ORIGINAL ARTICLE

تقييم الحاله الموجوده فی المدارس الذکیه فی محافظه مازندران علی اساس النموذج المفهوفی "التوسعه المدرسیه الذکیه "

التمهید و الهدف: إن اطروحة المدارس الذکیه هو قدم جدید فی مجال التطابق مع عصر المعلوماتیه . انما هو تلفیق بین تکنولوجیا المعلوماتیه و البرامج الدراسیه و ایجاد تغییرات اساسیه فی مجال التعلیم و التعلم و کذالك وجود تغییر فی وظائف المدرسینی و الطلاب.

الأسلوب: إن هذه الدراسه توصیفیه – تحلیلیه و المجتمع الاحصائی فیها هم المدراء و موظفوا تقنیه المعلوماتیه والمدرسین الذی تم اختیارهم من محافظه مازندران و عدد المشترکون هو ۱۸۱ شخص تم تجمیع المعلومات عبر استمارات و تم تأییدها من قبل قوانین احصائیه. کان معدل الفا کرونباخ لإستماره المدراء و موظفوا التقنیه المعلوماتیه ۹۵٪ و استماره المدرسین ۸۸٪.

النتائج: اشارت هذه الدراسه الی أن هناك مستوی جید عند المدارس الذکیه التابعه للدوله و ایضا عند المدارای الخاصه و هو مستوی قریب من المعاییر الدولیه و نقاط النموذج المفهومی "التوسعه المدرسیه الذکیه "

الإستنتاج: تم اعطاء اقتراقات لاجل رفع مستوی المدارس الذکیه فی محافظه مازندران فی هذه الدراسه

Evaluation of Smart Schools' Current Statue in Mazandaran Province based on "Smart School Development" Conceptual Model

Background: Smart school project is a new step in information age; it can create fundamental changes in teaching-learning process as well as teacher-student tasks and roles and integration of information technology and curriculum. The main purpose of this paper is to evaluate smart schools current statues in Mazandaran province based on "Smart School" Conceptual Model during the academic year 2011-12.

Methods: The research is non-experimental and to say more specifically is descriptive-analytical. The population contained all principals, technology experts and teachers of selected smart schools of Mazandaran province. The sampling method is completed census; census; it means that the number of sample is equal to the whole society (181). The data was collected using scholar-made questionnaires and observation check list. Questionnaire validity and reliability are estimated using content validity and Cronbach alpha formula. The Cronbach alpha in term of manager and IT deputies' questionnaire and teacher's questionnaire are calculated (%95) and (%88), respectively.

Results: descriptive statistics and inferential indicators results reveal that public smart schools of Mazandaran province are in fairly desirable level and private smart schools are in desirable level which is close to Smart School Development" Conceptual Model components and standards.

Conclusions: to improve current statue of smart schools in Mazandaran province and to achieve a desired level, guidelines and recommendations are presented.

Keywords: Evaluation, Information and Communication Technology, Smart School, Conceptual Model

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صوبہ مازندران کے اسمارٹ اسکولوں کی موجودہ صورتحال کا جائزہ۔ یہ جائزہ اسمارٹ اسکولوں کی ترقی کے ماڈل کے مطابق لیا گیا ہے

بیک گراونڈ: اسمارٹ اسکولوں کا نظریہ انفارمیشن زمانے کے مطابق ہے جس میں درسی نصاب کو انفارمیشن ٹکنالوجی کے ساتھ ملاکر تدریس اور تعلیم کے عمل کو آگے بڑھایا جاتا ہے۔اس تحقیق کا ھدف مازندران کے اسمارٹ اسکولوں کی موجودہ صورتحال کا جائزہ لینا ہے۔

روش: اس تحقیق کاھدف اس پر عمل درامد ہے اور روش کے لحاظ سے یہ ایک تجزیاتی تحقیق ہے۔اس تحقیق میں اسمارٹ اسکولوں کے پرنسپل، انفارمیشن ٹکنالوجی کے ماہرین اور ٹیچر شامل ہیں ۔ تحقیق کے لئے سوالنامے استعمال کئے گئے سوالناموں کے علمی اعتبار کویقینی بنانے کے لئے آلفا کرونباخ فارمولے کا استعمال کیا گیا۔

نتیجے: تجزیاتی اعداد وشمار سے حاصل شدہ نتائج سے پتہ چلتا ہےکہ صوبہ مازندران کے اسمارٹ اسکول نسبتا مطلوب سطح پر کام کررہے ہیں جبکہ سرکاری اسکول مطلوب سطح پر ہیں اور اسمارٹ اسکول کے ماڈل میں بتائے گئے معیارات کے قریب ہیں۔

سفارش: صوبہ مازندران کے اسمارٹ اسکولوں کی کارکردگي کو بہتر بنانے کےلئے بعض سفارشات پیش کی گئي ہیں۔

کلیدی الفاظ: اسمارٹ اسکول، انفارمیشن ٹکنالوجی،سرکاری اسکول۔

ارزیابی وضعیت موجود مدارس هوشمند استان مازندران براساس مدل مفهومی "توسعه مدرسه‌ی هوشمند"

زمینه و هدف: طرح مدارس هوشمند گامی جدید در تطابق با عصر اطلاعات است که با تلفیق فناوری اطلاعات و برنامه‌های درسی، تغییرات اساسی در فرایند یاددهی– یادگیری و همچنین تغییری در نقش و وظایف معلمان و دانش‌آموزان ایجاد می‌کند. هدف اصلی این پژوهش ارزیابی وضعیت موجود مدارس هوشمند استان مازندران براساس "مدل مفهومی مدرسه‌ی هوشمند" در سال تحصیلی ۹۱–۱۳۹۰ می‌باشد.

روش: پژوهش حاضر از نظر هدف کاربردی و از نظر روش، توصیفی– تحلیلی است. جامعه آماری شامل کلیه مدیران، کارشناسان فناوری اطلاعات و معلمان مدارس هوشمند منتخب استان مازندران است. روش نمونه‌گیری در این پژوهش سرشماری کامل بوده است که تعداد نمونه برابر با تعداد کل جامعه (۱۸۱) می‌باشد. با استفاده از پرسشنامه و چک لیست مشاهده اطلاعات لازم جمع‌آوری شد. برای تعیین روایی پرسشنامه از روایی محتوایی و برای برآورد پایایی از فرمول آلفای کرونباخ استفاده شده است. میزان آلفای کرونباخ برای پرسشنامه مدیران و کارشناسان فناوری اطلاعات ۹۵٪ و پرسشنامه معلمان ۸۸٪ بدست آمد.

یافته‌ها: نتایج بدست آمده از شاخص‌های آمار توصیفی و استنباطی نشان داد که مدارس هوشمند دولتی استان مازندران در سطح نسبتاً مطلوب و مدارس هوشمند غیر دولتی در سطح مطلوب و نزدیک به استانداردها و مولفه‌های مدل مفهومی مدرسه‌ی هوشمند می‌باشد.

نتیجه‌گیری: جهت بهبود وضع موجود مدارس هوشمند استان مازندران و برای رسیدن به سطح مطلوب، راهکارها و پیشنهاداتی ارائه شده است.

واژه های کلیدی: مدارس هوشمند، ارزیابی وضعیت موجود، فن‌آوری اطلاعات و ارتباطات، مدل مفهومی مدرسه‌ی هوشمند

INTRODUCTION

Due to the rapid growth of science and ever-increasing speed of its production, traditional training methods do not meet modern man's learning needs and cannot keep abreast of the latest knowledge (1). Thus, the Education Ministry has formulated national policies to equip a large number of schools with computers and software in order to found smart schools in the country. Taken the first step, Education Ministry offers the public smart schools as a sample of information technology utilization in education system. Smart School is an initiative step in being consistent with the information age It causes fundamental changes in teaching-learning process, as well as changes in the teacher-student roles and tasks through integration of information technology and curriculum programs.

It is clear that schools need optimal utilization of new technologies such as information technology in order to achieve their objectives. To make each educational system efficient in order to achieve its desired goals, an infrastructure evaluation should be specified. So while deciding about the design and implementation of the educational system through evaluation, desirability level can be expressed. Also, fulfillment of mission of the system can be guaranteed using assessment information (2).

Evaluation, as one of the important aspects of comprehensive assessment system, is considered an inseparable (integral) component of the management. It can specify weaknesses, strengths, threats and opportunities in order to improve and reform the procedures. One of the tools often used in evaluation is index that plays an important role in reforming the evaluated system performance (3). Indices Development is one of the most important steps of comprehensive performance assessment. If it carefully develops based on the principles and certain, scientific and reliable framework, will lead to represent the current status and the system performance quality (4). Hence, in the present study sets of measuring indices are presented for each element of the smart school conceptual model. Current status of each school toward being smart can be evaluated through them. Also its position can be determined in comparison with others. Given the undeniable importance of school assessment, little survey research is conducted in the field of smart school assessment in Iran. For example:

Pelgrum (2001)) in his paper titled "Obstacles to the integration of ICT in education: results from a worldwide educational assessment" referred to Obstacles such as insufficient number of computers, teachers' lack of knowledge/skills, difficult integration with instruction, scheduling comp. time, insufficient teacher time and not enough supervision staff (5).

The study Subair & Kgangkenna (2004) revealed that the researchers placed a high value on information technology, but they possessed insufficient software knowledge and skills and General IT utilization. This is probably because a majority of the researchers had post-graduate training and were exposed to the use of IT in agricultural research during their training courses. Only the knowledge and skills of video-conferencing and satellite down-linking were not possessed by the researchers (6).

Kong, Horani and Daniel (2005) in their paper titled "A study on the use of ICT in mathematics teaching" showed that teachers are not fully utilizing these facilities in their teaching. In a survey on communication technology in teaching , six major barriers were identified: lack of time in the school allocated to projects involving ICT, insufficient teacher training opportunities needed for ICT projects, inadequate technical support for these projects, lack of knowledge about ICT integration to enhance the curriculum, difficulty in integrating and using different ICT tools in a single lesson and unavailability of resources at home for the students to access the necessary educational materials. To overcome some of these barriers, this paper proposes an e-portal far teaching. There is a very strong positive response to the proposed solution (to develop a portal for teaching, wherein a collection of resources and a lesson planner are incorporated to relieve the teacher from routine tasks. 72.0% of the respondents considered it to be very useful and helpful and 27.0% viewed it as useful and helpful. Only 1.0% of the respondents considered that the portal would not be very useful and helpful (7).

Zain and Murugaiah (2004) examined the impact of Information and Communication Technology (ICT) on the management practices in the Malaysian Smart Schools. The analysis revealed that the impact has resulted in changes that include the enrichment of the ICT culture among students and teachers, more efficient student and teacher administration, better accessibility to information and a higher utilization of school resources. This analysis also revealed that time constraints, higher administrative costs, negative acceptance/support from some untrained staff, abuse of the ICT facilities and problems related to the imposed rigid procedural requirements are among the challenges encountered by the schools (8).

Shum and Fox (2004), explore innovative pedagogical practices through the utilization of information and communication technologies (ICTs) and school readiness to change. School Readiness refers to the experience of the school and teachers, a culture or normative behavioral code that facilitates innovation, ICT infrastructure, as well as capabilities in overcoming terms of technical problems pertinent to the implementation of innovative pedagogical practice. School Readiness is the capacity of a school and also the capacity of individuals within the school to make innovative pedagogical practice happen. Thus, the utilization of ICT is a key lever for educational reforms and schools changes (9).

Yaachob, Mohd Nor and Azman (2005) in their paper titled "Implementation of the Malaysian Smart School: An Investigation of Teaching-Learning Practices and Teacher-Student Readiness" concluded that some aspects in the concept of smart schools education such as teacher training, curriculum development and IT infrastructure, need to be re-examined and revamped . The results showed that teachers are well prepared and favorable to their new role in a dynamic learning environment. However, the results revealed that most students are not well prepared (10).

Bitni Wahab and Kour (2006) investigate on the readiness of smart guidance schools' teachers to support teaching and learning process in schools and develop a digital center. This study showed that most teachers have average level of competence in the utilization of software and language; as well they don't utilize the electronic information resources in the teaching and learning process and do not have any computer knowledge (11).

Hamzah, Ismail and Embi (2009) in their paper found that the use of computers was the core feature of the change phenomenon in Smart Schools. Islamic Education teachers and students were hardly coping with the task of incorporating the use of new technology in their teaching and learning. Many barriers and obstacles in using new technology were reported by Islamic Education teachers and students. The most important barriers identified in this study are lack of computers and available resources, lack of training, shortage of time and the pressure of a heavy syllabus and examination-centered learning (12).

Sanchez, Salinaz and Harris (2010) in a study entitled " Education with ICT in South Korea and Chile," concluded that the effectiveness of ICT in teaching and learning is strongly related to tools such as access to technology, adequate training of teachers , effective curriculum, appropriate assessment of training and creating public motivation (13).

Salimi and Ghoonodi (2012) in a study entitled "The study of functional elements of management system in smart schools " concluded that Research has shown when principals realize the benefits of ICT in their own work, they are more likely to encourage its utilization within the school. Encouraging and supporting the utilization of ICT for both school administration and planning is vital to enhance the place of ICT within schools. The efficiency and effectiveness of management task in a Smart School are enhanced through the use of technology. Thus, Smart School principals will need to go through an intensive management training course to equip them to manage the new facilities, technologies and methodologies to be deployed in smart schools (14).

Salehi and Kashani (2007) in a study entitled "Factors affecting the implementation of Smart School project manager's from viewpoint of high school principals province Mazandaran ," concluded that main components of smart school implementation include the creation of good infrastructure and environment suited information and communication technology , appropriate educational planning in consistence with ICT in schools, changing teaching methods and strategies to achieve the objectives of education , training skilled man resources to utilize ICT, facilities and financial resources, and culture in relation to ICT(15).

Habibi (2010) in a study evaluates a new intelligent education technology in schools. In this study, smart schools are considered as an educational technology which is contained various components such as software, hardware, human resources, organizational knowledge, and practices .Using a five-step methodology, it explores these technologies in order to help decision makers in corresponding areas to make better and brighter policies and decisions about propagation of smart schools in the Iran focusing on identifying the potential impacts of the Stakeholders and policy choices. (16).

Thus, based on previous studies, a study that provides a comprehensive assessment of all smart school components is not observed. Thus there is need to conduct such a research with regard to the smart school comprehensive conceptual model in order to identify school's strengths and weaknesses. Smart School development Conceptual model that is mentioned below is extracted based on studies on global models as well as comments received during interviews with experts. It is tried to provide a comprehensive framework for the operational definition of Smart School.

The main elements of this model include: teaching - learning based on multimedia content, developed IT infrastructure, school management through integrated computer systems, a strong and experienced teaching staff and integrated computer communication with other schools (17). In this study, based on key elements of the smart school conceptual model, all aspects of the smart school development is studied, including areas of hardware, software and manpower to as a framework for the measurement and evaluation of intelligent school process. Then, each components and parts of the education system are evaluated, moreover, schools' strengths and weaknesses are expressed and appropriate solutions are presented to diminish obstacles and difficulties.

According to the purpose of study, the following questions are addressed:

1: How are the current statuses of public and private smart schools in the multimedia content-based learning-teaching environment?

2: How are the current statuses of public and private smart schools in terms of developed IT infrastructure?

3: How are the current statuses of public and private Smart schools in terms of the School Management through an integrated computer System?

4: How are the current statuses of private and public smart schools, in terms of having experienced and capable staffs in the field of information technology?

5: How are the current statuses of public and private smart schools in term of having integrated computer relation to other schools?

METHODS

The main purpose of this study is to evaluate current statue of smart schools in Mazandaran province based on "Smart School" Conceptual Model in the academic year 2011-12. The research method is non-experimental; specifically it is descriptive-analytical. Given the purpose of the study, the population contained all principals, technology experts and selected smart schools' teachers of Mazandaran province. Three public schools and two private schools are presented as Selected schools due to be closer to the indicators and criteria. The population is included:

a) The directors; n =5

b) IT experts; n =5

c) Teachers; n = 171 (all teachers offer educational content in their courses).

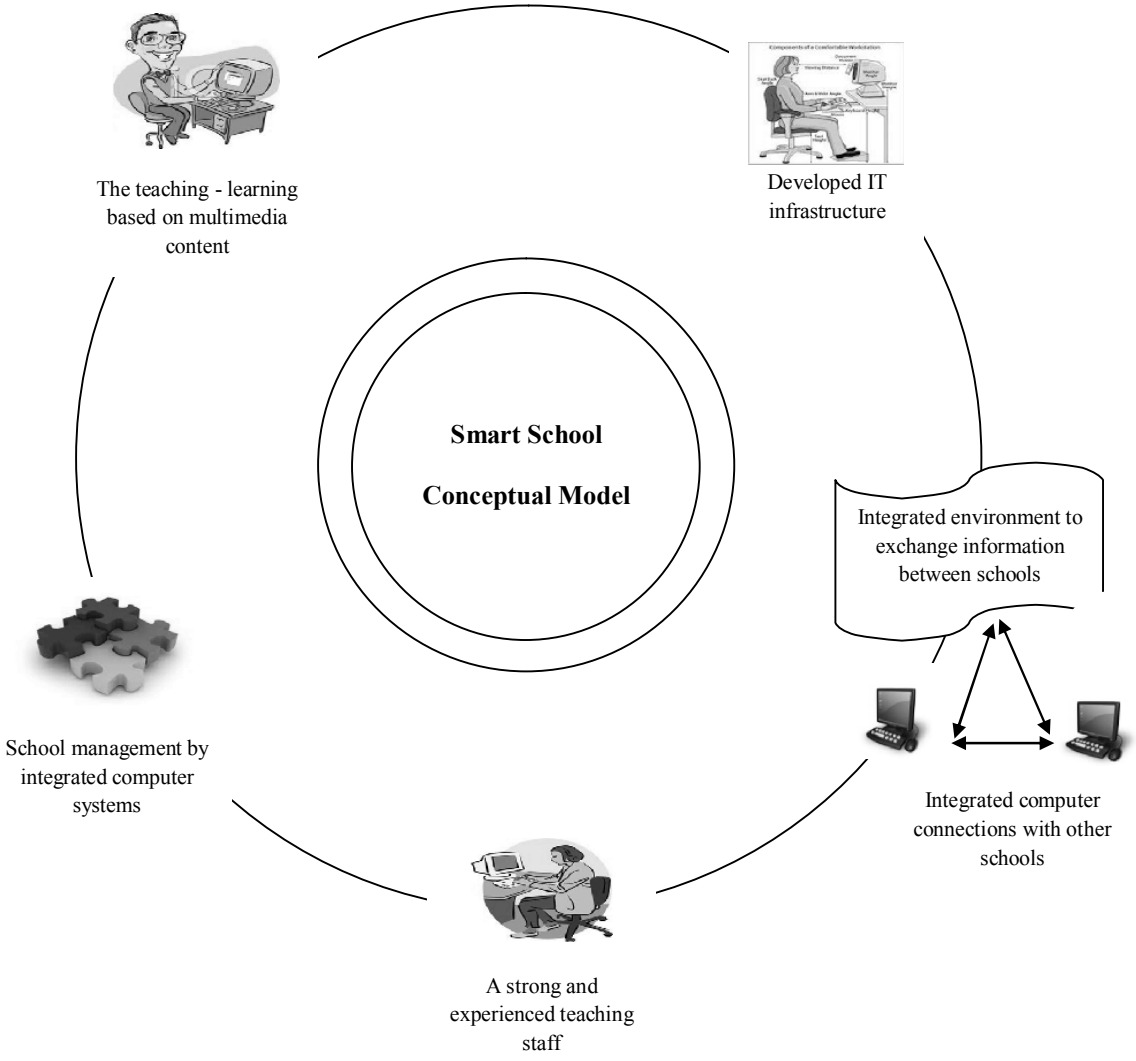

fig 1. Smart School Conceptual Model (17).

The population is consisted of 181 individuals. The sampling method is a completed census that is equal to the whole society (181). Observation and questionnaire are used to collect data. It should be noted that the second and third research questions measure developed IT infrastructure components and school's management through the computer system. To collect data, questionnaires were distributed between school administrators and IT experts. Since teachers don't have a thorough knowledge of questions relating to the second and third components of the conceptual model, it is likely if the questionnaire is distributed among them, they would answer the questions in doubt and carelessly. Therefore, we decided to remove a sample of teachers for these two components. Questionnaires and observation check list were prepared by researcher using Information Technology Education specialist and experts' perspectives. The content validity of tools was confirmed by experts. , Cronbach's alpha formula is used to estimate reliability. The Cronbach alpha for manager and IT deputies' questionnaire and teacher's questionnaire are calculated (%95) and (%88) respectively.

To analyze the data, descriptive and inferential statistic methods were used. In descriptive statistics, frequency tables mean and standard deviations were used .for inferential statistics, t-test using SPSS statistical software was used. To analyze the data, first based on the conceptual standard model, the researcher provided requirements to assess the current status of the smart school. Then, through matching each answer with defined requirements, smart schools were evaluated using a range of 3 degrees. Desirability rates were defined as 3 ≥desirable> 2/33, 2/ 33≥ fairly desirable > 1/66 and 1/ 66 ≥ undesirable ≥1. Then, to determine the desirability rate of each indicator, the components and the total mean are matched with above spectrum(range). Then the mean of evaluated components were identified and judgments about the desirability were conducted.

Table1. Frequency and frequency percent of respondents with respect to gender, the position and education

Variable		Frequency	Frequency percent
Gender	Female	114	62/98
	Male	67	37/01
Position	Managers	5	2/76
	IT professionals	5	2/76
	Teachers	171	94/47
Education	Associate Degree (A.D.)	5	2/76
	Bachelor of Arts (B.A.)	88	48/61
	Master of Arts (M.A.)	79	43/65
	Doctor of philosophy (PhD)	9	4/97
	Total	181	

RESULTS

Descriptive study of the demographic characteristics of the study sample (frequency and frequency percent).

According to the above table, we describe the sample with respect to gender, position and education. The study sample consisted of managers (2/76%), IT professionals (2/76%) and teachers (94/47%), 62/98% female and 37/01% male. Their education degrees are as follow:

2/76% Associate Degree (A.D), 48/61% Bachelor of Arts (BA), 43/65% Master of Arts (M.A), 4/97% Doctor of philosophy (PhD). Thus, the sample is mostly composed of female teachers with Bachelor of Arts degree (BA).

First question: How are the current statuses of public and private smart schools in the multimedia content-based learning-teaching environment?

According to perspectives of managers, IT experts, teachers and researchers Table 2 shows the utilization of multimedia content to enhance the quality of teaching-learning process in the public smart school is fairly desirable while it is desire for private smart schools. The t-test results (sig = 0/000 and t = -8/33) indicate that there is a significant difference between public and private smart schools. So-called null hypothesis implies that no significant difference is rejected.

The second question: How are the current statuses of public and private smart schools in terms of developed IT infrastructure?

According to the views of managers, IT experts and researchers, it is clear In Table 2 that public smart schools utilize essential infrastructures to develop information technology which are in fairy desirable level, while private smart schools have desirable level. In other words, according to t-test results (sig =0/002 t =4/69) it can be acknowledged that at 99 percent confidence there is significant difference between public and private smart schools.

The third question: How are the current statuses of public and private Smart schools in terms of the School Management using an integrated computer System?

According to the managers, IT experts and researchers views, Results in Table 2 show that school administrators utilize an integrated computer system at desirable level. The t-test results (sig =0/24 and t =1/26) argue that there is no significant differences between public and private smart schools and these two groups at 95% confidence are similar in the utilization of integrated computer systems.

Question Four: How are current statuses of private and public smart schools, in terms of having experienced and capable staffs in the field of information technology?

According to the perspective of managers, IT experts, teachers and researchers, results in Table 2 suggest that public schools are in fairly desirable level as well as private ones in desirable level in term of competent and experienced information technology teaching staff. In other words, according to t-test results (sig =0/000 and t = -4/39) it can be acknowledged that at 95 percent confidence, there is significant difference between public and private smart schools.

Question Five: How are the current statuses of public and private smart schools in term of having integrated computer relation to other schools?

According to the perspective of managers, IT experts, teachers and researchers, results in Table 2 suggest that the integrated computer communication of public and private smart schools with other schools is in fairly desirable and desirable levels, respectively. In other words, t-test results (sig = 0/01 and t = -2/51) indicated that there are significant differences between public and private smart schools.

DISCUSSION

according to the perspectives of managers, IT experts, teachers and researchers The results related to the first question, showed that the utilization of the multimedia content to enhance the quality of public smart schools' teaching-learning process, is at the fairly desirable level as well as it is reported desired for private smart schools. According to evaluated individuals perspectives, all the indicators and indices related to the components of the learning-teaching environment, such as having consistent standard educational content with the requirements of student learning, possessing a fascinating educational

Table 2. Desirability levels of smart schools from Managers, IT experts, teachers and researcher perspective (Based on questionnaires and observation check list data)

Components	Schools	From the viewpoint of:	Mean	Standard deviation	Desirability levels	Total Mean of each component
1-the teaching-learning based on multimedia content	public	principals, technology experts and teachers	2/28	0/38	fairy desirable	2/26 fairy desirable
		researcher	2/25	0/47	fairy desirable	
	Private	principals, technology experts and teachers	2/62	0/68	desirable	2/58 desirable
		Researcher	2/55	0/37	desirable	
2- developed IT infrastructure	public	principals, technology experts	2/14	0/51	fairy desirable	2/22 fairy desirable
		researcher	2/30	0/25	fairy desirable	
	Private	principals, technology experts	2/61	0/72	desirable	2/66 desirable
		researcher	2/71	0/48	desirable	
3-school management by integrated computer systems	public	principals, technology experts	2/67	0/36	desirable	2/54 desirable
		researcher	2/42	0/37	desirable	
	Private	principals, technology experts	2/83	0/49	desirable	2/81 desirable
		researcher	2/80	33/0	desirable	
4-a strong and experienced teaching staff	public	principals, technology experts and teachers	2/33	0/41	fairy desirable	2/33 fairy desirable
		researcher	2/32	0/53	fairy desirable	
	Private	principals, technology experts and teachers	2/56	0/61	desirable	2/59 desirable
		researcher	2/62	0/24	desirable	
5-integrated computer connections with other schools	public	principals, technology experts and teachers	2/08	0/58	fairy desirable	2/09 fairy desirable
		researcher	2/11	0/71	fairy desirable	
	Private	principals, technology experts and teachers	2/55	30/33	desirable	2/52 desirable
		researcher	2/50	0/47	desirable	
Total Mean and Desirability levels of component	public	2/29 fairy desirable				
	Private	2/63 desirable				

software, devoting hours of teachers plan to attend CMS, producing educational content by teachers and students to produce consistent content with the requirements of the curriculum, searching supplementary training and scientific resources to improve the quality of teaching and learning through the internet and identifying the sources and scientific databases, providing electronic exams and get immediate feedback on student performance are correspond to standards and requirements set. The researcher during observation of private schools reports desirable utilization level of multimedia content .He acknowledges that the principals and school authorities have made impressive strides to make multimedia content more flexible and adapted to the needs of students and to motivate teachers and students. For example, for every classroom, two teachers (fixed teacher or traditional and transitive teacher or familiar with the technology), are provided. Transitive teacher is an expert familiar with new technologies, who produces content in specialized field .Then when the content is prepared, presents it to the traditional teacher or the fixed teacher. After examining the fixed teacher-generated content, if it is needed the content can be re modified, so that together they produce content tailored to students' needs, this leads to a motivation and enthusiasm and lack of resistance to the traditional teaching methods. They believe that integrated information technology with teaching and learning process has provided an opportunity for them to learn how to use computers and

scientific electronic resources and databases to teach better and to upgrade students learning in the classroom. Students will be asked to scientifically search on the topics taught for 20 minutes and summarize what have obtained in one page then present it to class; these learning methods improve students' learning and make learning process easier and more creative. Therefore, ICT can have significant effects on learning outcomes, increase efficiency and enhance the teacher and student's scientific and information literacy capacity. Based on above, research findings are in consistent with the results of Yaacob, Mohd nor and Azman (2005), but they are not in consistence with the findings of Pelgrum (2001), Chong Chee Kong, Horani and Danial (2005), Hamzah, Embi and Ismail (2009), Bitni Wahab and Kaur (2006) and Jafari Hajati (2006). The above results suggest that the private smart schools are quite similar to the first component of the smart school conceptual model. Also, according to administrators, school IT expert and teacher's views, the results of public smart school show that most of the indicators and indices related to the components of the teaching-learning environment, are defined to be at average level. According to the utilization educational content project in the classroom, the results suggest Smart Schools of the province are not provided with efficient teachers having high capacity making multimedia content. In fact, school teachers in the utilization of electronic resources in their teaching and learning process have average skills and abilities. Also, due to the lack of appropriate educational software, student are not enthusiastic and interested in producing adequate educational content and do not contribute their teacher in producing training content. Teachers have less interaction with their students out of school hours and do not show willingness to conduct electronic tests. All this suggests that the Smart Schools in Mazandaran moderately match to the standards of first component of the smart school conceptual model. Based on the above, research findings are consistent with the results of Pelgrum (2001), Chong Chee Kong, et al (2005) and Hamzah, et al (2009), due to , that the lack of time in the school for projects involving ICT, And with the results of Bitni Wahab and Kaur (2006), due to , that most teachers have average level of competence in the use of software and language; as well they don't utilize the electronic information resources in the teaching and learning process and do not have any computer knowledge . findings are consistent with the results of Jafari Hajati (2006) claim that the role of teachers in smart schools is not much different from traditional teachers and in these schools the various teaching practices with respect to the individual variants are not used (18). Research findings are not in consistence with the results of Yaacob, et al (2005) who believes that teachers are well prepared and favorable to their new role in a dynamic learning environment. According to the literature, the findings of the present study indicate that Teachers in these schools have a positive attitude towards ICT, But do not utilize electronic information resources in the teaching and learning process due to lack of knowledge and skills. In other words, traditional teachers resist on the traditional teaching method and are reluctant to utilize new technologies in their classroom since they are not familiar to new teaching methods.

According to the perspective of managers, IT experts and researcher the results related to the second question show that public smart schools use essential infrastructures to develop information technology in fairy desirable level, whereas ,Private smart schools have been reported to have desirable level. During investigating of private schools the researcher concluded that most of the indicators and indices related to the infrastructure components, which is needed for IT development are correspond to developed requirements, such as the existence of a sufficient number of computers for the teaching staff, the existence of adequate computer sites at the school, the adequate number of appropriate equipment, Email for each of the students, teachers and staff, the updated website, the deployment of security mechanisms for school information security management and proper cooling and ventilation equipment(pleasant air conditioning) at the site. The schools are consistent with the smart school conceptual model's infrastructure component standards. The results of this research are correspond to Fox and Shum (2004), in which the smart schools readiness is subjected to ICT infrastructure, but they are not in consistence with the findings of Pelgrum (2001), Hamzah, et al (2009), Mahmodi, et al (2008), Habibi (2010) and Jafari Hajati (2006), due to the lack of appropriate hardware facilities and financial resources to implement IT (19). The researcher also concluded during observation in the public schools that a number of indicators related to this component have not been met in the smart schools of the province, such as lack of peripheral equipment (scanners and printers) in school, lack of access to broadband Internet, the lack of an updated website for school, The average school's deployment security mechanisms, a lack of computer power coverage, an average cooling equipment, the lack of an e-mail for all students and teachers, free available antivirus software in school and lack of certain funding for school activities. The foregoing suggests that smart schools in Mazandaran are moderately consistent with the second components of the smart school conceptual model. The results are consistent with Fox (2004), Pelgrum (2001), Hamza, et al (2009), Habib (2010), Jafari Hajati (2006), since infrastructures lack, equipment funds and appropriate hardware facilities shortage are the major obstacles to the development of smart schools.

According to evaluated individual views the results related to the third question; show that most indicators of school management components have been met in public and private smart school of the province through an integrated computer system Including extensive electronic communication (mobile, Internet) with clients, particularly students' parents , that in this way they can consistently associate with the school and trace the academic statute of students, using the device Card riders Control to control entry and exit of students, surveillance cameras in the area to monitor the environment of the school, communicating electronically with other upstream agencies and organizations

and receiving circulars electronically, informing grades in website to be informed of the class process and students at moment, in which the school principal can enter a password using server and inspect the class. According to above public and private smart schools in Mazandaran are consistent with third component of smart school conceptual model. Research findings are consistent with the results of Salami and Ghonoodi (2012) who believes that principals realize the benefits of ICT in their own work; they are more likely to encourage its utilization within the school. Encouraging and supporting the utilization of ICT for both school administration and planning is vital to enhancing the place of ICT within schools. The efficiency and effectiveness of management task in a Smart School are enhanced through the use of technology. Also it is consistent with the results of Zain and Murugaiah (2004) who believes that management tasks related to student assessment and scheduling allocates the highest rate of ICT utilization in smart schools.

According to the perspective of managers, IT experts, teachers and researcher The results related to the four questions suggest that public schools are in fairly desirable level as well as private ones in desirable level in term of competent and experienced teaching staff in the field of information technology. researcher during observing private school achieved these results: most indices and indicators related to the components of having skilled teaching staff, including teachers and students, staff fluent in user computer skills, teachers capable in software and content production tools in schools, dedicated blog or website for each teacher have been met. The above results suggest that the private smart schools are quite similar to the fourth component of the smart school conceptual model. The findings are in consistent with the results of Yaacob, et al (2005), that claim teacher are well prepared in the field of information and communication technologies as well as Shum and Fox (2004) that claim School Readiness is the capacity of a school and also the capacity of individuals within the school to make innovative pedagogical practice happen and with results Salehi and Kashani (2007) and Habibi (2010) results in relation to allocating education and necessary skills to teachers and school administrators to develop a competent workforce. But, they are not in consistence with the findings of Hamzah, et al (2009), Subair and Kgangkenna (2004), Sanchez, Salinas and Harris (2011), Chong Chee Kong, et al (2005). The results observed in the public smart schools show that indices and indicators related to these components is moderately observed, including: teaching staff have moderate capacity, average number of teachers have passed the content production courses, the average number of teachers have their own blogs, the lack of skilled full-time technical technicians to technically support the school, powerful interface who follows school affairs related to the smart school development. With regard to the above, we can conclude the public smart schools in the province are moderately in consistent with the standards of the fourth component of the smart school conceptual model. The findings are in consistent with the results of Shum and Fox (2004), Salehi and Kashani (2007) and Habibi (2010). Also the findings are consistent with the results of Hamzah, et al (2009), Subair and Kgangkenna (2004), Sanchez et al (2011), Chong Chee Kong, et al (2005), Binti Vahab and Kaur (2006) which claim shortage of trained human sources in the field of using computer, low motivation due to lack of adequate training to teachers and students, their lack of proficiency in English, lack of teachers' skills in using ICT and the lack of technical support expert. But, The findings of this study are in consistent with the results of Yaacob, et al (2005) claim that teacher are well prepared in the field of information and communication technology.

According to the perspective of managers, IT experts, teachers and researcher the results related to the fifth question suggest that the integrated computer communication of public and private smart schools with other schools is in fairly desirable and desirable levels, respectively. The researcher through observing private schools websites concludes most of the indices and indicators related to the components of the integrated computer communication with other schools are met in mentioned schools, including membership in the portal of smart school, extensive scientific and educational cooperation with other Smart Schools and broadly communicating with the Department of education,. Based on the above it can be concluded that private smart schools are quite similar to the fifth component of the smart school conceptual model. Research findings are consistent with the results of Chong Chee Kong, et al (2005) claim portal development is very helpful and effective in the Smart Schools. The results obtained from public smart schools show that the smart schools academically interact with few other schools and have little communications with the Education Department .Therefore, based on the above it can be concluded that public schools are moderately in consistent with the standards of the fifth component of the smart school conceptual model . Research findings are consistent with the results of Chong Chee Kong, et al (2005). So according to the reviewed results related to the research questions and clarifying the status of schools in each of the aforementioned components, the current status of public smart schools in Mazandaran province are in fairly desirable level and the current status of private schools are desirable which is consistent with the standards and Requirements set. Therefore, the development of smart schools in the province is increasingly growing; but still many challenges and difficulties are impeding the implementation of this scheme. Using careful planning and spending enough time and money they should be overcame as well as providing the rapid development of these schools. To improve the current status and also appropriate solutions are offered as follow to gather proper data of smart schools in the province:

1. Before the smart school development project has been begun, school management must have a clear understanding of the role and necessity of the smart school development, as well as smart schools profile. School management will also need to be aware of the stages of the smart school development. Each school before starting

process must specify who shall be responsible for managing and implementing the project, the responsibilities of all relevant experts and stakeholders must be determined as well as implementation activities and schedules.

2. The successful implementation of the project requires broad communication between senior managers, IT experts and interaction with each other at different school levels. Smart school development project itself provides a common platform for interaction and communication based on the promoted mutual context.

3. Managers and leaders of the Education Ministry should be sensitive to the feedbacks of the Smart Schools. They must take stakeholders' suggestions and recommendations advantages at various levels as much as possible. These feedbacks can correct and improve macro-level policies and decisions of the Education Ministry.

4. It is recommended to promote the use of the new computer and the Internet technology among teachers and students. Education Department through providing a cultural context for the directors, as well as useful training courses tailored to the smart schools, can promote the development of the school.

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