

## A Review Article/ Heterogeneous Classes-Ravit Amir

### Summary

In this article I will review the phenomenon of heterogeneous classes by three past educational models and used and presented as educational process nowadays as well. Moreover, these methods were designed to reduce gaps in heterogeneous classes and also present the ways teachers cope with heterogeneity compared to modern terms as: differential and containment. It appears that the use of the various methods in heterogeneous classes and profound thinking regarding the empowerment of students, is equal and acceptable as a revolutionary process in the Israeli education system of 2014 and establishes a modern concept which gained admiration among education professionals, which is known as meaningful learning.

First I will define and refer profoundly to the term and then I will characterize some of the methods used in Israel and in the world in general. In the conclusion chapter I will bring up applicable and achievable results. However, I will note that there are still unanswered questions the ministry of education and the education professionals have to answer.

### Background-

Classes that include students from all social and ethnic backgrounds who have a significant educational gap among them: the acceptable Israeli terminology- classes which include "disadvantaged" students and "affluent" students (A concluding document of the USA-Israel seminar- from the State Comptroller, 1993) – meet the classical definition of heterogeneous classes.

With the beginning of the reform in 1968, the following goals and targets were defined: the extraction of each and every student, aiming at reducing the inter-communal gap in education and also coordinating programs to the skills and inclinations of the students. Those objective show that the perception of heterogeneity referred to the differences of the students' abilities on the grounds of different social-communal background. Similarly, the term "heterogeneity" was defined in the concluding document of the seminar taking place through the culture agreement between the USA and Israel whose objective was to discuss teaching methods and curriculum that might promote achievements and social integration in heterogeneous classes.

Rich (1996), refers to the learners' skills. According to his opinion, a heterogeneous class is "a class where a wide range of skills and achievements is discovered and students come from different communal backgrounds, from a different social background and different neighborhoods." Rich differentiates between a heterogeneous class based on personal differences only and a heterogeneous class of another kind which has other essential characteristics :( 1) not all personal differences are spread around the classroom, some of them are accumulated and create distinguished and clear to all among the different groups of students; (2) perception of the differences of the groups should reflect the social problem of equity in education. Pressman and Chen (1993) also add to that diagnosis the differences between the genders: "in a heterogeneous class, boys and girls study together; from different ethnic origins, families from different social-economic status and different achievements." Kashti and co (1989) willing to

expand the term "heterogeneity", see the class as "entirety of details different from one another in their backgrounds, their personal characteristics and their characteristics as students."

The term "heterogeneity" depends on the context. The social context, a certain entirety of students' characteristics may lead in one society to the definition of heterogeneity, whereas in another society it may not be so. In the theoretical literature there are two common perceptions: the first is narrow and refers to the differences between the students in the social-economic context while focusing on the differences in academic achievements; the other is wider and refers to other different characteristics such as: gender, personal traits. Learning and thinking styles. In the last two decades the acceptable wider reference to the term "heterogeneity" includes also reference to the learners' characteristics. This reference sprouted the term "differential". Nowadays, the use is of the two terms- heterogeneity and differential- as if they were synonyms. In the next sub-chapter, we will try to clarify the differences between them by defining the term "difference".

### **Methodology-**

In junior-high schools students from various schools and different backgrounds. The gaps among the students in general and basic knowledge are major; at times the gaps are of three to four years between the students. The conventional, traditional teaching completely ignores the gaps and refers to the class as a solidity. The frustration created in the academic area and the lack of satisfaction lead to social problems and hold back the social

integration among the various populations in the heterogeneous class. One of the problems in teaching in general and teaching in junior high schools is coping with the differences of the students in the classroom. As for the realm of students' population the teacher should be equipped with tools for mapping, for assessing knowledge and students' domination in study skills. They should track difficulties and monitor the students' achievements in all learning fields. In the academic field reviews the teacher should be equipped with tools to map the academic material, to cutting nucleolus and thorough material, a call for level rating, for finding textual difficulties and supplementing them to the different levels of the students. The teacher ought to dedicate significant time from the lesson to teaching in groups defined by the levels of knowledge and the level of control of study skills. A correct organization of teacher's time and the academic surrounding for students and vary the learning materials. These enable the progress of the students in the classroom.

The structure of the lesson (Abu-Saad, 2004)

The lesson usually is divided into three parts: the first part: in the plenum-opening. Part two: learning groups in pairs/individually. Part three: conclusion in the plenum. The lesson is always 45 minutes whether it is a singular lesson. When it is a double lesson it is 90 minutes. We will give a joint opening to the whole class. In the opening lesson a topic is presented, stimulation and other parts that consist a part of the lesson. The stimulation can be from the emotional experience, assumptions or presenting questions. Even relating the lesson to current events. The duration of the opening

derives from the students' capability to engage in a mental effort, which is 15-20 minutes, therefore the opening lasts between 5 to 7 minutes. In the second part of the lesson an individual learning is being held. The students are divided into work groups, the work being done in pairs or groups or individually even, guided by worksheets formed by level of difficulty, prepared especially for the lesson and are suitable for the topic of the lesson and the students' abilities. One group works with the teacher and general skills or certain ones. Sometimes the teacher manages to work with several groups in a double lesson. The third part of the lesson is the concluding part. This part of the lesson is being held in the plenum and is connected to a general question connecting to the topic of the lesson. The opening of the lesson and the conclusion of the lesson reflect a minimal basis that all the students in the class must know.

- a. Through the differences of the students each student is diagnosed in his spot and is strengthened where he needs to, and enable him to experience success and a more experimental learning. For that to happen, the learning should be from different angles. When studying a text it is important to check what is in it and what is not. Our goal is to check whether the text serves the learning or not. The texts should be in hierarchal order for the context to be clear first and foremost to the students. The students need to know the rationale. The teacher must not pull rabbits out of his sleeves. When diagnosing the student's difficulties and building a rationale, the material needs to be built in scales. The method speaks about a thorough program, and an academic program. The questions that need to be asked are: where to

start and where to go. The decision needs to be with which students the teacher will work on wider ranges of material.

#### Using up the teacher's time

The teacher's time in a regular frontal lesson is about 40 minutes for 40 students, that is to say, one minute for each student. Therefore the goal of this method is for the teacher to give 20 minutes for a group of 5-6 students. The time unit for each student is bigger compared to the frontal teaching method here there is more investment and focus on learning at this time unit. The study skills represent the interest. For example: in the holy studies, the cantillation notes are a skill in this discipline. In geography, reading maps is a skill of this discipline. Globalizing, cause and effect, comparison, conception, are all skills of many disciplines. The objective is for the learner to take responsibility for himself and his studies.

#### The teacher's responsibility

The teacher needs to take responsibility for the skills representing the discipline he teaches. Other teachers are responsible for the global skills, what requires full cooperation by a project called SHALHEVET (Combining languages skills in all disciplines). I have been instructing this project for four years so far.

#### The diagnosis

The diagnosis is a central tool of this method. With this tool the teacher maps the student's knowledge and the teacher is able to know what to strengthen and at what level. The teacher learns how to analyze the students' answers the analysis is being done according to thinking levels (B.S Bloom, 1956). In S. Bloom's taxonomy the teacher also learns how to analyze the teaching material. Together with a group of peers the teacher creates a mapping of the subject and of the textbook by the specific skills and global ones. Analyzing the students' answers enables the teacher to classify the class for learning groups according to difficulty levels.

The teacher manages a monitoring panel to watch the skills his students acquired. The professional skills are the teacher's responsibility. The general skills are other teachers' responsibility. A connection should be established between all the skills to make a common denominator.

Reports from the field: "I saw kids happy to learn. I saw light in their eyes. I saw a staff investing a lot of thought in their work out of joy and love. I saw something different than what I am used to and I highly recommend to continue working with this method. It doesn't promise a roses garden and it doesn't make life easy, but it appears to provide a great reward, not in terms of money but educational and essential reward. The method needs to be accompanied, tested, and identify failures and learn concrete lessons about how it is being operated, at any stage and in any field.

Differential teaching/learning to promote the heterogeneous class- Lamdan Erella.

The differential is perceived as a value. Israel of 2014 is aware of the needs of students who come from different backgrounds, different cultures, different capabilities and learning styles. Therefore, the containment objective of 2013 was an idea born following the need and search of the teaching staff for varied teaching ways that will be suitable for the heterogeneous variety of the students in the classrooms.

The goal of the initiative to expand and deepen the professional response given to the students by the teachers and parents. While developing suitable answers to guarantee that the learners will go on learning and developing by their own pace and capability. Also, many questions have arisen regarding the relatively new term "containment objective"- who is included in this category, what are the system's demands, are the integration children also containment children? What solutions can be given to children with learning disabilities or children with behavior problems? How much help can be given to these children and keep them in the regular system before thinking of moving them to special education systems? At the same time, what relevant theoretical material will enrich the teachers and provide for them the right tools to understanding the essence of the difficulty. The teaching staff stated that each classroom is defined by classroom climate, ADHD problems, learning strategies, motivation and learning environment (Rich, 1996).

As educators they believe that as long as there is motivation and the student shows progress and willingness to invest, there is something to work with, and the current initiative on all its aspects might increase motivation that will serve our purpose. Gaining experience in the learned material with the advanced technological knowledge, when the work is done with love, interest, care and



faith, the students are capable of achieving the goal. After asking the right questions and collecting data, they mapped the categories rising with the help of the mapping tool called mindomo and started collecting links to websites and relevant materials on the net. Also, they developed a website which contains many activities online of different disciplines. The activities are both individual and group wise. The homeroom teacher can build personal or group activities for the students in the class based on the sites presented in the reservoir and create together with the containment students a collective control page to monitor their activity in the reservoir. The last and significant part of the reservoir is the part of "sharing teachers" – a collective forum open for success stories, examples from the field, questions, advice, and anything relevant from the authentic experience from the field (Aloni, 2003).

Another method for reducing the gaps in heterogeneous classes published in the department of education in The Ministry of Education "The Containment Venture" presented the premise that although the age of the students is pretty much similar, there are many differences between them due to different experiences, different study skills and different learning styles. Also different interests, different cultural-social background, the responsibility of the education system, the responsibility of the whole school and the responsibility of each teacher towards the student. The educational staff in the schools should get to know each and every student, recognize their strong spots and lead them to extracting their maximal potential.

The ministry under the supervision of Dar Michal, implemented the program in the central district in Yavne in 2002 and already in 2006 the program was operated in 40 places. Problems were detected in the beginning such as early

locating of struggling students while being careful not to "over label" and not to "label too soon". The homeroom teacher is the central character who diagnoses the students, formulates a program to promote them, and she is also the one to operate the program. The programs provides and organizational and didactic solution: hours across to every class in coordination with the struggling students (between 4-6 hours). An additional teacher in the classroom (qualified in the field of language teaching) - as part of the co-teaching model. Location, plan and individual-group therapy are a part of the tool box every educator has to have. Extracting the didactic process for every student mostly for the struggling students before referring them to additional responsible parties. The use of several diagnoses in order to identify the actual knowledge of the students. The use of a diagnoses kit. The use of a number of diagnoses. Documenting and writing are a part of the routine work of the teachers. A designing and concluding assessment of students by teachers and principals in the end of every stage. Learning by doing. Systemic and multidisciplinary treatment by a professional team. Maximal clarity- cooperating the parents' community of the school in planning, treating, and also publishing conclusions.

Also the supervision alignment helped in the level of instructing. They provided professional guidance to refine the professional knowledge of the staff in the school. School programs for teachers' training, looking for ways to raise awareness among teachers and students as well, by providing tools for using teaching ways while using strategies appropriate for their unique style, their abilities and needs. Establishing an alignment of control and assessment.

**A project according to" the work model of the integration of the homeroom teacher in the process of finding and treating struggling students with learning difficulties (Amit, 2004).**

1. Identifying signs for difficulties in learning functions.
2. Assessment of learning functions.
3. Building an intervention plan to promote the student's role and evaluate his progress.
4. Reevaluation of learning functions.
5. If the student keeps having difficulties- coordination of multidisciplinary integrative evaluation is in need in order to diagnose difficulties/ learning disabilities.
6. The student makes progress in accordance with the expectations. The model was successful. The method was successful and was expanded as a result of adding hours across which enabled a planned and intelligent co-teaching. This kind of method empowers the chance for differential response.

The use of new assessment tools, formulating unique didactic programs on the educational staff part, a varied learning, access to reading books, the use of e-learning environment, a rich learning environment of language and text.

### **Computerized learning-**

In the age in which every student has access to all data bases in the world and chat with internet travelers, there is no doubt that the computer as a teaching tool can no longer be ignored. Therefore, the

central question presented by Prof. Gabriel Solomon in his book "technology and education in the age of information" is not whether there is a place for computing in education but what is the place of computing in education? To what role do we designate it? What exactly will we do with it and why? The education system is required to fit the learning processes to the age of information. One of the crucial meanings of this coordination is training an independent adult who fits himself to the rapidly changing world, one who uses computers and media-computing-as means of the learning process (standards in information science booklet, 2005- science and technology administration).

The nature of the social- economic, industrial and technological changes set new challenges in front of the new generation (Psig, 2000). The education system should impart the student with knowledge and skills which will enable intelligent use of technologies and literacy- that is to say a capability to read and write well. Knowledge of culture- the ability to communicate while cooperating and to learn how to study and how to think. The information technology is in the center of change. Learning will no longer be a process ending at graduation but an ongoing process for life. No more the scenario where all students learn the same things the way. This will be able to happen when the role of the teacher is changed and the emphasis is on active learning (Bickman, 2001).

The mission of school in the 21<sup>st</sup> century should be different than its current mission. The nature of the school's educational mission is on

the one hand to deal with teaching contents- the "what", and on the other hand imparting learning skills-the "how". And at the same time to continue to impart social-cultural values. Computerized learning environment enables divers learning within the classroom itself and open up possibilities for distance-learning- the ability to work from home, the used of varied internet data bases and outside-school communication during school day, and a more meaningful authentic learning for the students. Fostering learners in a changing world where ambiguity and uncertainty are taken for granted, requires development of open and flexible learning environments coordinated with the learned material of the different disciplines.

There are some pedagogical principles for working in a computerized environment that will enable meaningful learning.

**The following principles were copied from a principle document (Halevi, Kolodner, Horowitz, Belvin, 2004).**

Pedagogical principles for building a computerized environment which enables meaningful learning (Ben-David, 2006).

The following principles reflect the main educational policy in the computerized learning environments being the building blocks for studies planning, building a learning environment, and formulating learning-teaching-assessing processes according to the required achievements:

- a. Creating an integral learning environment enabling maximal accessibility and availability to technological means to support the students while learning.

- b. A flexible and changeable organization of time, a group of learners, contents and materials in order to use up the advantages of the new learning environment and the possibilities to offers.
- c. Using technology to expand the learning environment beyond the boundaries of time and place of the classroom.
- d. Creating cooperation via a computerized learning environment between home and school, the community and other relevant parties.
- e. Developing strategies of independent learning and handling information, while emphasizing common sense of the learner when making a responsible choice according to his goals.
- f. Acquiring computer skills while dealing with relevant and meaningful contents for the students together with their direct teaching when necessary.
- g. Fitting the monitoring and assessment ways to the teaching-learning ways among them those which produce special benefits from the new technologies.
- h. Assessing the individual compared to himself and his study pace as part of planning and fitting the teaching to the individual's needs next to a normative evaluation aimed at standard achievements.
- i. Educational reference to ethical issues typical to the computerized environment.
- j. Teaching in computerized learning environment and the commitment to the students achievements are of the interest and

responsibility of all the school staff in the elementary school- all teachers of all disciplines.

These pedagogical principles guided us when we built the foundation of the learning environment and the work plan accompanying it. The computerized learning is a meaningful learning since it emphasizes thinking tools more than memorization. The ability to work in groups compared to the traditional way. Individual homework, multidisciplinary learning, the ability to generalize and integrate. The ability to look up information and distinction between the main and subordinate (high level of understanding according to Bloom's Taxonomy). A teacher who teaches at this method changes his definition to an instructor, and is obligated to empower himself all along his teaching career. Experimenting, integration and application of computerized teaching-learning methods required in the wide educational context they deal with (Aviram, 2000; Chen, 1999; within Solomon, 2000; Hill, 1999).

### **Discussion and Conclusions**

Differential learning and teaching is the solution to the differences and uniqueness of each student. Differential teaching refers to the curriculum in response to the goals and needs of students in a heterogeneous class (it is possible to lead each student towards success in a heterogeneous class in two main ways: achieving the same goal for all students but at different levels by performing different assignments. The most outstanding example is a

collective assignment like "summarizing a chapter"," when different groups in the classroom receive different texts according to the level of reading. Setting different levels to every group in the class. These goals can be achieved in any field of goal in the list in the hierarchal structure of the goal map. The strong ones build strategies to solve the problems and the weaker ones solve them. The different goals can be in different areas.

Irit sees differential and the attitude towards it as a universal ethic value (Keshet Ain, 2003)

Favoring the heterogeneous groups to the division of level groups seems like the answer to for questions of equity and social justice. Moreover, in all those cases where there is conflict between institutional policy (ministerial or school wise) and the student's well-being. Teachers and principals should favor the well-being of the student rather than blindly obeying rules and regulations.

Guiding principles which will be acceptable on the educational system in Israel and in the world, might be the solution in times of ethic lack of clarity and therefore enable the principals and teachers to have a wider autonomy when making decisions about meeting the students' needs and allotting resources for the matter. This autonomy will benefit the students and at the same time will assist in promoting the professional staff towards higher standards of professional behavior.

The characterizing process caused enthusiasm among the educational staff and the students from the learning environments, the self-study, and motivation of the teachers which leads the students to new and current challenges.



As The State Amendment of Education in 2000 (in 12<sup>th</sup> grades the Israeli education system is one of the most comprising in the world; the study rate in grades 1-9 stands on 12 years, however the gaps and differences between the students are wide. In other word, almost all the students graduate). Today in the Israeli education system there are students from different sectors, from different social-economic backgrounds, new immigrants, veterans, honors students and gifted students, special education students and many others. There is also personal differential. Our attention is usually given to the students with difficulties. But there are student who do well at school by deal with other difficulties: emotional difficulties, social difficulties, learning disabilities and ADHD problems. They all have to be given solutions.

From the literary review The Henrietta Szold Institute conducted regarding curriculums for struggling students a few orientations arise: decision making (in the school itself and in other areas) should be based on data; it is impossible and wrong to make decisions based on feelings and assumptions. The aim is to identify as soon as possible learning difficulties (an early identification of literacy problems might be a warning sign). Small educational frameworks provide a supportive and attentive environment where the students and the teachers count and they can think together and work out solutions to rising problems. There are other components to take into account to make this program work: professional guidance for teachers especially for developing learning skills, conversation skill and developing warm relations which are vital for learning: a wide systemic sight of the students' needs; team work of all staffs in the school; a full implementation of the programs. There are many programs the system has invested in. estimations indicate that the

programs are good, but in order for them to continue, new resources are in demand. What is done when there are no resources? Is stopping the program a solution? Maybe the solution is something else? That is a question we need to ask ourselves. Another vital component towards success is a systemic and forming assessment along the years and intervention according to progress. The school needs to check itself together with the student while defining output and success magnitude and then set a work program. Finally, the last vital component for success is the integrating factor. This factor is responsible for mapping and locating suitable students and teachers, instructing teachers and keeping contact with the parents and other important factors. The two big reforms of the last years- "Ofek Hadash" and "Oz Letmura" – answer some of these questions: time to think and work, team work, learning in small groups (lessons for individual students), guidance and professional development for teachers. We can see some of the results in the students' achievements. And yet, there are still unanswered questions for example: what can we do in order to keep success and to make sure it is not one time event? What is the right atmosphere in the classroom? Do we have to prefer homogeneous or heterogeneous classes? This question have been bothering us for years and we still haven't found an answer. What are the required conditions to integrate varied populations? Is a change required when training teacher students? should allotting hours for this be differential? Probably there is no "school solution" for these questions, however they sharpen our thinking in the committee. The answer may be "with this population, in this place, with these parents we should work like this..." but we need to understand where we stand. We mustn't give up on the kids. We must find a way to their hearts.

Helen Keller wrote: "we can do whatever we wish to, if we are determined enough, and have the patient and time to learn what we need to learn."

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