



The Role of School Administrators in The Use of Technology

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ABSTRACT

This research is conducted to obtain the thoughts of state high school administrators to determine the obstacles that they are exposed to while using technology and attempting to integrate technology into their schools. The research is carried out through using the qualitative research design 'phenomenology'. The sample group of this research, which uses qualitative scanning methods, consists of 14 school administrators in North Cyprus during the academic year of 2015-2016. The sample group is identified using "snowball sampling method". The researcher has developed an interview form called 'Interview Form for the Evaluation of Technology Use by School Administrators'. The acquired data has been put through 'categorical analysis' which is one of the content analysis methods. The qualitative data analysis program NVIVO 11.0 has been used for categorizing and coding the data. It was found that school administrators are not anxious concerning the use of technology at school but they fail to integrate the technology into the class.

Keywords: instructional technology, phenomenology, school administrators, technology use.

INTRODUCTION

This section discusses types of educational technology and instructional technology and the purpose of using technology at schools by administrators. In the existing century circumstances, the use of technology in education, just as in every other industry, is increasingly becoming prevalent. It is observed that, technology is efficiently used in all stages of education. Technology is defined as systematically implementing behavioural and physical sciences to solve problems. The problems regarding inadequate technological infrastructures and technical set-ups at schools caused by the lack of financial resources

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State of the literature

- Research aims to organise and categorise the problems encountered by school administrators regarding the use of technology
- Education and technology are two important elements that complement each other and that can minimise many problems at schools
- Trainings and seminars are important for school administrators to overcome their fears regarding technology and obtain the knowledge and skills required for the use of it

Contribution of this paper to the literature

- It is essential for school administrators and teachers to improve themselves in the field of information technologies
- Interviews light up the problem that only 16% of the school administrators follow the latest technological development which is a serious problem to handle
- The research findings also show that all school administrators have the motivation needed for the use of technology at schools

bring along technological barriers. However, these obstacles can be removed if political administrations like ministries can provide sufficient resources.

Keeping up with the age of technology that we are living in is related to be up to date with the latest developments. Hannafin and Savange in 1993 examined reasons for school teachers who resist computers and discussed the changing role of teachers who do use computers. Educational technology focusing on microcomputers; social norms and societal resistance to new instructional methods with effective educational software usage were the issues that dominated that last two decades. Hartley (2007) asserted 5 key effects of new technology on teaching and learning. These were direct instruction, adjunct instruction, facilitating the skills of learning, facilitating social skills and widening learners' horizons. Ertmer et.al (2012) hereby underlined the role of school administrators on teachers having stated that most teachers indicated that internal factors (e.g., passion for technology) and support from administrators played key roles in shaping their practices.

According to Gürsel (2006) a school administrator is a person, who organises and instructs school staff; and plans, coordinates and inspects works in order to achieve goals at school. Increasing sanctions imposed upon education causes the competition between schools and require them to improve their active learning environments. In addition to these, school administrators are expected to undertake new roles and responsibilities (Hacıfazlıoğlu, Karadeniz & Dalgıç, 2011). The administrators should pave the way for technology to be integrated at every stage of education throughout their institutions by adapting it as part of their working strategy and advocating the use of it by turning into technology champions (Banoğlu, 2011). Studies by Yu & Darrington (2006) support technology integration into schools and believe this process to be starting with the school administrators mind for the first instance.

Integrating technology with schools, school administrators, deputy administrators and teachers; planning future strategies regarding the use of technology at schools and reviewing the technological infrastructure and technical set-ups of schools in accordance with these plans; and keeping in mind that education and technology are two important elements that complement each other and that can minimize many problems at schools

This research has been conducted in order to collect the thoughts of state high school administrators who work under the Ministry of Education in the North Cyprus, regarding the technology at schools and to identify the issues faced during the integration process.

MATERIALS AND METHOD

In this research a qualitative model has been used to reveal the views of state high school administrators. Qualitative research can be described as a method that uses observations, interviews and document analyses. It follows a literal and integrated approach in taking perceptions and events into consideration as they appear in their natural environment. The advantage of qualitative research is that it provides an effective understanding of perception and attitude.

This research is based on school administrators' views on technology and analyses technology at schools while identifying the value of the use of technology in managing these institutes. It also attempts to reflect upon the issues that are faced by the administrators while using technology in their daily lives and at schools. Due to these, phenomenology, which is a type of qualitative research design, has been used in this research. It is the type of study that enables one to carry out a research on phenomenon that is not unfamiliar, yet not completely understood?

Research Group

The purpose of snowball sampling approach is to identify individuals and circumstances that can provide a rich variety of information resources.

In this research, the working groups will be diversified as much as possible by consulting administrators and deputy heads of high schools from four districts and every corner of the North Cyprus to identify and evaluate the problems encountered in the use of technology. In return, a comprehensive information resource platform will be obtained. The abbreviations that will be used while quoting the participants will be as follows: A for Administrator, DH for Deputy Head. For example; DH1 represents the first deputy head.

Development of the Data Collection Tools

One of the main data collection tools in scientific research is interview. An interview takes place to uncover the thoughts and feelings of a participant. It is one of the most powerful methods used for understanding people's perceptions. (Punch, 2005).

The interviews consist of standardized open-ended questions which also fit the nature of qualitative research methods for the scope of the research. While preparing the

data collection tools, experts in this technique were consulted and it has been concluded that this technique would be appropriate. The main purpose of using standardised open-ended questions in an interview is to reduce the impact of investigator on the results of the research by asking similar questions to all participants. In such interviews, questions were clearly defined, but the researcher has the freedom to ask additional questions. In this study, an interview form, 'Interview Form for the Evaluation of Technology Use by School Administrators', consisting of open-ended questions has been developed, to get school administrators' views on risk analysis. This interview form consists of technology-related questions regarding the problems faced by school administrators. It has been prepared by the researchers, and the scope has been revised for validity by three faculty members.

Data Collection

The data source of this research consists of written records obtained from interviews with the participants. The interviews have been scheduled based on the convenience of the participants. Interviews have been carried out at times that were convenient for both sides. All comments and suggestions by the participants have been recorded during the interviews.

Written or audio recordings can be very useful for recalling any word or phrase to be quoted. It also helps defining the categories of content analysis (Bell, 1999). Keeping records of interviews has allowed the researchers to analyse and review the discussions and the opinions of the administrators on the problem with technology.

Data Analysis

Decoding the Interviews

The data collected from the administrators have been subjected to a "content analysis" via a data collection tool. Content analysis is a scanning strategy that focuses on finding the important and meaningful parts of a predefined content. The main purpose is to reveal common aspects of the text content (Früh, 2001). Content analysis is the process of conceptualization of the collected data is organized in a logical way according to the concepts and the detection of emerging themes. It is a process of identifying, encoding and categorizing data. Content analysis approach is widely used in the analysis of qualitative data obtained from interviews and open-ended questions (Robson, 2001; Bell, 1999; Patton, 1990). In this research, content analysis is used to uncover underlying concepts within the data and reveal the relationship between these concepts (Miles & Huberman, 1994)

Once they have been re-edited by the text editor, the written records taken during the interviews have been transformed into digital copies by the researcher, by using Microsoft Office Word 2007 software. Transferring data to a computer thoroughly clarified the conceptual framework of the investigator.

Coding the Analysis

While analyzing the data obtained by the phenomenology method, the researcher formed categories based on similarities and differences between the statements made by individual participants. Each category reveals how they experience and perceive different concepts of different subjects. (Didis, Özcan & Abak, 2008). Categorical data analysis has been used as the chosen content analysis method.

Coding is a labelling operation that starts with data analysis and goes on throughout the analysis process. Initial coding requires the use of very limited and descriptive deduction; whereas at a later stage it employs higher level concepts for integrating data (Punch, 2005; Robson, 2001).

During the determination process of the codes and categories, literature have been effective on concepts that emerged from the findings

In this research, the qualitative data analysis program NVIVO 11.0 has been used for grouping data into categories and coding. A wide array of content can easily be encoded and complex information can be arranged into more manageable data with NVIVO 11.0. The program also enables speed recalling while coding, and provides the opportunity for analysing the data later. This software has immensely eased the process of finding common expressions within the answers given to a question. For validating the data analysis, school administrators' opinions, from which codes and categories were obtained, have been directly quoted in this study.

RESULTS

1. Do the school administrators have the motivation, knowledge and the skill set required for the use of technology?

It can be seen in **Table 1** that a large majority (86%) of school administrators have the motivation, knowledge and skills in order to be able to use technology. A further 29% follow technology closely and willingly develop more skills and suggest that technology is inseparable from our daily lives.

Table 1. School administrators' opinions on the motivation, knowledge and the skills required for the effective use of technology.

THEMES	Have Stated an Opinion	%	Have Not Stated an Opinion	%
Having the motivation to use the technology	14	100	-	-
Having the knowledge and the skills for the use of technology	12	86	2	14
I improve myself in the field of technology and keep up with the innovations	4	29	71	10
In this age, everyone should use technology efficiently	3	21	79	11

Below are some of the comments from the participants relating to the the motivation, knowledge and skills needed by the administrators in order to use technology effectively:

Participant (G: A / A: 1) stated that in the present time it is impossible to stay away from technology, as it is an integrated part of our daily lives.

Another participant (G: A: / B: 1) said that due to the new developments in technology with each passing day she realised that she was lacking the required knowledge and skills. Therefore, she has decided to develop her skills further.

2. Do the administrators believe that their schools have the appropriate infrastructure and set-up required for the use of technology in schools?

Table 2. Administrators' opinions on the infrastructure and set-up required for the use of technology in schools.

THEMES	Have Stated an Opinion	%	Have Not Stated an Opinion	%
Schools have the appropriate infrastructure and set-up for efficient use of technology	13	93	1	7
Technical infrastructure and set-up is not satisfactory due to lack of funding	7	50	50	50
There is an effort to bring the technical infrastructure to a satisfactory level	5	36	9	64

In **Table 2** it can be seen that 93% of the administrators expressed the opinion that schools are lacking the technological infrastructure and set-up. In terms of technology 50% of the participants stated that the technological infrastructure and the technical set-up of schools are not at a satisfactory level due to lack of economic resources. 35% of the participants expressed the view that efforts were presented to bring the technological infrastructure and technical set-up of schools to the desired level.

Below are some of the comments made by the participants on the technological infrastructure and technical set-up at schools:

Participant (G: A: / E1 :) stated that the technological infrastructure at schools is not suitable for the use of technology.

Participant's (G: A: / C: 1) opinion was that in this century, they are still experiencing problems with internet connection in many schools and with the present infrastructure it is impossible to achieve any technological developments.

Participant (G.D.H.: / C: 2) believes that The Ministry of Education does not show enough financial support and school budgets are failing. Therefore, participant (G.D.H.: / B: 2) states that they do not have adequate infrastructure and equipment and (G.D.H.: / A: 2) thinks that the authorities lack effort in showing support to bring these advancements to schools.

1. What is the level of relationship between self-efficacy in technological leadership, technology acceptance and digital citizenship?
2. What is the level of the relationship between digital citizenship, self-efficacy in technological leadership and open leadership?
3. Do the schools have enough funding to support the use of technology?

Table 3. Administrators' opinions regarding the funding provided to adapt the use of technology at schools.

THEMES	Have Stated an Opinion	%	Have Not Stated an Opinion	%
Administrators get the necessary funding to support the use of technology at schools	-	-	14	100
There is a lack of financial support for the use of technology from the Ministry of Education	9	64	5	36
Self funding of schools with the efforts of volunteers and parent-teacher associations to support the technological infrastructure.	8	57	6	43
Inadequate funding provided by the Ministry of Education	5	36	9	64
Benefit from the funding provided by the USA	2	14	12	86
Difficult to get funding for the schools	14	100	-	-

Table 3 shows that 100% of the administrators agree on the fact that the schools are underfunded for the use of technology. 64% believe that the Ministry of Education did not show any financial support for the development of a technological infrastructure. 57% of the participants said that to bring the use of technology into their schools, they have created their own funding through volunteering efforts of the school staff and the parent-teacher association. 14% of the participants stated that they are trying to benefit from the funding provided by the USA. 100% of the participants expressed an opinion that they have difficulties in finding the funding required.

Below are some comments from the school administrators and the participants about the funding.

Participant (G.D.H.: / E:2) indicated that they try to gather the necessary funding by putting together the student registration fees collected, organising lottery events with the help of parent-teacher

associations and through donations. However, this is a very difficult process and even with all these efforts the amount raised is inadequate.

Participant (G.D.H./ A: 2) believes that the Ministry of Education should provide the necessary funding to implement the use of technology at schools.

4. Do the schools have the technical staff required for the technical maintenance?

Table 4. School administrators' views on the availability of technical staff at schools for the technical troubleshooting

THEMES	Have Stated an Opinion	%	Have Not Stated an Opinion	%
Availability of technical staff	14	100	-	-
IT teachers to help in resolving technical issues	5	36	9	64
Students helping to resolve technical issues	2	14	12	86
Outsourcing the maintenance and repair of technological tools as well as technical issue of solution.	10	72	4	28

Table 4 shows that all school administrators (100%) agree that there is a lack of technical staff at schools who would resolve technical issues and a further 72% stated that they are outsourcing the maintenance and repair of the technological tools. 36% of school administrators expressed the opinion that they get help from a computer teacher in the case of technical issues. 14% of the participants stated that they get help from the students where necessary with regards to technical problems.

The general opinions from the participants regarding the availability of technical staff to solve technical issues are given below.

Participant (G: A: / E: 1) said that currently there is no technical staff available and they need to purchase the services of a third party to resolve any technology related issues.

Participant (G.D.H.: / E:3) stated that they lack any technical staff therefore they get the help of computer teachers when necessary. If the issue is not resolved they purchase the services of a third party who would maintain and repair the technological tools.

5. Do the schools have adequate number of computers in their computer technology laboratory?

Table 5. Administrators' views on the amount of computers available in the computer technology labs.

THEMES	Have Stated an Opinion	%	Have Not Stated an Opinion	%
Have adequate number of computers at technology labs	9	64	5	36
Having the appropriate structure for the computer labs	13	93	1	7
The computers in the technology labs have old technology	6	43	9	57
Students outnumbering the available computers at schools	3	21	79	11

Table 5 shows that 64% of the administrators think they have the adequate number of computers in their technology labs. The other 36% believe the opposite. 43% of the respondents said that the computers at schools have old technology while the remaining 57% stated the opposite.

Below are some of the opinions of the participants on the subject of number of available computers at school labs.

Participant (G: A: / E: 1) thinks that there is a sufficient number of technology labs and computers at schools however due to the lack of infrastructure these laboratories and computers cannot be used efficiently rendering them useless.

Participant (G.D.H.: / E: 3) believes that there are a sufficient number of computers in their school, however these have the old technology.

Participants (G.D.H.: / B: 2) stated that there are 920 students at their school and the number of computers compare to this number is very insignificant.

6. Should the schools have technology labs for every department?

Table 6. Administrators' views on having computer technology labs for every subject

THEMES	Have stated an opinion	%	Have not stated an opinion	%
Computer labs for each subject at schools	-	-	14	100
Availability of computer labs for students during classes	14	100	-	-
Technology labs for science, language studies and literature classes.	3	21	11	79
Technology labs for computer and technology classes.	14	100	-	-
Schools that have a single computer lab	2	15	12	85

In **Table 6**, 100% of the school administrators reported that there weren't technology laboratories for each subject. 100% of the participants agreed that all schools have technology labs for computer technology courses. 15% expressed the opinion that there is only one computer lab in every school. 21% of the respondents who teach more than one subject stated that they have computer labs for science, and language and literature studies.

Below are the comments from the participants regarding the lack of technology labs for every subject taught at schools:

Participant (G:D.H./C:4) stated that the computer lab at their school is mainly only available for students who study computers and accounting courses that contributes to research immensely.

Participant (G:A/A:1) confirmed that there was only one computer lab that is used for many subjects at their school. However, he strongly believes that there should be labs for every subject.

Participant (G.D.H./A:3) said that there is only one existing computer room in the school that and it is only accessible for students who study computer technologies.

7. What are the administrators' technology-related fears and their level of competency in using technology?

Table 7. School administrators' technology-related fears and their opinions regarding the efficient use of technology

THEMES	Have stated an opinion	%	Have not stated an opinion	%
Administrators' lack of fear for technology	11	79	3	21
Administrators' efficient use of technology	12	86	2	14
Administrators to overcome fear of technology through courses and practice	3	21	11	79
Administrators' asking for help when troubleshooting technology related issues	2	14	2	86
With proper use and application technology should not be feared.	2	14	12	86
Rapid rate of technological developments create fear.	1	7	13	93
Technology should be used effectively and efficiently by both students and staff.	1	7	13	93

In **Table 7**, 79% of the school administrators have expressed the opinion that they have the motivation needed to use technology. 86% reported that they are highly efficient users of technology. 21% of the participants agreed to take technology courses to improve their skills. 14% expressed the opinion that the proper use and application of technology should not be feared.

Below are some of the comments from the participants regarding the effective use of technology and the fear for technology:

Participant (G:A:/B:1) believes that with good practice they can use technology efficiently.

Participant (G:A:/F:1) stated that they do not have any technology related fears and follow technologic developments as well as improving their skills. Previously, they took a cautious approach towards technology, now they can perform difficult tasks with ease, which eradicated these cautions.

Participant (G:A:/A:1) said that she has no fears for technology and furthermore, she can efficiently use it. According to her, technology is a part of daily life and it is unavoidable.

8. Are the teachers at the participant school administrators' schools successful in using technology and integrating technology into their classroom?

Table 8. The success of teachers in using technology and integrating technology into their classroom

THEMES	Have stated an opinion	%	Have not stated an opinion	%
Teachers can successfully use and integrate technology in schools.	6	43	9	57
Only half of the teachers successfully use and integrate technology in schools.	5	36	9	64
In-service training should be provided for teachers to improve the use of technology	3	21	11	79
High age average of teachers is directly related to the incompetent use of technology	1	7	13	93
Teachers not using technology in schools due to a lack of infrastructure	4	28	10	72

Table-8 demonstrates that 79 % of school administrators think that teachers fail at using technology and integrating it into their classroom. On the other hand, 43% of the participants have stated that teachers succeed in using technology and integrating it into the classroom, whereas 57% have not expressed an opinion about the theme at all. 78% of school administrators have reported that there is lack of in-service trainings and courses for teachers, regarding the use of technology. 29% of school administrators have indicated that teachers are unable to use technology and to integrate it into the classroom because of the inadequate infrastructure at schools.

Following are a few examples of the participants' general opinions regarding the teachers' success in using technology and integrating technology into the classroom.

Participant (G.D.H. / C : 3) Some of the teachers at their school are able to use technology and are successful at integrating it with their students. However, there are also teachers who avoid and even resist using technology.

Participant (G.D.H / E: 3) There are significant inadequacies regarding the use of technology and the integration of it into the classroom, however these inadequacies do not arise because of the teachers but instead because of the lack of technological equipment, systems and infrastructure.(G.A.A. / E: 2).

DISCUSSION AND CONCLUSION

As literature pays attention on the use of technology in schools, it has been underlined that information and communication technologies support learning and teaching. This research gives insights the role of administrators on the use of technology at schools. The findings of the above study have been compared with the results of previous studies in the same field and also have been associated with some other works in the field.

Research results shows that a large majority (86%) of school administrators have the motivation, knowledge and skills in order to be able to use technology. A further 29% follow technology closely and willingly develop more skills and suggest that technology is inseparable from our daily lives. The study of Male and Burden (2013) discusses the importance of information technology in schools and how pedagogy and technology are inseparable concepts today. Authors support the view that this integration and motivation leads to a technology learner culture within the classroom and surrounds not only the teachers and the students but also the administrators of the schools as well. (Passey, 2006; Reedy, 2008; Afshari, et al. 2009) According to Helvacı (2008), school administrators' attitudes towards technology have demonstrated that their attitude towards technology is positive which supports the results of the research. 79% of the school administrators have expressed the opinion that they have the motivation needed to use technology.

According to the research, 93% of the administrators expressed the opinion that schools are lacking the technological infrastructure and set-up. There is also a lack of technical staff at schools who would resolve technical issues and a further 72% stated that they are outsourcing the maintenance and repair of the technological tools. 36% of school administrators expressed the opinion that they get help from a computer teacher in the case of technical issues. However, school administrators are expected to use technology, enable the use of it, and assume a leadership role in the implementation of it. The positive impact of technology on success of the students has been leading the governments of many countries to generate new projects with the intent of ensuring the integration of technology into schools. One of the best examples would be the USA, spending 8 billion dollars for the integration of technology during the academic year of 2003-2004 (Quality Education Data,

2004). This comparison might not be fair but during the interviews, all the school administrators have stated that the finances provided for schools are insufficient. In addition, school administrators indicated the difficulties of obtaining finances by themselves and stated that they are financially distressed since the funds provided by the Ministry of Education are inadequate.

Another result of the research shows that a large majority of school administrators who have participated has stated that teachers have incompetency in the use of technology and integration into the class environment. They have pointed out that, especially the elderly teachers have difficulty to integrate technology into classrooms. Even though most of the participants have expressed that the teachers do not require any in-service training. It has been detected that teachers who are more aware of technology, have a more positive attitude towards technology (Cüre and Özdener, 2008). Thomas (1999) indicated that “the people who make decisions about policies and finances in schools have little or no training in educational technology and few resources to make informed decisions.” Therefore, school administrators should have to be at a standard level of technology – use.

For Yu & Prince (2016) the successful integration of educational technology in schools hinges on school administrators' technology leadership abilities. They generated ISTE Standards for Administrators. Their findings show that the aspiring school administrators were more likely to indicate a need for professional development in technology utilization to meet the standards than they were to indicate their perceived current competence in meeting the technology standards in their schools. These findings are similar to the research's results that % 73 of the school administrators think that teachers fail at using technology and integrating it into their classroom and they also fail to adopt or to meet the standards in their schools.

As for the conclusion it can be said that the school administrators in the research has the will and motivation for the integration of technology use in their schools, however due to certain inadequacies and obstacles they fail to do so. A large majority of the participants have the knowledge and skills required for the use of technology but they are not tentative about using it effectively.

REFERENCES

- Afshari, M., Bakar, K. A., Luan, W. S., Samah, B. A., & Fooi, F. S. (2009). Technology and school leadership. *Technology, Pedagogy and Education*, 18(2), 235–248. doi:10.1080/14759390902992527
- Banoglu, K. (2011). Okul Müdürlerinin Teknoloji Liderligi Yeterlikleri ve Teknoloji Kuram ve Uygulamada Egitim Bilimleri,11(1) 199-213.
- Bell, J. (1999). Doing your research Project. Buckingham, USA: Open University Press.
- Cüre, F. & Özdener, N. (2008). Öğretmenlerin Bilgi ve İletişim Teknolojileri Uygulama Başarıları ve BİT Yönelik Tutumları, *Hacettepe University Journal of Education*, 34, 41-53.
- Didis, N., Özcan, Ö., & Abak, M. (2008). Quantum physics from students' perspective: a qualitative study. *Hacettepe University Journal of Education*, 34, 86-94.

- Ethmer, P., Ottenbreit-Leftwich, A., Sadik, O., Sendurur, E., & Sendurur, P., (2012) Teacher beliefs and technology integration practices: A critical relationship, *Computers and Education*, 59(2), 423-435.
- Früh, W. (2001). Inhaltsanalyse. *Theorie und praxis*. 5., Überarbeitete Auflage, Konstanz:Uvk.
- Hacıfazlıoğlu, Ö., Karadeniz S., & Dalgıç G., (2010). Eğitim Yöneticileri Teknoloji Liderliği Standartlarına İlişkin Öğretmen, Yönetici ve Denetmenlerin Görüşleri, *Kuram ve Uygulamada Eğitim Yönetimi*, 16(4), 537-577.
- Hannafin, R., & Savanye, W.C., (1993), Technology in the Classroom: The Teacher's New Role and Resistance to It., *Educational Technology*, 33(6), 26-31.
- Hartley, J., (2007), Teaching, learning and new technology: a review for teachers, *British Journal of Educational Technology*, 38: 42–62. doi:10.1111/j.1467-8535.2006.00634.x
- Helvacı, A. M. (2008). Okul Yöneticilerinin Teknolojiye Karşı Tutumlarının İncelenmesi (Uşak İli Örneği). *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*, 41(1), 115–133. doi:10.1501/egifak_0000000200
- Gürsel, M. (2006). *Eğitimde Yönetim ve Sisteme İlişkin Çesitlemeler*, Eğitim Kitabevi Yayınları No:15.
- Male, T., & Burden, K. (2013). Access denied? Twenty-first-century technology in schools. *Technology, Pedagogy and Education*, 23(4), 423–437. doi:10.1080/1475939x.2013.864697
- Miles, M. B. & Huberman, A. M. (1994). *An Expanded Sourcebook: Qualitative Data Analysis*. (2nd Edition). USA: Sage Publications Inc.
- Punch, K.F, (2005). *Introduction to Social Research—Quantitative & Qualitative Approaches*. London: Sage Pub.
- Passey, D. (2006). Technology enhancing learning: Analysing uses of information and communication technologies by primary and secondary school pupils with learning frameworks. *Curriculum Journal*, 17(2), 139–166. doi:10.1080/09585170600792761
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*, USA: Sage Publications.
- Reedy, G. B. (2008). PowerPoint, interactive whiteboards, and the visual culture of technology in schools. *Technology, Pedagogy and Education*, 17(2), 143–162. doi:10.1080/14759390802098623
- Robson, C. (2001). *Real world research*, USA: Blackwell Publishers.
- Quality Education Data (2004). Technology purchasing forecast, 2003-2004. Denver, CO: Scholastic, Inc.
- Thomas, W. R. (1999). *Educational Technology: Are School Administrators Ready for It?*.
- Yu, C. & Durrington, V.A. (2006). Technology standards for school administrators: An analysis of practicing and aspiring administrators perceived ability to performance standards. *NASSP Bulletin*, 90, 301-317.
- Yu, C., & Prince, D. L. (2016). Aspiring School Administrators' Perceived Ability to Meet Technology Standards and Technological Needs for Professional Development. *Journal of Research on Technology in Education*, 48(4), 239-257.

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