



ISSN : 2548 - 4613
Vol. 4. Desember 2019

Proceedings

The 4th Annual INTERNATIONAL SEMINAR on Transformative Education and Educational Leadership

Theme : Education Innovation in Indonesia Context Focused
on Disruptive Technology of Industrial Revolution 4.0.

23 - 24 September 2019
Garuda Plaza Hotel - Jln. Sisingamangaraja No. 18
Medan, North Sumatra - Indonesia



Supported by :



Committee

Advisors

Dr. Syamsul Gultom, S.KM.,M.Kes (Rector of Unimed)
Prof. Dr. Bornok Sinaga, M.Pd (Director of Postgraduate Program of Unimed)
Prof. Dr. Sahyar, MS.,MM (Vice Director 1 of Postgraduate School of Unimed)
Dr. Darwin, M.Pd (Vice Director 2 of Postgraduate Program of Unimed)

Conference Chairperson	: Dr. Rahmad Husein, M.Ed
Secretary	: Dr. Juniastel Rajagukguk, M.Si
Trasurer	: Dedi Agus Syahputra, SE
Secretariat	: Vivi Emilawati, SE.,M.Si
	1. Erika, S.Pd.,M.Pd
	2. Nurul Fazrika, S.Pd.,M.Pd
	3. Amir Husin Sitompul, S.Pd.I
	4. Agus Harriyanto
Papers and Proceedings	: 1. Dr. R. Mursid, ST.,M.Pd
	2. Dr. Anni Holila Pulungan, M.Pd
	3. Dr. Saronom Silaban, M.Pd
	4. Dr. Tumiur Gultom, M.Si
	5. Mangaratua Simanjorang, M.Pd.,Ph.D
	6. Indra Hartoyo, S.Pd.,M.Hum
	7. Dra. Meisuri, MA
	8. Dr. Hermawan Syahputra, M.Si
Program/Event	: 1. Dr. E. Elvis Napitupulu, M.Si
	2. Dr. Rachmat Mulyana, M.Si
	3. Dr. Elmanani Simamora, M.Si
Plenary Session	: 1. Prof. Amrin Saragih, M.A.,Ph.D
	2. Prof. Dr. Abinus Silalahi, M.S
	3. Prof. Dr. Abdul Hasan Saragih, M.Pd
Moderator for Parallel :	1. Prof. Dr. Edi Syahputra, M.Pd
	2. Prof. Dr. Anita Yus, M.Pd
	3. Prof. Dr. Paningkat Siburian, M.Pd
	4. Dr. Edy Surya, M.Si
	5. Dr. Fauziyah Harahap, M.Si
	6. Dr. Rahmatsyah, M.Si
	7. Dr. Arif Rahman, M.Pd
	8. Dr. Ir. Nurfajriani, M.Si
	9. Dr. Hidayat, M.Si
	10. Dr. Fitrawaty, SP.,M.Si
	11. Dr. Albadi Sinulingga, M.Pd
	12. Dr. Abdurrahman Adisaputera, M.Hum
	13. Dr. Imran Ikhamad, M.Pd
	14. Dr. Arfan Ikhsan, M.Si
	15. Dr. Saidun Hutasuhut, M.Si
	16. Dra. Jubliana Sitompul, M.Hum
Poster Session	: 1. Dr. Anni Holila Pulungan, M.Hum

2. Dr. Syamsidar Tanjung, M.Pd
 3. Dr. Sukarman Purba, M.Pd
 4. Dr. Ajat Sudrajat, M.Si
 5. Dr. Ratih Baiduri, M.Si
 6. Dr. Muhammad Fitri Ramadhana, M.Si
 7. Dr. Mulyono, S.Si.,M.Si
 8. Dr. Daulat Saragi, M.Hum
 9. Dr. Tumiur Gultom, SP.,MP
 10. Dr. Derlina, M.Si
 11. Dr. Wisman Hadi, M.Hum
 12. Dr. Nurhayati Simatupang, M.Kes
 13. Dr. Amir Supriadi, M.Pd
 14. Ali Fikri Hasibuan, SE.,M.Si
 15. Drs. Thamrin, M.Si
 16. Junita Friska, S.Pd.,M.Pd
- Public relations : 1. Muhammad Surip, S.Pd.,M.Si
2. Jihan Siska
- Accommodation : 1. Ater Budiman Sinaga, M.Si
2. Hendry Dalimunthe, MA
3. Yandri Imanuel Siburian, SE., M.Si.
4. Jasmi Assayuti, SHi
- Equipment : 1. Eko Budiarto
2. Sofianto Gultom
3. Suhana Nasution
4. Farid Ma'ruf Harahap
5. Isachar Adry Utomo
6. Diky Arisandi
7. Herianto Samosir, S.Pd
8. Ahmad Rosyadi Nasution, S.Pd
9. Hizrah Saputra Harahap, S.Pd
10. Muhammad Isnaini, M.Pd
11. Nasiruddin, S.Pd
- IT & ICT : 1. Jerry S. Pauned, S.Si
2. Mulyanto Duha
- Transportation : 1. Hisar P. Sianturi, SH
2. Sari Purnamawati Siregar, M.Hum
3. Yutia Hafwenny, S.KM
- Consumption : 1. Fitria Ramadhani
2. Azizi Apri Indaya, S.Pd
3. Susiani, S.Sos
4. Siti Rohana, M.Pd
5. Yutia Hafweny, S.KM
6. Tiarna Nova, M.Pd.
- Receptions : 1. Nisa Ansyari Gultom, S.Pd
2. Desi Yulian, S.Pd
3. Siti Rohana, S.Pd.,M.Pd
4. Cecilia Tampubolon, S.Sos

Rundown of The 4th Annual Internatioanal Seminar on Transformative Education and Educational Leadership (AISTEEL) 2019
Garuda Plaza Hotel, Medan, 23 – 24 September 2019

1st day (Monday, September 23, 2019)

Time	Activities	PIC
15.00 – 20.00	Registration in Garuda Plaza Hotel	committee

2nd day (Tuesday, September 24, 2019)

Time	Activities	PIC/Moderator
07.00 – 08.30	Poster Sessions 1	Section Poster 1
08.30 - 09.00	Opening Ceremony 1. MC Speech 2. Traditional Welcome Dance 3. Indonesian National Anthem 4. Pray 5. Chairperson Report 6. MoU signing between Unimed and PSU - Thailand 7. Welcoming speech of Director of Postgraduate School 8. Welcoming speech and official opening of Rector of State University of Medan	MC
09.00 – 09.40	Plenary Lecture 1: Prof. Dr. Syawal Gultom, M.Pd (State University of Medan– Indonesia)	Moderator Section
09.40 – 10.25	Plenari Lecture 2 Prof. W. L. Quint Oga-Baldwin (Department of Education, Faculty of education and Integrated Art and Sciences, Waseda University - Japan)	Prof. Amrin Saragih, PhD (Panel)
10.30 – 11.15	Plenari Lecture 3 Prof. Dr. Wu-Yuin Hwang (Graduate Institute of Network Learning Technology National Central University, NCU - Taiwan)	
11.15 – 12.00	Plenari Lecture 4 Prof. Dr. Ekkarin Sungtong (Dean of Faculty of Education Prince of Songkla University - Thailand)	Mangara Simanjorang, PhD (Panel)
12.00 – 12.45	Plenari Lecture 5 Asst. Prof. Patcharin Panjaburee, Ph.D. (Mahidol University – Thailand)	
12.45 – 13.30	Lunch Break/ Poster Sessions 2	Section Poster 2
13.30 – 15.30	Parallel Session 1	
15.30 – 16.00	Break/ Poster Sessions 3	Section Poster 3

15.50 – 18.00	Parallel Session 2	Moderator/Operator
18.00 – 19.00	Break/ Prayer	
19.00 – End	Banquet (Gala Dinner) - Announce of Best Presenter - Announce of Best Poster	Consumption Section

Proceedings of the 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019)

Preface

The 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019) was held in Garuda Plaza Hotel, Medan City-Indonesia on 23-24 September 2019. This seminar is organized by Postgraduate School, Universitas Negeri Medan and become a routine agenda at Postgraduate program of Unimed now.

The AISTEEL is realized this year with various presenters, lecturers, researchers and students from universities both in and out of Indonesia participating in, the seminar with theme “Education, Learning and Leadership Innovation.”

The plenary speakers coming from various provinces in Indonesia have been present topics covering multi disciplines. They have contributed many inspiring inputs on current trending educational research topics all over the world. The expectation is that all potential lecturers and students have shared their research findings for improving their teaching process and quality, and leadership.

The fourth AISTEEL presents a keynote speaker and 4 distinguished invited speakers from Indonesia, Japan, Taiwan, and Thailand. In addition, presenters come from various Government and Private Universities, Institutions, Academy, and Schools. Some of them are those who have sat and will sit in the oral defence examination.

There are 310 articles submitted to committee, some of which are presented orally in parallel sessions, and others are presented through posters. The articles have been reviewed by double blind reviewer and 172 of them were accepted for published by Atlantis Press indexed by International Indexation and 96 papers are published by digital library indexed by google scholar.

The Committees of AISTEEL invest great efforts in reviewing the papers submitted to the conference and organizing the sessions to enable the participants to gain maximum benefit.

Grateful thanks to all of members of The 4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019) for their outstanding contributions. Thanks also given to publisher for producing this volume.

The Editors

Bornok Sinaga
Rahmad Husein
Juniastel Rajagukguk

Table of Content

Title And Authors	Page
Learning Media Development of Foklore Text Which is Based on Digital in the 10th Grade of Vocational High School PAB 1 Helvetia <i>Yogi Andriyan Zunaeidy</i>	1-3
Translation Shift in the English Version of Musabaqah Tafsir Quran <i>Muhajirah Binti Jamaluddin</i>	4-8
Types of Lexical Creation in Iis Dahlia's Slang Words in Mamaku Hits <i>Filzah Farhana Hasibuan</i>	9-12
The Effect of Learning Strategies and Achievement Motivation on Entrepreneurship Learning Outcomes of Scout Special Unit Education and Culture Program BP-PAUD and DIKMAS Sumatera Utara <i>Johanes Pasaribu</i>	13-16
Analysis of Student's Science Process Skill on Respiration System Topic in Langsa City- Aceh <i>Ajeng Lola Prianti</i>	17-20
Meaning Equivalence in Abdullah Yusuf Ali's Translation of Surah al waqiah from English into Indonesian <i>Wirdatul Mardhiah</i>	21-22
Developing an Authentic Assessment Instrument of Exposition Text Based on Higher Order Thinking Skills (HOTS) in Class X Students of Senior High School <i>Yuli Novita Sari</i>	23-26
Sentence Acquired by Children of 2 – 2.6 Years Old in Bilingual Environment <i>Laura Agustina Simamora</i>	27-29
Development of Study Peripheral Base on the Realistic Approaches to Increase Ability of Mathematical Reasoning of Student Junior High School State 6 Medan <i>Melisa</i>	30-35
Effectiveness of Ecology and Environment Textbook Based on Science Literacy and North Sumatra's Local Potency to Improve High School Student Science Literacy <i>Ivandi Sitompul</i>	36-39
Deposit Determinant Analysis in Bank Sumut <i>Mangaradot Saur A Sinaga</i>	40-47
Development of Teaching Materials Based on Guided Discovery Learning Methods to Increase Mathematical Problem Solving Ability <i>Rianta Ananta Sitepu</i>	48-55
Development of Mathematical Learning Devices Based on Model Problem Based Learning (PBL) to Improve Mathematical Communication Skills of School IT Jabal Noor Students Class VII	56-65

Rizka Putri Rahayu

Development of Thematic Teaching Materials Based on Local Culture at The Fourth Grade of Primary Schools in North Padang Lawas District 66-69

Rahimul Harahap

The Maintenance of Mandailing Language Kecamatan in Torgamba

Putri Nurul Rahmadani Siregar 70-76

Enhancing Students Mathematical Conceptual Understanding by Applying Guided Discovery Learning and Direct Learning Model 77-82

Sri Rahwany Marbun

Development of Learning Devices Based on Realistic Mathematic Education to Improve Mathematical Communication of Students at Senior High School 83-86

Karina Hajar Hutasuhut

The Developing of Interactive Learning Media in Improving The Learning Creativity of 4-6 Year-Old Playgroup Students in PAUD Kenanga Raya Medan 87-89

Romi

The Influence of Learning Approaches and Interest in Learning Against the Results of Learning English in Class VIII Medan SPK Middle School T.A 2018/2019

Juni Triana Sitompul 90-94

Determinant Analysis of Sharia Banking Efficiency in Indonesia

Rahmat Putra Ahmad Hasibuan 95-99

The Development of Interactive Instructional Media Based on Behavioral Perspective to Improve the German Skills of Senior High School Students Grade X 100-102

Hadijah Handayani Sibuea

Development of Guided Inquiry Green Chemistry Practicum Guides 103-106

Ekin Dwi Arif Kurniawan

The Development of Adobe Flash Media Integrated Problem Based Learning on Salt Hydrolysis 107-110

Indriati Aulia

The Effect of Learning Strategy and Interpersonal Communication on the Students Achievement Reading Comprehension English Language at SMP Negeri 1 Selesai Kabupaten Langkat Tahun Ajaran 2018 / 2019 111-115

Husna Lubis

Cognitive Consideration in Persuading Readers in Argumentative Writing 116-119

Betharia br. Sembiring Pandia

The Role of the Single Mother of Parenting in Informal Education in Javanese Ethnic Families in Kualuh Hulu District Labuhanbatu Utara Regency 120-122

Suriyanti Siagian

Understanding of Female Prisoners Character Education Through Formal 123-125

Socialization at Labuhan Ruku Penitentiary

Dian Puspita Sari Sirait

Local Wisdom-Based Education Marsialapari Salak Farmers Sibangkua Angkola Barat Tapanuli Selatan 126-128

Desy Andarini

Rituals at the Tomb of Datuk Darah Putih as a Media for Nonformal Education to Respect Ancestors (Case Study Chinese Ethnic in Aur Village Medan Maimun District Medan City) 129-131

Gadis Anastasia

Interactive Multimedia-Based Learning Materials Innovation for Teaching Basic Techniques in Analysis 132-134

Yuni Chairani

The Effect Model of Learning and Learning Interest Against the Results of Learning the Knowledge of Nature Primary School (SD) in Medan T.A 2019/2020 135-139

Mida Lishanata

Development of Interactive Media in Arabic on the Material Read Class VIII of MTs Darul Hikmah T.A 2019/2020 140-143

Nurul Amri

The Influence of Leadership Behavior, Work Motivation, Job Stress, and Job Satisfaction on Lecturers' Performance 144-146

Hanafiah

Developing Big Book as Reading Materials Based on Thematic Approach for Fourth Grade Students at SD Negeri 028068 Binjai East Binjai Regency Langkat 147-149

Utari

The Development of Textbook Based on Research About the Insect Pollinator on Chili Paper (*Capsicum annum L.*) 150-154

Fitriatul Aspahani

Gratitude Expressions and Responses used by the Characters in the Vow Movie 155-158

Sabrina Octavia Pandingan

Subtitling Strategies Used in The Meg Movie Texts 159-164

Devi Sucina Nirwana

Lexical Metaphor in Novel and Film Critical Eleven 165-167

Indah Christiani Silitonga

The Types of Modality in Teaching Learning Process 168-169

Harnida Tanjung

The Effect of Teaching Strategies and Students Motivation on Reading Comprehension Achievement 170-173

Zulkarnain Batu Bara

The Types of Flouting Maxim by Governor Candidates of North Sumatera in Election Debate 2018	174-176
<i>Tri Wita Indah Sari</i>	
The Effect of Teaching Strategies and Students' Interest on Reading Comprehension of Recount Text of Eighth Grade Students of MTs Qur'an Kisaran	177-179
<i>Ahmad Fauzi</i>	
Flouting Maxims in the Courtroom of Administrative Court	180-182
<i>Aminah Ari Fadhila</i>	
Development of Adobe Flash Learning Media Based on Cooperative Learning to Improve Student's Spatial Ability at Chandra Kumala Secondary School	183-188
<i>Fajar Sukma Harsa</i>	
Improving Results in Learning Bahasa for Poetry Readings with the Implementation of a Direct Learning Model for Fifth Grade Elementary School	189-192
<i>Dr. Mayske Rinny Liando, S.Pd., M.Pd</i>	
Development of Learning Materials Based on Problem Based Learning to Improve Students Problem Solving Ability	193-197
<i>Poppy Amalia</i>	
Analysis Of The Economic Bilateral Relationship Indonesia – China On Balance Of Payments In Indonesia	198-201
<i>Sri Wulandari</i>	
Community Participation in Preservation of City Park The Case of Binjai City, Indonesia	202-204
<i>Widya Afriani Wiliskar</i>	
The Types of Gender Arguments in Instagram (A Case Study of Donald Trump's Political Status)	205-207
<i>Putri Permata Sari Samosir</i>	
The Analysis of Monetary Policy Transmission Mechanism by Exchange Rate Channel in Influencing The Inflation in Indonesia	
<i>Putry Sari Rahmadyah Pulungan</i>	208-214
Translation Technique Applied in Translating the First Call from Heaven Novel	215-222
<i>Sudariyani</i>	
Education Cultural in Bona Pasogit (Ethnographic Study of Education Cultural Inheritance in the Toba Batak Society Marga Panjaitan in Pematangsiantar)	223-225
<i>Tripresar Jhon Tuan Panjaitan</i>	
Evaluation Of Tiered In Order To Increase PAUD Teacher Competence In Medan City	226-230
<i>Rehmenda Christy</i>	
Women Politeness Strategies of Bargaining "Media Credit Store" in Tanjung	231-233

Morawa

Nahdyah Sari Daulay

Toba Batak Language Shift in Rantau Selatan

Helfi Vinawari S

234-236

Development of Interactive Multimedia Digital Storytelling in English Subjects

237-239

Juanda

The Effect of PLAN (Plan, Locate, Add and Note) Strategies on Students' Achievement in Reading Comprehension

240-244

Neneng Nurhamidah

Unggah-Ungguh Code Switching in Kartini Movie

Yutika Sari

245-247

Metaphors in Umpasa of the Toba Batak Wedding Ceremony

248-250

Sactica Oktavyani Sagala

The Effect of Model learning and Gender Against Piano playing Skills for class V SMK Negeri 11 Medan T.A 2019/2020

251-255

Gufran Nurman

The Effect of Cooperative Learning Model Based on Aceh Culture to Improve the Generic Science Skills of Student

256-260

Safitri Raufa

Gender Conversation in Workplace Context

Aisyah Fitriani Dasopang

261-265

Management and Development Quality of Teacher Performance Through Teacher Competence in the First Middle School in Banda Aceh

266-268

Faisal Anwar

Modality used in Beauty Product Advertisements on Instagram Caption

269-272

Indah Eka Sari

Attitudinal Appraisal in Ahok's Speech

Firdha Sabrina

273-276

Appraisal Attitudes by the Judges on Indonesian Idol "Grand Final" Session

Mieta Setieya

277-280

The Development of Virtual Laboratory-Based Learning Media of Biology on The Topic of Bacterial for High School Students

281-284

Lailatussyifa

Analysis of Economic Opening on Rupiah Exchange Rate on United States Dollars (2008-2018)

285-289

Sri Wahyuni

The Manners of Cognitive Process in Translating English Phrasal Verbs Into

290-293

Indonesian

Fitri Ervina Tarigan

Javanese Addressing Terms Maintenance by the Teenager Speakers in Bukit Malintang 294-298

Sudarti Rahayu Ningsih

Appraisal in Students' Argumentative Writing 299-302

Ika Vanesia Siagian

Speech Pauses Used by Male and Female Students in English Oral Examination 303-305

Lamia Deareni

The Development of Guidance and Integrated Science Practicum Kit Integrated Guided Inquiry Model bases Science Process Skills for Class VII Semester I 306-309

Fretty Nafartilova Hutahaeen

Analysis of Biomolecular Practicum Guides According to KKNi Curriculum 310-313

Nurul Indah Pratiwi

The Cognitive Process of Different Gender in Writing Argumentative Text 314-318

Surya Teriadi Tarigan

The Development of Chemistry Lab Guide Book for High School Based on Guided Inquiry to Measure Scientific Attitudes and Science Process Skill 319-325

Gorat Victor Sibuea

The Unnaturalness of the Translatio of Indonesian Tourist Resorts Signs Into English in Parapat and Bukit Lawang 326-328

Iis Aprianti

Grammatical Error of Speech by Students in Bilingual Program of Ma'had Al Jami'ah UIN North Sumatra 329-332

Riyah Shibha Nasution

Speech Functions Used by Male and Female Tour Guides in Their Touring Interaction with Tourists in Bukit Lawang 333-336

Widya Ningsih

Analysis of the Influence of Economic Openness to Indonesia Growth 337-340

Zando Silaban

Design Development and Standard Operational Procedure for Training Model Management of 3 Diploma Mechanical Engineering University of Medan 341-345

Mindo Judica Pangaribuan

The Euphemism in "Sambah Manyambah" Tradition of Minangnese Wedding Ceremony 346-348

Muhammad Fauzi

Analysis of Factors That Influence the Interdiction of District/City in the Province 349-354

North Sumatra

Muhammad Yulhelmy Isra

Development of Interactive Learning Media Based on Adobe Flash CS 6 in Geographic Lessons 355-360

Mardimpu Sihombing

The Comparison between Predict Observe Explain (POE) and Think Pair Share (TPS) Learning Model on Students Learning Achievement, Activity, and Critical Thinking Skill on Human Circulatory System 361-367

Remli Nelmian Simarmata

Metaphor Translation in English and Indonesian Version of Surah Ali Imran 368-371

Uswatun Hasanah

The Development of Textbook Based on Research About the Insect Pollinator on Chili Paper (*Capsicum annum L.*)

Fitriatu

College student of Magister Biology Education,
Universitas Negeri Medan
Medan, Indonesia
fitriatu13443@gmail.com

Syarifuddin

Lecture of Magister Biology Education,
Universitas Negeri Medan
Medan, Indonesia
syarif_syarifuddin@yahoo.com

Idramsa

Lecture of Magister Biology Education,
Universitas Negeri Medan
Medan, Indonesia
idramsa@gmail.com

Abstract—The aim of research is to develop the textbook based on reseach about Insect pollinators on chili paper (*Capsicum annum L.*) is suitable use in Entomology subject. This study used a 4D development model suggested by Thiagarajan and was conducted until development stage only. The subjects of the trial were matter expert, intruactional media expert, layout expert, and responses of subject lecturers. The result of validation by matter expert was 83,52% with excellent categories, intruactional media expert was 78,55% with good categories, layout expert was 83,94% excellent categories and responses of subject lecturers was 86,96% with excellent categories. It can be concluded that the product can be used as an additional textbook in learning activities in the Entomology course and there is no revision.

Keywords— *textbook, 4D development model, insect pollinator, and chili paper (Capsicum annum L.)*

I. INTRODUCTION

Entomology is one of the subjects in the biology department which deals with insects. Insect is one of the sub-classes of the most abundant arthropods found in nature, so extensive and difficult to learn. According to [1] one of the challenges faced in biology learning is the lack of adequate teaching materials, especially teaching materials that help improve the realm of student skills by presenting research results in the student environment.

Teaching materials are a set of materials / substances (both information, tools, and texts) that are systematically arranged which students must learn in order to achieve predetermined competency standards such as textbooks [2]. According to the Ministry of National Education, (2008) textbooks are handbooks for a course and one of the learning resources that makes it easier for students to obtain a number of information on knowledge, experience and skills in the learning process [3].

Entomology textbook [4] which is one of the main sources of 5th semester Biology students in Medan State University in studying insects, not yet containing content about pollinator insect. Broadly speaking the book introduces about insect biology in general and has not explained the ecological functions of insects. One of the most important ecological functions of insects including human benefit is the function of insects as influential pollinators which effect on agricultural products such as fruits and vegetables. The formation of fruit and seeds in plants generally depends on the success rate of pollination of flowers[5]. Based on the observation results of Unimed Biology / Biology Education students understanding is under of the standart about the ecological function of insects as insect pollinator, 67% knew the importance of insect pollinator but did not understand and study them specifically, while 33% said they did not understand and did not study the importance of pollinating insects.

The Entomology book that used by Unimed students now needs to be accompanied by textbooks on insect pollinator on Chili papper plants (*C. annum L.*) which are developed based on research given their influence on human needs and increasing the college student's knowledge and experience. From the results of observations made, as many as 22.6% of college students stated that they really needed and agreed and 46.8% of students said they needed and agreed to develop a research-based textbook on insect pollinator on chili papper(*C. annum L.*). Therefore, to improve students' knowledge, experience and understanding, learning, teaching materials, and the right media to recognize insects as an organisms that are beneficial to life are one of them as insect pollinator.

Based on the description above, it is necessary to conduct research development of textbooks based on reserct about insect pollinator on chili papper plants (*C. annum L.*). The purpose of this study is to produce a product in the form of a textbook based on reserct about insect pollinator on chili

papper(*Capsicum annum L.*) plants that are suitable to use in Entomology courses.

II. METHODS

The type of the research used development research (R & D). The product was developed in the form of a textbook based on reserct about insect pollinator on chili papper plants (*Capsicum annum L.*) intended for biology students at Medan State University. This textbook was developed based on the 4-D development model by Thiagarajan (1974). The stages of 4-D development include define (design), design (design), development (development) and dissemination (spread) but in this study only to the stage of development.

2.1 Phase of Define (Pendefenisian)

At this stage the basic problems are determined, analyzing the characteristics of students, and analyzing the essential concepts of the material and skills of students that will be improved.

2.2 Phase of Design (Design)

In this stage, the selection of the teaching book format is in accordance with the format of the textbook writing that is good and correct and in accordance with the needs of the students. Then making an outline by realizing the plan at the define stage into the design stage, selecting the writing format and initial design, namely determining the elements that will be contained in the textbook. In accordance with the development of research-based textbooks, at the design stage, pollinator insects were conducted on chili papper plants (*Capsicum annum.L*) at the districts of Deli Serdang and Karo with research procedures that have been designed.

2.3 Stage of Development (Development)

At this stage the product is assessed and revised by material experts, instructional design experts, layout experts and the response of the proficient lecturer in Entomology courses. The feasibility of teaching books was assessed through questionnaires with 4 criteria, namely not good, good enough, good and very good. Furthermore, the data obtained will be analyzed descriptively by calculating the percentage score for each criterion in the developed textbook, so that the percentage of feasibility obtained from the aspect assessed by the formula:

$$P = \frac{\sum x}{\sum xi} \times 100\%$$

Information:

P = Percentage score

$\sum x$ = Number of respondents' answers in 1 item

$\sum xi$ = Amount of ideal value in item

III. RESULTS AND DISCUSSION

3.1 RESULTS

In accordance with the previous presentation, the development of the textbooks based on reserct about insect

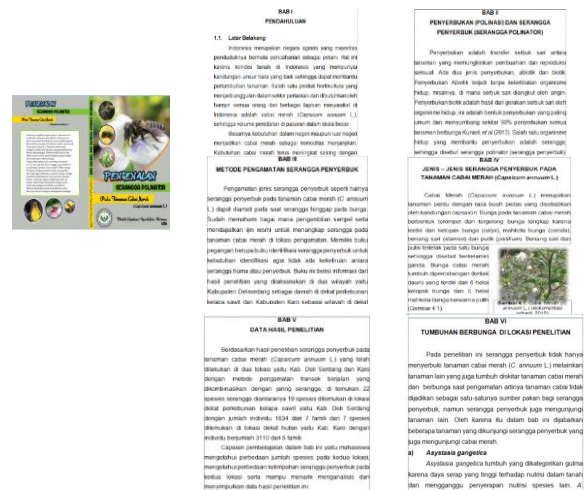
pollinator on chili papper plants (*C. annum L.*) at Medan State University was carried out using a 4-D model that was carried out in stages.

3.1.1 The results of the Define phase

Problems faced by students are the many objects of study in Entomology courses, especially insects because of their diverse and abundant numbers. The lack of student reading material about insect pollinator has resulted in a lack of student understanding of the ecological functions of insect pollinator. Learning objectives that will be achieved by students through developed textbooks are the characteristics and description of morphological insect pillonator, the factors that influence pollination by insect, methods of observing insect pollinator, insect pollinator species on chili papper plants and their characteristics.

3.1.2 Results of the Design Phase

Before the preparation of research-based textbooks in the format that had been prepared, research was conducted to the insect pollinator on chili papper plants (*Capsicum annum.L*) in Karo and Deli Seradang districts. Various types of insects obtained in research and observation processes are described in developed textbooks. The results of the research to insect pollinator on Chili papper(*Capsicum annum L.*) plants have been carried out in two locations, Kab. Deli Serdang and Karo with walking transect observation methods combined with insect nets, found 22 insect species including 19 species found in locations near oil palm plantations namely Kab. Deli Serdang with 1634 individuals from 7 families and 7 species found in locations near the forest, namely Kab. Karo with individuals numbered 3110 from 5 families. The results of gathering information from various sources as well as the results of research as outlined in the textbook produce the contents of the book totaling 6 chapters.



3.1.3 Results of the Development phase

At the development stage the developed textbook was validated by a team of material experts, instructional design experts, layout experts and course lecturers.

3.1.3.1 Material Expert

Assessment by material experts was carried out to improve the quality of materials and books. The quality of the material is the subject of the study about insect pollinator, the suitability of the material discussed with the Competency Standards, Basic Competencies and the objectives set out in the Entomology course. The results of the average percentage of the material expert team on each component can be seen in Table 2.

Table 2. Percentage of assessment from the material expert team on material / content feasibility

No.	Component of Assessment	Average (%)	Criteria
1.	Feasibility Contents	85,55	Very Good
2.	Feasibility to Present	81,25	Very Good
3.	Language Feasibility	83,73	Very Good
Average		83,51	Very Good

The average rating is 83.51% and is classified as very good. The results of this assessment indicate that in terms of material, the expert team assessed that the book was good and could be used in the actual field as additional teaching material in learning activities and there was no revision.

3.1.3.2 Instructional Design Expert

Assessment is done to improve the suitability of the book on Entomology learning including the suitability of the material discussed with the Competency Standards and Basic Competencies in the Entomology course, as well as the feasibility of the language according to the good and correct writing order. The results of the average validation percentage of the learning design experts on the textbook Table 3.

Table 3. Percentage of assessment of learning design experts on the suitability of learning

No.	Component	Average (%)	Criteria
1.	Feasibility of Content	87	Very Good
2.	Suitability of Learning	71	Good
3.	Language Feasibility	77,67	Good
Average		78,55	Good

The average assessment of book conformity to Entomology learning is based on the assessment component of 78.55% and is classified as good. The results of this assessment show that in terms of learning design experts assess teaching books can be used in the actual field as

additional textbooks in learning activities and there is no revision.

3.1.3.3 Expert Layout

Assessment is carried out to improve the suitability of book size and design. The quality of the size is in accordance with the correct book format and the design of the book is in the form of book cover and contents. Results of the average validation percentage from layout design experts in the following table, Table 4.

Table 4. Percentage of expert layout evaluations of the suitability of the size and design of textbooks.

No.	Component	Average (%)	Criteria
1.	Book size	91,67	Very Good
2.	Good cover design	80	Good
3.	Book design	80,16	Good
Average		83,94	Very good

The average rating based on the assessment component is 83.94% and is classified as very good. The results of this assessment indicate that in terms of layout, the expert assessed that books could be used in the actual field as additional textbooks in learning activities and there were no revisions.

3.1.3.4 Response of Entomology Subject Lecturer

The assessment was conducted to improve the suitability of the size and design of the book on student development. The quality of the book display and presentation of textbooks are appropriate in supporting the learning process in the Entomology course. The results of the average percentage of responses from lecturer lecturers to textbooks Table 5.

Table 5. Percentage of assessment of Entomology lecturers on the suitability of the material in learning and design of textbooks.

No	Component	Average (%)	Criteria
1.	Display of Book	87,6	Very Good
2.	Material presentation	86,32	Very Good
Average		86,96	Very Good

The average response is based on the rating component of 86.96% and is classified as very good. The results of this assessment indicate that in terms of the appearance and presentation of the material in the book, the lecturer considers that the book can be used in the actual field as an additional textbook in learning activities and there is no revision.

An excellent style manual for science writers is 7.

3.2 Discussion

The product that has been developed in this study is a textbook based on the research about insect pollinator on chili pepper plants (*C. annuum* L.). This textbook is a supporting teaching material in studying Entomology. Learning using textbooks facilitates the learning process [6]. The process of developing textbooks is adjusted to the instructional objectives of the course, then collects various information from various library sources, such as textbooks, scientific articles, journals, and mass media, and then packaged according to student needs and written as teaching materials using a systematic framework [7].

The feasibility of teaching materials seen from the ability of teaching materials to meet the standards of feasibility assessment of the National Education Standards Agency (2006) which consists of content feasibility, language feasibility, presentation feasibility, and feasibility of graphics (layout). On the feasibility of content, the strength and accuracy of the material and the suitability of the supporting material are in the category of "Very Good" with a percentage of 83.51%. According to Prasetyo, 2017 the material developed should be related to the achievement of competencies that must be mastered by students because the material in the book helps students master the various competencies that have been determined.

To make easy the students comprehend the competencies that must be mastered, the author lists the goals or achievements of learning in each chapter in the developed textbook that aims to facilitate students to know what abilities students must possess after studying the textbook. Books must present material that is adapted to the development of science and technology [8]. This textbook is expected to help students understand the concept of insects as insect pollinator and link them in human life [9]. Textbooks contain examples that are close to everyday life in order to stimulate students to try or apply the knowledge gained in their real life and form the transfer of learning from everything learned from textbooks [10].

In the feasibility of presentation in the form of exposure techniques, study subjects or book supporters are in the category of "Very Good" with a percentage of 81.25% and the feasibility of language in accordance with a good and correct writing order in the category "Very Good" with 83.73% percentage. The material has been presented in a coherent, systemic, straightforward, and easy to understand manner [11]. The sentence is presented simply, with a maximum of 30 words per sentence to make it easier for readers to understand sentences. According to [12] language standards include; use good and correct Indonesian, terminology adheres to enhanced spelling, clear readability [13] and is appropriate, easy to read. Not using the same grammatical structure with many meanings [14].

The results of the validation data analysis of the design learning experts stated that the overall research-based textbooks were in the "Good" category with a percentage of 78.55%. The book is considered to have contained elements of

textbooks and can be used in learning such as having clear learning outcomes, motivate students to discuss, increase the curiosity and motivate students to ask questions, have clear evaluations and feedback for the students.

Integrity is assessed by layout design experts, the purpose of this validation is to assess the quality of the size of the book, the appearance of the book, illustration of the image and layout of the writing that makes the reader interested so that students can use it as a supporting book for Entomology courses. The average validation result from layout experts is 83.94%, this value indicates that this book is feasible to use with a very good category.

The assessment or results of data analysis responses of Entomology lecturers at Medan State University is worth 86.96%, which means the book can be used as an additional book or supporting book in studying insects such as pollinating insects. This can be seen from the quality of the display of the book and the presentation of teaching book material accordingly in supporting the learning process in the Entomology course. Picture textbooks work well in teaching, when text and images are combined, performance and reading retention increase compared to books that only contain text.

IV. CONCLUSION

Based on the results of data validation and analysis, conclusions can be obtained that the textbooks based on research about insects pollinator are appropriate for use by lecturers and students in Entomology learning.

ACKNOWLEDGMENT

It was conveyed to the research team who had assisted in conducting research on insects pollinator, who helped revise the teaching book to finally be used in learning.

REFERENCES

- [1] Katcha M., & Wushishi D., & Katcha M. 2015. Effects of laboratory equipment on secondary school students' performance and attitude change to learning biology in the federal capital territory, Abuja, Nigeria. *Journal of Education Research and Behavioral Sciences*. Vol. 4: 250-256.
- [2] Hosler, J., & Boomer, B.K. 2011. Are Comic Books and Effective Way to Engage Non -ors in Learning and Appreciating Science? *Journal of Life Science Education*. Vol 10 (309-317).
- [3] Greenbaum, D., & Gerstein, M. (2001). What is Bioinformatics An Introduction and Overview. Review Paper, 83-100.
- [4] Manurung, B., 2015. Entomology. Medan State University. Unimed Press
- [5] Ministry of National Education. 2008. Guide to Development of Teaching Materials. Directorate General of Primary and Secondary Education Management. Jakarta.
- [6] Syamsi, K. 2013. Development of Reading Textbook Models Based on Process Approaches for Middle School Students. *Educational Horizon Journal* Th.XXXII No 1. Yogyakarta.
- [7] Husamah, Rochman, F. & Utomo, H. 2015. Development of enrichment of book of animal ecology based on collembola community structure research throughout the upstream Brantas watershed of Batu City. Proceedings of the National Seminar on Biological Education at the University of Muhammadiyah Malang, Malang, East Java.

- [8] Kurniasih, I., & Sai, B. 2014. Guide to Making Teaching Materials: Textbooks In Accordance with 2013 Curriculum. Surabaya: Kata Pena.
- [9] Oktaviana. 2015. Development of Teaching Materials Based on Research on the Characterization of Proteins in Sperm Membranes in Biotechnology Courses. *Journal of Biology and Learning*. Vol 2 (2).
- [10] Rofi, A., Atmazaki, Abdurahman. (2014). Development of Contextual Based Textbooks in Indonesian Language Morphological Process Material at Indonesian Language and Literature Education Study Program, Faculty of Teacher Training and Education, Batanghari University, Jambi. *Journal of Language Literature and Learning*. Vol 2 (3).
- [11] Prasetyo N., and P. Perwiraningtyas. 2017. Development of Environmental Based Textbooks in Biology Courses at Tribhuwana Tunggaladewi University, *Journal of Indonesian Biology Education*. Vol 3 (1): 19-27.
- [12] Prastowo, Andi. 2012. Creative Guide to Making Innovative Teaching Materials. Diva Press. Yogyakarta.
- [13] Kusuma, D. 2018. Readability Analysis of Class X Text Physics Books in Vocational Schools. *Journal of Physics and Science Education*. Vol 1 (1)
- [14] Wallwork, A. 2013. *English for Academic Research: Writing Exercises*. New York. Springer New York Heidelberg Dordrecht London,

