ กรรมการและเลขานุการ

มีหน้าที่
1) ประสานงานและทบทวนผลการวิจัยการประชุมพิเศษ ผู้ทรงคุณวุฒิย่านภาพ
2) ทำความเข้าใจเกี่ยวกับการนำเสนอบทความไปยังผู้นำเสนอบทความ

3/2) ติดตาม ง่ายยยย...
คุณสมบัติและอัตราค่าสมัคร คุณสมบัติ:

1. มีความรู้ความสามารถทางด้านภาษาไทยและภาษาอังกฤษ
2. มีประสบการณ์ในการทำงานหรือการสอนที่เกี่ยวข้อง

อัตราค่าสมัคร:

1. สมาชิกสหภาพการจัดการศึกษา: 1,500 บาท
2. สมาชิกสหภาพการจัดการศึกษา: 1,000 บาท
3. สมาชิกสหภาพการจัดการศึกษา: 500 บาท
4. สมาชิกสหภาพการจัดการศึกษา: 300 บาท

หลักเกณฑ์การสมัคร:

1. ต้องมีหนังสือรับรองจากสหภาพการจัดการศึกษา
2. ต้องมีข้อมูลเบื้องต้นเกี่ยวกับโครงการที่ต้องการสมัคร
3. ต้องมีเอกสารหลักฐานที่เกี่ยวข้อง

รายละเอียดเพิ่มเติมจะให้แนบกับเอกสารทางอีเมล์
มีหน้าที่ จัดเตรียมวัสดุพื้นฐานและรักษาความปลอดภัย ประกอบด้วย

3.2.1 นายศุภพิเชษฐ์ ศิลปะจินดา ประสานงานพิธีการ
3.2.2 นายศุภพิเชษฐ์ ศิลปะจินดา ประสานงานพิธีการ
3.2.3 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.4 นายศุภพิเชษฐ์ ศิลปะจินดา กรรมการ
3.2.5 นายนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.6 นายศุภพิเชษฐ์ ศิลปะจินดา กรรมการ
3.2.7 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.8 นายศุภพิเชษฐ์ ศิลปะจินดา กรรมการ
3.2.9 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.10 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.11 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.12 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.13 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.14 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.15 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.16 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.17 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.18 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.19 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.20 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.21 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.22 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.23 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.24 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.25 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.26 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.27 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.28 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.29 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.2.30 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ

มีหน้าที่ จัดหารายงานและการจัดงานให้เป็นไปอย่างเรียบร้อย

3.3 ฝ่ายอำนวยการและเลขานุการ ประกอบด้วย

3.3.1 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.2 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.3 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.4 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.5 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.6 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.7 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.8 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.9 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ
3.3.10 นางสาวนฤทัศน์ เสรีญาณาคำ กรรมการ

มีหน้าที่ จัดเตรียมอาวุธยามและอาวุธยามสำหรับผู้เข้าร่วมประชุม

2. จัดเตรียมสถานที่สำหรับรับประทานอาหาร

6/3.10 ฝ่ายประเมิน...
สาเหตุ 0

3.10 ฝ่ายประเมินผล ประกอบด้วย

3.10.1 ดร.สมศักดิ์ พักตร์วิริยะ ประธานกรรมการ
3.10.2 ดร.ปารุณยา แก้วรัตนชัย กรรมการ
3.10.3 นางพัชรภรณ์ ภิญโญ กรรมการ
3.10.4 นางสาวกิจเอก ฐิติภู กุ๊ก กรรมการ
3.10.5 นางสาวนุสรา ธ์ธนศิริ โภคทรัพยา กรรมการ
3.10.6 นางสาวอุทัย น้ำตาลผลิต กรรมการ
3.10.7 นางสาววิริยา บุนนาค กรรมการ
3.10.8 นางสาวกัญญาภรณ์ แสงสุวรรณ กรรมการ
3.10.9 นางสาวธิดา แซ่เล็ก กรรมการและเลขานุการ

มีหน้าที่ ออกแบบการประเมิน ดำเนินการประเมินผล วิเคราะห์ข้อมูลและรายงานผลการประเมินโครงการต่อผู้เกี่ยวข้องท่าน

3.11 ฝ่ายนิติกรรม ประกอบด้วย

3.11.1 อาจารย์ทิพย์นันท์ พิณานนท์ ประธานกรรมการ
3.11.2 บุคลากรสนับสนุนวิจัยและพัฒนาทุกคน กรรมการ
3.11.3 ผู้ช่วยศาสตราจารย์โทนินดี เบญฑ์ กรรมการ
3.11.4 อาจารย์อุทัยมาศ กระฉิมพันธ์ กรรมการ
3.11.5 อาจารย์จิตรรัตน์ มาลา กรรมการ
3.11.6 นางสาวกัญญาภรณ์ แสงสุวรรณ กรรมการและเลขานุการ

มีหน้าที่ ออกแบบ ประสานงานภายในในการจัดตั้งนิติกรรม

3.12 ฝ่ายการเงินและพัสดุ ประกอบด้วย

3.12.1 นางสมศรี ก้องศิริวงศ์ ประธานกรรมการ
3.12.2 นางพัชรภรณ์ ภิญโญ กรรมการ
3.12.3 บุคลากรกองพัสดุทุกคน กรรมการ
3.12.4 นางสาวอุทัยนิภา น้ำตาลผลิต กรรมการ
3.12.5 นางสาวนุสรา ธ์ธนศิริ โภคทรัพยา กรรมการ

มีหน้าที่ ดำเนินการเบิกจ่ายและจัดซื้อสิ่งของพัสดุ สำหรับในการจัดประชุมวิชาการ

3.13 ฝ่ายจัดการนำเสนอผลงานวิจัยมีกลุ่มต่าง ๆ ดังนี้

3.13.1 กลุ่มวิทยาศาสตร์และเทคโนโลยี ประกอบด้วย

3.13.1.1 ศาสตราจารย์ สวัสดิ์ ไชยวัฒนบุตร กรรมการ
3.13.1.2 ดร.ศรีสุวรรณ พิริยะวัฒน์ กรรมการ
3.13.1.3 ศาสตราจารย์ สุทธิพงษ์ สุทธิพงษ์ กรรมการ
3.13.1.4 ศาสตราจารย์ ศิริพร ศิริพร กรรมการ
3.13.1.5 ศาสตราจารย์ อัษฎาภรณ์ บุญถาวร กรรมการ
3.13.1.6 ศาสตราจารย์ภูริทรัพย์ เทิดทูน กรรมการ
3.13.1.7 ศาสตราจารย์สุทธิสม ทองสมบูรณ์ กรรมการ

ณ/3.13.1 นางสาววัน...
~ ๗ ~

๓.๓.๓.๘ นางสาวอานันท์ สายอาจภู กรรมการ
๓.๓.๓.๙ นางสาวศุภิกา อรุณบุตร กรรมการ
๓.๓.๓.๑๐ นางพิทยาภูมิ นิยมสุข กรรมการ
๓.๓.๓.๑๑ นางสาวนันทิมา วิจิต กรรมการ
๓.๓.๓.๑๒ นายภาณุสิทธิ์ ยุทธาณัฐ กรรมการ
๓.๓.๓.๑๓ นายสมศักดิ์ เกษตรพิทยา กรรมการ
๓.๓.๓.๑๔ นายภัทรชัย ศรีสุวรรณ กรรมการ
๓.๓.๓.๑๕ นางสาวนฤราช นุ่นม้อย กรรมการ
๓.๓.๓.๑๖ นายวิชัย ฤทธิภักดี กรรมการ
๓.๓.๓.๑๗ นางสาวนิlossen วิเศษศรีธรรม กรรมการและเลขานุการ
๓.๓.๓.๑๘ นางสาวธัญปัญญา ใจทอง กรรมการและผู้ช่วยเลขานุการ

๓.๓.๓.๒ กลุ่มพิเศษ要紧 ประกอบด้วย

๓.๓.๓.๒.๑ คณบดี นพ. บุญวาด ประธานกรรมการ
๓.๓.๓.๒.๒ อาจารย์จริยาวงศ์ ศรีเมธี กรรมการ
๓.๓.๓.๒.๓ อาจารย์อภิสิทธิ์ ติณศักดิ์ กรรมการ
๓.๓.๓.๒.๔ อาจารย์ธีรศักดิ์ พาณัสน์ กรรมการ
๓.๓.๓.๒.๕ อาจารย์สิริศักดิ์ ชัยวัฒน์ กรรมการ
๓.๓.๓.๒.๖ นายสุทธิภักดี ศรีสุวรรณ กรรมการ
๓.๓.๓.๒.๗ ดร. ปภัทติกุล แสงประสิทธิ์ กรรมการและเลขานุการ
๓.๓.๓.๒.๘ นางสาวอาทิตยา เพ็งแก้ว กรรมการและผู้ช่วยเลขานุการ

๓.๓.๓.๓ กลุ่มศูนย์บริการสารสนเทศ ประกอบด้วย

๓.๓.๓.๓.๑ คณบดี นพ. ปานวัฒน์ ศุภสิทธิ์ ประธานกรรมการ
๓.๓.๓.๓.๒ อาจารย์ธนิต ปิยะศิริ รองประธานกรรมการ
๓.๓.๓.๓.๓ ดร. ธรรมกุล จันทร์ศรี กรรมการ
๓.๓.๓.๓.๔ อาจารย์พิศิษฐ์ จุฬาภรณ์ กรรมการ
๓.๓.๓.๓.๕ อาจารย์อณิชาวีรวัฒน์ จริยากรศิริ กรรมการ
๓.๓.๓.๓.๖ อาจารย์อัมพร ถิร กรรมการ
๓.๓.๓.๓.๗ ดร.ภูมิตร บุญทรงธรรม คณะกรรมการ
๓.๓.๓.๓.๘ นางสาวศิริพร เกษตรศิริ กรรมการและเลขานุการ

๓.๓.๓.๔ กลุ่มสารสนเทศ ประกอบด้วย

๓.๓.๓.๔.๑ คณบดี นพ. ธนินันท์ เจริญกุล ประธานกรรมการ
๓.๓.๓.๔.๒ ดร. วิชัย สุทธิสุนทร รองประธานกรรมการ
๓.๓.๓.๔.๓ ดร. อริยา คุ้มภักดี กรรมการ
๓.๓.๓.๔.๔ อาจารย์วีระ สุทธิสุภัทร์ กรรมการ
๓.๓.๓.๔.๕ อาจารย์สินธารที ณัฐกิตติ์ กรรมการ
๓.๓.๓.๔.๖ อาจารย์สุรัสวดี นามศักดิ์ กรรมการ
๓.๓.๓.๔.๗ อาจารย์ภัทรภัทร ภัทรภัทร กรรมการ
๓.๓.๓.๔.๘ ดร. สิทธิชัย นิยมสิริ กรรมการ
~ ๘ ~

๓.๓.๓.๕ กลุมวิทยาศาสตร์สุขภาพ ประกอบด้วย
๓.๓.๓.๕.๑ คร. ธีระพร วิชานิพนธ์ ประธานกรรมการ
๓.๓.๓.๕.๒ อาจารย์วัฒนา ถุมะจันทร์ รองประธานกรรมการ
๓.๓.๓.๕.๓ อาจารย์จิราย ฉัตรศิริเลิศ กรรมการ
๓.๓.๓.๕.๔ อาจารย์ภูธเนศ งามวงศ์วาน กรรมการ
๓.๓.๓.๕.๕ อาจารย์นพพิชิต แก้วทองภูมิ กรรมการ
๓.๓.๓.๕.๖ อาจารย์ทวีนันท์ สังคมวัฒนธรรม กรรมการ
๓.๓.๓.๕.๗ อาจารย์ภูมิ คงหล้า กรรมการ
๓.๓.๓.๕.๘ อาจารย์สิริชัย มงคลภักดี กรรมการและเลขานุการ
๓.๓.๓.๖ International Group ประกอบด้วย
๓.๓.๓.๖.๑ ดร. ธีระพร ชั่วเฉยดี ประธานกรรมการ
๓.๓.๓.๖.๒ คร. ธีระพงษ์ ชุติมา รองประธานกรรมการ
๓.๓.๓.๖.๓ คร. วิชานิพนธ์ ปราโมชธรรม กรรมการ
๓.๓.๓.๖.๔ คร. ศักดิ์ศิลป์ เกียรติศิริ กรรมการ
๓.๓.๓.๖.๕ อาจารย์สิริชัย ชุมลิน กรรมการ
๓.๓.๓.๖.๖ อาจารย์ภูมิพร ตรีศักดิ์ศักดิ์ กรรมการ
๓.๓.๓.๖.๗ อาจารย์ภูษิต พิทักษ์ กรรมการ
๓.๓.๓.๖.๘ อาจารย์บุญ ทองเพชร กรรมการ
๓.๓.๓.๖.๙ Miss. Lisa Putrach กรรมการ
๓.๓.๓.๖.๑๐ อาจารย์วัฒนา ยอดเกิด กรรมการ
๓.๓.๓.๖.๑๑ อาจารย์วิชชุตา ให้เจริญ กรรมการและเลขานุการ

มีหน้าที่ ดำเนินการนำเสนอผลงานวิจัย สร้างความสะดวกและความรู้ของคุณคุณภูมิ มอบหมายที่ ระลึก มอบเกียรติบัตร ตลอดจนการประสานงานต่าง ๆ ในแต่ละห้องประชุมอย่าง เร่งรัดในการประชุม

ทั้งนี้ ขอให้ผู้ที่ได้รับการแต่งตั้งปฏิบัติหน้าที่ได้เต็มความสามารถ เพื่อให้ผลลัพธ์ดีตามที่คาดหวัง

โดยส่วนรวม

สั่ง ณ วันที่ ๕ คุณครู พ.ศ. ๒๐๒๔

[ลายมือ]

ผู้ช่วยศาสตราจารย์ ดร.ปริยานุช ศุภสกุล
คณบดีคณะพยาบาลศาสตร์
มหาวิทยาลัยราชภัฏนครราชสีมา
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