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Educational Research to Endorse Productive and Innovative Generation in the 21st Century

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Preface

The 2nd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL with web link is http://aisteel2017.unimed.ac.id/) was held on October 16-17, 2017 in Medan City, Indonesia. This conference was organized by Postgraduate School, State University of Medan (Unimed) and is the routine agenda at Unimed now. The Second Annual International Seminar on Transformative Education and Educational Leadership’ is realized this year with various presenters, researchers, lecturers and students from universities both in and out of North Sumatera participate in the theme of which is “Educational Research to Endorse Productive and Innovative Generation in the 21st Century.”

2nd AISTEEL is the annual international seminar with main aim is to discuss of recent research special for Transformative Education and Education Leadership. Several topics like: Teachers Education Model, Research Global Issue in Education, Mathematics and Science Education, Social, Language Education, Vocational Education, Curriculum, Economic, History and Management Education have been discussed at the 2nd AISTEEL 2017. 2nd AISTEEL international seminar provided experts’ view on transformative education and educational leadership as well as curriculum article presentation. There were five keynote speakers have been came Professor Keiichiro Yoshinaga, Dr. Bambang Sumintono, Dr. Sitti Maesuri Patahuddin, and Dr. Yulia Rahmawaty. The organizer had been use online submission system to receive all abstract, full paper and also communication with authors. All of information include with comment of reviewer can be cheked real time by author.

Chairperson

Dr. Rahmad Husein, M.Ed
Welcoming Speech of Director of Postgraduate School State University of Medan

Good Morning

Welcome the honorable guests speakers Professor Keiichiro Yoshinaga, Dr. Bambang Sumintono, Dr. Sitti Maesuri Patahuddin, Assoc. Prof. Emilia Zulmira de FAN, and other speakers, lecturers and students from outside and inside Unimed to this international seminar which is the routine agenda at Postgraduate program of Unimed now. I”m glad that ‘The Second Annual International Seminar on Transformative Education and Educational Leadership’ is realized this year with various presenters, lecturers and students from universities both in and out of North Sumatera. and participate in the theme of which is “Educational Research to Endorse Productive and Innovative Generation in the 21st Century.”

Ladies and Gentlemen,

In this second seminar exels the first one related to the administration by online and the publication index by either Thomson Reuters or Google Scholar. By the new policy on student’s publication, postgraduate program really matches the system, particularly for the students who will sit in the oral defence examination. Through the seminar, the postgraduate students improve their article journal writing and it is proved by many articles are submitted by the students.

The plenary speakers coming from 15 provinces in Indonesia will present topics covering multi disciplines. They will contribute a lot of inspiring inputs and new knowledge on current trending educational research topics all over the world. The expectation is that all potential lecturers will share their research findings to educational scientists and researchers as well for improving their teaching process and quality. Thus, this will contribute to the next young generation researchers to produce innovative research findings in education and educational leadership contexts.

This second seminar continues the promotion of the first sequel ‘Developing Future Teachers’ Education Model. Therefore, the propose of this second seminar on the transformative education and educational leadership research will trigger the young professional lecturers and educators to compete in the invention of innovative educational teaching and learning strategies, techniques and leadership.

I hope that the scientific attitude and skills through research will promote Unimed to be a well-known university which persists to be developed and excelled in the future.

Thank you the Rector of Unimed who always supports us in organizing the seminar. Thank you all guest and plenary speakers. Special thanks to both steering and organizing committee who have well-coordinated and colaborated in actualizing the seminar.

Director of Postgraduate Unimed

Prof. Dr. Bornok Sinaga, M.Pd
TABLE OF CONTENTS

The Effect of Using Collaborative Learning Strategy on The Student’s Achievement in Writing Descriptive Text ........................................................... Nursyah Handayani 1


The Power Behind Advertisement ................................................................................................................ Endang Larasati 10

The Effect of Using Audio Visual Media on Student’s Vocabulary Mastery .................................................. Resti Citra Dewi 13

Ideational Taxonomic Relation of Hata Pangupa in Tapanuli Selatan Wedding Ceremony ........................ Mutia Nasution 17

Pal’s Leadership Style and Teacher’s Performance of Islamic Junior High State School (MTsN) Hamparan Perak Deliserdang Distric........................................ Nurmalia, Maria Ulfah Handayani, Denny Khairsthi, Desi Prawita 21

The Influence of Work Motivation on Teacher’s Job Performance of Vocational High School in Medan.......................................................... Darmawati, Sri Melfayetti, Selamat Triono Ahmad 24

Error Analysis by Using Tenses of Senior High School .............................................................................. Hariyanto 28

The Traditional Custom and Ceremonial Tradition in Suku Anak Dalam Language ................................. Putri Ayu Lestari 32

The Impact of Internet Marketing on Success of Women Micro, Small and Medium Enterprises Innovation as Intervening Variable................................ Fivi Rahmatus Sofiyah, Ami Dilham 36

The Effect of Cooperative Integrated Reading and Composition (CIRC) Technique on Students Reading Comprehension ........................................................................ Linda Efrina Nasution 40

Translation Shifts in Translating Didong from Gayonese in to Bahasa Indonesia........................................ Wike Yurida 44

The Effect of Team Assisted Individualization (TAI) Strategy on Student’s Reading Comprehension .... Khairuni Syafitri 48

The Effect of Organizational Culture on Working Disciplines of Madrasah Ibtidaiyah Head Master in Deliserdang.................................................. Muhammad Rifai'i, Syarfuddin Sihaan, Simon Nurhadi 53

Student’s Achievement on Reading Comprehension in Narrative Text by Using Think Pair Share Technique (TPS) at SMPN 1 Lubuk Pakam............................... Eprima Lestari Hutabarat 58

Ideational Taxonomic Relations of Hobar on Parpokatan Orja of South Tapanuli ................................. Novria Grahmanyani 63

The Effect of Using Task Based Learning Method on the Student’s Achievement in Reading Comprehension ........................................................................ Nilam Ulami Siregar 69

Relationship of Initiation Structure and Consideration with Effectiveness Leadership ........................ Wanti Simanjuntak, Syaiful Sagala 72

The Effect of Storytelling Method on Students Writing Narrative Text Ability at the Eleventh Grade Students of MAN Panyabungan.................................. Armita Novriana Rambe 77
The Implementation of Curriculum 2013 in Vocational High School 4 Takengon
Zainal Arifin, Herbert C.B. Manalu, Rini Deliana, Fitri Ariyanti

The Difference of Mathematical Problem Solving Ability by Using Student Teams Achievement Division (STAD) and Direct Instruction on System Linear Equation Two Variable in Grade VIII SMP Negeri 11 Medan
Faradilla Bafaqih, Cecep Nandar

The Influence of Problem-Based Learning and Every One is A Teacher Here Models on Higher Order Thinking Skills in Environmental Pollution Topics
Kurnia Putra, Hasruddin, Ahmad Rafiqi Tantawi

The Effect of Applying Task Based Learning (TBL) Approach on The Student’s Ability in Writing Descriptive Paragraph
Vijay Khana

Teacher’s Language Style in English Course Class
Dyan Yosephin Hutagalung

Differences Between Students Mark Taught With Co-Operative Learning Model Type TGT With Guess The Words Media Compared With Students Mark Taught With Co-Operative Learning Models With Words Square Media in Hydrocarbon Subject
Hariani Siregar, Gulmah Sugiharti

Language Used by Male and Female of Darul Ilmi Murni
Syakri Hidayati

The Use of Journal Writing in Improving Student’s Writing Skill of Recount Text
Muhammad Ilham Adha

Teacher and Student Perceptions Toward Practical Implementation Obstacles at Learning Chemistry
Sepra Pajar, Ramlan Silaban, Zainuddin Muchtar

The Analysis of of the Implementation and Problems of Lab Work on Chemistry Learning
Elvira Lastri, Iis Siti Jahro, Marham Sitorus

The Implementation of Using Library Card and ICT Based Library Service Systemin Increasing Reading Interest of Primary School Students at Tanjung Gading of Batu Bara Regency
Suci Amalia, Asih Menanti

Project Based Learning Tools Development on Alcohol and Ether Materials at Natural Science Faculty State University of Medan
Nadia Armina Ramud, Jamalum Purba

The Development of Teaching Material to Write Explanation Text Based on Mind Map
Pienti Mala Ningsih Manalu, Biner Ambarita, Rosmawaty Harahap

Improvement of Student Learning Outcome Using Model of Collaborative Based Lesson Study with Student’s Worksheet on Materials Hydrolisis
Agus Muliaman, Laila Majnoun Hutagaol

The Application of Comic Learning Media to Improve Student’s Achievement on Reduction and Oxidation Reaction Topic
Anggi Desviana Siregar, Rini, Herdini

The Application of Cooperative Learning Round Robin to Improves Student Learning Achievement on the Subject of Electrolyte-Nonelectrolyte and Redoxin Class X SMAN 1 Seberida
Nora Santi, Betty Holiwarni, Johni Azmi

The Effect of Combination Cooperative Learning Models Toward Learning Result
Sapnita Idamarna Daulay

The Maintenance of Hokkien Among Chinese Speakers in Stabat
Widya Ningsih

Effect of Blended Learning Model and Learning Style to Civic Education Learning Results in Class VII in Junior High School Panca Budi Medan
Madina Qudsia Lubis, Reh Bungana Br.Perangin-angin, Mursid

EFL Student’s Uses of Um as Fillers in Speaking
Eka Riana
The Influence of Role Playing Method and Self Concept of Social Skills of 5-6 Years Old Child
Rabiah Hanum Hasibuan, Anita Yoe, Yusnadi
The Effect of Learning Approach and Personality Type Towards Learning Outcomes
Dwidy Dinda Sari, Julaga Situmorang, Busmin Gunung
The Effect of Learning Models and Critical Thinking Skills on Social Science Learning Outcomes
Juriah Siregar, Julaga Situmorang, Baharuddin
The Effect of Suggested Method on Student’s Achievement in Vocabulary
Heppy Yersin Digiha Purba
Application of Active Learning Strategy Type Everyone is A Teacher Here (ETH) to Increase Student Activity and Learning Outcomes in Chemistry on Salt Hydrolysis
Wilita Fajrinna, Darra Utari Ningsih, Sri Adelila Sari, Habibati
The Effect of Learning Strategy and Type of Personality on Student’s Achievement in Economic Science
Dewi Shara Dalimunthe
Development of Learning Tools Based on Realistic Mathematics Education of Ethnomathematics Nuances to Improve Mathematical Communication Skill Students in Junior High School 2 Percut Seiutu
Rizqi Jamiah, Edi Syahputra, Kms. M. Amin Fauzi
The Impact of Cooperative Learning Strategy and Learning Interest Toward the Learning Result of Second Year of Senior High School Students in 2016/2017
Riswan Sianturi, Abdul Maarif Sibua, Edward Purba
The Development of Flash Program as a Media of Chemistry Learning on Chemical Equilibrium
Lenni Khotimah Harahap, Albinus Silalahi, Iis Siti Yahro
The Ethnic Mandailing Tradition of Courtship (Makusip) and Revitalization Efforts in the Formation of the Character Youth
Riadi Syafputra Siregar, Ratih Baiduri, Robert Sibarani
The Effect of Education on Unemployment Rate in Indonesia
Rahmat Putra Ahmad Hasibuan, Dede Ruslan, Fitrawaty
Development of Explanatory Text Materials Based on Problem Solving in Senior High School Pematangsiantar
Tiarma Nova Intan Malasari, Biner Ambarita, Malan Lubis
Learning Model of Strengthening Vocational Life Skills With Entrepreneurship Knowledge to Improve Student Learning Outcomes
Husni Wardi Tanjung
A Critical Discourse Analysis Wardah Halal Beauty Advertisements
Ayur Lestari Siregar, Mei Lastri E.F. Butar-Butar
Influence of Creative Problem Solving (CPS) Mathematics Learning Model to Mathematical Problem Solving and Self Efficacy Students of SMA Negeri 3 Binjai
Nurcahaya Hutaisfot, Martua Manullang, Ani Minarni
Differences in Mathematics Problems Solving Students With Implementing Learning Model Think Pair Square and Group Investigation in Junior High Schools
Abdul Halim, Edy Surya
The Acquisition of Nouns and Verbs of Mandaliningnese by Two-Year-Old Mandalining Children
Marwah, Amrin Saragih, Sri Minda Murni
Utilization of ICT Learning in Senior High School Teladan Medan
Tengku Salwa Miranti
The Effect of Cooperative Learning Model Based Interactive Media and Interpersonal Communication on Student’s Achievement
Catur Ayu Wialandari, Efendi Napitupulu, Keysar Panjaitan
Developing of Learning Material Based on Problem Based Learning to Increase Student’s Mathematical Reasoning Ability and Self-Efficacy in Grade X SMA Negeri 1 Medan
Anggi Paramita Daulay, Dian Armanto, Waminton R
Efforts to Increase A Motivation to Learning Math Using “Program” Learning Model
Linda Sari, Edi Syahputra

The Effort of Improving Mathematics Learning Outcome on Quadrilateral and Triangle Matter by Using Gradually Exercise Strategy with The Assistance of Image Media
Ady Putra, KMS. Muhammad Amin Fauzi, Yulita Moliq

The Difference on Students’ Mathematical Creative Thinking Ability Between Realistic Approach with Conventional in The State Madrasah Tsanawiyah 2 of Medan
Siska Lestari, Zul Amry, Hasratuddin

Developing Learning Materials Using Realistic Mathematics Education to Increase Junior High School Students’ Mathematical Disposition and Connection Ability
Syu’aida Hazar Nasution, Izwita Dewi, E. Elvis Napitupulu

Developing Learning Materials Using Problem Based Learning to Increase Senior High School Student’s Mathematical Disposition and Representation Ability
Dewi Khairani, Mulyono, Izwita Dewi

The Effect of Question Students Have Strategy on The Result of Students Learning in Mathematics
Yuliani Aruan, Edi Syahputra

Analysis of Academic Supervision Competence and Managerial Supervision in Improving the Performance of Vocational High School Supervisors in Langsa City
Muhammad Hendra, Saut Purba, Mian Siahaan

The Use in Active Learning Strategy of Learning Starts with a Question Type in the Mathematics Learning
Jeni Putria Efif, Ani Minami, Pardomuan Sitompul

Improving the Ability to Learn Math by Using Rubu’ al-Mujayyab Media
Muhammad Hidayat, Edi Syahputra, E. Elvis Napitupulu

The Impact of Education Cost and Government Spending the Interest Rate of Bank Indonesia
Julika Rahma Siagian, Dede Ruslan, Arwansyah

The Implementation of Problem Based Learning Models to Improve Mathematical Problem Solving Ability of Students on Arithmetic Materials in Class VII Junior High School
Elidar Tanjung, Izwita Dewi, Mulyono

The Effect of Learning Strategies to Trial By Jury in Participation Mathematics Learning Student of Junior High School
Rizka Putri Rahayu, Ani Minami, Zul Amry

The Differnces Between The Effect of Realistic Mathematics Learning Approach to Conventional Learning with The Students Mathematics Learning Outcomes in Junior High School of 38 Medan Grade VII
Diah Ari Saputri, Syafari

The Effect of Value National Exam Standards at Learning Achievement of Students at Senior High School
Nurdiana Fahmi, Bornok Sinaga, W. Rajagukguk

The Effect of Open Unemployment Rate and Level of Vocational High Education to Poverty in North Sumatera Province
Zulaili, Indra Maijita

The Application of Cooperative Learning of Think-Pair-Share (TPS) Type to Increase the Students’ Ability of Problem-Solving
Madriqah Fadhilah Siregar, Zul Amry, Syafari

The Relationship Between Metacognitive With the Results of Learning Outcomes on the Fungi Topic
Elizabeth, Herbert Sipahutar, Syahmi Edi

Comparison of DNA Isolation Methods from Economically Valuable Plants in Indonesia
Chairiyani Rizka, Faiziyah Harahap, Syahmi Edi

Development of Learning Device Based on Realistic Approach to Improve Problem Solving Ability Mathematic of Student at Junior High School
Susanna Romaria Harahap
Proceedings of The 2nd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL)
eISSN: 2548-4613

Efforts to Improve Understanding and Use Concept of Additive Fractions and Reduction Using Media Comics on Model Cooperative Learning Type Student Team Achievement Division (STAD)…….. 339
Ratu Natalia Perangin-angin, Sahat Siuahkan

The Effect of Cooperative Learning Type Games Teams Tournament (TGT) of Mathematics Learning Outcomes in the Fractions Matter………………………………………………………… 342
Ansori Hasibuan, Asmin Panjaitan, Asrin Lubis

Development of Authentic Mathematics Assessment in Application of Problem Based Learning Model to Improve Problem Solving Ability and Understanding of Student Mathematics Concept at Namorambe Secondary Private Middle School Junior High………………….. 347
Kartika Sari, Asmin, Bornok Sinaga

The Increasing of Student’s Mathematics Problem Solving Ability and Learning Motivation Through Problem Based Learning Model……………………………………………………………………………… 351
Ridha Maulida

Dialect of Batakne Language Used by Senior High School Students’……………………………………. 358
Rafika Nur Rahman

The Effectiveness of Tandur Method of Improving Students’ Learning Ability in Junior High School……………………………………………………………………………………………………….. 362
Rahimatal Islam Elmujahidah, Mulyono, H. Banjarnahor

The Effect of Reciprocal Teaching Approach to Student Achievement on Ecosystem Topic in Junior High School……………………………………………………………………………………… 365
Nilawati, Nurtika Dewi

Improvement of Student Learning Result by Using Cooperative Learning Model of Teams Games Tournament Type on Algebra Fuction Limit………………………………………………………………………………………………………………………………………………………… 367
Rismalyah Manalu, E. Elvis Napitupulu, Martua Manullang

Noun Phrase of Culture Articles in The Jakarta Post………………………………………………………………………………………………………………………………………………………………………………………… 371
Misdana

Application of Cooperative Learning Model Type Think Pair Share for Improved Communication….. 374
Nurhasanah

Implementation Model of School Policy in Constructing Behavior of Troubled Students………………. 378
Khairtati Purnama Nasution, H. Syaiful Sagala

Efforts to Improving Creativity and Mathematics Learning Outcomes of Students With SPLET Strategy…………………………………………………………………………………………………… 382
Antoni

The Influence of Physical Education in Establishment of Self Esteem……………………………………. 386
Yustinus Tarigan, Tarzyat Nugraha

The Improvement of Dance Art Learning Achievement for Deaf Students Through Total Communication Application (Gesture/Signal) in Sekolah Luar Biasa (SLB) - E Negeri Pembina Tingkat Provinsi Sumatera Utara……………………………………………………………………………… 390
Siti Maryam

Innovation of Media Video Compact Disc Instructional Pencak Silat for High School…………………… 393
Marli Perangin-angin, Imran Akhmad, Agung Sunarno

Achievement Strategy of the Indonesian National Qualification Framework Based Curriculum Generic Description of Sport Education Postgraduate Program Universitas Negeri Medan……………………………………………………………………………………………………….. 397
Muhammad Supriadi Siregar, Nurhayati Simatupang, Albadi Sinulingga

The Effect of Teaching Styles and Motor Ability as The Result of Study Dribbling Football……………… 401
Muhammad Fajar Doli Siregar

Semantic Analysis of English Loan Words in Indonesian Electronic Paper (Analisa)………………………………… 404
Putri Nurul Rahmadani Siregar

Analysis of Empowerment of Competence Sinergity on Optimization of Education System…………… 408
Rameyanti Tampubolon

Inquiry-Based Video Learning Media For Overcoming Student Learning Difficulty (Case Study at State Junior High School 3 Lubuk Pakam Deliserdang District)……………………………………….. 412
Megawati
The Development of Mathematics learning Tool Oriented on Problem Based Learning to Enhance Mathematics Problem Solving Ability and Self Efficacy

Solawati Nainggolan, Mulyono, Hasratuddin

The Effectiveness of Contextual Inquiry-Based Worksheet on the Matter of Fungi on Food Towards Students’ Higher-Order Thinking and Science Process Skills of Biology Education

Nurjamiah Siregar, Hasruddin, Syahmi Edi

The Function of Limits Mastery on Mathematics Learning Achievement in Derivative Subject at the Eleventh Grade of Madrasah Aliyah Yayasan Pendidikan Karya Setia Padangsidimpuan

Hasna Dewi Ritonga

Effect of Education Level, Income, Inflation on Community Consumption Pattern in North Sumatera Province

Nelly Hutajulu, Fitrawaty, M.Fitri Rahmadana

Application of Problem Based Learning Model Assisted by Cabri Software to Improve Problem Solving Ability of Mathematics Students

Ahmad Darmawan, Edi Syahputra, Kms. M. Amin Fauzi

Optimization of Academic Supervision Competence of High School Supervisor in Karo Regency with Critical Events Model (CEM)

Karyawan Keliat, Yasaratodo Wau, Irsan

The Concept of Physics Learning Media Based Computer Animation

Ratna Tanjung, Mukhtar, Efendi Napitupulu

Cultivating Children’s Critical Attitude with Educational Philosophy

Daulat Saragi
Effect of Education Level, Income, Inflation on Community Consumption Pattern in North Sumatera Province

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Abstract—The level of life or prosperity of society is generally reflected in their level and pattern of consumption. This study to examined the determinants of Education Level, Income, Inflation to consumption of society in North Sumatera. For this purpose study, the secondary data were used. Secondary data for the year 2001 to 2015 was obtained from Bank Indonesia and Badan Pusat Statistik in North Sumatera. The method analysis used is Ordinary Least Square (OLS). Findings are in line with the Keynes economic theory, which suggests that the income variable has a positive effect on household consumption. There are positive relationships between income, college education, they are statistically significant. And Variables of senior high school education and inflation are not significant to consumption of society in North Sumatera. The study recommends that in order to enhance the purchasing power of the people, increase in salaries, wages, reduction in personal taxes and subsidy

Keywords—education level; income; inflation; consumption; ordinary least square (OLS)

I. INTRODUCTION

Consumption is the total outlay for the received goods and services in an economy in a given period. Consumption accounts for two - thirds of GDP in most countries and is the most important determinant of welfare. In addition, consumer attitudes to saving which is based on consumption decision are very important for capital accumulation, the process of investment, growth, and development. The higher the household income or society as a whole it will be increasingly higher levels of consumption. These facts make consumption and saving among most popular Research areas both in macroeconomics and microeconomics [2].

Consumption is the most important single element in aggregate demand so that its accurate estimation is essential to the management of the economy. Keynes related consumption to current disposable income [1], and for many years this was widely accepted. In 1950s evidence was recorded for a discrepancy between the consumption function estimated from long-run time series data, and the much flatter consumption function estimated from short-run time series and cross-section data. The Keynesian consumption function, therefore, could not resolve this discrepancy, and it was together with the need for more accurate forecasts of consumption, that led to the development of the permanent income, life cycle, and relative income hypotheses.

Over the years economists are varied in their opinions on the variability of income and consumption relationship. For instance scholars like Alfred Marshall on the income elasticity of demand, Ernest Engel on Engel curve, J.M. Keynes on Absolute Income Hypothesis, Duesenberry J.S. on Relative Income Hypothesis, Modigliani F. on Life Cycle Income Hypothesis, Milton Friedman on Permanent Income Hypothesis, etc. According to Alan and Angus (2012), the relationship between consumer spendings and income is one of the oldest statistical analysis of macroeconomics and one of the sturdiest. Like the aging movie star, it needs a little touching now and again but always seems to be bouncing back. Within all the countries of the world, there are significant numbers of socio-economic and demographic influences which affect the consumer’s income and consumption patterns. Among these factors includes population, number of households and associated data, Gross Domestic Product, annual inflation, and employment indicators [3].

The development of public consumption expenditure of the province of North Sumatra from 2001 to 2015 has increased from year to year. In 2001 consumption expenditure amounted to 41,924,741.68 billion rupiah. In 2014, consumption expenditures were 87,380,540 billion rupiah and 2015 consumption expenditures were 93,967,640 billion rupiah. This happens because the condition of the economy affected by economic growth that is high enough. However, in terms of growth rate, the consumption growth in North Sumatra province experienced a very fluctuating trend of increase from 2001 to 2015.

The follows the well-known Engel’s law which states that the proportion of expenditure on food with respect to the total expenditure declines with the rise in income, a useful indicator of relative consumption patterns is derived by comparing the income elasticity. The main advantage of
following this approach is that income elasticity does depend on the units of measurement of income and consumption, and is, therefore, directly comparable between countries and commodities [2].

Other studies on consumption such as Nanang and Hadi Irawan (2011), Selfia and Putri (2015), Akekere. J and Youssuo P.O.J (2012), Dian and Ariani (2014) and Cilasum S.M (2009) have identified income, unanticipated shocks, and attitude of consumers and presence of liquidity constraints as important determinations of consumption.

In North Sumatra Province, the study by Rinanda and Teja (1978) showed a positive correlation between consumption expenditure and per capita income. On the other hand, Nanang and Hadi Irawan (2011) related consumption in North Sumatra Province to Friedman’s permanent income Hypothesis and his findings showed that consumption is a function of current and permanent income.

If viewed from the development of Income starting in North Sumatra Province 2001-2015 increase. In 2001, revenue in North Sumatera reached 71,908.36 billion rupiah, relatively increased significantly in 2015 by 440,955.85 billion rupiah. According to the theory of consumption of Keynes said if the revenue increase consumption will also increase but with a smaller amount of [2]. It is stated that consumption is not only influenced by income but also affected by other factors.

The purpose of this study is as follows: To analysis the influence of education level, income, inflation on consumption of the people of North Sumatra province.

II. LITERATURE REVIEW

A. Consumption

This section highlights some of the important literature reviews which are conducted by different researchers. Keynes (1936) reported that whatever is not consumed is saved. In the studies of Latin American countries show increased capital formation and increase in income with fall is saving from 23% to 8.8%. It indicates that the shift of 14.2% of income must have gone to increase the consumption rate. Total income (Y) being equal to 1. MPC is always positive showing increased consumption with a proportionate the increase in income and will lie between 0 and 1 [1].

The coefficient of household size comprises of two types of effects, such as specific effects and income effects. The specific effect resulting from an increase in the need for various commodities as household size increases, whereas, the income effect arises because a family becomes relatively poorer with an increase in the household size. The specific effect does not move proportionately with household size because of economies of scale in consumption, which exist in the large households [2].

A different approach used by [2] to define consumption. Theory of consumption titled “Lifecycle hypothesis” distinguishes between two types of wealth. The net worth of one’s stock of assets and the present value of one’s expected labor income stream. According to this theory, consumption of any time depends both on the flow of expected labor income and on the stock of wealth.

The relative income hypothesis postulated that consumption depends on current income and past peak income. If income exceeds the previous peak level of income no downward adjustment in living standards is necessary and consumption will adjust to income according to one set of relation if, however, income falls below previous peak income than consumption will react more gradually to change in income [2].

B. Level Education

According to Schultz (1960) observes that the development of the education sector with humans as its core focus has contributed directly to the economic growth of a region, through the enhancement of skills and production capabilities of the labor force. According to the theory of human capital, education affects economic growth in a country or region through increased skills and labor productivity. Humans with a high level of education have a greater chance of getting a job and better income compared to lower education. The higher the level of the community education the higher the level of consumption. Because when a higher education, they no longer just meet the needs of food and drink but also to meet the needs of information, the better society, and the need for recognition of others to its existence (existence). And often the cost required to meet this need is much greater than the cost of the fulfillment of a need to eat and drink.

Other studies on consumption such as M. Ali Uddin Khan, Israr Ahmad (2014) have identified education as determinants of consumption.

C. Income

Revenue is the most important factor and the main determinant of consumption. The theory put forward by Keynes is called the absolute income hypothesis or the absolute income hypothesis based on the underlying psychological law of consumption which states that if income is increased then consumption will also increase [14]. Milton Friedman (1957) propounded the permanent income hypothesis which says that consumption is a function of permanent income rather than current disposable income. The permanent income is the income an individual is expected to receive over a long period of time. Friedman believes that transitory income or temporary unexpected income does not affect consumption [4].

D. Inflation

According to Boediono, inflation as a tendency of prices to rise in general and continuously. An increase in the price of one or two goods cannot be called inflation unless the increase extends to or causes an increase in the bulk of other goods. The Classical theory holds that the price level is primarily determined by the money supply, which can be
explained by the relationship between the value of money and the amount of money, as well as the value of money and price. If the amount of money increases faster than the increase in goods than the value of money will decline and this equals the price increase. So according to Classical, inflation means too much money in circulation or too much credit compared to the volume of transactions than the medicine is to limit the money supply and credit [15].

III. METHODOLOGY

This study used secondary data sourced from the Central Bank of Indonesia (BI) and the Badan Pusat Statistik (BPS) of North Sumatra Province. The time series data covered a period of thirty years, from 2001 to 2015:


<table>
<thead>
<tr>
<th>Years</th>
<th>Consumption (Billion Rupiah)</th>
<th>Senior High School (%)</th>
<th>College Education (%)</th>
<th>Income (Billion Rupiah)</th>
<th>Inflation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>41.924.741,68</td>
<td>24.67</td>
<td>1.62</td>
<td>71.908,36</td>
<td>14.79</td>
</tr>
<tr>
<td>2002</td>
<td>43.510.947,36</td>
<td>26.71</td>
<td>2.44</td>
<td>75.189,14</td>
<td>9.59</td>
</tr>
<tr>
<td>2003</td>
<td>45.131.874,55</td>
<td>27.73</td>
<td>4.49</td>
<td>78.805,61</td>
<td>4.23</td>
</tr>
<tr>
<td>2004</td>
<td>47.217.507,64</td>
<td>27.73</td>
<td>4.49</td>
<td>83.328,95</td>
<td>6.8</td>
</tr>
<tr>
<td>2005</td>
<td>50.500.351,13</td>
<td>26.49</td>
<td>5.16</td>
<td>87.897,79</td>
<td>22.41</td>
</tr>
<tr>
<td>2006</td>
<td>53.771.629,72</td>
<td>32.9</td>
<td>5.4</td>
<td>93.347,40</td>
<td>6.11</td>
</tr>
<tr>
<td>2008</td>
<td>63.566.633,01</td>
<td>29.27</td>
<td>6.37</td>
<td>106.172,36</td>
<td>10.72</td>
</tr>
<tr>
<td>2009</td>
<td>68.475.416,55</td>
<td>31.99</td>
<td>6.62</td>
<td>111.559,22</td>
<td>2.61</td>
</tr>
<tr>
<td>2010</td>
<td>74.120.391,29</td>
<td>32.26</td>
<td>7.32</td>
<td>118.640,90</td>
<td>8</td>
</tr>
<tr>
<td>2011</td>
<td>74.017.173,18</td>
<td>28.21</td>
<td>7.7</td>
<td>126.587,62</td>
<td>3.67</td>
</tr>
<tr>
<td>2012</td>
<td>79.721.334,01</td>
<td>28.89</td>
<td>7.87</td>
<td>134.460,10</td>
<td>3.86</td>
</tr>
<tr>
<td>2013</td>
<td>79.072.810</td>
<td>34.16</td>
<td>8.56</td>
<td>142.537,12</td>
<td>10.18</td>
</tr>
<tr>
<td>2014</td>
<td>87.380.540</td>
<td>35.48</td>
<td>9.27</td>
<td>419.735,31</td>
<td>8.17</td>
</tr>
<tr>
<td>2015</td>
<td>93.967.640</td>
<td>37.59</td>
<td>11.02</td>
<td>440.955,85</td>
<td>3.24</td>
</tr>
</tbody>
</table>

Source: Badan Pusat Statistik (BPS) Sumatera Utara

Here private consumption expenditure is the dependent variable while senior high school, college education, income, inflation is the independent variable.

Researchers adopted the simple linear regression analysis to examine the influence of Gross Domestic Product (income) on private consumption expenditure; the purpose of the regression analysis is to reveal the influence of the response (dependent) variable and the predictor (independent) variable.

Based on the Keynes (1936) consumption function, we then specify the model as follow:

\[ C = f(Y) \]  \hspace{1cm} (1)

where:

- \( C \) is consumption expenditure,
- \( Y \) is income,
- \( f \) is the functional relationship between the two variables

Furthermore, the above functions are specified in the estimation model using OLS (Ordinary Least Square) with multiple linear regression models that are:

\[ \log(Y) = a + b_1 \log(X_1) + b_2 \log(X_2) + \ldots + b_n \log(X_n) + \mu \]  \hspace{1cm} (2)

where:

- \( C \) is Consumption (measured in billions of Rupiah)
- \( X_2 \) is Senior High School (measured in units %)
- \( X_3 \) is College Education (measured in units %)
- \( X_4 \) is Income (measured in billions of Rupiah).
- \( X_5 \) is Inflation (measured in units %)
- \( B_0 \) is Konstanta
- \( \beta_1-\beta_4 \) is Koefisien Regresi
- \( \mu \) is Error term

Statistical data in this research is processed by using Eviews 6.0 program which is made specifically to assist data processing while reducing human error, with 95% significance level or \( \alpha \) 0.05. Test of Conformity (Test of Goodness of Fit) is a statistical test to find out how well the regression line explains the data. Data analysis in conformity test is done based on t-test that is an individual test (partial test), F test that tests all over and calculation of determinant coefficient value (R2).

IV. RESULT AND DISCUSSION

A. Analysis Prerequisite Test Results

From the results of the next model, the estimation will be tested in economic analysis, statistical analysis and econometric analysis with the model performed with the model performed with the estimation of multiple linear regression equations (OLS). Regression model must also meet the assumptions of normal classical linear regression models are often referred to as the test of normality or test normality. Test normality for by using the Jarque-Bera (J-B) Test. A model considered Gaussian probability value when J-B count greater than \( \alpha = 0.05 \).
TABLE 2. Normality Test Results

<table>
<thead>
<tr>
<th>Q Kolmogorov-Smirnov</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.125</td>
<td>0.20</td>
</tr>
<tr>
<td>0.25</td>
<td>0.50</td>
</tr>
<tr>
<td>0.50</td>
<td>0.80</td>
</tr>
<tr>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

TABLE 3. Autocorrelation Test Results

<table>
<thead>
<tr>
<th>Breusch-Godfrey Serial Correlation LM Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>2.953657</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Obs*R-squared</th>
<th>Prob. Chi-Square(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.371447</td>
<td>0.0413</td>
</tr>
</tbody>
</table>

TABLE 4. Heteroscedasticity Test Results

<table>
<thead>
<tr>
<th>Breusch-Godfrey Heteroskedasticity Test: Glejser</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>0.361899</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Obs*R-squared</th>
<th>Prob. Chi-Square(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.896810</td>
<td>0.7547</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scaled explained SS</th>
<th>Prob. Chi-Square(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.739459</td>
<td>0.9464</td>
</tr>
</tbody>
</table>

Based on the above table it can be seen that the data are normally distributed. We can see it in the Jarque Bera probability value of 0.584050 which is greater than the error rate of 0.05 (0.584050 > 0.05).

TABLE 3. Heteroscedasticity Test Results

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</table>

The heteroscedasticity test was conducted to find out whether in the regression model there was a variance inequality of the residual one observation to another observation. If the variant of the residual one observation to another observation remains, it is called homoscedasticity and if the variant is not constant or changing it is called heteroscedasticity. The Good regression model is the homoscedasticity or does not occur heteroscedasticity Gujarati (2007). Based on estimation result of Glejser Test value model is 0.7547 bigger than α = 0.05. So it can be concluded this model does not contain Heteroscedasticity.

B. Test Statistics

To get the regression result between dependent variable Consumption (Y) with independent variable Senior High School (X1), College Education (X2), Income (X3), Inflation (X4) processed by using computer program Eviews 6.0 using Ordinary Least Square (OLS) which is shown in the following table:

<table>
<thead>
<tr>
<th>Consumption Model Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>C = 2.154715 + 0.168895<em>SMA + 0.285767</em>PT + 0.186073<em>I - 0.000622</em>INF</td>
</tr>
</tbody>
</table>

From the multiple linear regression equations above, it can be explained as follows:

a. The Constant value of 2.154 which indicate that if a variable of education of senior high school (SMA), college education (PT), income (I), inflation (INF) is 0, then consumption to 2.154.

b. The regression coefficient for senior high school variable (SMA) is 0.168. It means high school education has a positive effect on consumption. Every one increase in the variable of senior high school variable (SMA), then the variable of consumption will decrease by 0.168 assuming another variable remain.

c. The regression coefficient for college education variable (PT) is 0.285. It means college education has a positive effect on consumption. Every one increase in college education variables, then the variable of consumption will rise by 0.285 with the assumption that other variables remain.

d. The regression coefficient for income (I) is 0.186. It means college education has positive influence on consumption. Every one increase in college education variables, then the variable of consumption will rise by 0.186 with the consumption that other variables remain.

e. The regression coefficient for inflation variable (INF) is -0.0006. It means inflation has negative influence on consumption. Every one increase in inflation variables, then the variable of consumption will rise by -0.0006 with the assumption that other variables remain.
From the data analysis results obtained that the real income has a positive and significant influence, this is in accordance with economic theory of consumption functions as proposed by Keynes who put forward a law known as the Psychological Law of Consumption which discusses the behavior of society regarding consumption when connected with the level of income "When income rises, consumption will increase but not as much as income increase". It can be explained that income is a determinant factor of high-low consumption of people but the increase in consumption will not be greater than the increase in income, meaning the additional income is not or not necessarily spent all for consumption for low-income people.

Other studies on consumption such as Nanang and Hadi Irawan (2011), Selfia and Putri (2015), Akekere. J and Youssuo P.O.J (2012), Dian and Ariani (2014) and Cilasum S.M (2009) have identified income, unanticipated shocks, and attitude of consumers and presence of liquidity constraints as important determinations of consumption.

c. The Effect of Inflation on Consumption

In this study, the inflation rate did not have a significant effect on consumption at a coefficient rate of 0.000622, which means inflation contributes to a change or increase in consumption of 0.0006%. This can be interpreted that the inflation change of 1% responded with a change in consumption of 0.0006%. This is not in accordance with economic theory, that economic theory is mentioned that Inflation has a strong relationship where, if the price of goods and services rise and inflation, it will cause a decline in the real value of income so that weaken the purchasing power of people, especially on domestic production so that can have an impact on the decline in public consumption.

The Inflation rate has a negative effect, if the inflation rate increases then it will lead to a decrease in consumption level. This is obviously due to circumstances, where people still have to consume because it must be done to meet the needs that cannot be negotiable, especially for basic needs / basic needs.

3. Goodness of Fit Test

Test coefficient determination (R²) is used to see how big the variation of free variables may explain the variables bound. From the results obtained for consumption estimation value R² of 0.893865. It gives a meaning that 89.38% Consumption variable can be explained by the variable of senior high school, college education, income, and inflation. While the rest of 10.62% is explained by other variables outside the model.

V. RESULT AND DISCUSSION

The results of the study reveal that College Education (PT) and Income (I) have a positive and significant effect on consumption and Senior High School (SMA) and Inflation (INF) have not effect significant to consumption in North Sumatera Province. The policy recommendation of this study is that government should induce private expenditure toward
human capital development which will enhance macroeconomic stability. The consumption income causal relation seems to be almost proportional to the period under investigation with respect to the coefficient of determination, the government needs to increase savings and investment inventories, diversify the economy to improve the service sector. Measures should also be taken to address the high rate of the marginal propensity to import of goods by the household sector. Researchers believe that if savings increase, the economic status will improve, therefore North Sumatera Province needs to adjust their expenditure on imported goods and invest domestically if there must be a change in any unit, the starting point is proper and coordinate strategies in policy implementation.

REFERENCES