Profile of Understanding Layers of Function Derivatives and Folding Back of College Student Prospective Teachers of Mathematics by Gender

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Abstract: This research aimed to describe the profile of understanding layers the concept of the function's derivative and folding back college student prospective teachers of mathematics by gender. This study used a qualitative descriptive approach . The data obtained is validated, then the analysis step-by-step reduction, data presentation, categorization, interpretation and inference. The analysis process is guided to the understanding of the model which hypothesizes Pirie-Kieren owned eight layers understanding . The results showed that there was no difference between the achievement of a layers of the subject of women and man, both of them have an indicator layers of understanding ie; primitive knowing, image making, image having, property noticing, formalising, observing and structuring, then reaching also the first indicator (In1) of inventising layer, and indicators "ask questions about graphs the third-degree polynomial function" that leads to the second indicator (In2) of inventising layer. Based on the indicators of these, both subjects understanding layer ie inventisingoid. But both subjects distinc 10 (ten) items the process of achieving this understanding. Women performed twice folding back the form of "off-topic", and man made that once. Instead of man performed twice folding back the form "working on the deeper layers", both subjects do not perform folding back the form "cause discontinuous".

Key words : *understanding layers, folding back, gender*.

I. INTRODUCTION

Experts and researchers predecessor Dubinsky, as Bruner and Piaget concentrated on the growing of mathematical understanding at an early age, rarely go beyond adolescence. Dubinsky interested in doing research with the same approach and expanded to the topic higher up the subject matter of mathematics for high school and even college. APOS theory has been introduced by Dubinsky (in Tall, 1999), which describes how the mental activity of a student in the form of actions, processes,objects,and schema when constructing mathematical concepts. Pirie-Kieren (1994) has provided a theoretical framework of eight levels (layers) understanding, that primitive knowing, image making, image having, property noticing, formalizing, observing, structuring, inventising [1]. This theory also introduces folding back, namely the return of the next layer of the previous understanding to advance to the next layer of understanding.

Authors interested in the profile of understanding of College Student Prospective Teachers of Mathematics guided Pirie-Kieren model, with material derivatived function. In connection with the above description, the proposed research questions: How is the profile layers of understanding the concept of the derivative function and folding back woman and man of College Student Prospective Teachers of Mathematics? The research objective was to describe the profile layers of understanding the concept of the derivative function and folding back woman and man of College Student Prospective Teachers of Mathematics

A. *Understanding of Concept*

Skemp (1976) identified two forms of understanding, namely relational and instrumental. Relational understanding is defined as knowing what to do and why [2]. Relational understanding is the ability to draw conclusions on the specific rules into mathematical relationships are more common. Meanwhile instrumental understanding defined as the ability to apply an appropriate remembered rule to the solution of a problem without knowing why the rule works. So this is an instrumental understanding of students' ability to learn by rote. The later period Skemp (1987) distinguishes between "to understand something" with "understanding"[3]. Understanding associated with the ability, while understanding something associated with assimilation and an apropirate scheme. Scheme is a group of concepts that are connected, each concept is formed of abstraction invariant properties of sensory input the motor or other concepts. The relationship between these concepts are linked by a relation or transformation. Furthermore Skemp (1987) states that the scheme is used not only when the student has previous experience related to the present situation, but also when solving problems without having the experience of the present situation. For example, students understand the concept of extreme points of polynomial functions when he already has a scheme in the form of a bunch of concepts, including the completion of the equation, the definition of the derivative function, the properties of the derivative function, derivative of polynomial functions are mutually related.

According Mousley (2005) there are three models of mathematical understanding, that understanding as structured progress, understanding as forms of knowing and understanding things as a process [4]. Understanding as structured progress illustrates that growth in understanding who follow the trend of constructivism, namely the process of constructing knowledge from basic to higher level. Piaget (in Mousley, 2005) describes the development of an understanding as a growing awareness of the relationship, experimental thinking, internalization of action involving a motor sensory activity and aims to construct objects [4]. Furthermore, Maslow (in Mousley, 2005) states that understanding as forms of knowing, understanding that distinguish the two forms of scientific understanding and suchness [4]. Scientific understanding is rational mind derived from authentic explanation, while the suchness understanding depends on contextual experience. For example, elementary school children understand the commutativity of summation original number when he observed and merge 2 with 3 marbles marbles, which was the same as the surviving 3 2 marbles marbles with which the result is 5 marbles.

Pegg & Tall (2005) identified two types of theory of cognitive growth, namely 1) the theory of global growth in the long term (global theory of longterm growth) individuals, such as the theory of stages of cognitive development of Piaget, and 2) the theory of local growth such conceptual theory APOS (action, processes, objects, schema) of Dubinsky [5]. Reach a global theory starts from the physical interaction of the individual with the world around you, and then to use the language and symbols toward abstract form. In this case Pegg and Tall (2005) also juxtaposing four theories of cognitive development; 1) stages of sensory motors, preoperational, concrete operational and formal operational from Piaget, 2) the level of recognition, analysis, sequence, deduction and rigor of the Van Hiele, 3) sensory motor, the iconic, concrete, symbolic, formal and post-formal of Model SOLO and 4) enactive, iconic and symbolic of Bruner [5]. Local theory focused on the basic cycle of growth in learning a concept. For example; a) the model SOLO cycle focused on three levels (UMR) is unistructural (U), multistructural (M), and relational (R). SOLO model application contains at least two cycles of the minimum wage in each model. The response rate of R in one growing cycle for the response rate of the new U in the next cycle. According Susiswo (2014), it became a base for exploring the concepts acquired and also explains the cognitive development of students.

Cycle two offer types of development that focus mainly on primary and secondary school. Furthermore, according to Pegg & Tall (2005) theory other locales is b) procedures, integrated processes and entities of Davis, c) APOS of Dubinsky, d) interiorisasi, condensation and reification of sfard, and e) the procedures, processes and prosep of Gray & Tall , Pegg & Tall (2005) also reconcile the following four local theory [5]. APOS theory of Dubinsky can also be compared with the theoretical understanding of the four levels of Herscovics & Bergeron (1983), namely intuition, procedural, physical logico and formalization. In this case the action begins with the APOS proceed with the procedure, while Herscovics & Bergeron started with intuition, followed by procedural. The third stage APOS somewhat different objects with physical logico prominent physical action, but in the end the scheme APOS very close to the intended formalization Herscovics & Bergeron [6].

Based on the opinion of experts that has been described, it can be said that the understanding of the mathematical concept of a student is the ability to perform mental activities in the form of actions, processes, objects, and scheme when constructing the concept as well as the ability to memorize and draw conclusions from specific rules into mathematical relationships are more common.

B. *Abstraction, construction, representation and understanding*

According to Bruner (in Tall, 1996) there are three forms of mental representation, namely enactive, iconic and symbolic. Representations grew sequentially in the individual, ranging from enaktif, then finally iconic and symbolic. This symbolic representation has its own strengths are then less dependent on enactive and iconic representations. Piaget (in Dubinsky, 2002) also develops the theory of acquisition or construction similar to Bruner, which he called the theory of abstraction. Piaget's theory distinguishes three kinds of abstraction that is empirical, pseudo-empirical and reflective. The first abstraction that is empirically obtained knowledge of the properties of the object. Dubinsky (2002) interpreted through empirical abstraction, the individual must take action that is external to the object.
. Knowledge of the properties themselves are internal and are the result of construction created internally as well. Second abstraction is pseudo-empirical described by Piaget (in Dubinsky, 2002) as follows: "pseudo-empirical abstraction is intermediate between empirical and reflective abstraction and teases out the properties that the actions of the subject have introduced into objects". So in pseudo-empirical abstraction subject's actions have started to lead to interest in the properties owned by the object. Furthermore, according to Dubinsky (2002), reflective abstraction is a concept introduced by Piaget to describe the development of logico-mathematical structure by an individual during cognitive development. Two important observations were made by Piaget is the first abstraction reflective not have absolute beginning but was present at a very early age in the coordination structure sensory-motor (Beth & Piaget, 1966 Dubinsky, 2002) and second, that abstraction was continuously evolved through mathematical higher. As far as the whole history of the development of mathematics from ancient times to the present can be considered as an example of the process of reflective abstraction (Piaget, 1985 in Dubinsky, 2002).

Bruner and Piaget in most of his own work concentrates on the development of mathematical knowledge at an early age, rarely go beyond adolescence, however Dubinsky interested in doing research with the same approach and expanded to the topic higher up the subject matter of mathematics for high school and even college. When it Dubinsky see possibilities, not only to discuss and suspect, but to provide evidence to show that concepts such as mathematical induction, propositions and predicate calculus, functions as objects and processes, linear independence, duality vector spaces, topology, and even category theory can be analyzed in terms of renewal or extension of the same idea as that of Piaget, is used to describe a child's construction of concepts such as arithmetic, proportion, and simple measurements (Dubinsky, 2001).

APOS theory has been introduced by Dubinsky (in Tall, 1999), which describes how the mental activity of a student in the form of actions, processes, objects, and scheme when constructing mathematical concepts. According to this APOS theory, a student can construct a mathematical concept well when he suffered the actions, processes, objects, and has a scheme. A child is said to have performed an action, if the child is to concentrate in an effort to understand the mathematical concepts that it faces. A student said to have had a process, if thinking is limited to a mathematical concept that it faces and is characterized by the emergence of the ability to discuss the mathematical concept. Furthermore, the students said to have had the object, if he had been able to explain the properties of mathematical concepts. Finally, students are said to have had a scheme, if he had been able to construct examples of mathematical concepts in accordance with the requirements specified.

Representation is a model or a substitute form of a problem situation that is used to find a solution. For example, a problem can be represented with objects, pictures, words, or symbols math (Jones & Knuth, 1991). There are four ideas that are used in understanding the concept of representation, namely: 1) representation can be seen as an internal abstraction of mathematical ideas or cognitive schemata constructed by students through the experience; 2) as a mental reproduction of previous mental state; 3) as a grain structurally through images, symbols or emblems; 4) as the knowledge of something that represents something else. Representation is a process of mental development which is already owned by someone, who revealed and visualized in a variety of mathematical models, namely: verbal, pictures, concrete objects, tables, models manipulative or a combination thereof (Steffe, Weigel, Schultz, Waters, Joijner & Reijs in Hudojo , 2002: 47). Cai, Lane, and Jacabcsin (1996) states that a mode of representation that is often used in communicating mathematics include: tables, images, graphics, mathematical statements, written text, or a combination of all of them [7]. Hiebert & Carpenter (in Hudojo, 2002) suggests that it is basically a representation can be divided into two forms, internal representation and external representation. Thinking about mathematical ideas which are then communicated require external representation of his form, among others: verbal, pictures and concrete objects. Thinking about mathematical ideas that allows a person's mind works on the basis of the idea is the internal representation [8].

C. *Understanding Layers of Pirie-Kieren's Model and Folding back*

Pirie-Kieren (1994) has provided a theoretical framework of eight levels (layers) understanding, that primitive knowing, image making, image having, property noticing, formalizing, observing, structuring, and inventising. This theory states that "understanding does not necessarily grow linearly and continuously [1]. Someone often back to the previous layer of understanding to further advance to the next level of understanding, that activity namely folding back. At first Pirie-Kieren (1994) describes the indicator layer upon layer of that understanding. The first layer understanding namely primitive knowing is the initial efforts made by the students in understanding the new definition, bring previous knowledge to the next layer of understanding through action that involves the definition or definitions represents [1]. The second layer of understanding namely image making is a stage in which students create an understanding of prior knowledge and use it in new knowledge [1]. The third layer of understanding namely image having is the stages where students already have an idea about a topic and make a mental picture on the subject without having to work examples [1]. The fourth layer of understanding namely property noticing is a stage in which students are able to combine aspects of a topic to form specific to the nature of the subject [1]. The fifth layer of understanding namely formalizing is the stage where students create an abstract mathematical concept based on the properties that appear [1]. Students are able to understand a concept definition or formal mathematical algorithm (Parameswaran, 2010). The sixth layer of understanding namely observing is a stage where the students coordinate formal activity on formalizing level so as to use them on issues related to the faces [1], students are also able to link the understanding of math concepts he has with the new knowledge structures [9]. Seventh layer of understanding namely structuring. is the phase where the students were able to link the relationship between the theorems of the theorems other and being able to prove it with logical arguments [1]. Students are also able to prove the connection between one and the other theorems axiomatically [1]. Inventising eighth layer of understanding is a stage where students have a complete understanding of structured and able to create new questions that grow into a new concept [1]. Mathematical understanding of students is unlimited and beyond the existing structures so as to answer the question "what if?" (Meel, 2005).

The linkage between APOS of Dubinsky and Pirie-Kieren theory of knowledge can be presented below; Action is similar with Primitive knowing and Image making, Process is similar with Image having and Property noticing, Object is similar with Formalizing and Observing. And Scheme is similar with Structuring and Inventising.

Furthermore, according to Piere-Kieren (1994), although understanding the concept of someone grow from the innermost layer (primitive knowing) toward the outermost layer (inventising), but there are times when a person back into the deeper layers when facing problems. The activity what the person back into the deeper layers is called folding back. According to Martin (2008) and Susiswo (2014) there are four possibilities the form folding back, that; "working on deeper layers", "collect the deeper layers", "off-topic", and "causing discontinuous". Subjects experienced a folding back the first form of "work on the deeper layers" occurred due to the limitations of understanding that exist in the outer layer so that the subject back to the deeper layers without exiting the topic and work there use of existing knowledge. Subjects experienced a folding back the second form of "collecting layer deeper" when the subject tried to get prior knowledge for a specific purpose by reading in a new way. Subjects experienced a folding back a third form that is "off-topic" when it occurred, where subjects experienced a folding back to primitive knowing and working on the expansion of other topics effectively but separate to the main topic. Subjects experienced a folding back the fourth form is "causing discontinuous" occurs when the subject returned to the deeper layers, but not related with the understanding that there is, in this process occurs, where the subject can not look at the relevance or connection between pemahamnnya existing with new activity or problem that is being done. Thus the growth of understanding referred to by Piere-Kieren is not linear. In connection with that, no folding back is successfully expanding knowledge, and conversely there are folding back ineffective broaden understanding of the subject. Ativity what pullback of the outer layer into the deeper layers, then advanced to the possibility of turning outer layer, can be described in the form of "folding back path".

About gender, according the results of research by Iswahyudi (2012), at any stage Polya problem solving, students are capable of high mathematics, both males and females have very complete keterlaksanaan metacognition. But the level of completeness of metacognitive activity of male students is higher than women. According Radua et al (2010) part of the male brain called the inferior parietal lobule greater than in women. This makes men more capable in the field of mathematical compared to women. Based on the results of research conducted by TIMMS mention that to solve the problems of spatial given to groups of men and groups of women there is a difference in the process of answering the questions. Groups of men rely on spatial strategies when solving mental rotation task, while the women's groups tend mengandakan verbal strategies to accomplish the same task. In the next test groups of women using verbal skills to spatial visualization same tests rely on mathematical instructions to complete visual image (Asmaningtyas: 2010).

III. METHODs

This type of research is qualitative, because the data obtained through the observation of the subject's behavior that produces descriptive data in the form of oral, written and other actions. Qualitative research to further highlight the process and meaning in the perspective of the subject. Therefore, the researcher's presence serves as an instrument at the same interpreter. The process and the data obtained will be meaningful when processed and analyzed by the researchers. Applied research approach is descriptive because it aims to explore and describe the profile of understanding of student teachers. Auxiliary instrument used is a matter of Task Layers of Understanding Concept (TLPK) following: "Given function equation $f(x) = 2x^3 – 3x^2 + 2$, where $-2 \le x \le 3$;

a) Find the first derivative and second derivative of the function*f*,

b) Determine the interval up and intervals down the graph of the function *f*,

c) Determine the maximum point and the minimum function *f*,

d) Determine the inflection point of graphs of functions *f*,

e) Describe the graph of the function *f*.

This matter was given to the subject to be done, then do an interview based on the worksheet, the data obtained in the form of a worksheet at the interview and the interviews were transcribed, once validated the data is analyzed. Researcher became the main instrument in data collection and analysis, as the researcher's presence can not be delegated to others, researcher must collect data through task-based interviews, check the validity of the data obtained, categorize or classify, reduce, presenting and interpreting the data to draw conclusions. The research reveals profile layers of understanding the concept of derivative function student prospective teachers of mathematics. The concept of the derivative function is limited in terms of functions, formulas derived basic functions, derivative of polynomial functions, determine the extreme points of functions, graphs the polynomial functions. Profile of understanding layers explore with guided the model of understanding Piere-Kieren (1994), which has developed some cognitive psychology experts and researchers, also referring to a form of folding back the recommended and used by Martin (2008) and Susiswo (2014). Indicators the layer of understanding and folding back have been studied and have been compiled and tabulated and adapted to be prepared for an interview about the deepening of the subject. When compared with the characteristics of qualitative research is meant by Moleong (2010), this study qualifies as qualitative research, because the first: study the profile layer of understanding of the derivative function which is an important part of community life (student propective teachers) and in real world conditions, the second: representing the views and aspirations of the people (especially student teachers), the third: includes the contextual conditions that students study program Mathematics Education have passed the courses Calculus I, fourth: to give insight into who's understanding of the concept of the derivative function existing students that help explain human social behavior (especially student teachers), and a fifth, using more than one source of evidence, the data is written, the data verbally, the action of the data subject and documentation.

IV. RESULT AND DISCUSSION

Problem TLPK has been done by the subject of women and men elected from the student prospective teachers of mathematics were interviewed based TLPK and worksheets, then the data obtained in the form of a worksheet at the interview and the transcript of the interview.

A. Understanding Layers

Data indicator of understanding of each subject are as follows:

TABLE I
INDICATORS OF UNDERSTANDING LAYERS OF FUNCTION DERIVATIVES BY THE SUBJECT WOMEN AND MAN

Indicator	Concept Understanding
Conducting an initial effort to understand the new definition (PK1)	specify in writing the first derivatives of function $f(x)$ LJ1b001 namely LJ1b003, specify in writing derivatives the function $f(x)$ LJ1b001 namely LJ1b005
Bringing knowledge prior to the next layer of understanding (PK2)	stated orally that he wrote on LJ1b002 and LJ1b002 is the first derivative of the function $f(x)$ LJ1b001, Giving reasons why write LJ1b003 as a derivative of LJ1b001 Giving reasons why write LJ1b005 as the second derivative of LJ1b001
Doing business through the action involving the definition or definitions represents (Pk3)	Write understanding of the derivative function formula in the form of limit LJW1b003 Explained orally in the form of understanding the derivative function limit formula
Make a picture based on previous knowledge (Ik1)	Separating the function $f(x)$ given to three functions by tribe Writing out the application form of the derivative function limit sense to look for a third derivative function
Develop certain ideas (Im2)	Outlining the square shape of the two parts to the process of proving derivative polynomial function rank two Describe the shape of the cube of the two parts to the process of proving derivative polynomial function rank three
Creating an image of a concept through pictures or through examples (Im3)	Applying the formula to prove that the terms of the derivative of the first derivative $-3x^2$ is $-6x$, Outlining the limit function in the process of proving the derivative function of the square Applying the formula to prove that the terms of the derivative first derivative of the $2x^3$ is $6x^2$. Outlining the limit function in the process of proving the derivative function of the cube
Having an idea about a topic (Ih1)	Explaining the formula to be applied when searching for the derivative function consisting of several tribes Describe the shape of the rank-n limit of the binomial $(x+h)^n$ for proving process derivative polynomial function $f(x) = x^n$
Make a mental picture of a topic without having to work examples (Ih2)	Explain verbally stripped limit function so it is evident that the first derivative of the function $f(x) = x^n$ is $f'(x) = x^{n-1}$ Verbally explain the number of function derivative formula
Being able to combine aspects of a topic relevant to establish the nature and specific (Pn1)	Combines nature limit the number of functions with a sense of the derivative function formula to form a number of function derivative formula Combines nature limit the number of functions with the derivative function formula of understanding to form a polynomial function derivatives of general formula
Being able to combine aspects of a topic to establish the nature Recognizing similarities and differences varied overview of a topic and develop it into a definition of the concept which was built between these images (Pn2)	Explaining the similarities and differences between the application of the derivative of formula understanding the single rate polynomial function of degree two, three and degree of degree n (the original), as well as its relationship with the formula derived number of functions, thus forming derivatives of general formula polynomial function, Explaining the relationship between function rises with the first derivative of a function, and apply it to determine the function interval ride, Explaining the relationship between the function down to the first derivative of a function, and apply it to determine the interval function down
Creating a mathematical abstraction of a concept based on the properties that appear (Fo1)	Write and explain the formula understanding of the derivative function Write and explain the formula derived number of functions Write down and explain the general formula derived polynomial functions Write down and explain the terms function up and down, Write down and explain the terms function reaches its maximum / minimum, Write down and explain the terms function reaches an inflection point,
Indicator	**Concept Understanding**
Being able to understand a formal definition or algorithms of mathematical concepts (Fo2)	Write and explain the formula understanding of the derivative function Write down and explain the process of finding a formula derived number of functions Write down and explain the process of finding a polynomial function derivatives of general formula
Able to coordinate the formal activities at previous levels so as to use them on related issues (Ob1)	Explaining langakah- steps describe a curve of third-degree polynomial functions given, Establish a table of important points that are used to draw the curve of a third-degree polynomial function, Describing the third-degree polynomial curve based information points that have been compiled in the table Evaluate the graph paints by tracing the curve, pointing to the important points and direction of concavity
Being able to link the understanding of math concepts with new knowledge structures (Ob2)	Graphs the various types of third-degree polynomial function, Find different types of third-degree polynomial Graphs the various types of fourth-degree polynomial function, Find different types of fourth-degree polynomial
Being able to make a formal statement of a mathematical concept (Ob3)	Describing the properties of a third-degree polynomial function chart Describing the properties of fourth-degree polynomial function chart
Being able to look for a pattern to determine an algorithm or a theorem (Ob4)	Finding patterns derived formulas proving the number of functions Finding patterns to describe the third-degree polynomial function graph is given, Finding patterns to describe the different types of graphs third-degree polynomial function Finding patterns to describe the different types of charts fourth-degree polynomial function Explains the pros and cons draw the graph polynomial functions by means of the application without the application of derivative and derivative
Capable of establishing a link between a theorem with other theorem and able to prove it by logical arguments (St1)	Outlined steps procedure graphs the third-degree polynomial function with logical arguments, Proving formulas derived basis functions with logical arguments, Outlined steps procedure graphs the fourth-degree polynomial function with logical arguments
Being able to prove the relationship between a theorem with other theorem	explain the evidentiary nature of the polynomial that has the most extreme value in relation to the formula derived polynomial functions,

axiomatically (St2)	explain the relationship between the amount of the derivative function of proof formula to the derivative polynomial functions
Having a complete understanding of structured (In 1)	describe the steps and the reason logically describe various types of third-degree polynomial function graphs and explanations of the properties, existing algorithms in the process; describe the steps and the reason logically describe different types of fourth-degree polynomial function graphs and explanations of the properties, the algorithm is in the process
Being able to create new questions that can grow into a new concept (In2)	Make inquiries about the form of graphs the third-degree polynomial function without the application of derivative

Based on Table 1, it appears that the subject of women and men to have indicators of understanding the primitive knowing layer, image making, image having, property noticing, formalising, observing and structuring. Furthermore, on the last layer of the eighth inventising, two subjects only reached the first indicator, coupled with the ability to "leave the question of graphs the third-degree polynomial function that will be given to students" that leads to the second indicator. While the third indicator in this layer is not achieved by the subject. So that both subjects can be put in a category layer undersstanding namely inventisingoid. Figure of layers understanding the concept of the derivative function subject of women and men are as follows:

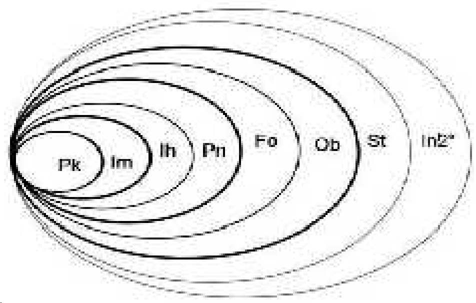

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Figure 1 Understanding Layers of Subject Women and Men

Differences in the two subjects occurred in 10 (ten) item indicators process of achieving understanding, including; female subjects before graphs begins by writing the equation determining intersections, then the sign test intervals, followed by drawing a graph. Instead the male subject is sometimes preceded by drawing a graph, write down the equation, then proceed with the determination of intersections and sign test intervals to assure the truth of the image graph. Other differences, before portraying the graph of the function $f(x)$ a polynomial of degree three, not trying to find the point of maximum/ minimum karean have first concludes that finding a solution to the equation $f'(x)$ is difficult, so does the sign test each interval without applying derivative. While the male subjects, before portraying the graph of the function $f(x) = (x-1)(x-2)(x-3)x$ cultivated define intervals up and the point of maximum / minimum with menyelesaian inequality $f'(x) > 0$ and $f'(x) < 0$, also the equation $f'(x) = 0$. Because the roots of the discovery of irrational, concludes that it is difficult to determine the breaking point. making it easier to describe by way of pins each test interval.

B. *Folding Back Performed by Subject Women and Men*

Women subjects made two folding back the form of "off-topic", while the men subjects to do this once. Women subjects did not perform folding back the form of "work on the deeper layers", while the men subject did it twice. Both subjects did not folding back form the "cause discontinuous".
One folding back the form of "off-topic". Women subjects to those of "explaining the properties of graphs of functions polynomial of degree four (Ob3)" to "finish the topic of the equation $f'(x) = 0$ to determine the point of maximum/ minimum (Pk3)", and "off-topic" to "the roots of polynomial equations", then turned forward to Pk3, continues to Ob3 and continues to the outer layer. Figure 3 is the path folding back the form "off-topic"

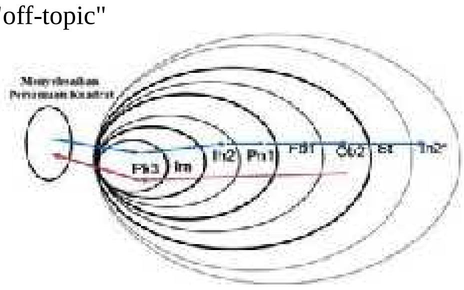

Fig. 3 Folding back Path the form "off topic" by Subject Men

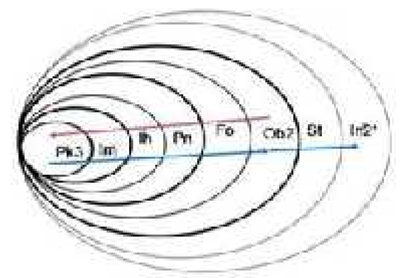

Fig. 4 Folding back Path the form "working on the deeper layers" by Subject Men

One Folding back the form of "work on the deeper layers" The second is from the "draw the graph polynomial functions degrees of the first four (Ob2)" to "resolve the inequality $f'(x) > 0$ and $f'(x) < 0$ for determining interval function up and down (Pk3) ", back to the Ok2 and continues to the outer layer. Figure 3 is that folding back the path the form "working on the deeper layers".

V. CONCLUTION

Conclution

a. The results data analyzed showed that there was no difference between the achievement of a layers of the subject of women and men, both of them have an indicator layers of understanding ie; primitive knowing, image making, image having, property noticing, formalising, observing and structuring, then reaching also the first indicator (In1) of inventising layer, and indicators "ask questions about graphs the third-degree polynomial function" that leads to the second indicator (In2) of inventising layer. Based on the indicators of these, both subjects understanding layer ie inventisingoid.
b. Women subjects made two folding back the form of "off-topic", and the subject of men done this once. Instead of men subjects performed two folding back the form of "work on the deeper layers", woman subjects did not. Meanwhile both the subject do not perform folding back form the "cause discontinuous".

Recomendation

a. The research was conducted on subjek.yang have passed the courses Calculus I (which contains materials derived the concept of function). Further research needs to be done on the same subject when they have completed the lecture, and immediately worked as a teacher of mathematics.
b. Further research needs to be done about folding back based on various characteristics of other subjects.

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