

Educational Innovations Condition in High School of Tehran Education Department

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Abstract

This study aimed to evaluate the educational innovations (such as changes in educational systems, educational content, changes resulting in the transformation of educational organization, and new educational technologies) in secondary schools of education department of Tehran. For this purpose first, researcher reviewed literature related to education innovations all over the world. Then, based on the theoretical background, a researcher made questionnaire was prepared and conducted on a sample comprising 316 male and female of high school teachers across 19 districts of Tehran. The results showed the educational innovations currently applied in schools have contrived to apply.

Keywords: Educational innovations, information technologies, male and female teachers, Traditional approach, Problem-solving approach.

1. Introduction

Innovations correspond to a broad concept, which is defined here as: 'an idea, process or product that is new for an organization at the time it is introduced' (cfr. Dosi (2000); Rogers, (2003); Stoneman, (2001)). Innovation is about finding a better way of doing something. (Wong, 2013). Innovation can be viewed as the application of better solutions that meet new requirements, in-articulated needs, or existing market needs. (Maranville, 1992). This is accomplished through more effective products, processes, services, technologies, or ideas that are readily available to markets, governments and society. The term innovation can be defined as something original and, as a consequence, new, that "breaks into" the market or society. Practical examples in the context of schools are, e.g., the change in teaching style, teaching facilities and teacher professionalization. The world-wide experiences show that educational innovations in the field of education have taken place. For this reason, it is necessary to be aware of such developments and try to investigate the possibility of their expansion and to give a model in order to utilize them in other schools across the country.

Considering the importance of educational innovations, this study tried to answer following questions:

1. Which of the educational innovations have the secondary school teachers experienced in their educational environment?

2. Which field of educational innovations do the high school teachers find more essential for more attention and investing on?

At one point, educational innovations were considered a matter which happens accidentally and in the fields of study content and the teaching methods. However, by the expansion and deepening of the educational innovations, this matter was looked upon as an organized matter and was consisted of the education system, the study content, the teacher, the principle, the school strategy. In this case, it is natural that the possibility for innovation exists in all areas and that its importance is felt.

2. Innovation in Education ;a Literature Review

Schools innovate in various ways. Some innovations are visible to prospective parents. Illustrative are laptops for all students or a digital white board. Other innovations are invisible to outsiders. One can think of new didactical approaches or another system for teacher pay. There is an extensive body of literature on school innovations. These innovations are clustered along five types: (1) profiling, (2) pedagogic, (3) process, (4) teacher professionalization and (5) education chain innovations.

1- The profiling innovations cluster contains innovations with respect to curriculum changes (e.g., new courses) and the profiling of the school. Several studies exist with respect to curriculum

changes. A few examples of these come from Choudhury et al. (2008) and Niedermier et al. (2010). The latter observe that a curriculum change results in above-average and sustained improved performance by the students, whereas the first finds that a structural curriculum change decreases the length of program completion time. The results of Choudhury et al. (2008), however, prove to be dependent on gender, the school level and education track of the student. All in all, while the literature mostly argues positive results of curriculum changes with respect to student performance, the impact of school profiling is still unclear.

- 2- The didactic cluster contains innovations that focus on the didactics of the courses: the way classes are taught and the use of specific pedagogical services (e.g., a dyslexia specialist). Increasing quality requirements force schools to increase this pedagogical and didactical focus. Pedagogical changes are, e.g., using different teaching methods (e.g., peer counseling, only group work or project based learning) or involving specialists like a remedial teacher or a speech specialist. There are only few previous studies regarding the effect of pedagogical changes on educational performance. The first is published by Nii and Chin (1996), who find that problem based learning leads to significantly higher grade point averages than using traditional didactic lecturing. Two more recent studies are by Fuchs et al. (2007) and Queen (2009). The former observed that teachers experimenting with pedagogic approaches obtain higher student achievement with their students, while Queen shows that cooperative learning significantly benefits students more than traditional instruction. Overall, we can conclude that, although the number of studies on pedagogic changes in education is low, there seems to be a positive effect on educational performance.
- 3- The cluster on process innovations consists of innovations which facilitate the learning process of students. Examples consist of IT changes, organizational changes at the school level and major building changes. Triggered by an increasingly digital world, schools introduce more extensive IT use, digital learning materials, laptops for all students or digital white boards (see for example Beauchamp, 2004). Furthermore, some schools are constructing a new building where they incorporate novel pedagogical strategies (e.g., by replacing all class rooms by group and discussion rooms). Even though schools make significant investments in process innovations, the evidence of the influence of IT use on educational performance is mixed and therefore, inconsistent results are found in the literature. Both positive, negative and zero effects are observed in previous literature. With respect to the latter, Goolsbee and Guryan (2006) studied the impact of home internet connections on student performance whereas Rouse and Krueger (2004) studied the relation between the use of a specific instructional computer program and student performance. Neither of these studies find a significant result. In contrast, a large part of the studies on IT use in education find positive effects. For example, Machin et al. (2007) use an instrumental variable approach to identify the causal impact of IT expenditures on performance of students. They observe a significant positive relationship. Punie et al. (2006) also find a positive relationship and conclude that there is evidence that IT use improves educational performance, although IT use at home counts for a major part of that relation. Lastly, Sosin et al. (2004) conclude that IT has a small but positive effect on the performance of students. A negative relationship has been observed by, for example, Leuven et al. (2007) who look at the effect of computer subsidies on performance. Furthermore, Angrist and Lavy (2002) also find a negative

relation between IT and school performance.

Unfortunately, little is known on the effects of creating new school buildings. However, studies on group work, with computers and discussion tasks compared to traditional classroom teaching show positive effects (e.g. Sullivan & Pratt, 1996). Overall, the evidence on the effects of process innovations in education seems mixed.

- 4- The fourth innovation cluster contains all innovations that are related to teachers. Due to the teacher shortage in western countries (European Trade Union Committee for Education, 2011), governments are attempting to increase the attractiveness of the teaching occupation. Schools add to this by introducing specific innovations for teachers. Previous literature considered the relation between an innovative approach for teacher pay, teacher quality or teacher training and student performance. These studies mainly find positive relations. For example, Atkinson et al. (2009), Kingdon and Teal (2007) and Lavy (2009) all conclude that a performance related pay scheme increases test scores and value added, although this does not necessarily hold for all types of schools. Furthermore, some studies use teacher professionalization innovations and relate these to school and student performance (e.g. Clotfelter et al., 2007; Miller et al., 2008; Rivkin et al., 2005). Of these studies, Rivkin et al. (2005) focus on the effect of teacher quality, experience of teachers and the education of teachers on student performance and conclude that teachers have powerful effects on student performance, whereas Miller et al. (2008) study the effect of teacher absence and find that teacher absence significantly decreases the study achievement of students. Next, Clotfelter et al. (2007) find that teacher experience, teacher test scores and regular licensure of teachers have a positive effect on both reading and math scores of students. Croninger et al. (2007) find a positive effect of

teachers degree type and experience on reading scores of students. Based on these studies, it seems that professionalization of the teacher positively contributes to educational performance.

- 5- Finally, education chain innovations denote, on the one hand, the relationship between the various levels of education (i.e., primary, secondary and tertiary education) and, on the other hand, the relationship with the community. The former consists of, e.g., primary school students who take introductory classes at the secondary school, students in graduation year of secondary education who take some lectures at university, and upper secondary education students that find an internship at the business that the school has arrangements with. The latter is represented by, for example, community schools and extracurricular activities. Literature indicates that extracurricular activities positively contribute to school performance and social aspects (e.g. Mahoney, 2000; Story et al., 2003). Studies on the effect of community schools are scarce and underdeveloped, but many studies exist on the relationship between the various levels of education and most of the above described relationships can be found in literature. With respect to the transition from primary to secondary education, Yadav (2010) studied the effect of mentoring on the transition to secondary school for at-risk children and finds positive changes in the output. For the transition from secondary to tertiary education, Bragg and Ruud (2007) studied the impact of specific career and technical education transition programs on student outcomes and find a positive effect of the transition program on a reading test, but no evidence was found for the math test. Lastly, a study by the US Department of Education (2010 a summary of findings from two literature reviews) concludes that most experiments in this field find positive effects but are carried out poorly. The US Department of Education calls for

better evidence based research in this respect. Based on present literature the relation between education chain innovations and educational performance seems to be positive.

Educational innovations have had considerable results in the fields of study content, teaching methodology method, students' assessment and evaluation, teachers' training and update, and school and education organization's strategy in its greatest form.

3. Research methodology

The research method of this study is descriptive (survey) method and its target population have been all male and female high school teachers of Tehran Education Department from which a sample of 316 were selected by using kokeran formula and random sampling method from 19 education districts of Tehran (80 teachers from each district). For the purpose of collecting necessary data, a researcher-made questionnaire about educational innovations was made based on the basis of literature review.

The questions covered all clusters of education innovations: (1) profiling, (2) pedagogic, (3) process, (4) teacher professionalization and (5) education chain innovations and were about the following issues:

- Emphasis and circulation of participative or group learning in the class.
- Animating the teaching environment
- Strengthening the relationship between the school and the student's family
- Attracting people's charitable assistance for schools
- Efforts for increasing students' motivations
- Making special arrangements for students with difficulty or being at risk at school & encouraging the students' participation in achieving the school goals
- Giving relative independence to teachers in classroom management (teaching courses, preparing study material based on needs and social issues, creating the possibility for teachers)
- Exchange of experiences, expanding the teachers' knowledge and

information, training creative students, following active teaching in schools

- Effort for changing the teacher-centered method to student centered method and personalizing education
- Taking advantage of new technology in the education process, stating the superior scientific, cultural, social models for students
- Making the school rules and regulations more flexible, circulating creative and innovative management in schools and educational regions, supporting the teachers and innovative persons in the education system
- Encouraging teachers to research, popularizing friends and peer evaluation, training and attracting creative and innovative teachers, qualitative evaluation of students instead of quantitative evaluation, inter-disciplinary teaching, collaboration of school with social structures for fulfilling sense of philanthropy among students, combining practical and theoretical education at school, educating handicap students in regular schools, creating the possibility for interchanging university experiences for students
- utilizing art in the teaching process, compiling the content of schoolbooks based on students' native needs

4. Findings

After collecting necessary data and analyzing them, it was found that most teachers have consensus on following issues:

- To shifting from traditional approach and memory-centered educational system to the problem-solving approach,
- To incline the education system toward personalization of education
- To educate students with motivation and morality,
- To decentralize preparation of the textbooks and to compiling study content, based on needs and social issues,
- To shorten the educational periods and combine the practical and theoretical education at school,

- To attract innovative and creative teachers and modify the teacher-centered method to student-centered method,
- To attract the collaboration of students in achieving school goals and attract the collaboration of families in the educational curriculum-planning process and absorb people (particularly parents) supports for the education system,
- To creating university experiences for students and mutual collaboration of schools with social foundation,
- To take advantage of diverse evaluations in the education system,
- To make arrangements for students with problems.

No results obtained from analyzing the teachers' opinions related to educational system, it can be said the most emphasis by the answerers has been in the following fields:

- Serious revision of “the goals” by school, teachers, principals, and the school-home relationships,
- Revision of “teachers training programs” regarding teaching methods, their evaluation and their relationship with students
- serious revision on “the educational content”,
- Modification of educational system approach towards students, their parents, and the people in the society.
- The effort of governments to stimulate innovations in education, and the effort of schools to implement these innovations, is not in vain.
- It is needed to redefine leadership to include all the elements within a school system from the superintendent to then principals to teachers, students, parents and community representatives. This kind of distributed leadership provides the best opportunity to effectuate real change

By comparative aspect of the program investigation of the realist and realist questions of the current research, it has been clarified that there is a need of increasing investment in the education system, creation of the necessary cultural ground in relation to acceptance of the educational innovations.

5. Conclusion

At the end it might be concluded that fulfilling the educational innovations across the education system, not only depends on changes in some of the existing strategies in the education system and allocation of the necessary investments, but also demands the creation of necessary cultural grounds as well for acceptance of innovations. This latter has, if not as much importance, the same amount of value as the equipment investments. In the same way, as it was mentioned in the literature review, there will be groups of persons who will resist the innovations, which can cause the investments to be wasted. These groups include a set of Senior and strategic managers in education system, school principals, teachers, students' parents, and even the students themselves. For this reason, it is essential for the education system to invest on hardware and software and prepare the primary equipment necessary for expansion of educational innovation. The expansion and deepening of the educational innovations is possible by investment through with culture-building, understanding resistances, and efforts for overcoming these resistances. The findings suggest that the effort of governments to stimulate innovations in education, and the effort of schools to implement these innovations, is not in vain.

The emphasis of education should shift from teaching disconnected content to teaching learning skills –because it is the ability to learn that will keep both relevant content and life-skills current as the child grows up and takes his or her place as a responsible, contributing adult in society.

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