

# Constraints and Reasons that Prevent the Implementation the Smart Classrooms at Education in Saudi Arabia: South Governorates and Villages

AlGhamdi, N.M, Dr. Abdullah Altameem

*Abstract. This paper discusses the smart classrooms at education in southern governorates and villages in Saudi Arabia. it is initial study includes a plenary review of the research literature is provided regarding internet of thing IoT and smart classroom. Also, this paper reviews the role of technology to support education by using one of it called smart classrooms. The internet role to apply the smart classroom and If have they been implemented in southern villages well or not?*

*Keywords: smart classrooms, education, Saudi Arabia, internet of things IoT, Internet, south governorates and villages.*

## I. INTRODUCTION

Recently, the education in Saudi Arabia wants to be depending on the skills of students by the smart classroom, scientific research, and digitization books by barcodes that puts in the foreword of each book. In 2017, Saudi Arabia headed to keep abreast of the changes that the world facing from the internet of things, robotics and electronic modeling. Prince Mohammed bin Salman announced the city of Neom, which will keep pace with the changes that will take place in 2030. The Neom works on 16 subjects one of them is Technical and digital sciences and the first stage finish in 2025. [1]

But, some of the villages have lack of internet and sometimes it does not have communication towers. So, that became the work of evolving is very hard because the people can't use it. The internet in the village especially in some cities in the South of Saudi Arabia has some problem with communication by phone and lack of the internet. In the Al-Baha for example, they still some villages of its deal in 3G and it has lack of the internet. When some student wants to search or work on the internet, he needs to go in the high place or the near governorates to get the high connected to the internet.

This paper focuses the reasons for little uses the smart classroom in southern villages. These initial studies to search for how successful is the applicated of smart classes and whether they are already available or because of its distant these areas? And which the way to solve the problem?

## II. LITERATURE REVIEW

### 2.1 Internet of things (IoT)

In the last years, the concept of the internet has changed depending on the technology revolution. Now, it has a new concept that is the Internet of Things (IoT). It hasn't the specificity definition for the IoT. But we can express for it, it's the collection of computers connected with together to sharing information that connected to the internet. Each element in IoT must have a unique address and called the element a thing. It communicates with each other by Radio-Frequency Identification (RFID) to achieve a common goal [2].

The US National Intelligence Council has stated the IoT will change our life because will connect with everything. we will be depended on it by 2025. So, the IoT should have the strategy to decide who's will use it (user) and their restrictions and privileges [2].

A lot of IoT application used at present. For example, in the marketing, the application can contact its provider when a decrease in the stock and inform its institution by the electronic way. Also, in traffic lights that helps in the normal distribution of cars and prevent congestion as much as possible. In China used two technologies: IoT and RFID in the automotive factories to recycle its information [2].

In Saudi Arabia, it has taken a developmental action to apply the technology and convert to digitalization. The city of Neom has been announced. This city was established to support the needs of the market and to attract investors from inside and outside Saudi Arabia. Also, some of companies and institutions have begun to deal with some Internet applications such as the motion sensor used in water cycles in lighting or in water faucets such as those used at King Khalid Airport in Riyadh [1].

### 2.2 Learning environment and the smart classroom

The smart classroom describes as "a classroom or school climate, environment, atmosphere, tone, ethos, or ambiance" [3] It is like a smart environment includes more than one of technology used in daily teaching [4]. It isn't similar to the normal class which used the book. It also has teaching and learning activities [5].

**Revised Manuscript Received on March 10, 2019.**

AlGhamdi.N.M, Information system, Imam Mohammed Ibn Saud Islamic University (IMSIU), KSA (Email: NMAIGhamdi@imamu.edu.sa)

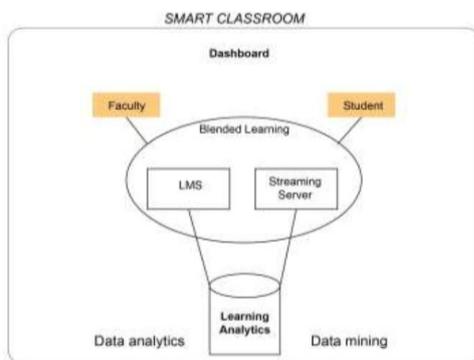
Dr. Abdullah Altameem, Information system, Imam Mohammed Ibn Saud Islamic University (IMSIU), KSA (Email: altameem@imamu.edu.sa)

# CONSTRAINTS AND REASONS THAT PREVENT THE IMPLEMENTATION THE SMART CLASSROOMS AT EDUCATION IN SAUDI ARABIA: SOUTH GOVERNORATES AND VILLAGES

The meaning here differs from computer classroom that refers to interactive whiteboards to support the interaction between teachers and students at real-time and doing the teaching and learning activities [6]. At present, accompanying with the development of emerging technology as massive data mining and analysis and wireless communication technology, the smart classroom represents the technology-rich classroom, i-classroom or future classroom [7].

Based on scientists analyzes: oping Li, Siu Cheung Kong, and Guang Chen, they concluded to indicated that the most attractive characteristic of the smart classroom is its integration of all kinds of interactive technologies, data analysis techniques, and context-aware technologies and devices to support the digital intelligence teaching and learning activities.

In figure 1, that describes the roles between teachers and students. Here the role of the teacher is a facilitator and allow students to have access in different ways to educational materials in the classroom. Here come two departments are Learning Management System (LMS) and the streaming server. Their function is to improve the learning environment and to facilitate ways of teaching classrooms as active classroom teaching [8].



**Fig.1. Proposed model for Smart Classroom**

Guillermo Bautista, Federico Borges are explaining the qualifications of the smart classroom is should focus on functional and ergonomic design because they are crucial to have efficient and useful smart classrooms. They decided 9 properties involved in the smart classroom: flexibility of physical arrangement, adaptability, comfort, multiplicity, connectivity, personalization, order/organization, openness and safety/security. [9]

As explained by the researchers, the smart classrooms must be based on three axes: design of its space and ergonomcy; integration of ICT in a functional, invisible, justified and intensive way; and an innovative pedagogical methodology. Also, it's depended on teaching principles [9].

### III. RESEARCH METHODS

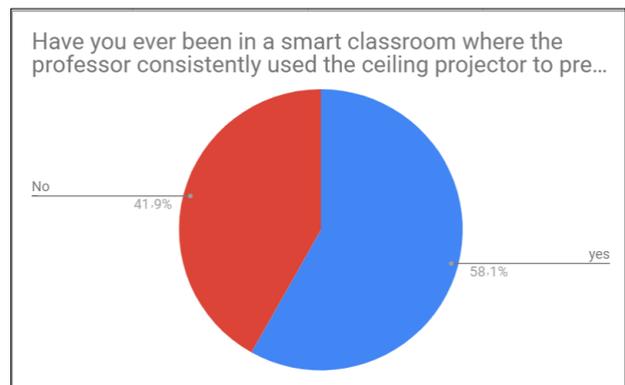
To know how successful the application of the smart classrooms in the southern villages and governorates, we conducted initial studies by publishing a questionnaire to several people in the southern regions in order to find out what problems prevented the application of this.

The questioners have 10 questions, it is open-close questions and closed questions. We used qualitative data and written in the Arabic language. The number of respondents: 42 people were the percentage female to male is 95.2%.

Also, we do the interview with the famous one of company provide the internet is STC to evaluate the internet service level and what the reasons to lack of internet.

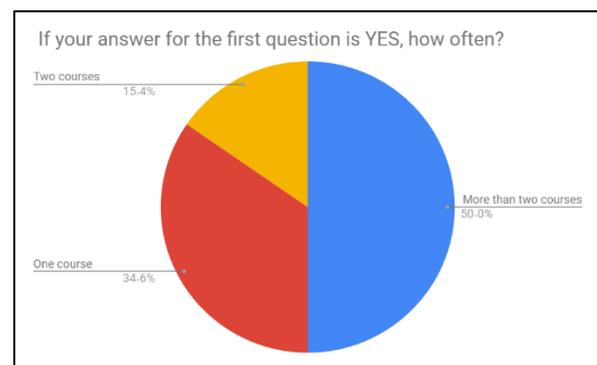
### IV. RESULT & DISSCUSION

A Most of the answers, they have used the smart classroom which asks if Have you ever been in a smart classroom where the professor consistently used the ceiling projector to present information? the answers summaries, they agree 59.5% but, 40.5% does not agree for it.



**Fig.2. The percentage study in a smart classroom**

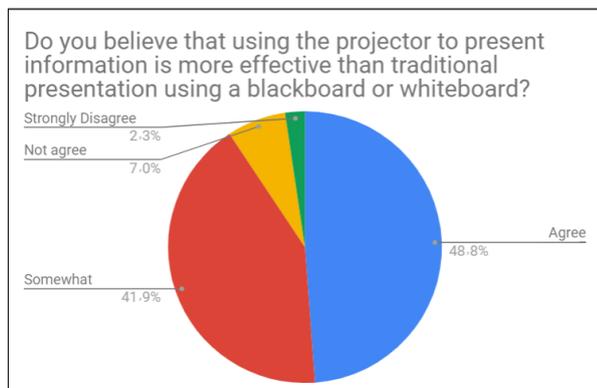
Depended on the previous question, ask who's answer yes about how often? It is One course or Two or more courses. The answer comes in figure 3. The answer is 34.6% used in one course, 15.4% for two courses while other used for more than two courses.



**Fig.3. The percentage study in a smart classroom**

But they aren't working as well as this is due to several reasons. In South villages the lack of internet that the famous problems focus the people. An engineer at the communications company assured me that the internet is weak, although all the villages have internet access, because of the nature of the terrain and its difficulty, the internet is bad in these villages. he answers are illustrated in figure 4.





**Fig.4. The obstacles that prevent the activation of smart classrooms**

During the interview, the Engineer in the Telecommunications Company replied that there is no monthly rate of internet interruptions that depended on the weather status and drilling operations next to the Internet supply. And on the level of support for schools, he said that it is good for previous reasons.

For success any project that needs to support from the stakeholder to decrease the resistance. The people in the southern villages have acceptable to any change in a learning way. They have 90% acceptance to apply the idea "figure 5".

What are the obstacles that prevent the activation of smart classrooms in the southern villages and governorates?	The answers
The basics of the building are not good	15
Lack of budget to bring in every semester	2
Electricity cuts many times	5
Weak internet connection	15
Lack of interest by district education officials	1
Nothing	1
<b>Total</b>	<b>39</b>

**Fig.1. The percentage of acceptance the smart classroom in South villages**

In some school in villages have some technology used in the classroom. For example, The projector, smart board, and computer. But on the other side, the percentage to people not used any electronic device is 21.4%. This number is the high percentages comparison in other countries.

The technologies are increasing. So, the Ministry of Education needs to collaboration with communication companies to strengthen the strengthen internet signals and prevent interruption as much as possible. The Ministry of Education can agree with a company to support smart classroom technology that it works to the rebuilding of the Internet settings and supports the technologies to develop the education and became it, students useful.

## V. CONCLUSION

It is initial studies that focus on the reasons to delay applying the smart classroom and what the stands without benefiting from this technique in the southern villages. The smart classroom is more important to increase the skills in research and knowledge skills between students. It increases the rate of participation between students and teachers. Also, the smart classroom is the aspect of IoT that help to achieve the vision 2030. The disruption of the Internet and the weakening of electricity, one of the most famous obstacles

in the southern villages. Change must start from villages where these constraints cause a delay in knowledge compared to cities. the future work will do case-study to cover the collection of villages and people to support the importance of studies and it will focus which the benefits to contract external technology companies to work to supply and repair problems.

## REFERENCES

1. Arabia, S.: Neom FACT SHEET. Homepage, <https://www.neom.com/content/pdfs/NEOM-Fact-Sheet-en.pdf>, last accessed 2018/11/23.
2. Omar, S., Mehedi, M.: Towards Internet of Things: Survey and Future Vision. International Journal of Computer Networks (IJCN), (2013).
3. Fraser. : Research on classroom and school climate. Handbook of research on science teaching and learning, 493–541 (1994).
4. Rohini, T., Mohanish, G., Siddhesh, K.: Internet of Things for Smart Classrooms. International Research Journal of Engineering and Technology (IRJET), 203–207, (2016).
5. Loughlin., JH, S.: The learning environment: An instructional strategy. Teachers College Press, (1982).
6. Zhao. : Research university faculty perceptions of smart classroom technologies. Intellectual Property Publishing House, 3-15, (2008).
7. Baoping Li, Siu, C.K., Guang, C., Development and validation of the smart. Smart Learning Environments, (2015).
8. Vikas, R. N., Baldev, S., Raza, H., Ghaniya, H.: Learning Analytics for Smart Classroom in Higher Education. In: INTERNATIONAL CONFERENCE ON EDUCATION, SOCIAL SCIENCES AND HUMANITIES, (2017).
9. Guillermo, B., Federico, B.: Smart Classrooms: Innovation in formal learning spaces to transform learning experiences. Bulletin of the IEEE Technical Committee on Learning Technology, 18-21, (2013).
10. Welcome to Neom Homepage, <http://www.neom.com/ar-AR/>, last accessed 2018/10/12.
11. Alexander, M. N., Mwana, S. O., Sun Yi.: IoTs for Capturing and Mastering Massive Data Online Learning Courses, Japan, (2017).
12. Elyas, T., Picard, M.: Saudi Arabian educational history: Impacts on English language teaching. Education Business and Society Contemporary Middle Eastern Issues, 136-145, (2010).
13. Rugh, W.: Tradition, growth and reform. The Middle East Journal (56), 396-414, (2002).
14. Alqarn, A. A.: educational Technology in Saudi Arabia: A Historical Overview. Published by European Centre for Research Training and Development UK, 62-69, (2015).
15. Al-Tawil, K.: The Internet in Saudi Arabia, (2018).
16. Alshahrani, H.: A Brief History of the Internet in Saudi Arabia. TechTrends, 60, (2016).
17. Bougie, R. Uma S.: Research Method for Business. 7th edn. Library of Congress Cataloging-in-Publication Data, United Kingdom (2016).