Non-graded Education:
Recognition of Individual Differences

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Abstract: The objective of this research is to develop a non-graded education models in this model, the curriculum materials are adapted into sequentially arranged materials. Students are grouped on the bases of Reviews their ages, it is possible to have a variety of learning materials and a variety of learning activities within one classroom at the same time. An individual is mastery learning approach is implemented. The location of research was in the town of Surakarta. The initial activity was adapting the existing curriculum materials into sequential learning units. The non ~ graded model was tried out in grade 1 of SO Al Firdaus with 62 students (parallel classes). Research results indicate: i) The initial levels of competence of students in a classroom are heterogeneous. 2) In terms of language and sequence of materials, the adapted curriculum package was rated as excellent, but in appropriateness to the levels of development, a few materials for the lower grades need to be revised. 3) Teachers and parents Agreed on the heterogeneity of classes in schools, but disagreed on the feasibility of multilevel curriculum materials and multi-modality of learning. The two groups Also Agreed on the low competence of teachers in teaching non-graded classrooms. 4) After one year in progress, the non-graded models Showed beneficial for fast and slow learners.

Keyword: non-graded, inclusive, progressive, open education.

Introductory

classes in schools in Indonesia actually a heterogeneous class, but the difference is less individual attention in learning system used. In one survey in one area in Surakarta, among students who go up to grade 2 elementary school,

the number of students who received the original score of four or less than four on replay summative reached 13% for mathematics and 11% for Indonesian. In fact, they took the class because it meets the criteria increases based on the average score of all subjects. In grade 2, they will start with to the same subject matter. Further impacts of learning that do not pay attention to individual differences is the potential for superior children do not develop optimally, by contrast, children who lasted also not getting adequate guidance.[1]

In 1962, *the National Society for the Study of Education* focused its yearbook publishing a special review of individual differences that may be regarded as the most comprehensive review first.[2] Individual differences can be seen from the results of standardized tests. In children of preschool age, individual differences can be found at terms of physical development, motor behavior, the behavior of the intellectual, emotional and social behavior. Among adolescents aged children found differences between the others in terms of their physical, intellectual functioning, and personality. Among college students found differences in terms of academic potential ability, social background, attitudes, values, interests, and motivations. Except that, also found differences in individual INTAR. For example, 10% of children including the best in reading skills maybe only have the mathematical ability is average or even below average.

Theory basis

Peterson states two-dimensional individual differences are closely associated with the field of education, namely intelligence and personality. Intelligence is generally defined as a score of a person on intelligence tests,

[1] Sunardi, *Absorption Materials Curriculum Grade 1 SD* (Unpublished Research Report, 2002).

[2] NB Henry, *individualizing Instruction: The Sixty-First Yearbook Of The NSSE* (Chicago, the NSSE, 1962).

covering broad aspects, from general knowledge to *verbal - reasoning* intelligence or general have long been of interest to educators because of their close relationship with the learning outcomes, although nobody knows where the cause and which consequently ,[3] As stated by Tyler, the higher the level of intelligence of the child, the higher the study results, the length of schooling, and more positive attitude toward school; but it is also true that more schooling tend to increase the capability generally.[4]

The second dimension of individual differences is a personality also attracted a lot of attention psychologists to study. Psychologists try to measure one's personality in social situations to measure character. Coverage tests among others, include depression, masculinity*(masculinity*-feminity),social introversion, sociability, responsibility, tolerance, flexibility, and so on.[5] Among the various personality traits that are often studied by psychologists, there are two characters that have a closely linked with learning at school, that is the type of cognitive*(cognitiveor learning*styles)and the control center*(locusof*control).

Cognitive Type is a characteristic way of someone organize and process information or experience.[6] Cognitive types are often classified into four dimensions, namely between *field dependence* to *independence* ield,between *cognitivecomplexity* with *cognitivesimplicity,*the type refrektif with impulsive and nervous modality choice in receiving information. Research has shown that cognitive lipe very important in the learning process.[7]

The control center is the way children understand the causes of success and failure. The control center is generally divided into external and internal.

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3 PL Peterson, *Individual Differences* in Mitzet HE, *The Encyclopedia Of Educational Research* (New York: Free Press).

4 LE Tyler, *Individual Differences: Abilities And Motivational Direction* (Englewood Cliffs: Prentice Hall, 1974).

5 PL Peterson, *Individual Differences.*

6 S. Messick, *Individuality In Learning* (San Francisco: Jossey-Bass, 1976).

7 PL Peterson, *Individual Differences.*

Children who have more external control centers tend to believe that success or failure is caused by external factors, such as chance, luck, help teachers, or tasks that are too easy or too difficult. In contrast, children with type internal control center more inclined to believe that the causes of success and failure are internal factors in him, such as ability or effort .. And much of this research, comes the term *learned*helplessness,the feeling that the failure is caused by low skill levels, and feeling that success was due to external factors such as the help of others or how easy matter. Since both the causes (internal and external) are outside the control of the child, if the characteristics of *helpness learned* thisin a child, then the child will not want to try.[8]

The educational model that takes into account individual differences in fact have started to be developed in the twentieth century. In *the Dalton Plan* is quite popular in the 1920s in the United States, Europe, and the Soviet Union, for instance, the education program is divided into two, namely academic programs and professional programs. The materials are arranged sequentially academic program, and students learn at a pace individually according to his ability. [9] In the professional program, all children learn together. Another concept, *the Winnetka Plan* developed by Professor Winnetka from the City University of Ne w York in the 1920s, allowing students to learn at their own pace for subjects of reading, writing, arithmetic in the morning, then work in groups to social sciences, sports, or creativity in the afternoon.[10] At the same time, influenced by the views of Dewey, Kilpatrick develop *the Project Method* which emphasizes problem solving and the freedom of students. In contrast to conventional school material, the subject matter in the form of troubleshooting

[8] MY Convington and RG Berry, *Self Worth And School Learning* (New York: Holt, Rinehart and Winston, 1976).

[9] JR Lawry, *The Dalton Plan* in MJ Dunkin, *The International Encyclopedia Of Teaching And Teacher Education* (Oxford: Pergamon, 1987), 214-219.

[10] JR Lawry, *The Winnetka Scheme* in MJ Dunkin, *The International Encyclopedia,* 216-217.

(more functional), and students have the freedom to choose the issues to be studied.[11]

Walberg suggests a taxonomy of learning services psychological model that takes into account individual differences, consists of seven models, the selection, enrichment, acceleration, hierarchical diagnostics, diagnostic random, multimodal, and multivalent. Taxonomy Walberg is simplified by Rohwer, Rohwer, and Bhowe into four simple models, namely the selection of, remediation, diversification of learning and learning with the aim of diversifying the double.[12]

Except for the above models, actual many models have the same basic assumptions and utarna characteristics, such as *open education, progressive education, free education, open space education, integrated da*y *plan,*or *an alternative*school.These models have characteristics include 1) the participation of children dalarn goal setting; 2) variations in the curriculum, learning activities, and media; 3) use of space and equipment flexibly; 4) freedom of children chose the task of teachers; 5) schedule is not rigid; 6) individual learning in the form of small groups, each child forward at its own pace, the child can choose the method belajamya; 7) multi-class and multi abi age-ladies; 8) as a resource teacher, counselor, diagnosis; 9) less widely utilize conventional tests, many take advantage of teacher's notes, evaluation aims to steer students, a lot of self-evaluation by the students; and 10) the role of children in a classroom setting rules. [13]

Based on the results of several meta-analyzes conducted by Horwitz 1979, Peterson 1979, and Hedges and Giaconia 1987, the educational model that takes into account individual differences is superior to the traditional

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11 JR Lawry, *The Project Method* dalam MJ Dunkin, *The International Encyclopedia*, 217-219.

12 HJ Walberg, *Psycology Theories Of Educational Individualization* dalam H. Talmage*, System Of Individualized Education* (Barkeley: Mc Cuthen, 1975).

13 RM Glaconia, *Open Versus Formal Methods* dalam MJ Dunki, *The International Encyclopedia,* 246-257.

teaching model, especially in the non-academic aspects such as attitude and behavior of children. In terms of academic skills (reading, writing, arithmetic), Scottish average is no different, but the range of scores showed the superiority of non-traditional classes.[14]

One review of the effectiveness of innovative learning model (open) has been done by Horwitz with the characteristics of flexibility in where to study, student selection on PBM, rich learning materials, and learning more individual or small group, not classical. From the research between 1930 until the 1940s, it is known that in terms of the ability akade-mik subjects, open learning is not lower than traditional learning; but there are all featured the students' initiative, problem-solving skills, general knowledge about the world, and the participation of social,. Of the 102 pieces of research between the 1950s until the 1960s that direviu, the results vary both in terms of academic willing-even nonakademik.[15]

In a review of Lloyd distinguish various terminilogi for non-traditional learning, such as the mixed class, the class of multi-level, multi-age class, nongradasi class, family class and open education. Mixed class is a class that consists of two or three groups of levels, but each level is treated as a separate class.[16]

Multi-level classes such actual mixed classes, but consists of more than three in the space to the same level. In the multi-age classroom, children of different ages in the same class with different teaching programs according to class level. Darhinak nongradasi class consisting of various ages, the difference, here each child is considered as part of that class, not part of a certain level,

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14 RM Glaconia, *Open Versus Formal Methods* dalam MJ Dunki, *The International Encyclopedia,* 257.

15 RA Horwitz, "Psycological Effects Of The Open Classroom", *Review Of Educational Research,*Vol. 49, No. 1, 71-86.

16 L. Lloyd, "Multiage Classes And High ABlility Students", *Review Of Educational Journal Research*, Vol. 69, No. 2, pp, 187-212.

progress depends on the progress and potential in-dividu children. Outdoor Education backs possess the same philosophical foundation with nongradasi class, as well as the implementation of learning, but a greater emphasis is given to the openness and freedom of children. In one reviews the truth is focused on the impact of open education gifted children, Lloyd cites a review of the results of previous studies conducted by Slavin in 1987, by Rogers in 1991, by Kulik and Kulik 1991, Lou, Abrami, Spence, Poulsen , Chambers, and d'Apollonia in 1996, and Veenman in 1995. by-kan results of several hundred pieces of pene-Litian largely reviewed with the meta-analysis techniques, can disirnpulkan that open or nongradasi class does not harm children's academic achievement talented, even these classes has advantages such as keman-dirian nonacademic, socialization, self-esteem, keterbuka's, cooperation, attitude toward school, and motivation. For children excel, even recommended to avoid 'grouped in homogeneous classes, because academic disadvantage.[17]

The purpose of this study was to develop a model of education that takes into account individual differences in Indonesia, called nongradasi models are expected to be used as learning models existing penyempumaan. By learning models based on individual differences, high caliber child-kinkan dirnung-tance finish early pension program more quickly, on the contrary, children are included later can obtain individual guidance according to their needs.

Nongradasi developed educational model derived from the concept of *the Winnetka Plan* that basically rnengizinkan child to learn to pace themselves cent on subjects hierarchical, ie reading, writing, and arithmetic. By Rohwer, Rohwer, and Bhowe, this model is called diversification of learning. This model is considered suitable to be developed at the level of basic education in Indonesia for their demands to the same core kurikuhnn typically uses. Teachers no longer have to adapt the curriculum, which is an adaptation of

[17] L. Lloyd, "Multiage Classes And High ABlility Students", 212.

learning diperIukan speed sespai with children.[18]

Methods

This study included research and development located in the city of Surakarta. Penelilian activity begins with mapping the competence grade 1 primary school to see the level of achievement of competence. Mapping is done individually by teachers, by providing a check on the principal that has been mastered by children. At the same time, activities will adapt curriculum materials all basic school subjects (minus the religion) into packets nongradasi curriculum involves four core teachers for seliap kecarnatan level subjects. Adaptation of the curriculum materials validated by language experts and two experts each substance to seliap subjects. by looking at the following aspects: 1) clarity (accuracy) language; 2) the accuracy of the order maleri; and 3) compliance with the developmental level of students (the level of difficulty, interest). For each category, the reviewers were asked to provide an evaluation by the range of 1) very bad; 2) bad; 3) sufficient; 4) good; and 4) very good. The results are presented in a descriptive review.

Adaptation package then tested in the 1st grade Al Firdaus by the number of students 62 people. SD was chosen because the courage to hold the innovation foundation. To determine the response of teachers and parents towards education model nongradasi, used a Likert scale developed by the research team. The scale consists of 28 items developed statement of 6 (six) indicator responses to nongradasi education, namely: 1) the diversity of the characteristics of learners in the classroom; 2) the diversity of learning materials; 3). diversity of teaching and learning activities; 4) diversity assessment; 5) increase of the classroom; and 6) the ability to handle heterogeneous classes. Most items in the form of positive statements, some negative. The respondents

[18] JR Lawry, *The Winnetka Scheme* dalam MJ Dunkin, *The International Encyclopedia.*

submit its response to each statement by choosing among four choices: strongly disagree 1), disagree 2) Disagree 3), and very amenable 4). Their responses can be seen from the average score of the whole grain and, the average score on seliap indicator. The response of 29 primary school teachers and 50 parents Al Firdaus class 1 presented descriptively.

Academic impact of the educational model nongradasi. see the map of competence grade 1 at the end of the school year. Map showing competence of topics that have been completed by the student., In-presented descriptively.

Results and Discussion

1. Results

a. Map Capability Students

Pemelaan initial ability of students is done individually at midterm 1, using pa-ket nongradasi curriculum that matter ajarnya been arranged sequentially. Material mathematics in the 1st half is divided into 10 levels, and at the time of mapping, the teacher is teaching material S.level

abilitymath second grade 1 school seemed normal. About 65% of students are at level, namely the level of S. However, there are a small number are still at lower levels, even the second level, there are also actually existed at level 8. Yet pembelajaranbaru at the level of S.

Map reading and writing competence 1 in the second grade students of the school were also normal. There are students who soared, there is also a terlinggal. Penelili trying to calculate the correlation between read-write capability with the ability to mate-Matika. In grade 1 above, very Linggi mathematical abilities correlated (0.99) with read-write ($p < .0.01$).

In the curriculum developed by the Research and Development Department, the main referral teachers in designing estab-belajaran is Kompe-

tension Standard packages are arranged to seliap subjects. There are three things outlined, namely: (1) basic competence; (2) learning outcomes; and (3) indicator. However, the description contained in this package is still very common, requires teachers to develop it further.

For the mathematics classroom 1 semester 1, for example, there are only two basic competencies specified in column 1 of the textbooks, which follows seperli.

a) Demonstrate understanding of the concept of numbers using its chips and in solving problems.
b) Doing pengluncuran and use in solving problems. After checking in column 2 (the learning outcomes) and column 3 (indicator), then known that the pressure in the first half is the operation of addition and subtraction of numbers from 1 to 10. By a team of researchers and teachers essence, this format is organized into more clear and operational, so that the contents of the columns clearer dam assist teachers in planning lessons. In the fields of competence, for example, the statement changed to:

   Demonstrate understanding of the concept of number count up to 20 and use them in problem solving.

These competencies are then broken down hierarchically arranged, for example, be a lot of learning outcomes are as follows.

Table 1. ExampleMathematics Curriculum

	Indicator		Learning Outcomes		Competence			K l
the child	Tell	1	Mention	1	pema-	Shows	1	1.1

counting 5, ie. gravel,	t o obje ct marbles ;. pen cil		many objects to 5			haman concept of numbers carah and mengunakan- in solving its about		
BE- the	Show ho w objects, smuhchild sort		Sort a n d sd numbers the smallest	2		s e t ,		

Competenceis then broken down into a lot of learning outcomes that are arranged in a hierarchical manner, for example: Mention many objects to 5, sequence numbers from the smallest to 5 , comparing the number of objects up to 5 ff. Column indicator contains instructions or examples of how to evaluate each of the expected learning outcomes, for example: Show me the number of objects to 5, send the child to count, show some number of objects to 5, send the child to show bigger, and so on.

Table 2: Examples of Indonesian Kurikulun

Indicators			Results Belaiar			Kompelensi		Kl
child	Tel	o	the	Imitating	1	Listening and mem	1	I

Me- l soundsa wild or imitatingsound, ie. kenda- sound raan pets, , waves	n e	sou nd of certainor voices		.. o r distinguishso unds soun d		. 1
children Tel du- l duk with theattitude right	1	attit ude Shows to sit properly	1	Familiarize attitude rnembacacorrect	2	
Amatijarak	2	distance eyes between the den "an obvek 30 em	2			

total of two experts and respective languages each of two experts for each subject substance of subjects from colleges provide an evaluation of the curriculum adaptation package. the review presented in Table 3 below:

Table 3. the results of the expert review of curriculum

Score (stadart 5)	aspect	No.
4.5	Clarity in language	1
3.0	Compliance with thelevel student progress	2

3.0	Kesuaian withinterests student	3
4.7	Rules of order materials	4

like tediha! in Table 3, the reviewer gives a score high enough on the aspect of clarity in terms of language and the sort order for the material. But, for compliance with the level of development and interests of students, the reviewer gives a score that is not so high. In qualitative evaluations were then clarified verbally, pa-ra experts (which partially completed graduate in western countries with family and mengirirnkan their children to primary / secondary in the country) found the material primary school curriculum in the early grades, especially mathematics, tedalu difficult for students. In mathematical operations, for example, in grade 1 students must do an operation that involves abstract thinking process. However, because the curriculum materials adapted from the national curriculum, not much can be done.

b. Raport nondegradasi

Nongradasi rapot designed to provide as much information as possible for parents and teachers.

Table 4. SampleMaternatika

Date & Initials		Learning Outcomes		Competence		K l
	o n e	Mention obj ects many s.d5	1	Menunjukklm conceptual understanding of numbers caeah and using them in solving problems	1	L 1
	2	Sort ofof sd	2			

		numbers the smalles t				

partinside of rapot nongradasi lists each subject matter kurikulurn of kurikulurn nongradasi. The difference is, there is an additional column to write down the date of each subject completed by students. Here's an example of a description of the child's kernajuan rnatematika subjects and knowledge of social, !.

Table 5. Summary of Kernajuan Student Sample

First Level Year Semester 1 Study:

Student Name:

Identification Number:

VI	2						
	1						
V	2						
	1						
IV	2						
	1						
ill	2						
	1						
IT	2						
	1						
I	2						
	1						
Tingkal/5emesler							

The initial part of the book report cards (Table 5) contains a chart rangkurnan child's level of achievement for all eye pela-distance, compared with a target that should have been achieved. Master classes will give dashes indicate the level of achievement of children for each subject at the end of the 1st half lingkat 1. Columns of dark color indicates the level that should have been achieved. Mastery level below the line means the child is slow, or above the line

means the child more quickly.

c. Response Educators and Parents

In urnum, teachers urnumnya have a more positive response than the parents (Table 6). This makes sense, because teachers have more mernahami essence pendiclikan nongra-tie rather than the parents who only know of explanation a day at the time of assignment. Both groups realize that the condition is heterogeneous classes, but parents tidakbegitu sure to diversify the curriculum materials, estab-belajaran activities, evaluation, especially on the system class rise, the two groups also agreed not so confident in the ability of teachers to handle ketas nongradasi.

Table 6: Response educators and parents

Parent	Teacher	Factor	No.
3.3	3.3	Heterogeneity class	1
2.5	***3i 3***	Diversification maleri pembelaiaran	2
2.5	3.2	Diversification kelriatan belaiar	3
2.7	**3.1**	**beracuan Evaluation criteria**	4
2.4	3.0	The increase in mastery-based classes	5
2.7	**2.5**	Readinessnongradasi class teaching	6

d. academic Impact

digarnbarkan academic impact of the level of completeness of every student on every issue on the ku-rikulurn stated dalarn level. Level 1 means that the student is still in a position of complete material belurn 1st half 1st Class Level 2 means that already in the 2nd half position, but belurn thoroughly throughout the material. Level 3 means the finished material right at the end of

the 2nd half of the 2nd semester Level 4 means the student has been studying the material grade 2 semesters 1. Level S means that students have learned the material the 2nd half 2nd grade

math subjects, there were 1.5% of students who has studied the class materials 2 semesters 2, there are 18% who have studied the 1st half of the material grade 2. Indeed the vast majority (67%) menun-taskan material according to the calendar. There are still 12% of students who completed the material belurn 2nd semester grade 1 and grade l tika starters. still 1.5% were still studying mathematics.

As in mathematics, the Indonesian language teaching, there are students who mulaimempelajari curriculum 2nd semester grade 2 (3%), the semester curriculum materials 1 class 2 (18%), there are those who are in a position not finished 2nd semester classes 1 (4%), and there were still studying the matter of semester 1 class 1 (4%). Most of it is completed on time (70%).

What is different is the thoroughness map for social science subjects. There is no one person who had not yet completed siswapun 2nd semester grade material 1. The majority (91%) completed on time, there was a 9% who have studied the material first half of the class 2.

For other subjects, especially those that do not require a lot of ability to think, such as physical education and health and handicraft and art does not happen a lot of variety. All students complete academic material according to schedule.

Discussion

of normal school class mapping showed that the level of student ability heterogeneous. Among the students who grade, about 10% of them earn a score of four or less in les summative mathematics and Indonesian. This

condition is also recognized by teachers and parents. This supports the results of the study are summarized ole.h *The National Society for the Study of Education* in 1962 on the acquisition of student differences in raw les. Indeed, the study did not focus on the differences in intelligence as proposed by Peterson, but given the high association between intelligence and achievement, can dipasikan that the intelligence capabilities of students in ordinary schools also vary.

After nongradasi models tested in grade 1, proved to be some of the children have been able to study the materials of class 2, even some who have studied rnateri 2nd half 2nd class, there are children rnasih rneskipun rnernpelajari first half of the material grade 1. This is a superior benefit children, such as review the results of research conducted by Lloyd that nongradasi class is not prejudicial to the gifted child. Children who are slow to learn it is possible according to their own rhythm with special guidance from teachers. This model is conducive to inclusive education implemenlasi diamanalkan by UNESCO and has begun its application by the Education Ministry in the various regions. The essence of inclusive education is that seliap students, however his condition; thirsty are given the opportunity to learn in any school. This mandate will have implications for the more heterogeneous classes in ordinary schools.

Lerhadap uncertainty about the ability of teachers can be attributed to a class tend to be large (30-40 students) with only a classroom teacher, the teacher should feel unprepared to handle nongradasi class. Based on oral testimony and of langgapan terlulis in angkel, be an additional administrative work load. This happens because the teachers are still working on two types of administration, which is the conventional model and the model nongradasi. If you only do one of Salu, the administration felt nongradasi models are lighter than conventional admininistrative. A bit lucky in the school there are teachers escort provided by the foundation. The teacher assistant background in

psychology or special education. The accompanying teachers helping teachers deal with students who demonstrate grade deviation, both classes (superior) rnaupun down (learning problems).

Closing

A. Conclusions

Condition school classes in ordinary hornogen, can be seen in the results of summative tests of mathematics and Indonesian. Among the students who grade, there are a number of students with very low scores, but the grade, because the criteria for using the increase in the average score sernua subjects.

Given the limitations, the model nongradasi it can be implemented in public schools. With the development of curriculum adaptation package nongradasi, with maleri arranged sekeunsial, modify classroom teachers kegialan pernbelajaran so varied. One obstacle is kernampuan teacher Salu me-nangani relatively large class. Concerns of parents show up, probably because of the prevailing sistern not like it.

With nongradasi models, seen children rnaju at their own pace, although most include normal kelornpok. Kids dirnungkinkan superior finish kurukulum material faster than the targeted time, otherwise a slow child should not be drowned because they had to learn the material beyond its means.

B. Suggestions

Model nongradasi correspond to the real conditions in the school classes that proved heterogeneous. With this model, children can learn in accordance with the rhythm, so that students excel possible to go forward with speed, slow children obtain adequate birnbingan. Model nongradasi is also a precondition for inclusive education irnplementasi being promoted by

UNESCO and the government. Seeing these facts, this model should be tested in a broader scope.

This study is a beginning. The test is only performed in one class for one year, and in such a relatively short time, research can only look at the feasibility dar! nongradasi models in the field. Further research is needed to see the broader impact, eg on a long-term student achievement and social-emotional impact.

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