INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 3, Issue 4, (2013) E-ISSN: 2222-6990

A Study of the Comparison between Teacher's Role , Methodology & Learning Process in Smart & Mainstream Girl High-Schools of the 7 Districts of Mashhad in the Academic Year 90-91

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DOI Link: http://dx.doi.org/10.6007/IJARBSS/v3-i4/112

Published Date: 01 April 2013

Abstract

The goal of this study is to identify the high school students' view studying science & humanities on teacher's role, methodology, & learning process in both girl 's smart high schools & mainstream ones. The scope of the study is seven districts of Mashhad in the academic year of 1390-1391.It was hypothesized that the teacher's role, methodology ,& learning process differ significantly in girl's smart schools & mainstream ones.

Therefore, to prove the hypotheses the researcher used field research, and the survey method. Regarding the great number of the statistical society, the method of random cluster sampling has been used. The sample quantity is selected based on the Morgan's table. The sample for this survey research comprised 853 students from seven smart schools & seven mainstream schools. The samples were 420 girl students from 7 mainstream schools & 433 girl students from 7 smart schools.

In order to assess the hypotheses, the method of questionnaire consisting 57 questions was used. To determine the reliability of the questionnaire conducted by the researchers, the instructors' and advisors' ideas were used and for determining its validity, the Alpha Cronbach's approach was used. The validity of the learning process questionnaire was 0.934 and that of methodology was 0.826 & that of the teacher's role was 0.835. In order

to investigate the normality of the data distribution, the Kolmogorov Smirnov test, in relation with learning process, methodology and teacher's role from the perspective of humanities & basic sciences students, was used. Regarding the abnormality of the data in analyzing the hypotheses , the Mann Whitney test was used. After administering the test and investigating & analyzing the data, the result showed the confirmation of the hypotheses; i.e. , learning process, methodology & teacher's role from the perspective of the students of humanities & basic sciences in smart schools had a higher average compared with those of the mainstreams.

Keywords: methodology, learning process, teachers' role, ICT, smart schools & mainstream schools.

Introduction

Industrial society of the twentieth century has given its place to the information society of twenty-first century. Therefore, the use of new technologies, including information and communications technologies in different fields of life such as education is inevitable. Of course, it should be channeled purposefully in education. (Malek, 2010:1)

Clearly, a country with a huge young population and with profound motives of development desperately needs an efficient and forethoughtful educational system. Then it is needed that the educational system gradually changes and ICT application flourishes students' abilities and potentials and makes the teaching process more attractive.

Information and communications technology flourish students' ability to learn. ICT makes classrooms an open place via engaging the students in class activities . The ICT's capacity and potentials have the function to let each student learn on their own abilities, and can also respond to the students with special abilities to meet their desires.

Information and communications technology provide a set of tools for students to have access to global information resources and deliver their educational activities with better quality and more attractive way.

In the 21 century , schools must educate a generation who is aware of their own life problems and have the necessary skills to confront with them .They must also educate and provide a generation who with foreseeing the probable problems of future life .

In 1984, David Perkins and colleagues at Harvard University offered the project "smart school initiative" as a new experience in the use of ICT in education programs. The project was implemented gradually in a school and later expanded to some extent, as today, some of the countries developed in information technology such as Malaysia follow these schools to train their human forces. In our country with the establishment of the Shahid Aghaee school and following that, 4 boys' and girls' high schools in Tehran as well as some smart schools in Mashhad, Isfahan, Shiraz and some other towns have started to work since 1993. (peyvand,314:21)Philosophy of Education calls for " developing the potential of individuals in a holistic and integrated manner , so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced.

A mainstream School, is a school which is managed in a traditional way and for teaching and learning process, books, blackboards and etc are used; i.e, the teacher with a pre-scheduled lesson plan and carefree of the general needs goes to class and starts teaching and conveys the knowledge, skills and values. The students of traditional learning who study on memory based learning are different from the smart school students who study on analytical and creative thinking. Besides , these two types of schools are differing in medium of study where in the traditional learning environment , they are using textbooks but it is used global context in smart school.

In the traditional learning environment , it is the teacher who transfers knowledge to the learner through the medium of printed materials , particularly textbooks .There is no technology usage , and the practice of asking students to collaborate is often lacking.

ICT development in education caused the mainstream schools to gradually turn into smart schools using the new technologies and to prepare students for the information era. Online learning is a form of education that occurs through the Web, which it does not consist of any physical learning materials issued to students or actual face-to-face contact."Pure" on line learning is essentially the use of e-learning tools in a distance education mode using the web as the sole medium of all student learning and contact .

Web based learning enable the students to do their own exploration into the wealth of information and resources . It also allows learners to determine their individual pace of study with a set of tools that enables personalization of content and allows them to choose the way which they learn most effectively. The combination of the communicative features , access to resources and the integration of various media leads to unique learning experiences whereby students have the luxury of comprehensive learning experiences , from synchronous learning to threaded discussion then to self-paced study , all involving a combination of various strategies (Harasim et al, 1997).

Transforming the educational system will entail changing the culture , moving away from memory – based learning designed for the average student to an education that stimulates thinking , creativity , and caring in all students , cater to individual abilities and learning styles , and is based on more equitable access . It will require students to exercise greater responsibility for their own education , while seeking more active participation by their parents and their wider community .

According to Damoense(2003 :1) , the combination of both learning environments can result in the "effective learning since the learners acquire spheres of knowledge that will enable them to become lifelong learners".

The Iranian Smart School Project aims to systematically reinvent the teaching and learning processes in the school system, to prepare students for the information age.

Education system is considered as one of the important elements in developing societies. Educational organizations from the aspect of their unique characteristics are different from the economical and commercial organizations . (Shirazi , 2009:13) Today,

educating human forces is the responsibility of education and higher education administers. These institutions are counted as the most important , extensive, and the most expensive ones in the country. Besides educating, they try to flourish the intellectual, physical, spiritual, emotional and ethical potentials of human beings. (Shirazi,1994 :19 and 20)

Higher education and economics' experts believe that the educational system of the country is not compatible with the present technological developments . If this trend continues, in the near future, the country will face major crisis in the fields of economy, society and culture. (Shirazi, 1994: 35)

Bearing in mind that the smart schools are the new phenomena which are not so widespread yet, it is needed that their performance to be studied in the educational and pedagogical terms. This research aims to compare the teachers' role, teaching method and learning process in smart schools and mainstream ones. It also seeks to figure out which of them is functioning better considering the above factors.

The main objective of the research:

Identification of the high school students view studying basic science & humanities on teachers' role, methodology & learning process in both girl smart high schools & mainstream ones. The scope of study was seven districts of Mashhad in the academic year of 1390-1391.

Research questions

1 – Does the learning process in girl smart high schools differ from that of mainstream ones from the viewpoint of the students of humanities and basic sciences?
2- Does the methodology in girl smart high schools differ from that of mainstream ones from the viewpoint of the students of humanities and basic sciences?
3 – Does the teacher's role in girl smart high schools differ from that of mainstream ones from the viewpoint of the students of humanities and basic sciences?

A)The independent variable : Smart and mainstream schools

B) dependent variable: the role of teachers, learning process and methodology.
C)moderating variables: age, major,
D) control variables: Gender

Research conducted in Iran

Limited researches on ideal ,objectives and policies of information and communication technology application in Iran education system have been accomplished which some were regarding to the education authorities' recommendation and others' due to the researchers who present them as research proposals .We mention them as follow:

Dr. Mohammad Sadeqi and Neda Kashani did a research on the effective factors in administration of smart schools' plan due to teachers' and principals' points of view in Mazenderan province and they suggested the following achievements .

The information technology should be included in the series of expensive industries in any country needing various and numerous factors to hire information and communication technology equipments (whether hardware or software)in education system. Having investigated the development of information and communication technology in 26 countries , Pragram (1990) indicated 10 main obstacles while the number one was the lack of equipment and computers.

To achieve , the objective of schools curriculum , educational methods and procedures should go under alterations and these alterations need teachers' and students' role shifting Abbasi (2001) and Yousefi (2006) take the coordination between planning application educational curriculum and information and communication technology into account. Briefly saying , the process of information and communication technology application should be framed as an innovative form in schools' curriculum that leads to the exclusive technology application , employment of technology consultants allocating specific time to English teaching in elementary schools and its reinforcement in other educational levels. And suitable time scheduling to use computers in school classes.

Electronic learning is a culture , a method and a scientific thought. It's obvious that no thought and idea can be put into practice without cultural grounding to fit it .Sadri (2004) and Attaran (2006) in evaluating smart schools consider the countries' culture regarding to information and communication technology as a main effective factor. Our society , specially our educational society has not a clear understanding of information and communication technology and it's not just limited to our education system , so there's a need to provide educational authorities with this thought grounding.

If the principals and teachers are not equipped with necessary skills and knowledge , they usually can't successfully put steps into information and communication technology field. Pragram (1990) Baker and Mohammad (1998) mentioned one of the serious basis in the application of information and communication technology is the lack of knowledge and skills on the teacher's side. Skillful teachers , principals and definitely this class of society is the main factor in introducing information technology to schools. The problematic issues that mostly involve teachers are philosophy , learning and teaching . Teachers should change their imagination of their roles and examine the knowledge learned by students while learning and change their mind toward what and how teaching and learning should be as the result and perception of these alteration needs teachers' lasting training courses and preparing a suitable culture grounding.

Dr. Jafar Mahmoudi and Soroush Nalchigar ,Seyed Babak Ebrahimi , Mohammad Reza Sadeqi Moqaddam (2007) investigated the challenges of smart schools in our country and these are their findings that are followed on the base of their primaries: The most important challenge of smart school development : the lack of available law and rules in the ministry(as controlling, supervising and evaluating are on the base of computer technology and done in the smart way ,need law grounding which differs from traditional school's. This need

originates from the difference between smart and traditional schools. The lack of rules has caused variety of troubles in schools .For instance , teacher doesn't accept the responsibility to provide the multimedia of the school subjects, if it's done by their own interests , there is no law to pay for it).Not providing the basic structures like ,local net , connection to internet and no adaptation between structure and school format in our country, the lack of maturity to use information technology in the school management , the perception of the necessity of using information technology by school manager , the existence of rooms to administer the smart school plans , the raise in expense of shifting education system, the teacher's lack of ICDL skills, not being common for teachers to use internet, the students' lack of command to use ICDL and the loss of eager in society toward modern technology and not being common for students to use internet.

Qaderi (2006)has conducted a research titled "checking ICT development approach in education system of Australia ,USA and India in comparison to Iran ".According to this research , he emphasizes the formation of a board including educational specialist , computer science specialists and educational technologists to conduct practical plans and ICT development approach and he insists on knowing more about computers and changing teacher's views .

Shirzadi and Yaqub pour (2005) have done a research with the title of investigation and recognition of information technology challenges in education system and they classified them in 5 chapter : the problems and challenges of workshop computer operator , school principals, teachers , students and IT workshop plan. The solutions are as follow: The school principal emphasis on more teachers' use of workshop , introducing colleagues to system and the best way of its employment, providing updated instructive CD by scientific board and educational groups and distribution of CD in schools ,availability of a separated telephone line for IT workshop , the raise in operator working time with specific duty , equip workshops , possibility of creating a high speed internet line by education system help , the presentation of computer course for first and second grade high school students, serious and lasting government financial support of IT section in education system, training the use of net, introducing students to scientific sites .(Heidari,1996)

Sobhani Nezhad and Rezaii Zarchi (2005) have conducted a research with the title of checking necessity , obstacles and the developmental approaches to hire information and communication technology in educational system, the most significant findins include: the basic obstacles in the application of information and communication technology in educational system in four bases " pushing the limits , creating new opportunities in different horizons, changing teaching methods and learning and moving towards active learning".

Abroad studies

Yaqub Movahed Noor and Azman (2005) studied teaching – learning activities in Malaysian smart schools and they measured the degree of teachers' and students' preparation for teaching and learning English language in the smart school environment . Their data were gathered by questionnaires and interviewing .The results showed that teachers prepared enough and they welcomed their new role in the dynamic learning environment. While students mainly didn't have that much preparation.(the same reference)

In other study, Zeen and Moragaya (2004) examined management activities in Malaysian smart
schools . Their research showed that the most ICT applications were due to students assessment , time scheduling , management reports and accountancy.

Eng-Tek Ong, Lay-Kuan Foo & Shok-Mee Lee and Seameo Recsam reports the relative effect of Smart and Mainstream schooling on students "attitudes towards science which was measured using ATSSA(M).The results indicated that the level of attitudes towards science of Form 3 students who had participated in the Smart Schools is statistically significantly higher than the level of attitudes towards science of Form 3 students who had participated in the Mainstream Schools

N g lee yen,Kamariah Abu Bakar, Samsilah Roslan, Wong Su Luan,& Petri Zabariah Megat Abdrahman Studied Self-Regulated Learning in Malaysian Smart Schools and The Environmental and Personal Determinants and came to this conclusion.

The Relationships between Self-Regulated Learning with Environmental Factors

Pearson correlation coefficient analysis demonstrates that levels of IT-integrationand self-regulated learning in smart schools were positively and significantly related to each other ($r = .49$, $p < .01$).The positive association suggests that by enhancing the levels of IT-integration in smart schools, students' self-regulated learning may be improved. This finding is consistent with many past studies (Eom & Reiser, 2000; Lee, 2000; Bonk & Dennen, 1999; Bopry, 1999; Rosenberg, 1987; Dede, 1986; Anderson, Boyle, & Reiser, 1985). In fact, it supports the view that environmental factor, such as the physical context of a learning setting, is related to self-regulated learning (Zimmerman, 1997). IT permits the educational processes to be redefined around the individual and allows smart school students to be more proactive in learning. For instance, students can use the personal computers to organize and complete their learning tasks. They also have great opportunities to access useful, up to-date, and limitless information and learning materials from the Internet independently. Learning became more student-centered, independent, and exploratory in nature. As emphasis by Liu (1992) students have more control of their own learning activities in IT-integrated environments. To put it in a nutshell, modern learning technologies, such as personal computers, educational software, and Internet, may support and promote smart schools students' self-regulated learning.

Student-teacher interactions was found to have a positive and significant correlation with self-regulated learning ($r =.36$, $p <.01$). The positive relationship between these two variables implies that teachers can play an important role in cultivating self-regulated learning among students. This is because they are able to shape the learning settings to accommodate, encourage, and facilitate students' self -regulated learning.

The three dimensions of student-teacher interactions, student-centered learning($r =.35$, $p < .01$), feedbacks provided by teachers ($r = .17$, $P < .01$), and strategy instruction($r = .33$, $P < .01$) were positively and significantly related to self-regulated learning. These results imply that teachers may enhance students' self-regulated learning by promoting student-centered

learning, as oppose to teacher-centered learning. Student-centered learning is a teaching approach, which enables students to determine the content, pacing, instructional sequence and approaches based on their learning needs, abilities and attitudes. In addition, the teaching of learning strategies or strategy instruction may improve students' self-regulated learning as well. Students who received training in self-regulated learning manage their studies more efficiently as compared to those who did not receive any guidance (Zimmerman & Schunk, 1989). Lessons on learning strategies should, therefore, be provided in schools. From another aspect, feedbacks provided by teachers only yielded a low correlation with self-regulated leaning. Yet, the result does not diminish the importance of feedbacks. Literature reviews show that feedback provided by teachers is a prime determiner of self-regulated learning (Butler & Winne, 1995; Phye & Sanders, 1994; Phye & Bender, 1989). Appropriate feedbacks may guide students to self-evaluate their own learning and also to refine their learning strategies (Butler & Winne, 1995). Thus, teachers should not neglect it during the teaching and learning processes.

The Relationships between Self-Regulated Learning with Personal Factors

Pearson correlation coefficient analysis show that motivational beliefs were positively and significantly related to self-regulated learning ($r = .47$, $p <. 01$). The strength of associations was close to a large strength relationship. This result was within expectation given that motivation always plays an important role in students' learning processes, including self-regulated learning. Past studies have consistently found that motivational beliefs were positively related to self-regulated learning (Kwon, 2001; Eom & Reiser, 2000; David, 1999; Riverto, Cabanach & Arias, 2001; Pintrich & Roeser, 1994).These beliefs enable students to exercise control over their thoughts, feelings, motivation, and actions, consequently affecting their learning behaviors. The relationship between motivational beliefs and self-regulated learning was further examined by looking into its various dimensions; which include intrinsic goal orientation, extrinsic goal orientation, self-efficacy, control beliefs, task values and anxiety.

Intrinsic goal orientation and extrinsic goal orientation were significantly and positively related to self-regulated.

Amongst the six dimensions of motivational beliefs, self-efficacy has the strongest association with self-regulated learning .Control beliefs only have a small strength positive relationship with self-regulated learning. Tasks values, another dimension of motivational beliefs, was also significantly and positively related to self-regulated learning. Anxiety was the only dimension of motivational beliefs, which has a negative and insignificant association with self-regulated learning. Self-regulative knowledge has a positive and significant relationship with self-regulated learning knowledge on self-regulated learning. Information literacy was not significantly related to self-regulated learning. Finally, correlation analysis reveals that attitude towards IT has a weak and negative relationship with self-regulated learning. This association was not significant.

Methodology

In this study the objective is applied research .The method is descriptive survey category.

In this research population includes all the students of smart and mainstream schools of 7 districts of Mashhad .

Sample of statistical sampling

Since the population of this research includes smart and mainstream schools of 7 districts of Mashhad .So multi level clustering is used. Sample consists of 420 students from smart schools and 433 students of mainstream schools.

The unit of observation sample regarding the population and the objective of the research , The unit of observation sample , were smart schools and mainstream schools.

To estimate the number of sample regarding the population standard table of kerjessi and Morgan is used to select 420 students from smart schools and 433 students of mainstream schools.

Data collection techniques To collect data the researcher designed independent questionnaires for each aspect, so 25 questions for learning process , 20 questions for methodology and 10 questions for the teacher role.

Scaling the answers of questionnaires To design the questions five choices scope of Likert is used .Total form of scoring of this scope ,"always" with 100 and "never" with 0.

never	Seldom	sometimes	Usually	always
0	25	50	75	100

Reliability of this questionnaire was evaluated by the instructors & advisors of the research. The Alpha Cronbach's approach was used to measure validity.

Data analysis and hypothesis testing To analyze collected data from samples descriptive and statistic method were used for data analysis and testing hypothesis the researcher used two independent T-test to compare the significance means between two separate groups .After collecting data the researcher used SPSS software.

Data analysis In order to analyze data SPSS is used . In descriptive section frequency index , percent list . bar graph and pie graph are used and for inference significance Mann Whitney (non parameter version of T-test) is used.

Frequency table

course	frequency	Frequency percent
humanities	346	40.5

basic sciences	507	59.5

Mean of learning process, methodology & teacher's role table

	number	mean	Standard deviation
learning process	25	1083.99	562.34
methodology	22	1089.99	525.37
teacher's role	10	564.73	211.75

In order to investigate the normality of the data distribution, the Kolmogorov Smirnov test, in relation with learning process, methodology & teacher's role from the perspective of humanities & basic sciences students', was used. Regarding the abnormality of the data in analyzing the hypotheses , the Mann Whitney test was used.

The results of Mann Whitney test

learning process						
course	school	number	Mean of percentile	Sum of percentile	statistic	Significance level
humanities	mainstream	167	120.7	20038.5	6177.5	0.000
	smart	180	221.5	39646.5		
	total	347				
basic sciences	mainstream	266	205.03	54332.5	19087.5	0.000
	smart	240	304.3	72423.5		
	total	506				
methodology						
humanities	mainstream	167	132.02	21915	8054	0.000
	smart	180	210.25	37425		
	total	347				
basic sciences	mainstream	266	222.96	59307.5	23796.5	0.000
	smart	240	290.1	70487.5		
	total	506				
teacher's role						
humanities	mainstream	167	103.9	12987	5112	0.000
	smart	180	148.75	18891		
	total	347				

basic sciences	mainstream	266	169.8	29715	14315	0.000
	smart	240	226.7	51691		
	total	506				

Considering that two tailed significance level (less than 0.05) so that the question indicating the meaningful difference between learning process , teaching method & teacher's role in smart schools and mainstream ones from the perspective of the students of humanities is confirmed and regarded the means outcome basic sciences, it can be stated that learning process , teaching method & teacher's role from the humanities and basic sciences students in smart schools are higher than the mean in mainstream schools.

Conclusion

Regarding to the learning procedure subject ,the findings indicate that in smart schools creative task and independent learning of students are enhanced.

The students' suggestions and ideas are being employed, the students' questions are encouraged, students' curiosities are enhanced and applied , the students' interests are taken into account, motivate activities for students are designed, the short and long term goals are being known by learners , they are involved in decisions based on group's categories. The cooperation and sense of duty in group working are enhanced , they urge the students to respect others' potentialities and interests, students are involved to evaluate their work, the methods of students' self evaluations are enhanced, they help learners to evaluate their progress in achievement of special goals , they assist the students to recognize the blocks that restrict their school subject learning, they give a hand to them to learn effective skills and habits in studying , they criticize students less and admire them more, they have been effective in English language learning and in computer learning, they provide students with necessary skills to use information technology, by using information technology, these schools lead to increase students' learning course.

Actually, it can be said that accepted issue in learning procedure illustrates a direction change from useless approaches to new approaches and the researchers of(Dharankar ,Barve &Beave,2004) (Ames,1992and Louis mandelson,1994 and Zimmerman,2002 and Schunk,1999)confirm this hypothesis.

At the issue of teaching methodology, the findings shows that the goal of each lesson is obvious in smart schools. Students achieve assigned partial and general behavioral objectives, different educational sources are applied.

The various teaching method are applied, the learner's progress is being evaluated continuously , the tasks are attractive , the subjects are fantastically presented, the subjects are obviously presented , the teaching method involves the review of what is thought and what is to be learned, the emphasis is on asking and answering not memorizing, emphasis is on students' learning, the students' opinions are asked on troublesome part of lesson , students find opportunities while new teaching methodologies are used to think about their ideas , suggestions and answers. The teaching methodology are emphasizes on achievement

of teacher – student objectives. task-based and planned. The teaching methodology encourages the students to discuss, and they are flexible.

The teaching methodology reflects that teacher observe things from students' outlook. The teaching methodology is informed and fluent. The teaching methodology reflects enough knowledge on school subjects. The teaching methodology leads to acquire new experiences. The teaching methodology

Is student-oriented. Studies of(Ames,1992and Butler and Winne,1995 and Peggy and Schunk,1999) confirm this hypothesis.

The subject of teacher's finding illustrates that smart schools using information technology go toward the decrease of teacher's roles. Teacher is not the main factor in teaching but directs the context and controls the class, he doesn't convey the information just through lecture, in contrast, he implicates various methods of teaching, he provides urgent equipments and tools to direct student to perceive facts. He recognizes the class situation in order to let students conduct scientific and mental activities, he plays the role of director, conductor and facilitator, he emphasizes activities including interpretation study and summary. He separate the students into groups, he makes everything available to create challenges for students, he considers student's interests and abilities. Teacher and student both involve in preparing electronic text. In other words , it has been accepted that the teacher role differs its direction from information conveyor to facilitator and conductor and shows that teacher himself is a learner(Mehr Mohammadi et al , 1994)He takes a part as evaluator in the whole learning process. In such a part , the teacher evaluates, the effectiveness of a problem, the quality of students' task, and his own situation in learners ' conducting.(Ismaeili, 1997) in classes the teachers apply the active learning approaches . students talk directly together in stead of asking teachers to create this relationship. They create task for themselves and manage their activities. In these classes ,teacher gives service as a director, he creates grounding for independent learning and assists to raise students' creativities. Teacher doesn't rely on book texts, and considers them as standard information documents. In such schools teachers are more flexible toward students' learning. He lets them free and lets them organize the teaching materials to be thought regarding to needs and specific pre needs.(Sene,181:15)(Sene,1994 and Mehr Mohammadi et al ,1994 and Ismaeili, 1997 and Zimmerman ,2002) confirms this hypothesis.

Acknowledgement

My most sincere thanks go to all my professors for their helpful suggestions and moral support. I am very pleased that I had the honor of being their student. Special thanks also go to my family for their generous spiritual support Finally the deepest gratitude is expressed to your unflagging support will never be forgotten .

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