INTERNATIONAL JOURNAL OF INSTRUCTIONAL TECHNOLOGY AND DISTANCE LEARNING

December 2017
Volume 14 Number 12

ISSN 1550-6908

PUBLISHER'S DECLARATION

Research and innovation in teaching and learning are prime topics for the *Journal of Instructional Technology and Distance Learning* (ISSN 1550-6908). The Journal was initiated in January 2004 to facilitate communication and collaboration among researchers, innovators, practitioners, and administrators of education and training involving innovative technologies and/or distance learning.

The Journal is monthly, refereed, and global. Intellectual property rights are retained by the author(s) and a Creative Commons Copyright permits replication of articles and eBooks for education related purposes. Publication is managed by DonEl Learning Inc. supported by a host of volunteer editors, referees and production staff that cross national boundaries.

IJITDL is committed to publish significant writings of high academic stature for worldwide distribution to stakeholders in distance learning and technology.

In its first twelve years, the Journal logged over twelve million page views and more than two million downloads of Acrobat files of monthly journals and eBooks.

International Journal of
Instructional Technology & Distance Learning

Vol. 14. No. 12.

ISSN 1550-6908

Table of Contents –December 2017

Return to Table of Contents

Editorial

Academic Journals -3

Donald G. Perrin

There are some aspects of academic journals that publishers do best because they have people and systems dedicated to this specific purpose for more than 300 days a year. Many well-meaning organizations have tried to do their own publishing and discovered the requirements of time, cost and expertise are not sustainable.

Publishers are well organized in the way in which they plan and schedule activities to produce high quality journals quarterly, bi-monthly or monthly. They may rely on the sponsoring organization to establish mission and policies, set terms and conditions for acceptance and publication, promote the journal, recruit authors, articles, and peer reviewers and contract for all other services through the publisher. Authors assign their copyright to the publisher if their article is accepted for publication; peer reviewers volunteer their services. Thus, the role of the publisher is to vet articles for peer review, facilitate author-editor, reviewer-editor and sponsor-editor communications, select significant articles in their contribution to knowledge and greatest interest to their target audience; edit, copy write, layout and publish high quality on-time printed and/or online publications to promote their sponsors' products and services.

Publication may require one year or more because of the number of steps involved after submission. Authors are notified when manuscripts are received. A preliminary review determines if submission is complete and qualifies for peer review. The article must be original, not submitted or published in another journal, relevant to the mission of the publisher or sponsor, comply with publisher guidelines with respect to topic, format, length, illustrations, tables, bibliography, references, footnotes, copyright, and authors' bio. Some journals provide reasons for rejection and in some instances recommend a more suitable journal..

If accepted for peer review, it is sent to two or more respected academics who assess the value of the manuscript for colleagues in their profession. That does not guarantee publication. Even if the article is excellent, it may be rejected based on flawed research design, inaccurate information, inability separate data from opinion, poor quality writing (clarity of expression, grammar, syntax), findings not noteworthy or of value to the profession, or too many similar articles have been submitted, published previously, or published in other journals. This process may take weeks or months. A low score from peer reviewers will result in rejection with or without explanation.

Manuscripts that pass review are submitted to an editor or editors who make the final decision on which articles to publish and in what order. They are sensitive to what readers will find interesting and of value and they are knowledgeable about trends and changes in the target discipline or profession. Selected articles are then sent to reference librarians who check all sources and determine that the content is original or properly referenced. Copy writers then meticulously check grammar, syntax, meaning and all technical aspects of writing, layout and presentation, including references and web links.

Publication is followed by distribution. This can be printed or digitized on the web. It can be open web, accessible by anyone anytime, or behind paywalls that limit access to what libraries or research organizations can afford. Large publishers manage databases for professional journals numbering in the thousands. The search for more productive ways of sharing information is currently a major source of tension between researchers, teachers, students, librarians, funders of research and the general public. Next month we will explore current activities to resolve these issues.

Return to Table of Contents

Return to Table of Contents

Editor's Note: Here is a way to involve teachers to experiment with emerging technologies to continually add to their skillset and be relevant for their students.

Learning to be Tech-Savvy Teachers

Shufang Shi Strause
USA

Abstract

In an era where rapid technology change, both in the use of the old and the development of the new, is the norm, providing adequate tech training to teacher candidates faces previously unanticipated challenges. Great diversity and multiplicity of options creates dilemma for many, college technology instructors being at the forefront. The article will start from the challenges we face, discuss about course design and teaching strategies, and showcase some exemplary works completed by teacher candidates.

Keywords: technology integration, teacher candidate, ePortfolio, media, learning

Introduction

What we are sharing here are projects and products designed by teacher candidates to fulfil the requirement of a technology integration course EDU315 *Critical Media Literacy: Values, Education and Society.* EDU 315 is a general education (GE 12) requirement for the childhood/early childhood education majors at the State University of New York at Cortland. A major goal of this course is to help pre-service teachers develop understanding of and competence in meaningful integration of technology into P-12 curriculum. The article will start from challenges we face, discuss about course design and teaching strategies, and showcase some exemplary works completed by teacher candidates.

The challenges we face

P-12 schools see a wide variety of technology in use, from overhead projectors and transparencies, to wired computer labs, mobile learning devices such as iPads and other tablets, and the more recently burgeoning use of Chromebooks with Google Apps for Education (GAFE). In such an era where rapid technology change, both in the use of the old and the development of the new, is the norm, providing adequate tech training to teacher candidates faces previously unanticipated challenges. Great diversity and multiplicity of options creates dilemma for many, college technology instructors being at the forefront.

Such situation elicits some basic questions: what kind of technology training do we provide for our teacher candidates and how do we do it? What about the relationship between tools and mindset? What about ethical issues? These are big questions to which the answers beg for systematic research and in-depth discussion. My inquiries to these questions start from redesigning and refocusing EDU315, which focuses on the following aspects:

Mindset: candidates' conceptual understanding towards appropriate and meaningful use of technology – critical medial literacy;

Tools: candidates' competency using tools and in integrating technology tools into the content areas, and

Lifelong Learners: candidates' development of lifelong learning skills which will be transferred to and extended during their future experiences as teachers or other personal or professional endeavors.

What is to be shared below are a few teaching and learning examples, as part of the inquiries by my students and myself.

Learning how to learn

With the exponential increase in the number of Web 2.0 technologies and other teaching tools, it has become impossible to teach students every tool or online learning resource. Learning how to learn is, then, the essential skill for both pre-service and in-service teachers. Sir Ken Roberson in "learn, unlearn, relearn" suggest that what is most important for modern students is for them to know how to learn, unlearn, and relearn (Toffler, 1973). In other words, students should be coming to class to learn how to fish instead of getting a fish (after the aphorism, "Give a man a fish and you have fed him for today; teach a man to fish and you have fed him for a lifetime"). The students are given an adequate amount of preparation work to lay the foundation for learning how to learn; the main focus in class is learning by doing, in a learning community where a positive climate is nurtured and learners are encouraged to explore and experiment with new tools and gadgets through trial and error from the very beginning of the semester.

While most of the course projects are well defined with specific requirements, there are also loosely defined projects provided in the course, such as the project "Come to the Edge." Instead of teaching individual tools, the students are given a pool of tools to explore and tinker with. They are expected to explore as many tools as they can, and create some minimum number of products using the tools. As a result, students receive exposure to different tools. They are encouraged to make sense of the tool in their individual way, and apply them to appropriate content areas. At this point in the students' progress, their examples may not yet constitute meaningful integration, since they have yet to teach in real classrooms. Instead, the focus is on knowing the tools that they have picked out and practicing their application, which is a necessary step on the way to meaningful integration of tools into content areas, the mindset. Shared below are screenshots of the "Come to the Edge" project completed by two students (See Figure 1 and Figure 2).

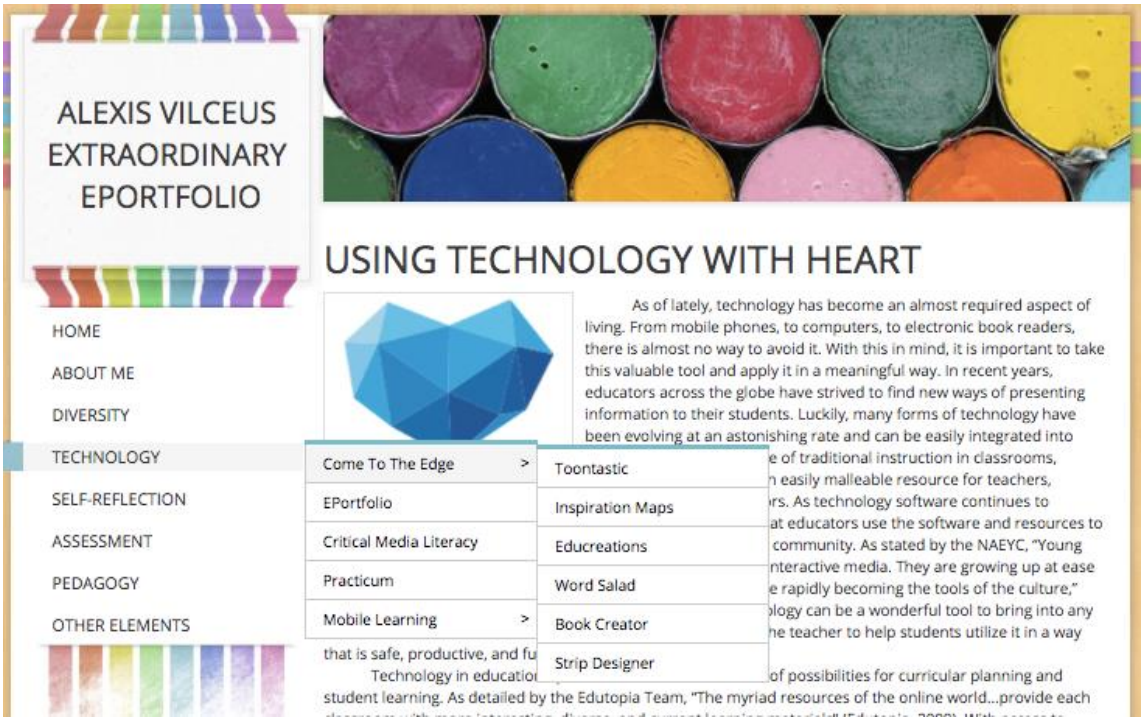

Figure 1. *Come to the Edge* Products by Alexis

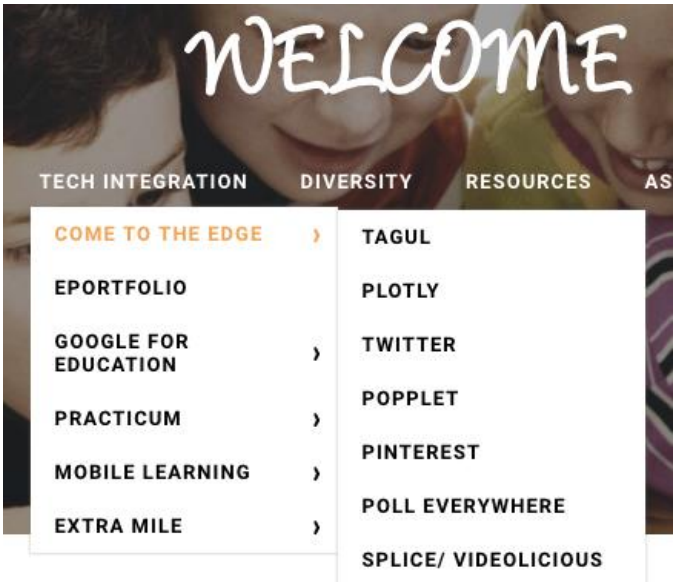

Figure 2. *Come to the Edge* Products by Gretchen

Infusing Creativity

One of the course projects is Critical Medial Literacy: What Would Maria Montessori Say about the iPad - Theoretical Frameworks for Children's Interactive Media (Buckleitner, 2015). Students role play a panel discussion so as to provide theoretical frameworks for children's interactive media. The panelist includes Piaget, Skinner, Montessori, and Vygotsky, with Fred Roger being the moderator. Each panelist will be asked to discuss the strengths and weaknesses of using technology - tablets and interactive media - with young children and bring examples of apps to support their theories. Here is the link to the video of the panel discussion role played by the students: https://youtu.be/z_BKIw2EdGw. A screenshot of the video published in Youtube is shown below (See Figure 3).

As Alexis wrote, "Our Critical Media Literacy project may have been our best exhibition of creativity. Media literacy is a combination of technology and literacy in an engaging and interactive format. For this project we needed combine theory and technology. Our Product was an interesting spin on the family game show family feud known as Theorist Feud."

Figure 3. Role Play: What Would Montessori, Piaget, or Vygotsky Say about iPad?

Learning journey - reflection and ownership

Alexis said: "In creating the aesthetics and format of my ePortfolio, I was able to take ownership of my educational career. Every link, drop down menu, and file attachment demonstrates the hard work and dedication that I put in as a SUNY Cortland student and as an educator. As shown in the different menus, I have about me, diversity, technology, self-reflection and various other elements. In the world of education, there is no one more successful than a self-reflective teacher. Along with the ability to reflect, you must be able to take a diverse group of students, add a dash of technology and chunk of assessment to create a welcoming, inclusive environment." A screenshot of Alexis's ePortfolio is shown above (See Figure 4).

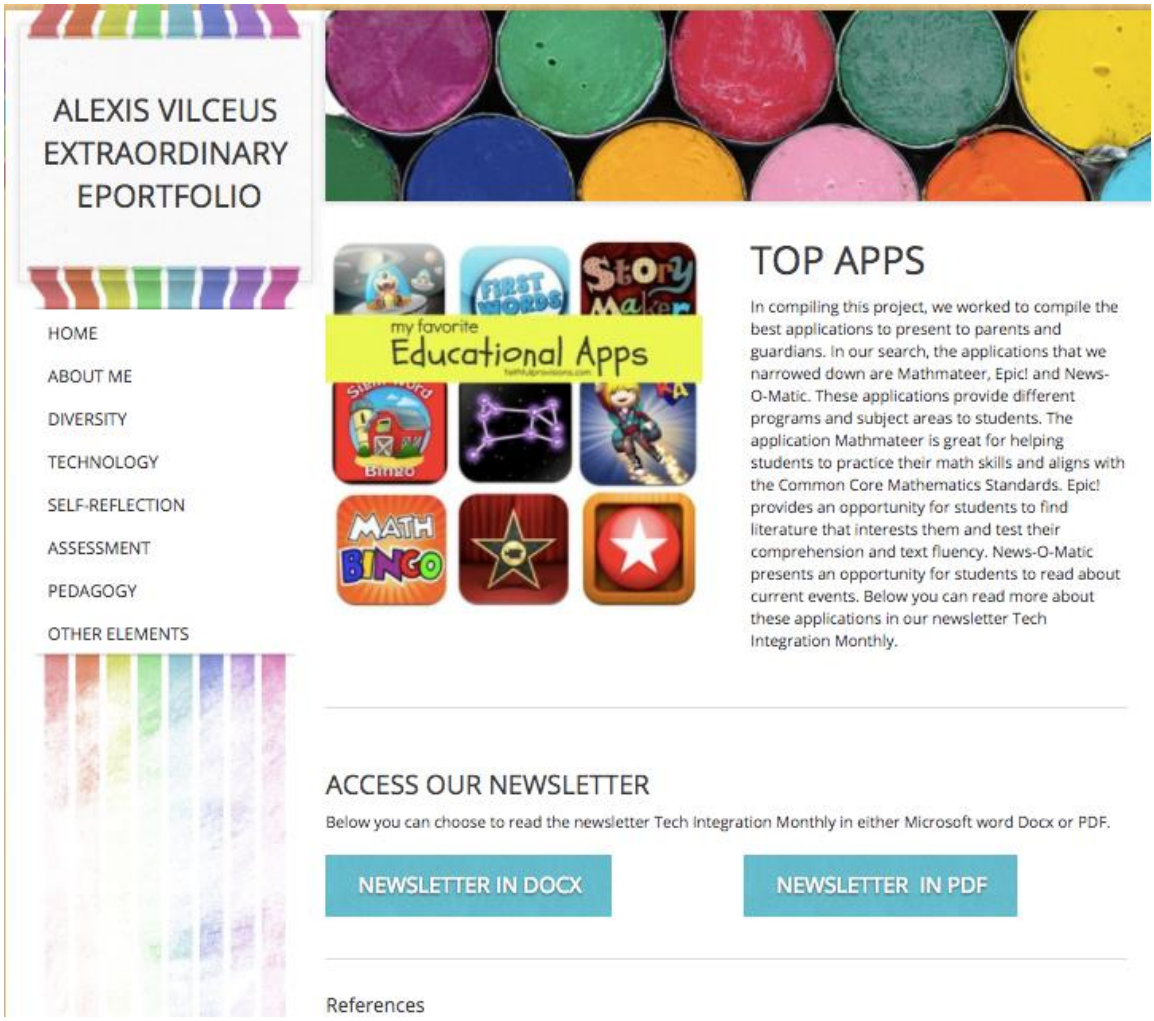

Figure 4: Students Sharing Learning Journey through ePortfolio

Alexis submitted a proposal for *Transformations (2016) - A Student Research and Creativity Conference*. Transformations is a day-long conference devoted to showcasing the wide array of scholarship, research and creativities occurring on SUNY Cortland Campus. The proposal was accepted and she shared her exemplary works with audience of faculty and students. Here is the abstract of her presentation at Transformations (2016): *"Through making an ePortfolio for a technology integration course (EDU315 Critical Medial Literacy), I have recorded a learning journey of my professional development and personal growth. An Early childhood and Childhood*

Education Major, I have designed an esthetically appealing ePortoflio where I showcase classroom learning activities I have learned to create for elementary school children and my learning through field experience. More importantly, I have made introspection and reflection on my learning process - and product. Through sharing process and products of my ePortfolio, I would like to explore with audience ways to infuse creativity, reflection and ownership into my own students' learning in my future elementary classrooms."

Final thoughts

Teachers of the 21st century must deal with previously unanticipated challenges in an era where rapid technology change, both in the use of the old and the development of the new, is the norm. Old and even new technologies come and go. Our college teacher training in terms of technology use needs to be proactive Instead of being responsive or reactive. Often than not, technology is being used not for its intrinsic value, but for its short-term value as superficially impressive "bells and whistles" to either cater to mandated policies or to create the semblance of keeping pace with technological development. What we need to strive to do in our teacher educations programs is to make tech-savvy teacher candidates who are technically competent in tools and who have the mindset and capabilities to actively, innovatively and meaningfully integrate technology into elementary classrooms to enhance children's learning. Learning how to learn so as to become a life-long learner; infusing creativity; taking a learning journey as a reflective learner are only a few learning experiences we would like to share with readers for further discussion.

References

Buckleitner, W. (2015) Chapter 5 What would Maria Montessori Say About the iPad? Theoretical Frameworks for Children's Interactive Media. In C. Donohue (Ed.), Technology and Digital Media in the Early Years (p. 36-50). New York & London: Rougtledge.

Toffler, A. (1973). Future shock. New York: Bantam Books.

ACKNOWLEDGEMENT

Thanks go to Karlene Anderson, Stacey Backstrom, Gretchen Krzykowski, Elizabeth Moshkowski, and Alexis Vilceus from EDU315 classes for their exemplary works.

About the author

Dr. Shufang Shi Strause is an Associate Professor of Educational Technology in the Childhood/Early Childhood Education Department at the State University of New York at Cortland (SUNY Cortland). Dr. Shi is a prolific author of journal articles, book chapters and books in the field of educational technology, teacher training and international education.

Email: shufang.strause@cortland.edu

Return to Table of Contents

Return to Table of Contents

Editor's Note: Development of leadership skills is important to the growth and quality of educational programs. This study focuses on adoption of a specific set of standards for transformational leadership defined by Irbid (1) for a defined population, female principals.

The extent of applying transformational leadership by female principals of schools subjected to the authority of the educational directorate of Irbid from the perspective of female teachers

Habes Mohammad Hatamleh, Najwa Abed Al-Hameed Daeawsheh, Mohammad Saleem Al-Zboon
Jordan

Abstract

The present study aimed at identifying the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. It also aimed at exploring the differences between the respondents' attitudes which can be attributed to their gender, educational qualification and years of experience. The sample of the present study consists from four hundred eighty six (486) female teachers. In order to achieve the study's objectives, the researchers of the present study developed a questionnaire and checked its validity. It was concluded that the extent of applying transformational leadership by the female principals of the schools subjected to the educational directorate of Irbid (1) is high from the perspective of female teachers. It was also concluded that there is no statistically significant difference between the respondents' attitudes which can be attributed to their major, educational qualification and years of experience. Researchers of this study recommended supporting the role of the school's administration in applying transformational leadership and providing more attention to instilling organizational values. They also recommended encouraging female teachers to change themselves, show more creativity and excel in their work. They recommended adopting transformational leadership and its dimensions by school administrations. They also recommended emphasizing the role of this leadership in promoting moralities when performing school works.

Keywords: School management, transformational leadership, applying transformational leadership, educational directorate of Irbid (1), female teachers, school administrations, leadership.

Introduction:

School management can strongly affect all the things that occur in the school educational process. It is also considered a significant instrument for organizing the collective efforts in order to fulfill the concerned needs, and achieve the desired goal and objectives. The successful school management is the one that is able to invest the capabilities of all the group members to achieve the set objectives. The successful school management enhances the educational process and develops students on the social, educational and scientific levels. In this manner, such management can achieve the set social goals that benefit all the society's members.

Leadership is considered one of the most significant topics in management science (MS). For instance, managerial leadership became the standard through which success of educational institutions can be determined. Many scholars specialized in management that stated leadership is the core element and essence of the managerial process. It is also a key element of management. The significance of this leadership arises from the significance of the role it performs. For instance, the role it performs affects the elements of the managerial process. Such effects can be seen through making management more effective and dynamic. Such managerial leadership represents a stimulus that enables management to achieve its goals (Al-Kurdi, 2004, p.41).

In this context, school management is considered one of the top priorities of modern societies in all the educational, economic, and social aspects of life. Such management involves all the social structure systems and their operations of organization, coordination, direction, assessment and follow up. Such operations may be in the form of activities or events that aim at achieving a set goals (Shakourah, 2012: 1). Achieving those goals requires having a successful manager who encourages employees and teachers to be productive. Those managers must be also dedicated to their work, keen to develop themselves, and self-dependent. They must realize that their managerial powers are derived from the powers of their employees at the school. They must realize that they can't be powerful, unless they respect their employees, recognize their capabilities, involve them in the decision making process and share their vision with them in the aim of developing the school (Darwaza, 2003: 8)

Transformational leadership emerged as a response to fulfill requirements of the educational society. Such requirements are set to achieve effectiveness in the performance of institutions and the ones working in them (Batah, 2006). Based on the aforementioned, it can be concluded that effective school management could play an important role in implementing transformational leadership among teachers and making changes to raise the level of employee satisfaction. In the light of the aforementioned, the researchers of the present study aimed at investigating the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers.

Transformational leadership emerged in late 1970s by Burns (1978). He proposes this term in his book *Leadership* with the aim of encouraging managers to respect their employees' role through respecting their ideas, feelings, ambitions, and moral values. The transformational leader is the one who obtains his employee' support for him / her and have the ability to initiate the process of making a change.

Transformational leadership focuses on achieving long term goals, setting a clear vision, and offering incentives to employees to encourage them to achieve the set vision. Bass (1985) defines this leadership. After that, Leithwood, Jantzi, Fernandez (1993) define it in accordance with the restructuring process of educational institutions. From the transformational leadership perspective, the leader is a person who has a vision, charisma, and abilities to motivate employees and focus on productivity, creativity, growth and achievement (Bass & Avolio, 1994). Thus, it became necessary for the leader to practice this type of leadership to facilitate the process of carrying out the work of the institution (Victor & Leboldo, 2011).

Leithwood (1995) and Leithwood & Jantzi (2006) define transformational leadership in a more comprehensive manner. They describe it as being able to develop a sense of loyalty and commitment towards the institution to achieve professional development among teachers. Leithwood et al. are the first ones to investigate transformational leadership within the school context in thrblate 1980s and early 1990s in Canada. These researchers investigated such leadership with the gol of motivating employees, taking responsibility with them, involving them in the decision making process, and sharing practical experiences with them at the institution. Based on the aforementioned, this leadership participates effectively in improving work and increasing productivity levels.

In the light of the aforementioned, it can be concluded that transformational leadership is strongly connected with school management. For instance, this leadership is connected with special relationships to the dominant climate of change at the educational institution. Such leadership seeks to motivate employees leading them to exert the intended extra efforts to make the desired change. That is done through providing teachers with professional training courses and developing the organizational culture values within them (Al-Sou'd, 2013).

Many studies about transformational leadership were conducted, such as the study of Anderson (2008) that was conducted at the United States of America (USA). The latter study aimed at identifying the extent of practicing transformational leadership by school teachers. The sample consists of forty (40) female and male teachers chosen from schools located at rural areas. The interview instrument was adopted by the researcher. It was concluded that the extent of practicing transformational leadership by school teachers is moderate. The study's results showed that there are statistically significant differences between the teachers' extent of practicing transformational leadership which can be attributed to their gender and experience compared to male teachers and the ones who possess less experience

Abu Tina, I'baidat and Khasawneh (2008) conducted a study in Jordan. They aimed to identify the extent of adopting the model of Leithwood & Jantzi (2006) when applying transformational leadership by the principals of the schools located in Al-Balqa governorate from the perspective of those schools' male and female teachers. The sample consists from 340 female and male teachers. The questionnaire instrument was adopted. The results showed that principals' adoption level for the model of Leithwood & Jantzi (2006), when applying transformational leadership, is moderate. It was also concluded that there are statistically significant differences between the principals' adoption level for the latter model that can be attributed to their gender for female principals.

Al-Sharifi and Al-Tanah (2010) conducted a study in the United Arab Emirates (UAE). They aimed at identifying the extent of applying transformational leadership by the principals of the UAE private secondary schools from the perspective of those school teachers. The study's sample consists from 690 teachers. A multifactor leadership questionnaire (MLQ) was adopted to measure the extent of applying transformational leadership after translating it into Arabic and adapting it to suit the UAE environment. Results showed that the extent of applying transformational leadership by the principals of the UAE private secondary schools is high. It was also concluded that there are statistically significant differences between the extent of applying transformational leadership by the principals of the UAE private secondary schools that can be attributed to their gender and academic qualifications that favor female principals and ones who hold an MA degree or higher. It was also concluded that there is no statistically significant difference between the extent of applying transformational leadership by the principals of the UAE private secondary schools that can be attributed to their years of experience.

Al-Hodaiby and Abu O'baid (2013) conducted a study in the Kingdom of Saudi Arabia (KSA) to identify the extent of applying transformational leadership by the female and male school principals from their own perspective. The study's sample consists from 126 female and male school principals. A questionnaire was used as the study's instrument. It was concluded that the extent of applying transformational leadership by the female and male school principals - from their own perspective - is moderate. It was concluded there is no statistically significant difference between the extent of applying transformational leadership by the female and male school principals - from their own perspective – which can be attributed to their gender, years of experience, and number of training courses they have attended.

Al-Otaibi (2014) conducted a study in Kuwait to identify the extent of applying transformational leadership by the principals of the Kuwaiti secondary schools from the perspective of teachers. He also aimed at exploring the statistically significant differences existing between the extent of applying transformational leadership by those principals that can be attributed to their gender, academic qualifications, years of experience and the region in which the school is located. The study's sample consisted of 342 female and male teachers. A questionnaire was used as the study's instrument. It was concluded that the extent of applying transformational leadership by the principals of the secondary schools located at Kuwait is high. It was also concluded that there are statistically significant differences between the extent of applying transformational leadership

by the principals of the Kuwaiti secondary schools that can be attributed to their gender and academic qualifications that favor females and ones who hold a diploma and university degree. It was also concluded that there is no statistically significant difference between the extent of applying transformational leadership by the principals of the Kuwaiti secondary schools that can be attributed to years of experience and the region in which the school is located.

Comments of the aforementioned previous studies:

To the best of the researchers' knowledge and after reviewing the previous studies, it can be noted that all the aforementioned previous studies dealt with transformational leadership from various perspectives and linked it to various attributes. However, those studies did not investigate the role of transformational leadership in managing schools nor the role of such management in creating conditions and providing means for applying t leadership. The present study differs from the above studies in seeking to identify the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers during the year (2016 / 2017). None of studies discussed above dealt with transformational leadership and school management jointly within the Jordanian environment.

Statement of the problem:

The study's problem is represented in seeking to identify the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. The present study aimed at providing answers for the following questions:

Q. (1): What is the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers?

Q. (2): Is there any statistically significant difference between the respondents' attitudes that can be attributed to their years of experience, major, or academic qualifications?

The study objectives:

The present study aimed at identifying the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. It also aimed at exploring the existence of any statistically significant difference between the respondents' attitudes that can be attributed to their years of experience, major, or academic qualifications.

The study's significance:

The significance of the present study arises from the significance of the issues it tackles and the objectives it aims to achieve. For instance, transformational leadership is a vital issue that is receiving increasing attention. Although, the study's subject is significant, there is still a need for conducting further local and Arab studies on this subject. The present study differs from previous studies in seeking to identify the extent of applying transformational leadership by the administrations of Jordanian schools. The researchers of the present study chose this subject because transformational leadership affects the behavior of female teachers and determines the mechanisms of interaction between female teachers, school administration and students. The significance of the present study arises from the following reasons:

1. The current study is considered useful for the educational leaders, and experts working at the schools that are subjected to the authority of the educational directorate of Irbid (1). It shall make them acquire more knowledge about this topic and realize the role of transformational leadership in increasing and promoting female teachers' motivation and achieving satisfaction, stability and security.
2. The results of the present study may help the officials in educational administration to enhance their educational leadership.

Operational definitions

School management: Refers to a group of planning, coordination, direction and evaluation operations that interact positively with each other to serve the society's objectives (Batah, 2006).

Transformational leadership: It is one of the leadership patterns through which the leader aims to explore the implicit and explicit motives of his employees to seek and fulfill their needs and involve their capabilities to the maximum possible level. That is done to achieve the sought objectives through promoting participation between the school and staff, including the school principal and teachers (Burns, 2004). From an operational perspective, transformational leadership can be defined as a group of guidelines and activities related to the extent of applying organizational culture, individual consideration, intellectual stimulation, inspirational motivation, and idealized influence (charisma) by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. These statements are listed in the study's questionnaire that was developed by the researchers of the present study to achieve the study's objectives

The study's limits and limitations:

The present study is limited to the female teachers working in the schools subjected to the authority of the educational directorate of Irbid. According to the statistics issued by the ministry of education in 2017, the overall number of those female teachers in Irbid during the year 2016 / 2017 is 7886 female teachers.

The study's sample:

The study's sample consists from 486 female teachers selected in the stratified random method. Table 1 below shows the distribution of the study's sample.

Table 1

The distribution of the study's sample according to their major, academic qualification and years of experience

The study's variable	Categories	Frequency	Percentage %
Major	Humanities majors	282	58.0
	Scientific majors	204	42.0
Years of experience	Less than five 5 years	135	27.8
	5 – 10 years	180	37.0
	More than 10 years	171	35.2
Academic qualification	Lower than a bachelor degree	84	17.3
	bachelor degree	289	59.5
	Higher studies	113	23.3
	Total	486	100.0

The study instruments:

In order to achieve the study's objectives, the researchers of the present study developed an instrument (i.e. the study questionnaire). It was developed after reviewing the theoretical literature and previous empirical studies that are related to transformational leadership and management, and listening to the opinions of arbitrators, experts, and educators. The questionnaire of the present study consists from two parts. The first part aimed at collecting personal information from the respondents. Such information includes: gender, academic qualification and years of experience. The second part, in its final form, consists of 37 statements that cover five (5) areas. The researchers adopted a five point Likert scale (very high, high, moderate, low, and very low) representing the following values: (5, 4, 3, 2 and 1) respectively.

Validity of the instrument:

In order to check the instrument's external validity, it was passed to ten (10) arbitrators who are specialized and have adequate experience in teaching. These arbitrators work in the faculty of educational sciences at The University of Jordan. They were asked to read the questionnaire's statements and provide their opinions about them in relation to their clarity, and wording, and extent of relevancy of each item with the area it belongs to. These arbitrators were also asked to make deletions and additions, re-word any statement and suggest new statements. The study's questionnaire in its final form consists of 37 statements.

Reliability of the instrument:

In order to check the questionnaire's reliability, the internal consistency coefficient was calculated for each area covered by the questionnaire .That was done by calculating Cronbach Alpha coefficient after the questionnaire was applied on 15 individuals that were not members of the sample. Table 2 below presents information related to the internal consistency coefficient:

Table 2
Test-re-test reliability coefficient (Pearson coefficient) and the internal consistency coefficient (Cronbach Alpha coefficient) for each are of the areas of transformational leadership

Area's No.	Area	Number of statements	Test-re-test reliability coefficient (Pearson)	Internal consistency coefficient (Cronbach Alpha)
1	Idealized influence	8	0.75	0.81
2	Building an organizational culture	6	0.81	0.84
3	Inspirational motivation	7	0.76	0.81
4	Intellectual stimulation	6	0.78	0.84
	Total	37	0.86	0.92

The study's instrument is characterized to have a high degree of internal consistency and reliability. Thus, the researchers of the present study could depend on it to measure what it was set to measure.

Table 3

The statistical criterion adopted for classifying the extent of applying transformational leadership and each area by school principals from the perspective of the study's sample (i.e. the female teachers)

Arithmetic mean	Transformational leadership
From 1.00 – less than 1.80	Very low
From 1.81 – less than 2.60	Low
From 2.61 – less than 3.40	Moderate
From 3.41 – less than 4.20	High
From 4.21 – 5.00	Very high

The study variables:

The independent variables: They include major, educational qualifications and years of experience.

The dependent variables: The level of adopting transformational leadership.

Statistical data analysis:

Arithmetic means and standard deviations were calculated and multivariate analysis of variance (MANOVA) was conducted.

The study results and discussion:

The present study aimed to identify the extent of applying transformational leadership by the female principals of the schools subject to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. In order to achieve the study objectives, answers were provided to its questions as follows:

Question 1: What is the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers?

In order to provide an answer to this question, arithmetic means and standard deviations were calculated. They were calculated to identify the extent of applying transformational leadership by the female principals of the schools subject to the authority of the educational directorate of Irbid (1) from the perspective of female teachers.

Table 4

Arithmetic means and standard deviations for the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid from the perspective of female teachers ordered in the descending order according to their means

Rank	No.	Area	Arithmetic mean	Standard deviation	Level
1	1	Idealized Influence	3.93	.76	High
2	2	Inspirational Motivation	3.65	.85	High
3	3	Building an organizational culture	3.54	1.09	High
4	4	Intellectual Stimulation	3.52	.83	High
		Total	3.66	.78	High

Table 4 shows that the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) is high from the perspective of female teachers. That was concluded through having a total arithmetic mean of 3.66 and a standard deviation of .78. The arithmetic means are within the range of (3.93 – 3.52). The standard deviations are within the range of (0.76 – 0.85).

It can be noted that idealized influence is ranked first due to having the highest mean, 3.93. Its standard deviation is (.76). As for the inspirational motivation, it is ranked second with having a mean of 3.65 and a standard deviation of (.85). Organizational culture building is ranked third with having a mean of 3.54 and a standard deviation of (1.09). Intellectual stimulation is ranked fourth with a mean of 3.52 and a standard deviation of (.83)

Results show that the extent of applying transformational leadership by the female principals of the schools subjected to the educational directorate of Irbid (1) is high from the perspective of female teachers. It was also concluded that the extent of applying all the areas of the transformational leadership by the female principals of the schools subjected to the educational directorate of Irbid (1) is high from the perspective of female teachers. That was concluded through having an arithmetic mean of 3.66. These results can be attributed to the fact that female principals are chosen based on certain scientific standards. For instance, the Jordanian ministry of education sets certain requirements for the ones who desire to apply for such a position. Such requirements include holding a BA degree and a higher degree in educational science or any equivalent courses for at least one year. The above result can be also attributed to having similar managerial environments within the schools of all the sampled female principals. All the regulations issued by the ministry of education are applied on all employees without any exception. The above result is in agreement with the results of: Al-Sharifi and Al-Tanah (2010), Al-Atawi (2011), Al-Hodaiby and Abu O'baid (2013) and Al-Otaibi (2014). However, the above result is not in agreement with the results of Anderson (2008) and Abu Tina, I'baidat and Khasawneh (2008)

The first area: Idealized influence

Table 5
The arithmetic means and standard deviations of the statements related to idealized influence ordered in the descending order according to their means

Rank	No	Statement	Arithmetic mean	Standard deviation	Level
1	1	The female school principal performs her tasks in a manner that makes female teachers proud to work with her	4.21	.84	High
2	4	The female school principal possesses an adequate experience that enables her to deal with the difficult situations wisely and patiently	3.95	.94	High
3	5	The female school principal promotes the sense of belonging within female teachers towards their job and school.	3.91	.96	High
4	2	The female school principal appreciates and acknowledges the efforts exerted by others	3.83	.99	High
5	3	The female school principal realizes how necessary it is to make a change to make developments	3.75	1.06	High
		Total	3.93	.79	High

Arithmetic means and standard deviations were calculated to identify respondents' attitudes on each item related to the area of the transformational leadership areas.

It can be noticed that idealized influence is ranked first due to having the highest means (3.93). It means that the extent of applying it be female principals is high. That can be attributed to the fact that the female school principal talks to her female students and teachers constantly and in various situations and places. For instance, she talks to them in the classroom, school broadcast and parties, parent-teacher conferences and periodic meetings organized by the administration. Such meetings are held in order to transmit the administration's ideas to all teachers equally. Through such meetings, the administration discuss values and ethics, encourage female teachers to adopt positive behaviors and respect students, and avoid focusing on weaknesses and faults. Through such meetings, the administration takes the needs of female teachers and students into consideration.

This result is attributed to the role performed by the female principals. For instance, they depend on themselves when carrying out their tasks without depending fully on female teachers, except in the matters that needs delegation. Female principals are also keen to involve female teachers in school matters related to the major of the latter. That is done in the aim of involving them in group work to promote a sense of loyalty and belonging among them to their school.

This result can be concluded through the following statements:

The female school principal performs her tasks in a manner that makes female teachers proud to work with her, and the female school principal possesses an adequate experience that enables her to deal with difficult situations wisely and patiently).

This result is in agreement with the results of Al-Sharifi and Al-Tanah (2010), Al-Atawi (2011), Al-Hodaiby and Abu O'baid (2013) and Al-Otaibi (2014). The above result is inconsistent with the result of Amr (2007), Anderson (2008) and Abu Tina, I'baidat and Khasawneh (2008).

The second area: Inspirational motivation

Table 6

The arithmetic means and standard deviations of the statements related to inspirational motivation ordered in the descending order according to their means

Rank	No.	Statement	Arithmetic mean	Standard deviation	Level
1	3	The female school principal enhance the female teachers' capabilities in a way that can serve the indented objectives efficiently and effectively	3.74	.97	High
2	2	The female school principal takes into her consideration the schools' conditions and internal resources when transmitting the vision to female teachers	3.70	1.00	High
3	1	The female school principal instill a sense of enthusiasm, commitment and trust within female teachers that encourages them to excel and be productive constantly	3.66	1.03	High
4	6	The female school principal invests the creations of distinguished female teachers to develop and enhance the school	3.64	1.05	High
5	5	The female school principal has a clear vision that is shared by her and the female teachers for achieving tasks	3.60	1.03	High
6	4	The female school principal takes into consideration the individual differences between employees when setting the school's future vision	3.58	1.09	High
		Total	3.65	.85	High

It can be noticed that the extent of applying inspirational motivation by female principals is high from the perspective female teachers through having a mean of 3.93 and a standard deviation of (.85). This result can be attributed to the fact that female principals are working in a systematic manner to encourage and motivate female teachers under the directions of the Jordanian ministry of education. For instance, female principals encourage female teachers and stimulate the sense of challenge and creativity within them. They also involve female teachers in the process of setting the shared future vision to achieve the intended goals. They also take into consideration the needs of female teachers when involving them in setting goals in the future vision. This result can be concluded through the following statements:

> "The female school principal enhance the female teachers' capabilities in a way that can serve the indented objectives efficiently and effectively"
>
> "The female school principal takes into her consideration the schools' conditions and internal resources when transmitting the vision to female teachers."

This result is in agreement with the results concluded by Al-Sharifi and Al-Tanah (2010), Al-Atawi (2011), Al-Hodaiby and Abu O'baid (2013) and Al-Otaibi (2014). The above result is inconsistent with the result of Anderson (2008) and Abu Tina, I'baidat and Khasawneh (2008)

The third area: Organizational culture

Table 7

The arithmetic means and standard deviations of the statements related to organizational culture ordered in the descending order according to their means

Rank	No.	Statement	Arithmetic mean	Standard deviation	Level
1	1	The female school principal promotes the sense team work spirit among female teachers	3.72	1.01	High
2	5	The female school principal motivates female teachers to develop work	3.63	1.02	High
3	2	The female school principal promotes friendly relationships between female teachers	3.51	1.03	High
4	6	The female school principal allows female teachers to participate in the process of building a work organizational culture within the school	3.49	1. 05	High
5	4	The female school principal participates in the processes of follow up and assessment that are performed by the female teachers	3.44	1.09	High
6	3	The female school principal uses a variety of communication means for facilitating the process of communication between female teachers	3.42	1.06	High
		Total	3.54	1.09	High

Based on Table 7, it can be concluded that the extent of applying the organizational culture by female principals is high from the perspective female teachers through having a mean of 3.54 and a standard deviation of (1.09). This result can be attributed to the high awareness level of female principals about the significance of promoting awareness about the school's organizational goals and values. They promote it through improving the system governing the school environment, providing comfortable work environment and establishing friendly relationships between the

members of the school community. They promote such awareness through creating an organizational climate that encourages female teachers to excel and show creativity. That can promote participation and a sense of belonging within female teachers towards the school they work in.

This result can be also attributed to the role that the female principals perform. For instance, they adopt the behavior of accepting others' opinions, show willingness to launch the process of change, and build friendly relationships based on mutual respect with female teachers. They also promote a teamwork spirit among female teachers to work and participate in building organizational culture. There is a strong relationship between the extent of applying transformational leadership by the female principals and the correct building process of an organizational culture. There is also a strong relationship between the extent of such application and the establishment of an appropriate climate that can instill the values of loyalty and belonging within female teachers.

This result can be concluded through the following statements:

The female school principal promotes the sense team work spirit among female teachers, and The female school principal motivates female teachers to develop work.

This result may be attributed to the role performed by female principals. For instance, they participate in preparing the schools' conditions and resources that can support female teachers' work. Such participation occurs through participating in the works and follow up processes performed by female teachers. Such participation also occurs through assisting female teachers in solving the problems they face immediately to prevent any negative impact for such problems on their work

It is concluded that the female school principals also seek to provide several means of communication to communicate with teachers. Such means are provided to them to achieve the goals they are required to achieve in due time. That can be concluded through the following statements: The female school principal participates in the processes of follow up and assessment that are performed by female teachers, and the female school principal use a variety of communication means for facilitating the process of communication between female teachers. This result is in agreement with the results conclude by: Al-Sharifi and Al-Tanah (2010), Al-Atawi (2011), Al-Hodaiby and Abu O'baid (2013) and Al-Otaibi (2014). However, the above result is not in agreement with the results of Anderson (2008) and Abu Tina, I'baidat and Khasawneh (2008)

The fourth area: Intellectual stimulation

Based on Table 8, it can be concluded that that the extent of applying the intellectual stimulation by female principals is high from the perspective of female teachers through having a mean of 3.52 and a standard deviation of (.81). This result can be attributed to the behaviors of female principals. For instance, they provide the school with new ideas and prepare female teachers to be future educational leaders through providing them with professional development opportunities. They also train female teachers on the use of methods of management discussions and conflict resolution. Such training provides female teachers with professional instruments that can help them in performing their educational tasks. It can be noted, the female teacher is an educator and a person of a profession. When the female principals encourage the female teachers to express their opinions freely, it encourages them to think, show creativity, be innovative and enthusiastic, and promote a sense of challenge among them. When errors occur, the female principals have discussions to identify their reasons, learn from the errors, suggest solutions, and participate in achieving their goals. This result is in agreement with the results conclude by: Al-Sharifi and Al-Tanah (2010), Al-Atawi (2011), Al-Hodaiby and Abu O'baid (2013) and Al-Otaibi (2014).

However, the above result is not in agreement with the results of Anderson (2008) and Abu Tina, I'baidat and Khasawneh (2008).

Table 8

The arithmetic means and standard deviations of the statements related to intellectual stimulation ordered in the descending order according to their means

Rank	No.	Statement	Arithmetic mean	Standard deviation	Level
1	3	The female school principal provides the school with new ideas	3.65	1.03	High
2	4	When the female school principal holds meetings with the female teachers, she provides them with professional development opportunities	3.59	.98	High
3	5	The female school principal is concerned with preparing female teachers to be future educational leaders	3.53	.91	High
4	1	The female school principal presents models of successful administrations to learn lessons from their success	3.51	.97	High
5	6	The female school principal encourages female teachers to express their opinions even if it is not in agreement with her opinion	3.44	1.16	High
6	2	The female school principal avoids criticizing female teachers in case any error occurred. She also perceives errors as being useful experiences	3.43	1.13	High
		Total	3.52	.81	High

The results and discussion related to the study's second question:

Question Q. 2: Is there any statistically significant difference between the respondents' attitudes which can be attributed to their years of experience, major, or academic qualification?

In order to provide an answer to this question, arithmetic means and standard deviations were calculated. They were calculated to explore any statistically significant difference between the respondents' attitudes which can be attributed to their (years of experience, major, or academic qualification). Table 9) presents such arithmetic means and standard deviations.

Based on Table 9, it can be concluded that there are minor differences between the means and standard deviations of the respondents' attitudes towards the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1). Such minor differences are attributed to their years of experience, major, or academic qualification.

In order to identify the statistical significance of respondents' attitudes, the three dimensional multivariate analysis of variance (MANOVA) was conducted. The results of this analysis can be presented in Table 10.

Table 9:

Arithmetic means and standard deviations of the respondents' attitudes towards the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) according to their (years of experience, major, or academic qualification)

			Inspirational Motivation	Idealized Influence	Intellectual Stimulation	Building an organizational culture	Total
Major	Humanities majors	A	3.72	3.50	3.55	3.60	3.59
		S	.79	.84	.91	.87	.80
	Scientific majors	A	3.77	3.57	3.62	3.67	3.66
		S	.71	.81	.86	.81	.75
Experience	Less than five 5 years	A	3.71	3.50	3.54	3.56	3.58
		S	.78	.81	.86	.83	.77
	5 – 10 years	A	3.77	3.57	3.60	3.66	3.65
		S	.80	.89	.98	.93	.85
	More than 10 years	A	3.74	3.51	3.58	3.65	3.62
		S	.70	.77	.81	.77	.72
Academic qualification	Lower than a bachelor degree	A	3.66	3.43	3.49	3.51	3.52
		S	.80	.91	.90	.92	.83
	bachelor degree	A	3.78	3.57	3.61	3.65	3.65
		S	.76	.83	.91	.86	.79
	Higher studies	A	3.70	3.50	3.57	3.66	3.61
		S	.74	.75	.82	.75	.72

* Arithmetic mean is abbreviated as (A) and standard deviation is abbreviated as (S)

Table 10

Three dimensional multivariate analysis of variance (MANOVA) for impact of years of experience, major, or academic qualification on respondents' attitudes towards the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1)

Source of Variation	Area	Sum of squares	Degree of freedom	Mean squares	F value	Sig.
Major	Inspirational motivation	.231	1	.231	.397	.529
Hotelling's Trace = .001	Idealized influence	.413	1	.413	.602	.438
P = .963	Intellectual stimulation	.345	1	.345	.435	.510
	Building an organizational culture	.315	1	.315	.438	.508
Experience	Inspirational Motivation	.132	2	.066	.113	.893
Wilkes = .995	Idealized Influence	.197	2	.099	.144	.866
P= .958	Intellectual stimulation	.157	2	.079	.099	.906
	Building an organizational culture	.475	2	.237	.330	.719
Academic qualification	Inspirational motivation	1.033	2	.516	.889	.412

Source of Variation	Area	Sum of squares	Degree of freedom	Mean squares	F value	Sig.
Wilkes = .987	Idealized influence	1.166	2	.583	.850	.428
P=.636	Intellectual stimulation	.734	2	.367	.462	.631
	Building an organizational culture	1.163	2	.582	.809	.446
Error	Inspirational motivation	278.823	480	.581		
	Idealized influence	329.117	480	.686		
	Intellectual stimulation	381.382	480	.795		
	Building an organizational culture	345.124	480	.719		
Total	Inspirational Motivation	280.397	485			
	Idealized Influence	331.304	485			
	Intellectual stimulation	382.848	485			
	Building an organizational culture	347.541	485			

Based on Table 10, there is no statistically significant difference – at the significance level of (a = 0.05) between respondents' attitudes which can be attributed to their years of experience, major, or academic qualification) in all the areas.

Table 11

Two dimensional multivariate analysis of variance (MANOVA) for the impact of years of experience, major, or academic qualification on the extent of applying transformational leadership by female principals of schools subjected to authority of educational directorate of Irbid (1) from perspective of female teachers

Source of Variation	Sum of squares	Degree of freedom	Mean squares	F value	Sig.
Major	.323	1	.323	.525	.469
Years of experience	.186	2	.093	.151	.860
Academic qualification	.913	2	.456	.742	.477
Error	295.135	480	.615		
Total	296.856	485			

Based on Table 11, it can be concluded that there is no statistically significant difference – at the significance level of (a = 0.05) between respondents' attitudes that can be attributed to their years of experience, major, or academic qualification in all the areas. Based on the statistical analysis, there is no statistically significant difference between the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers which can be attributed to their of years of experience, major, or academic qualification. Such results can be attributed to the female principals' desire to compete, and make the higher managers satisfied about the schools' leadership. They are also attributed to the adoption of modern methods in managing school. Adopting such methods shall make them apply transformational leadership which is considered one of the good modern methods in managing schools and achieving its goals. The results that concern gender are in agreement with the results concluded by Al-Hodaiby and Abu O'baid

(2013). The latter researchers concluded that there is no statistically significant difference between the availability of transformational leadership characteristics among leaders that can be attributed to their gender. The results of the second question are not in agreement with the results concluded by Anderson (2008). The latter study showed that there are statistically significant differences between the extent of applying transformational leadership that can be attributed to gender for the favor of females.

As for the academic qualifications, there is no statistically significant differences between the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. That can be attributed to the fact that female principals are keen to making changes and developments regardless of their academic qualifications. That is because all female principals seek to compete and seek methods that enhance their performance, especially with the availability of various modern methods of knowledge that are accessible to all of them. Such methods enabled female principals to keep up with change. The result related to academic qualifications can be attributed to the fact that female principals check and search for the latest developments and updates. That is because such development and updates enable them to develop their managerial and technical performance and raise their commitment to modern managerial methods. For instance, transformational leadership is considered one of the effective modern forms of leadership that plays a significant role in developing the school and the teachers.

As for the years of experience, it can be concluded that there is no statistically significant differences between the extent of applying transformational leadership by the female principals of the schools subjected to the authority of the educational directorate of Irbid (1) from the perspective of female teachers. This result can be attributed to the fact that job security and stability given to the female principals from the public sector job makes them feel bored from their daily work routine and seek creativity and renovation. This result can be attributed to the inadequacy of the moral and financial incentives given to school principals that might discourage them to apply transformational leadership.

That can be attributed to the fact that female principals of less or more experience have the desire to make changes constantly in the employees working for them. Such changes are made through involving female teachers in some decisions in accordance with the major they are specialized in. Such changes are also made through enrolling female teachers in training courses in accordance with the major they are specialized in. Such courses aim at raising the academic quality level leading to increase the academic level of their students.

This result can be attributed to the fact that female principals are chosen based on scientific standards, and the availability of certain requirements related to their experience and competence. In addition, female candidates applying for the position of a principal are subjected to certain tests and measures. Subjecting those candidates to such measures and tests shall make them compete, develop themselves, make changes, and compete with others. These measures and tests shall achieve quality in school management and a good academic reputation for the school and make those candidates compete with other candidates applying to schools subjected to other directorates. The results related to the years of experience is in agreement with the results concluded by Al-Sharifi and Al-Tanah (2010). The latter researchers concluded that there is no statistically significant difference between the extents of applying transformational leadership that can be attributed to the years of experience.

However, the results related to the years of experience is not in agreement with the results concluded by Anderson (2008). The latter researcher concluded that there are statistically significant differences between the extents of applying transformational leadership that can be attributed to the years of experience. Such differences favor of the ones who have less experience.

Recommendations:

In the light of the aforementioned, the researchers of the present study recommended the following

1) Exert more efforts to create a safe environment that is dominated by a fair organizational climate, especially in the incentives system in a way that is consistent with the efforts exerted by the female teachers in the educational work.
2) Provide more attention to the school environment through launching organized awareness raising programs in order to inform female principals and teachers about the significance of transformational leadership and its dimensions.
3) Provide new female principals or the ones who have less experience than others with training courses. Such courses should provide them with knowledge about the actual meaning of transformational leadership and the requirements of achieving an idealized influence, especially in school work.
4) Conduct further relevant studies through selecting bigger population, sample and more variables.

References:

Abu Tina, Abullah; I'baidat, Osama and Khasawneh, Samer (2008). The extent of adopting the model of Leithwood & Jantzi (2006) when practicing transformational leadership by the principals of the schools located in Al-Balqa' governorate from the perspective of those schools' male and female teachers. The faculty of educational sciences, Zarqa University, Dirasat Journal for Educational Sciences, 35 (1).

Al-Atawi, Ayed (2011). The impact of transformational leadership on Organizational Excellence: An empirical study in the Saudi ministry of justice in Tabuk, (Unpublished MA thesis), Mu'tah University, Al-Karak, Jordan

Anderson, K. (2008). **Transformational Teacher Leadership in Rural Schools.** The Rural Educator, 8-19

Arzi, S., & Farhood, L. (2014). Relationship of Transformational and Transactional Leadership Style with job Satisfaction**, Inter-Disciplinary Journal of Contemporary Research in Business,** Vol. 6, No. 3, July 2014.

Bass, B. & Avolio, B. (2004).**Multifactor Leadership Questionnaire: Manual and Sampler** *Set*. (3rd ed.). Redwood City, CA: Mind Garden.

Bass, F.M. (1985**). Leadership and Performance Beyond Expectations**, New York: The Free Press

Batah, Ahmad (2006). Contemporary issues in educational management, Ed.1, Jordan, Wa'el Publishing and distribution House,

Darwaza, Afnan Nathir, (2003). The capability of the male school principal to make developmental decisions and make developments, The Journal of the Association of Arab Universities, 41 (1), 8 – 21.

Frost, C. (2006). Multiple Intelligences of Transformational Leaders: an Empirical Examination. **International Journal of Management**, 27(1): 213-256

Hassan, Hasan; and Al-A'jami, Ahmad (2010). Educational management, Amman, Al-Maseera Publishing and distribution House

Al-Hodaiby, Ibrahim and Abu O'baid, Ahmad (2013). The extent of applying transformational leadership by the male and female principals of the schools located Al-Quway'iyah governorate from their own perspective, Kasdi Merbah University, Dirasat Journal for Psychological and Educational Sciences, (10), 21 – 43.

Al- Kurdi, Ahmad (2004). Modern school management, Ed.1, Cairo, Alam Alketab Publishing and distribution House

Hutchinson, M. & Jackson D. (2013) Transformational Leadership in Nursing: towards a more critical interpretation. **Nursing Inquiry**, 20(1): 11-22. https://www.ncbi.nlm.nih.gov/pubmed/23033817

Leithwood, K., & Jantzi, D. (2006). Transformational School Leadership for Large-Scale Reform: Effects on students, teachers, and their classroom practices, **School Effectiveness and School Improvement,** vol. 17, No. 2, June 2006, pp. 201-227.

Leithwood, K., Jantzi, D (1996**). Toward an Explanation of Variation in Teachers' Perceptions of Transformational School Leadership Toward an Explanation of Variation in Teachers' Perceptions of Transformational School Leadership,** Educational Administration**,** 32 **.(4) 512-530.**

Leithwood, K., Jantzi, D., & Fernandez, A. (1993). Secondary school teachers' commitment to change: The contributions of transformational leadership. **Paper presented at the annual meeting of the American Educational Research Association**, Atlanta.

Al-Na'sani, AbdulMohsen (2008). Investigating the impact of the dimensions of transformational leadership on managerial creativity: An empirical study conducted on educational institutions in Syria. The Journal of Tishreen University for Research and Scientific Studies, The Series of Economic and Legal Sciences, 30 (1), p. 76 -98.

Al-Obaidy, Bushra Abdel Azeez (2013). The role of the work environment in promoting the sense of job satisfaction, Journal of Baghdad College of Economic Sciences, Issue 36

Al- Otaibi, Turki (2014). The extent of applying transformational leadership by the male principals of the Kuwaiti secondary school from the perspective of teachers and its implications on improving their professional performance level. Alexandria University - Egypt, Childhood and Education Journal, 6 (19), p. 109 – 55

Al-Sou'd, Rateb (2013). Leadership concepts, Amman, Al-Safa' Publishing and distribution House.

Al-Sharifi, Abas and Al-Tanah, Manal (2010). The extent of applying transformational leadership by the principals of the UAE private secondary schools from their own perspective, The educational sciences Journal, 7 (42), 45 – 56.

Shakourah, Munir (2012). Change management and its relationship with managerial creativity among the male principals of the secondary schools of Gaza from teachers' perspective (Unpublished MA thesis), Al Azhar university, Gaza

Stewart, J. (2006). Transformational Leadership: An Evolving Concept Examined through the Works of Burns, Bass, Avolio, and Leithwood, **Canadian Journal of Educational and Policy,** Issue 54, June 2006: .P 8.

Victor, J., & Lebopoldo, G (2011).Transformational Leadership Influence on Organization. **Journal of Business Research**, 2(3): 562- 578.

Yang, M. (2011).Transformational Leadership and Taiwanese Public Relations Practitioners. **Job Satisfaction and Organizational Commitment. Social Behavior.**

About the authors

Dr. Habes Mohammad Hatamleh is in the faculty of educational sciences, Jadarah University.

Dr. Najwa Abed Al-Hameed Daeawsheh is from the Jordan University of Science and Technology.

Prof. Mohammad Saleem Al-Zboon is from Jordan University

Email: m.alzboon@ju.edu.jo

Return to Table of Contents

Editor's Note: Cloud computing can make more efficient use of internal resources as it interfaces with external storage and processing. This article provides valuable guidance to administrators and computing services to improve services and lower cost.

General framework for Cloud Computing in higher education: definition, models, opportunities, and success

Tamara Almarabeh, Yousef Kh. Majdalawi
Jordan

Abstract

With unprecedented breadth in the field of information technology, the world moved from the industrial age into the information age. The advances in technology offer new opportunities in our daily lives in all fields especially enhancing teaching and learning fields. This paper introduces a general framework for the cloud computing in higher education through discussing answers to 3 main questions: What is cloud computing, why and how cloud computing in higher education? The answers to these questions summarized in giving different definitions, architecture, models, addressing the challenges and opportunities for developing a successful cloud computing in higher education, and discussing how to achieve the success for cloud computing projects in the higher education and the role of ICT (Information and Communication Technology).

Keywords: ICT, strategy, higher education, architecture, cloud computing

Introduction

In this century, the demand for cloud computing is increasing globally in all fields including higher education institutions. The students no longer can be satisfied with traditional teaching and learning methodologies [1] i.e. lecture-based, tutorials, use of multimedia contents, etc. Cloud computing is used to equip the students for current and future job market needs.

Cloud computing has a wide range of characteristics that enables it to be at the forefront of computing technology such as the computing facilities are accessible through any available device, like smartphones, tablets, laptops, and desktop computers [2]. Moreover, one of the most significant characteristics why developed countries like USA, Europe, and Japan are already using cloud computing technology in higher education institutions is reduced costs.

This paper provides a general framework to cloud computing in higher education. Section 2 provides the definition, characteristics, architecture, models, challenges and Opportunities to develop a successful cloud computing in Higher Education. The advantages, purposes, and proposed strategy of using cloud computing in higher education institutions are presented in sections 3 and 4. Finally, the conclusion is in section 5.

Understanding the cloud computing

To understand the idea of cloud computing in higher education, we have to understand the cloud computing in general. The cloud computing added new concepts such as: low cost, availability, and accessibility, etc.

Cloud Computing is a concept in which information is permanently stored in computer servers on the internet and cached temporarily on clients that include desktops, table computers, notebooks, wall computers, sensors, monitors, etc. [3]

Cloud computing implies 4 main characteristics as follows [4]:

- The end user has “no-need-to-know” about the internal details of the cloud infrastructure. The application itself interfaces with it through the API (Applications Programming Interface).
- The Cloud is “transparent” for the end users and applications; that’s why cloud could be built in several ways. It could be on costumed hardware, software, branded products, or off-the-shelf PCs. Usually, cloud is built of clusters of servers and Open Source software indulged with system software and/or in-house applications.
- The cloud provides “elasticity and flexibility” to the users to scale up and scale down in utilizing resources of all kinds, i.e. server capacity, databases, storage, load balancing, etc. according to their requirements.
- The cloud offers “anywhere and always on” type of network based on the computing and the “pay as much as used and needed” type of utility computing to its customers.

Definition of Cloud Computing

Cloud computing have various definitions. Until today, there is no standard definition due to continuous cloud techniques and strategies developments and complicated architecture of different cloud computing field’s integration i.e. internet, operating systems and software engineering [5]. Another reason cloud computing does not refer to a specific technology but rather to a concept comprising a set of combined technologies [6].

IEEE Computer Society defined Cloud computing as: “A paradigm in which information is constantly stored in servers on the Internet and cached temporarily on clients that include desktops, entertainment centers, computers, notebooks, handhelds, etc.” [5]. It is the delivery of computing as a service rather than a product, where by shared resources, software and information are produced to computers and other devices as a metered over a network.

Many scientists of the National Institute of Standards and Technology (NIST) that work on cloud computing in America defined it as follows [7]: “Cloud computing is a model for enabling convenient ccess to networks and applications quickly, common set of configurable computing resources (e.g., networks, servers, storage and applications) that can work with little or no interference with the service provider to provide or be released immediately.” Another definition of Berkeley RAD Lab [8] is cloud computing refers to both the applications delivered as services over the Internet and the hardware and systems software in the datacenters that provide those services. The datacenter hardware and software is what we will call the cloud.

Architecture of Cloud Computing

The previous definition of NIST focuses more on the purpose of cloud computing, where Berkeley RAD lab definition concentrates more on the components of cloud computing. They show that cloud computing can be understood as a service model for computing services based on a set of computing resources that can be accessed in a flexible, elastic, on-demand way with low management effort. The following characteristics that are generally inherent to cloud computing as shown in figure 1 [7]:

Broad network access: Resources are virtually accessible via the Internet regardless the location and the device used (i.e., mobile phones, tablets, laptops, and workstations).

On-demand self-service: Computing capabilities, such as server and processing time, and network storage, are provided automatically as needed.

Resource pooling: The resources are pooled to serve different clients with physical and virtual resources dynamically appointed and reassigned as per client request.

- Measured service: Controlling and optimizing resource use by assigning a measured capability appropriate to the type of service (i.e., storage, processing and bandwidth).
- Rapid elasticity: Resources can be provisioned and scaled rapidly outward and inward commensurate with demand.

]

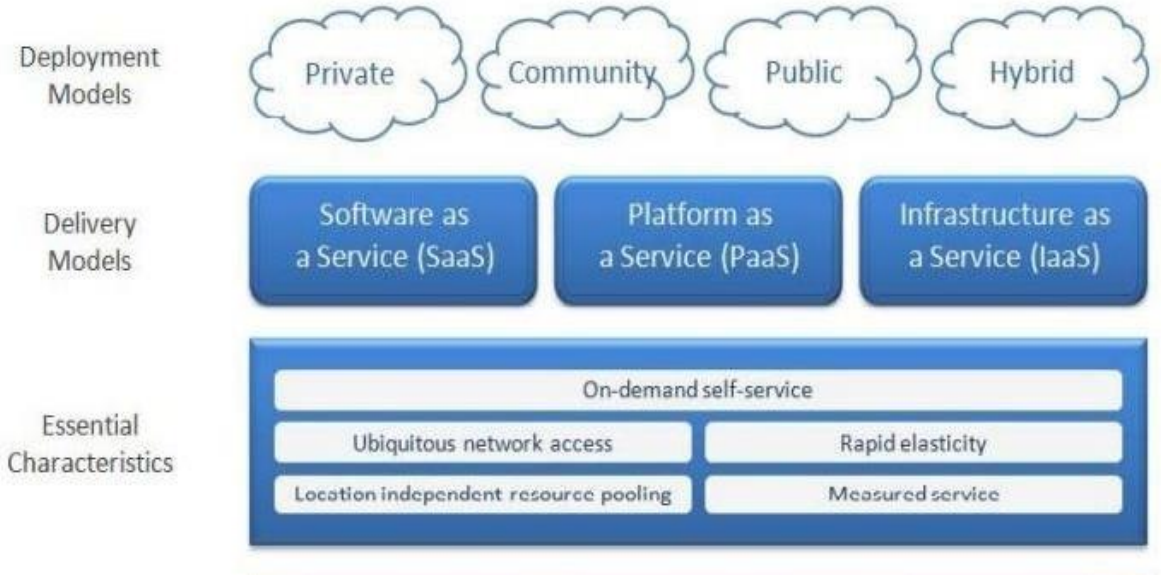

Figure 1: NIST Cloud Computing Definition [7]

As shown in Figure 1, cloud computing services can be categorized into three delivery models: Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) [9]. Table 1 summarizes the description with examples of these cloud computing services.

Table 1:
Summary of Cloud Computing Delivery Models

Service	Description	Examples
SaaS	Software applications are provided by the applications service providers as rental over the Internet. Organizations may save on ICT infrastructure investment	Salesforce.com CRM Google Apps Oracle Siebel Microsoft BPOS
PaaS	Virtual platform provides computing, database and storage functions over the Internet	Google App Engine Microsoft Azure
IaaS	Organizations outsource IT infrastructure used for operations such as storage, hardware, servers, network components to a provider rather than running or maintaining the services in house	Amazon.com AWS SunNetwork.com IBM Blue Cloud Verizon CaaS

With cloud computing technology: large pools of resources can be connected through private or public networks. This technology simplifies infrastructure planning and provides dynamically scalable infrastructure for cloud based applications, data, and file storage. Businesses can choose to deploy applications on one of the following deployment models:

1. Public Cloud: all customers can share the same infrastructure pool with limited configuration, security protections and availability variances. The customers take benefit from economies of scale, because infrastructure costs are spread across all users.
2. Private Cloud (also known as internal cloud): cloud infrastructure dedicated to a particular organization that it is not shared with other organizations. It will require the organization to reevaluate decisions about existing resources. Private clouds are more expensive but also more secure when compared to public clouds.
3. Hybrid Cloud: These Clouds are a composition of two or more clouds to take the advantages of multiple deployment models such as increasing the flexibility of computing.
4. Community Cloud: means sharing computing infrastructure by organizations of the same community.

Figure 2 shows the cloud Computing services and the resources offered to Higher Education Institutions i.e. university.

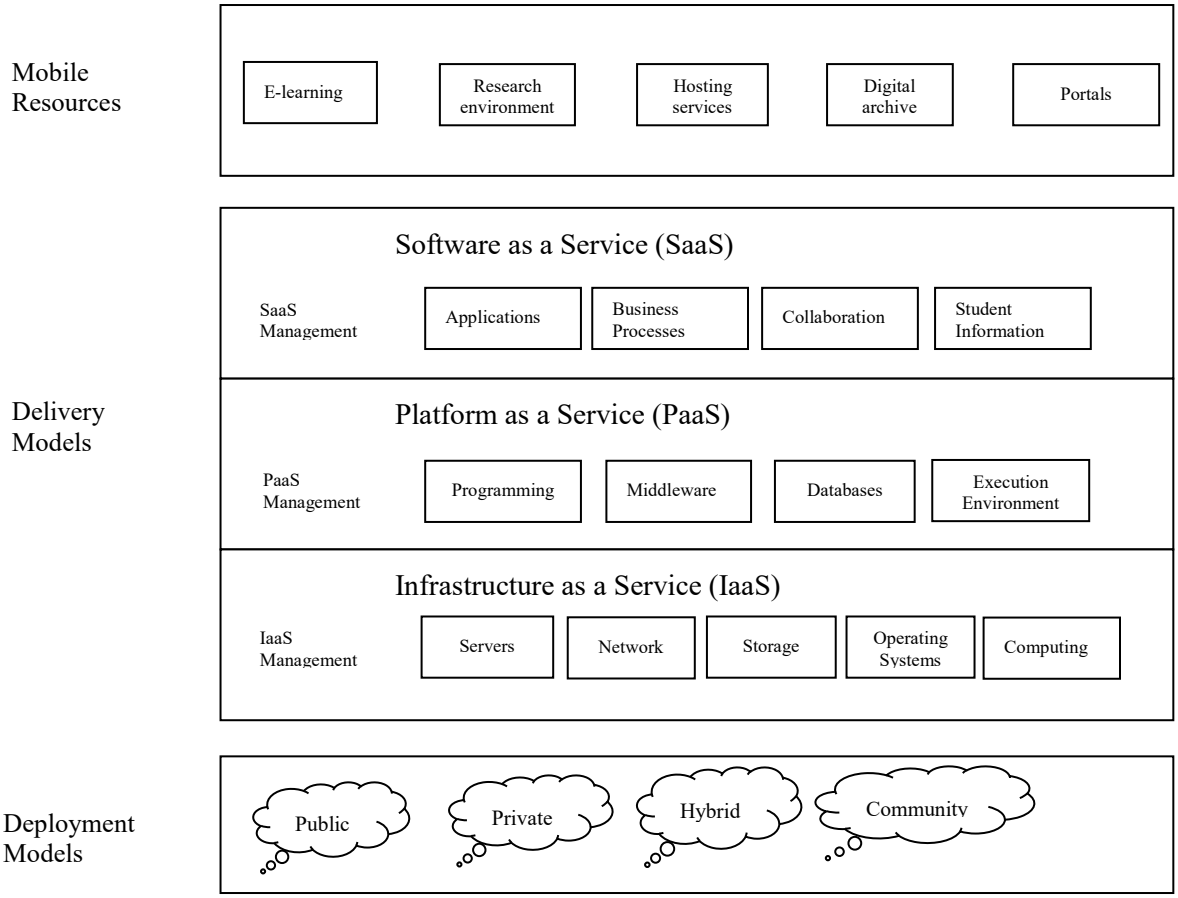

Figure 2: Cloud Architecture for University

In any university, the demand for IT services is directed to the IT Services Department (Computer Center) whose job is to:

- Provide students and staff with software (e.g., email accounts, operating systems, productivity applications, malware detectors and cleaners, etc.) and hardware (e.g., PCs, Servers, etc.).
- Provide researchers and postgraduate students with the required special software and hardware to run experiments that are likely to involve a great deal of processing and computation.
- Provide web developers with the development tools needed to write and host Web applications.

Any software launched by these groups of people resides on the servers of the SaaS cloud provider and is accessed online. Any requirement for disk space or additional hardware (e.g., a virtual PC or a virtual Server) is executed immediately online by the IaaS cloud provider.

The same situation applies to the developers' category. Developers can now use all the software they need for their development online and all the hardware for hosting their applications through a PaaS cloud provider.

Models of Cloud Computing

There are many cloud computing models can be applied in higher education institutions. All the types offer many potential benefits to organizations such as reduced infrastructure costs, unlimited data storage, recovery and backup, and ease access to information. In this section, the authors presented some of them.

Cooperative Cloud Computing in Research and Academic Environment using Virtual Cloud

This model depends on collecting and storing the academic and researches work from many universities using public cloud services (SaaS and IaaS). All the cooperative universities can store their own work and retrieve the work of other cooperative universities in real time. This model has many advantages such as reduce the costs of retrieving and sharing researches, mange the large volume of researches information efficiently and provide the researches in real time [10]. Figure 3 illustrates the architecture and services of cooperative cloud computing model.

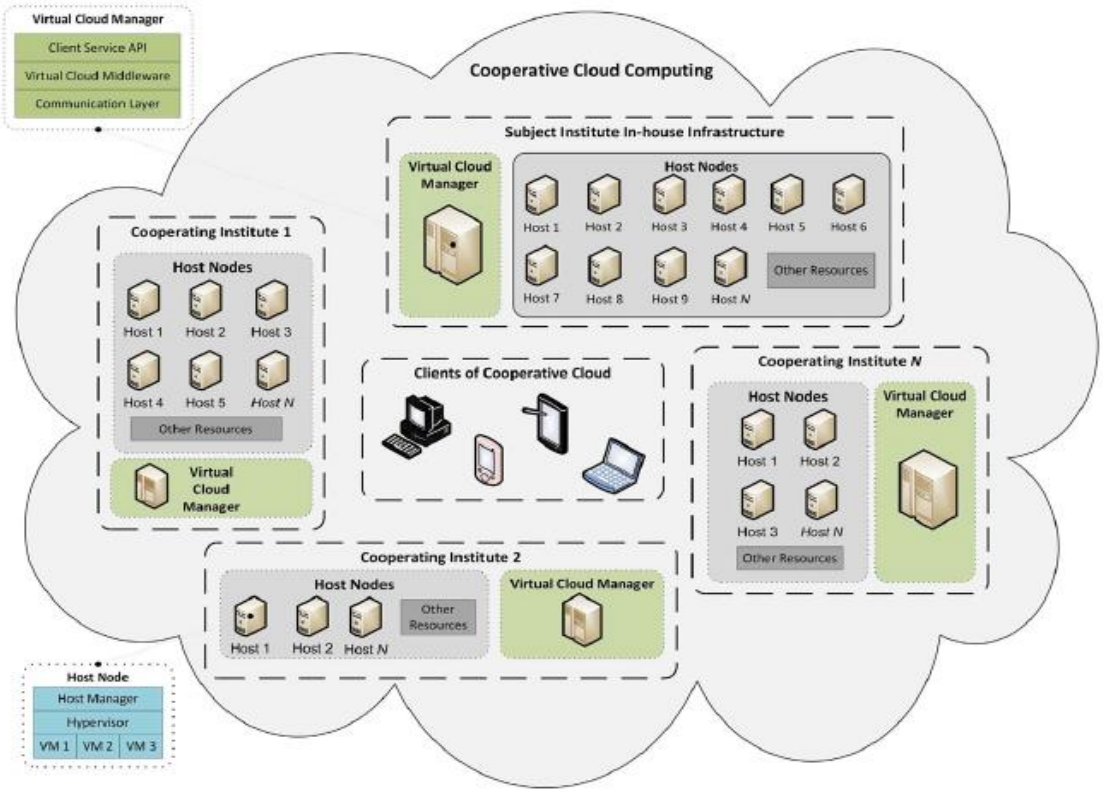

Figure 3: Cooperative Cloud Computing in Research and Academic Environment using Virtual Cloud [10]

A Federation Model for Education Using Hybrid Cloud Computing

A federation model was proposed in order to bring the advantages of cloud computing assisted instructions into full play. This model showed how an educational application model of software (SaaS), platform (PaaS), and infrastructure (IaaS) leverages multiple independent clouds by creating a federation among the university private clouds and public clouds. A broker mechanism is proposed for better inter-cloud and inter-layer interoperation. The research has significance in constructing more scalable educational application environment based on cloud computing gathering resources from different universities and public providers, also in improving the effectiveness and quality of teaching [11]. Figure 4 illustrates the hybrid federation model architecture and services.

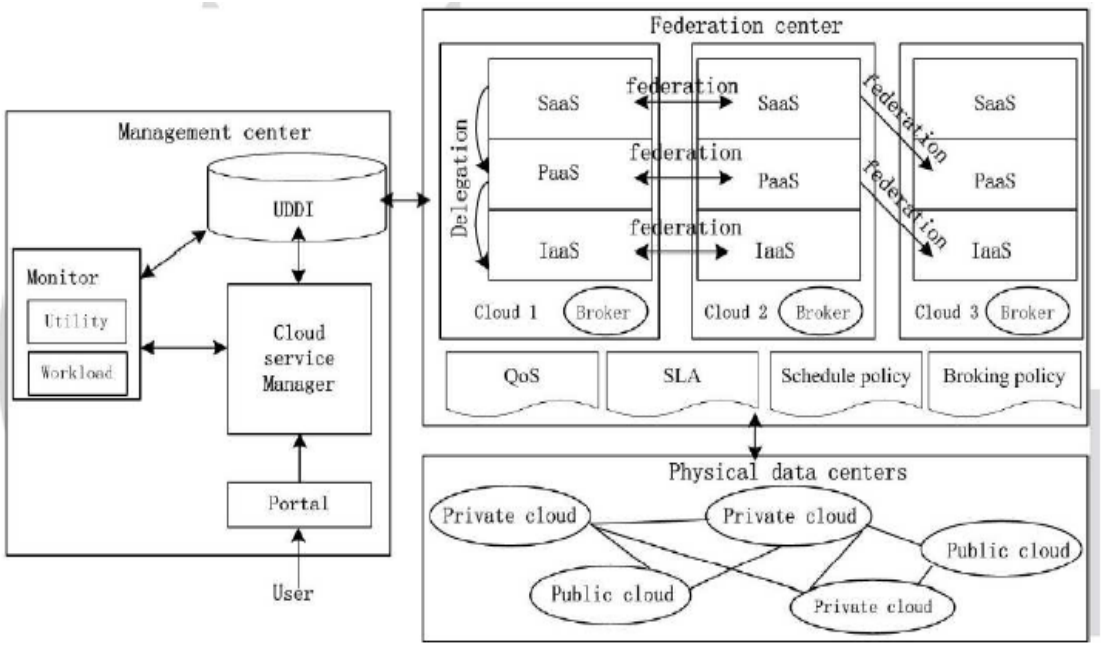

Figure 4: Federation Model for Education Using Hybrid Cloud Computing [11]

Service Computing Model based on Interaction among Local Campus Cloud

This model was developed by Conghuan to process and manage the university local departments' information atnearby campuses efficiently. The main purpose of this model is to manage the universities information and activities efficiently. However, there are many conflictions and drawbacks in tasks and activities responsibilities' management, and large universities need to manage their large volume of information efficiently to retrieve the needed information of various activities efficiently [12]. Figure 5 illustrates the architecture and service of a local campus cloud model.

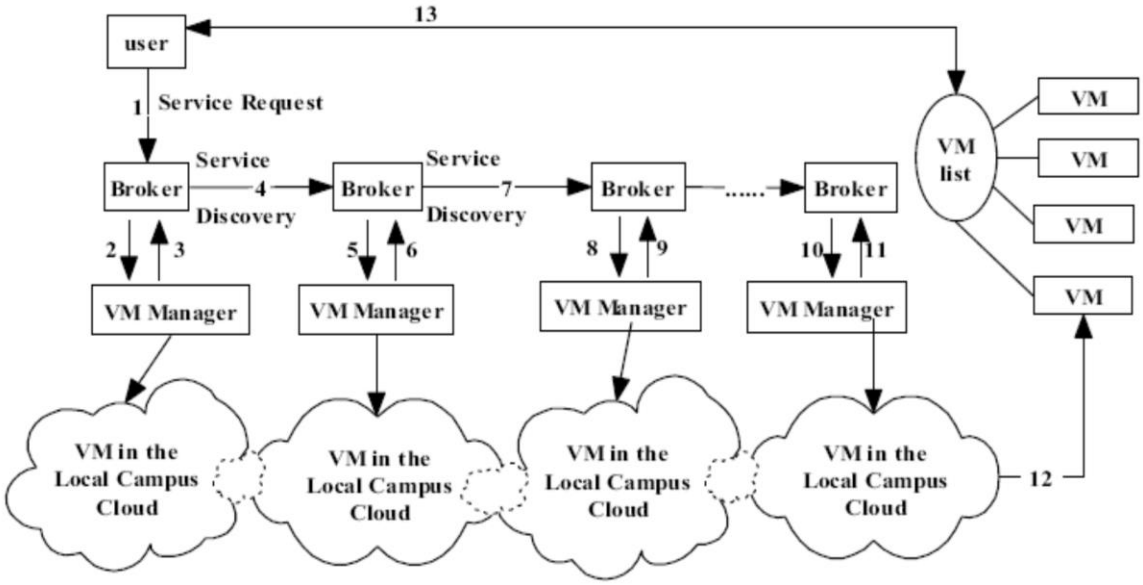

Figure 5: Service Computing Model based on Interaction among Local Campus Cloud [12]

Challenges and Opportunities for Developing a Successful Cloud Computing in Higher Education

The cloud computing offers several benefits, but still has some problems and issues associated that can degrade its performance. Some of them are:

1. **Privacy:** How the cloud companies are using and maintaining the data collected from different enterprises [13].
2. **Service Availability:** If the cloud goes down for hours or more unexpectedly, it can affect the current business strongly [13]. Cloud services sometime may be unavailable due to some reasons such as some failure at data center, failure of any equipment at client side, security attacks, network failure due to weather conditions, etc. [14].
3. **Data mobility and ownership:** Who is actually the owner of the data? Will cloud actually delete all the records if the user has deleted some records not needed in future?
4. **No direct control:** When the user moves services to the cloud, his/her direct control to them is over [15].
5. **Still need on-premises hardware, and an in-house IT staff:** Organization still require IT staff to support services. Sometimes users also need to add more processing servers of their own for proper functioning [15].
6. **Possible downtime:** With Cloud computing, business becomes totally dependent on the internet availability. One cannot access services offline.
7. **Security issues:** How and where the data is actually stored? Is it safe there? So some users are not comfortable while storing their confidential data at cloud [16].
8. **Cost:** Firstly cloud appears to be cheaper but cloud doesn't support all the features provided by a software solution installed at a local device [16].
9. **Identity Management:** Along with the smooth availability of the service there must be a solid mechanism for identifying every external user [14]. So that authenticated consumer only pay for the services they have processed not for the services accessed by any intruder unknowingly.
10. **Inflexibility:** User must be very careful while choosing a particular cloud for his/her business. Cloud provides limited access to several applications. For example, Google Docs spreadsheets can't accept documents created in any other format.
11. **Lack of support:** There is no other supporting organization for cloud providers in case of any problem [16].

Currently there are solutions for some cloud computing problems, i.e. security and protection of sensitive data in cloud, the references mentioned [17-19]:

- Mask or de-identify of the data;
- Firewalls;
- Encryption and key management;
- Federated identity management.

Reasons for cloud computing in higher education

Cloud computing technology offers many advantages over other IT systems due to many characteristics such as availability, accessibility, lower costs and time and tasks management; the

main success factor of cloud computing is resources centralization using external and internal networks [20-23].

Cloud computing offers many benefits to higher education institutions by providing the infrastructure, platform, and educational services directly through cloud providers and by using virtualization, centralized data storage and facilities for data access monitoring [24].

Katz et al. [25] identify 10 important features of cloud computing in higher education with respect to on-demand SaaS, PaaS, and IaaS:

1. Increasing access to scarce IT expertise and talent.
2. Scaling IT services and resources.
3. Promoting further IT standardization.
4. Accelerating time to market through IT supply bottleneck reductions.
5. Channeling or countering the *ad hoc* consumerisation of enterprise IT services.
6. Facilitating the transparent matching of IT costs, demand and funding.
7. Increasing interoperability between disjoint technologies within and between institutions.
8. Supporting a model of a 24 x 7 x 365/6 environment.
9. Enabling the sourcing of cycles and storage powered by renewable energy.
10. Driving down capital and total costs of IT in higher education.

Applying cloud computing in higher education

The use of Cloud Computing in higher education must be analyzed both from the benefits point of view, as well as from that of the risks and limitations (Table 2). After the analysis, the higher education institutions have options to select cloud computing services that meet their needs as shown in Table 3 [8, 26-29]and one or more models of Cloud Computing may be chosen to be used. The decision must take into account the real needs and be aligned with the university strategy [30].

Table 2

Main Benefits and Limitations of Using Cloud Computing in Higher Education

Benefits	Limitations
Access to applications from anywhere	Not all applications run in cloud
Support for teaching and learning	Risks related to data protection and security and accounts management
Software free or pay per use	Organizational support
24 hours access to infrastructure and content	Dissemination politics, intellectual property
Opening to business environment and advanced research	Security and protection of sensitive data
Protection of the environment by using green technologies	Maturity of solutions
Increased openness of students to new technologies	Lack of confidence
Increasing functional capabilities	Standards adherence
Offline usage with further synchronization opportunities	Speed/lack of Internet can affect work methods

Table 3
Features and challenges of cloud computing services models

Attribute System	Features	Challenges
IaaS	1. Elastically 2.Transferring the risks 3. Reduced operational costs 4. Availability of latest infrastructure 5. Disaster recovery	1. Temperature of cloud places need to be maintained 2. System should be power failure tolerant 3. Selection of infrastructure hardware is very important 4. Connection between cloud and hardware should be a high bandwidth channel 5. Storage of cloud should be able to fulfill the changing demands of large data size 6. Loss of control
SaaS	1. Cost minimization 2. High throughput 3. Time saving 4. Availability of high tech services 5. High availability 6. Reduced administration cost	1.Data security is highly preferred feature 2.High availability requirement 3. Authentication and authorization 4. Data integrity 5. Data privacy 6. Network security 7. Cloud standardization 8. Deployment of cloud resources in different countries results in conflict of rules 9. Data backup 10. Web application security 11. Data confidentiality 12. Virtualization
PaaS	1. Access of high level infrastructure 2. Flexibility 3. Ready to use services 4. Scalability 5. Less administration cost	1. Limited APIs 2. Data Lock-in 3. Performance is unpredictable 4. Lack of control over low level security 5. Data inaccessibility between applications 6. Vulnerabilities of web applications and SOA

The higher study institute comprises of student, academic staff, management, administrative staff, researcher and software developer. The various IT needs of a higher education institution can be met by migrating from traditional IT environment to the cloud environment. For example the IT needs of the students, academic staff, management, and administrative staff can be met by using the services of the providers of the SaaS and IaaS cloud.

The success of the strategy implementation depends on the existence of a service-oriented architecture [31] at the level of the institution that offers the necessary infrastructure for cloud implementation.

A well-defined strategy is needed in order to migrate to cloud services. According to Sheelvant [32], representing as an important part of an organization IT strategy, migration must be aligned to this. A migration to cloud can be formed by this strategy (see figure 6):

- Developing the knowledge base about cloud computing
- Evaluating the present stage of the university
- Experimenting the cloud computing solutions
- Choosing the optimum solution
- Implementation and management of the cloud computing solution

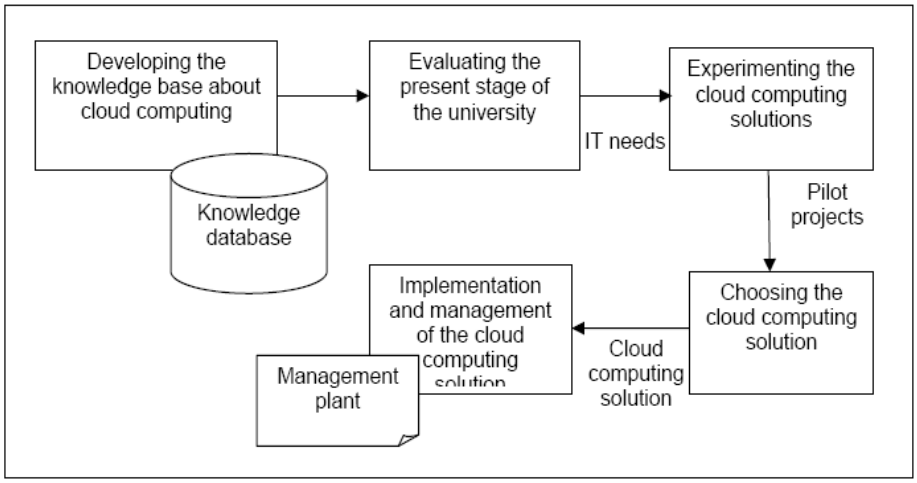

Figure 6: Cloud strategy in Higher Education [34]

The best development model is using a hybrid cloud since a public cloud is both owned and managed by the service provider and the university has no control over it, and its access is only limited by subscription, on the other hand the private cloud is owned and managed by the university and its access is limited only to students and faculty, staff of the university. To solve the data protection issue, access to sensitive data should be limited, hence should be stored on the private cloud of the university, any other data should be stored on the public cloud so the users would take advantage of the new Cloud Computing technology, another good reason why universities should create their own private clouds for their own core applications. Many important steps should be taken in the preparation for cloud computing adoption, whether public or private [33]:

1. Identify all potential opportunities and benefits for switching from existing computing arrangements to cloud services.
2. Ensure that in-house infrastructure complements cloud based services. The shift to cloud services is not all-or nothing, and some cloud services (for instance, infrastructure services) will support the ability of in-house IT to extend into some clouds for additional compute and storage capacity. Virtualization will be a critical piece of a compatible infrastructure.
3. Develop a cost/benefit and risk-evaluation framework to support decisions about where, when, and how you can adopt cloud services. Develop a roadmap for optimizing the current IT environment for adoption of public and private cloud services. Identify which, if any, data cannot be held in public cloud-computing environments for legal or security reasons.

4. Identify and secure in-house competencies that will be required to manage effective adoption of cloud services.
5. Evaluate technical challenges that must be addressed when moving any current information or applications into a cloud environment, even a private cloud.
6. Ensure that the networking environment is ready for cloud computing.

In order to develop dynamic and interactive global team cooperation, the higher education institution can improve communication and collaboration with others through cloud computing technology. The university can achieve successful quality work through dynamic collaboration between the researchers and academic staff. The application in the cloud computing, allow students and lecturers to easily share documents, conduct collaborative editing and manage data effectively because it can be done through a web browser, where the cloud will house the software and file [34]. This situation indirectly can support the group work and give benefits to many learning situations.

Conclusion

Cloud computing is still young in terms of adoption in higher education in the developing countries. This paper investigates all the aspects and all the sides of the cloud computing in the higher education institutions by discussing definitions of the cloud computing, the main factors that affect the adoption of cloud computing at universities. Each university should take into consideration all of these aspects, and work on improving it in such a way that will lead to a comprehensive successful cloud computing at its higher education environment.

References

[1] Thomas P.Y., (2011) "Cloud computing: A potential paradigm for practicing the scholarship of teaching and learning", The Electronic Library, Vol. 29 Issue: 2, pp.214-224, https://doi.org/10.1108/02640471111125177 (accessed 10/6/2017)

[2] Mell, P., & Grance, T. (2011). The NIST definition of cloud computing, Gaithersburg: National Institute of Standards and Technology. https://doi.org/10.6028/NIST.SP.800-145 (accessed 10/6/2017)

[3] Carl Hewitt (2008), "ORGs for Scalable, Robust, Privacy-Friendly Client Cloud Computing", IEEE Internet Computing, vol. 12, no. , pp. 96-99, September/October 2008.

[4] Harnal S., Bagga D.,"Cloud Computing: An Overview", International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 7, July 2013

[5] Kho, N.D. (2009) Content in the Cloud. E Content, 32, 26-30.

[6] Schubert, L., Jefferey, K. and Neidecker-Lutz, B. (2010) The Future of Cloud Computing: Opportunities for European Cloud Computing beyond 2010, Public Version 1.0. http://cordis.europa.eu/fp7/ict/ssai/docs/cloud-report-final.pdf (accessed 10/6/2017)

[7] The National Institute of Standards and Technology. http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf (accessed 10/6/2017)

[8] Armbrust, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I. and Zaharia, M. (2009) Above the Clouds: A Berkeley View of Cloud Computing. UC Berkeley Reliable Adaptive Distributed (RAD) Systems Laboratory, Berkeley. www.eecs.berkeley.edu/Pubs/TechRpts/2009/EECS-2009-28.pdf (accessed 10/6/2017)

[9] Low C., Chen, Y. and Wu M. 2011. Understanding the determinants of Cloud computing adoption, Industrial Management & Data Systems, Vol. 111, No.7, pp.1006-1023.

[10] Sheheryer M., Fabrice H. and Denis C., "Cooperative Cloud Computing in Research and Academic Environment using Virtual Cloud", IEEE, 2012.

[11] Donlin C., Mingming M. and Qiuyun L., "A Federation Model for Education under Hybrid Cloud Computing", International Conference on Future Computers in Education, Vol 23-24 , pp. 340-343, 2012.

[12] Conghuan Y., "A Service Computing Model Based on Interaction Among Local Campus Clouds", IEEE, pp 416-419, 2011.

[13] http://www.thebeckon.com/pros-and-cons-of-cloud-computing/

[14] Mathias M., Baldreck C., "Cloud Computing Concerns in Developing Economies", 9th Australian Information Security Management Conference, Edith Cowan University, Perth Western, Australia, 5th -7th December, 2011

[15] World Wide Web: http://venturebeat.com/2012/01/16/the-downside-of-cloud-computing-4-reasons-to-think-twice/ (accessed 10/6/2017)

[16] World Wide Web: https://www.thebalance.com/disadvantages-of-cloud-computing-4067218 (accessed 10/6/2017)

[17] Luther, M. (2009). "Federated Key Management as the Basis for Secure Cloud Computing", SC Magazine.

[18] Mcirvine, S. (2010). "Making Cloud Computing Safe Trust, Security, Resiliency, Availability and Complexity," IBM Corporation.

[19] SafeNet, (2010). "SafeNet Solutions Secure Cloud Computing Deployments," SafeNet, Inc.

[20] Rimal B. P., Choi E., and Lumb, I., "A Taxonomy and Survey of Cloud Computing Systems, Networked Computing and Advanced Information Management", Fifth International Joint Conference on INC, IMS and IDC, pp. 44-51, 2009.

[21] Gustafson B., and Orrgren A., "Cloud Computing: The Adoption of Cloud Computing for Small and Medium Enterprises", Jonkoping International Business School, Jonkoping University, 2012.

[22] Benlian A., Hess T., and Buxmann P, "Drivers of SaaS-Adoption – An Empirical Study of Different Application Types", Business and Information Systems Engineering, 1, 5, pp. 357-369, 2009.

[23] Murgasan, "Cloud Computing Gives Emerging Markets a Lift", IEEE IT Professional, volume 13 (issues 6), pp. 60- 62, 2011

[24] Pocatilu, P., Alecu, F. & Vetrici, M., (2009). "Using Cloud Computing for E-Learning Systems," Recent Advances on Data Networks, Communications, Computers, ISBN: 978-960-474-134-2.

[25] Katz, R. N., Goldstein, P. J. and Yanosky, R. (2009). "Demystifying cloud computing for higher education". EDUCAUSE Center for Applied Research Bulletin, 2009(19), 1–13.

[26] Subashini S. and Kavitha V., "A survey on security issues in service delivery models of cloud computing," Journal of Network and Computer Applications, vol. 34, pp. 1-11, 2011.

[27] Aniruddha S. Rumale, D.N.Chaudhari, " Cloud Computing: Infrastructure as a Service," International Journal of Inventive Engineering and Sciences (IJIES) ISSN: 2319–9598, Volume-1, Issue-3, February 2013.

[28] Choudhary V, "Software as a service: implications for investment in software development," International conference on system sciences, 2007, p. 209.

[29] Rashmi, G. S., Mehfuz S., "Securing Software as a Service Model of Cloud Computing: Issues and Solutions," International Journal on Cloud Computing: Services and Architecture (IJCCSA) ,Vol.3, No.4, August 2013.

[30] Mircea, M., and Andreescu, A.I. (2010). Using cloud computing in higher education: A strategy to improve agility in the current financial crisis. IBIMA, 2010, 1-14.

[31] Mircea M.," SOA, BPM and Cloud Computing: Connected for Innovation in Higher Education", The International Conference on Education and Management Technology (ICEMT 2010). Cairo, Egypt, 2-4 November 2010.

[32] Sheelvant, R. (2009). “10 things to know about cloud computing strategy”, IT Strategy.

[33] Cisco Research paper - Cloud Computing in Higher Education: A Guide to Evaluation and Adoption and Cloud Bursts into Higher Education

[34] Abdul Razak F. (2009). “Cloud computing in Malaysia universities”, Conference on Innovative Technologies in Intelligent System and Industrial Applications (CITISIA), pp. 101-106.

About the Authors

Tamara Almarabeh, The University of Jordan.
email: t.almaraabeh@ju.edu.jo

Yousef Kh. Majdalawi, The University of Jordan.
email: ymajdal@ju.edu.jo

Return to Table of Contents

Editor's Note: "You can lead a horse to water but cannot make him drink" has a parallel for learning. If the lesson is just a data dump, students may not be engaged. The jigsaw technie is designed to promote active involvement

Improving high school students' reading comprehension in narrative text using jigsaw technique: a classroom action research

Sugeng Susilo Adi, Fatikah Arifaini
Indonesia

Abstract interested

The purpose of this research is to describe how the jigsaw technique can improve students' reading comprehension in learning narrative text. The method of this research used Classroom Action Research (CAR) with two cycles and each cycle consisted of two meetings. In Classroom Action Research every cycle has four steps, these are: Planning, Action, Observation, and Reflection. To collect and analyze the data, the researchers conducted interviews, observations, questionnaires, field notes and tests to support the data collected. The result of this research showed that the Jigsaw technique can improve students' reading comprehension in narrative text. The students are motivated, interested and engaged in learning English. The mean of the students reading score improved. The scores of the preliminary study 1 and 2 with means of 2, 99 and 2.91 became 3.5 in second cycle. Moreover 73.1% of students have a better score in reading narrative text and 87.8% students that have scores above 3.0 in reading narrative text by using jigsaw technique. It could be concluded that the implementation of jigsaw technique to improve students' reading comprehension in narrative text was successful. Jigsaw technique was also effective in improving students' comprehension in reading narrative text and it can make the students be more active, interested and engaged in the learning process.

Keywords: jigsaw technique, reading, narrative text, classroom action research, high schools

Introduction

In Indonesian senior high schools, English is a priority subject because English is one of many subjects tested in national exam. Students should learn English because English is very important language. Teachers not only teach English as a lesson but also the characteristic of the students and teach the morality in order to make students have good attitude, good manners and respect for others.

In fact, students are usually interested in narrative text. Narrative text is given to students when they are in the second grade of Senior High School. Students are interest in narrative text because they are reading a story, for example fable, fairy tale, folktale, legend, etc. so they will not become bored when they are learning. According to Kistonto (2007) a narrative text is a type of spoken or written text that tells a story of one character or more who face certain problematic situations. Based on Heinemann (2004, p. 21), a narrative tells an imaginative story, although some narrative may be based on fact.

Unfortunately, sometimes students have problem with narrative text because the story is long and complicated, or because words are new, unfamiliar or difficult to understand. Researchers adopted the jigsaw technique to enable students to follow the narrative text easily, facilitate understanding, and support learning.

The Jigsaw technique is a cooperative learning technique in which students work in small groups and help each other to understand and get the meaning of the story. Students will cooperate to

solve the meaning of a difficult word, new word, grammar, etc. In jigsaw technique cooperation is very important.

Literature review

A narrative text is a text, which relates a series of logically, and chronologically related events that are caused or experienced by factors. A key to comprehending a narrative is a sense of plot, theme, characters and events, and how they relate to one another (Rebecca, 2003). In addition, Anderson and Anderson (2003) explain that a narrative is a text that tells a story and, in doing so, entertains the reader. It has character, setting, and action. The characters, the setting, and the problem of the narrative are usually introduced in the beginning. The problem reaches its high point in the middle. The ending resolves the problem.

The basic purpose of narrative is to entertain, to gain and hold a readers' interest. Other than providing entertainment, can make its audience think about an issue, teach them a lesson, or excite their emotions. In well-written narration, a writer uses insight, creativity, drama, suspense, humor, or fantasy to create a central theme or impression. Anderson (1997) stated that narrative is used to present a view of the world that entertains or informs the reader or listener.

However narrative text can also be written to teach or inform, to change attitudes or social opinions e.g. soap operas and television dramas that are used to raise topical issues. Narratives sequence people/characters in time and place but differ from recounts in that through the sequencing, the stories set up one or more problems, which must eventually be resolved.

A narrative focuses on specific participants: often individual or participants with defines identities. Major participants are human, or sometimes animals with human characteristic. Narrative text usually uses past tenses (Simple Past Tense and Past Continuous Tense). Beside that in narrative text direct and indirect speeches are often used that is some dialogs are used in the story and the tense can change.

The researcher describes some researches that are relevant to this study to make the thesis arrangement easier and to avoid repeating the same study. There are two previous researches that are used by the researcher, they are: Mayrina (2011) explained that Jigsaw is a teaching technique that is effective in teaching English reading comprehension. It makes students have responsibility to teach each other. It means that the students become teachers for their teammates. Mauludi (2011) in his title *"The Effectiveness of Jigsaw Technique to Improve Students' Reading Ability in Narrative Text"* concludes that using jigsaw technique in improving reading ability and reading comprehension was effective.

Jigsaw technique in teaching reading narrative text

As one type of cooperative learning, jigsaw technique requires the students to be divided into several groups it. It facilitates interaction among all students in the class, leading them to value each other as contributors to their common task. According to Slavin (1995) in Cahyani and Cahyono (2011), jigsaw technique can be used whenever the material to be studied is in a narrative form.

Jigsaw technique activity brings many advantages in reading class because the students learn how to analyze a text by interacting. The students are active in discussing and asking question with their friends if they don't understand about the text. Low proficient students will have the same opportunity to present their opinions. The applications of jigsaw technique in the classroom showed that analyzing narrative text by using jigsaw technique can make the students have high confidence. To get the great advantages from using jigsaw technique in narrative text, teacher should do all the steps of jigsaw technique into consideration. If one of the steps doesn't apply in

the classroom, the process of teaching will not effective because all of the techniques related each other.

This is the illustration picture about the step of jigsaw technique.

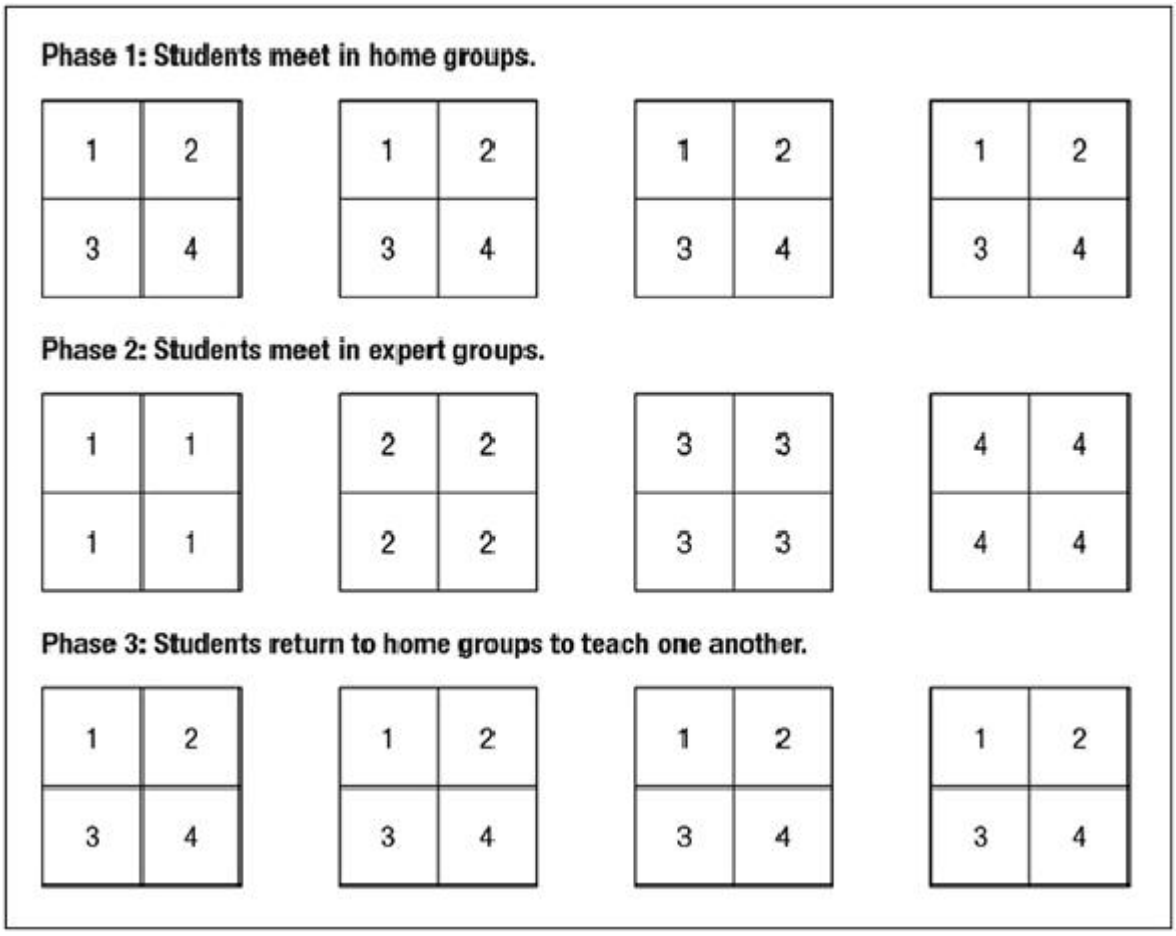

Figure 1. Jigsaw technique steps

Source: https://www.classtools.net/blog/3-creative-ways-to-use-jigsaw-groups

Using jigsaw technique in teaching proses can give good impacts for the teacher, Aronson in Cahyani and Cahyono (2011) mentioned several advantages of using jigsaw technique, they are: most teachers find jigsaw technique easy to learn, most teachers enjoy working with it, it can be used with other teaching strategies, it works even if it is only used for an hour per day, and it is free for the taking.

Besides, there are many things that make jigsaw technique interesting and motivating. Group members must work together as a team to accomplish a common goal each person depends on all the others, no student can succeed completely unless everyone works well together as a team. All of the students have the same opportunity to speak up their opinions, whether students who have high proficient or low proficient. Jigsaw technique can makes the students more active in discussing and asking questions about the text.

According Marti in Cahyani and Cahyono (2011) Jigsaw technique can build students' confidence, train their ability in managing a group, finish the task faster, improve their ability in speaking when they present their opinions, and learn how to appreciate others' opinions. Those aspects are some parts of character education and also as the benefits of using jigsaw technique.

In other hand, Marti in Cahyani and Cahyono, (2011) stated that, jigsaw technique is very challenging because conducting jigsaw technique needs extra energy. The students will make a noise especially when they move from the jigsaw group (home group) to the expert group. Sometimes, low proficient students do not directly go to their group. But overall jigsaw technique can be helpful for students and teacher as well. Marti in Cahyani and Cahyono, 2011).

Research method

In this research, the researcher use Classroom Action Research (CAR) as the research design. It is kind of research that is conducted in the classroom by a teacher. CAR is designed to describe and interpret the researcher own experience and problem in teaching practice that focuses on a group of students in certain class.

According to Harmer, Action Research divides into 4 steps, there are: Planning, Acting, Observing, and Reflecting, as shown in Figure 2.

Figure 2. Action research steps

Source: http://isdiped.weebly.com/the-curriculum-study-and-action-research.html

Research Procedure for classroom action research:

1. Preliminary study and problem identification

   A preliminary study was conducted to get data about the factual conditions of the problems faced by the teacher and students in the teaching and learning process of reading. The result of the preliminary study was used to set up a plan of action at cycle. An action plan was established in order to solve the problems.

2. Planning of the Action

   In planning of action there are many things to do, for example designing Lesson Plan before do the research. The researcher and the teacher made a lesson plan based on the findings. Besides, the others things to do are: preparing the teaching aid and preparing present list in order to know students' activeness in joining teaching learning process.

3. Implementation of the Action

   The implementation of the action is focused on what has been proposed in the lesson plan. The researcher acts as an teacher who teach the students' activities during the

teaching and learning process of reading narrative text using Jigsaw technique, besides the teacher act as the observer who observe the Jigsaw technique in teaching of reading narrative text.

4. Observation

   Observing is the process of recording and gathering all relevant data about any aspect occurred during the implementation of the action. The teacher as a observer observe the students' activities and participation during the teaching and learning process of reading narrative text using Jigsaw technique.

5. Reflection

   Reflecting is proposed to see the success or the failure of what has been done in previous action or during the action. In reflecting, the researcher and the teacher discusses together the implementation and observation during the teaching and learning process in the classroom. The subjects of this study are the students at class XI IIS 2 BATIK 1 Senior High School, academic year 2014/2015.

Finding

In this research, the researcher used classroom action research. The purpose is to know students' ability in reading comprehension. In these findings, the researcher presents the result of research and the analysis of the data collected, which are conducted through preliminary study or pre-cycle, cycle one and cycle two.

Pre – Cycle (Preliminary Study)

The pre-cycle was conducted in April 6th 2015, which was done by observed the class, gave questionnaire to the students, and interview the English teacher. In this opportunity, the researcher joined the class XI – IIS 2 then observed about the situation, condition and students' activity in the class to identify the problem.

The researchers found that many students have boredom in reading, it can be caused by the text that has long paragraph, so the students bored and they did not interest in reading text that has a lot of paragraph. From the problem that found in pre-cycle observation, the researcher planned to implement jigsaw technique in that class in order to improve their reading ability.

After joined and observed the class, 10 minutes before class ended, the teacher gave time for the researcher to distribute the questionnaire for the students. The researcher gave questionnaire to the students. There are many questions in the questionnaire; the questions are about their difficulties in reading activities.

And after finished gave the questionnaire for the students, the researcher did interview with the English teacher. In this section the researcher has many questions about the difficulties in teaching, the problem that faced in the class, students' respond when teaching learning process going in the class, how is students' ability in reading, etc.

From the interviewed with the teacher, researcher can concluded that many problems found in that class are: Students did not pay attention with the teacher because the class beside the XI – IIS 2 usually noisy so the students did not concentrate well, students prefer to have conversation with their friends, the respond that usually found when teaching learning is students did not active in class, and students' ability in reading is not good enough.

The analysis of the first cycle

The first cycle was held on April 10th 2015 and 24th April 2015 because on April 13th until 21st 2015 in SMA BATIK 1 SURAKARTA held National Examination (Ujian Nasional) using computer. Below is the analysis of the first cycle:

A. Planning

In planning research, the researcher prepared the lesson plan, the material, the media, and the questions for the students, and all the things that needed to conduct the research. The researcher also gave the lesson plan to the teacher before start to teaching in class. So the teacher will know how the researcher will do the research in class.

In lesson plan, the researcher using jigsaw technique as the technique of teaching of reading comprehension with the purpose to improve students' reading ability. As the research said before, the aim of this research is to improve students' reading comprehension through jigsaw technique.

B. Acting

The first cycle was done on April 10th and 24th 2015. In action, the researcher implemented the teaching learning process based on the lesson plan had been made. In the first meeting on April 10th 2015, the researcher explained to the students about narrative text first before start to involving students in Jigsaw technique. The researcher explained about what is narrative text, what are the generic structures of narrative text, what is the purpose or social function of narrative text, what are the types or kinds of narrative text, language features in narrative text, etc. and also gave many examples of narrative text to the students. The researcher asked one student to read the narrative text in front of the class, the others students should give attention to the student that reading the narrative text in front of the class.

After explained about narrative text and gave many examples of narrative text, the researcher explained about the jigsaw technique. The explanations of jigsaw technique are about what is jigsaw technique and the steps or procedures of jigsaw technique. Just few of the students that now about what jigsaw technique is, before the researcher explained it. Many of the students do not understand what jigsaw technique is.

Then after explained narrative and jigsaw technique the researcher asked students to start counting and divide them into many groups (home group). Student 1 will one group with student 1, student 2 will one group with student 2, and so on. This is called as an expert group. Group 1 will read and have discussion about part 1 of "Malin Kundang" text, group 2 will read and have discussion about part 2 of "Malin Kundang" text, and so on.

But before the researcher doing the all the steps of jigsaw technique, teacher from "Kesiswaan" came, he asked few students (11 students) to come out the class because they did not come to extracurricular, the students must attendance extracurricular of computer every once in a week that held by school.

After finished discuss and sharing with expert group, students return to their home group. Before the teacher asked the students to do the exercises, the members of each expert group should teach each other with their home group, explained what they have learned in the expert group. Then when all part have done explained and teached by all of the members, the students have to do the exercise about the text, the exercise consist of 5 question about "Malin Kundang", the generic structure of "Malin Kundang" and many difficult words that they found in the text of "Malin Kundang".

C. Observing

In this phase, the researcher observed all of students' activities. Start when opening the class until closing the learning process in class. As the researcher said before, in this first cycle, the researcher needed 2 meetings to conduct the research.

In the first meeting on April 10th 2015, the researcher observed the situation and condition when the students get information about what is narrative text, the generic structure of narrative text, many types or many kinds of narrative text, and language features that are usually used in narrative text. The researcher also gave examples of narrative text, explained what is jigsaw technique, how to conduct jigsaw technique or the steps of using jigsaw technique in reading class especially reading narrative text.

In the second meeting on April 24th 2015, the researcher started to give narrative text that will used to do the jigsaw technique. Before started the jigsaw technique the researcher divided the students into many groups. The researcher asked the students to counting 1 until 4 because there are 4 parts in narrative text of "Malin Kundang" that will use to do the jigsaw technique. But before the students finished counting in order to make a group, the teacher from "Kesiswaan" came, and asked few students (11 students) to come out the class because they did not come to extracurricular yesterday, the students must attendance extracurricular of computer every once in a week that held by school. So if the students did not come to the extracurricular of computer they will get punishment.

So from the reason above, the researcher can concluded that the first cycle did not run well because 11 students did not joined the class. The effect for the researcher is the researcher did not have score for 11 students that out from the class. It made the first cycle failed and the researcher should do the second cycle.

Another reason why the researcher conducted the second cycle is because in the first cycle there were 23 students (included 11 students that out from the class) that did not pass the KKM (Kriteria Ketuntasan Minimal) or Minimum Mastery Criterion (3.0). The mean of the score was 2.3 (maximum score is 4.0) so the conclusion is that the first cycle failed and the researcher needs to do a second cycle to reach the criteria of success.

D. Reflecting

In this phase, the researcher and the researcher discussed about the result of the first cycle. Based on the analysis of the students' reading comprehension in narrative text that done in the first cycle, there were many problems that made the first cycle failed. For examples: When the teacher from "Kesiswaan" asked 11 students to came out the class because they did not join the extracurricular it made the researcher did not get scores for 11 students and other problem that faced by the researcher was the text that used for jigsaw technique was easy and familiar to the students, so the students underestimated and thought that the story about "Malin Kundang" which used for jigsaw technique was known by the students.

From the analysis of the first cycle that done by the researcher it was found that the researcher should do the second cycle. Besides that, the criteria of success in the first cycle were not reached or achieved. So the researcher should do the next cycle. The researcher should prepare the second cycle and reach the criteria of success.

Analysis of the Second Cycle

The second cycle was held on April 28th 2015 and 1st May 2015 same as the first cycle before, in the second cycle need 2 meetings. Below is the analysis of the second cycle:

A. Planning

The planning phase of the second cycle was implemented into a lesson plan. In this case, the researcher modified the previous lesson plan that used in the first cycle. Based on the result of reflecting phase in the first cycle, the researcher revised many things in the lesson plan. But even though the researcher modified the lesson plan, the lesson plan that was used still related to jigsaw technique and narrative text, which used to improve reading comprehension of the students.

The differences of the lesson plan that used in the first cycle and the second cycle were the narrative text that used in the first cycle was "Malin Kundang" that familiar and too easy for the students, so the researcher decided to change the text that not familiar and not too easy for the students, and finally the researcher used "The Last Leave" as the text that helped to improve students' reading comprehension through jigsaw technique. Besides, there was video (short film) about "The Last Leave" that added by the researcher in order to make the students more interest and enjoy the class. The video about "The Last Leave" will play by the researcher when the students finished doing the jigsaw technique.

B. Acting

The action of the second cycle was done on April 28th 2015 and May 1st 2015. The action was done based on the lesson plan. In this second cycle actually the researcher did not make a lot of change or modification. Besides, the researcher prepared a video (short film) about "The Last Leave" that added by the researcher in order to make the students more interest and enjoy the class.

In the first meeting the researcher started with warming up to make the students remember about what is narrative text and asked many question about the last lesson. After that, the researcher asked the students to counting and started to make a group (home group). The researcher started to distribute the part of text for every group. Then, the researcher gave the students time to read their own part, every student have their own text. When all of the students have finished read the text the researcher asked them to counting again and made an expert group. But because on April 28th 2015 was Friday, the time is limited so the next activities of second cycle have to continue next meeting.

The second meeting of second cycle held on May 1st 2015. The researcher continued to do the jigsaw technique. Though in the last meeting the students have made an expert group but in the second meeting the researcher asked the students again to come together again with the home group in order to make sure that the students did not forget the story in their own part before they meet their expert group. After that, the students answer many question about text of "The Last Leave" that given by the researcher. In this second cycle seen that the students did the jigsaw technique easily and they did not have a lot of difficulties.

After finished did the exercise, answer all of question and submitted it, the students watched a film (short movie) of "The Last Leave" that play by the researcher. The student enjoy it and they have motivated to did their task, their exercise or activities that asked by the teacher because after finished it the students can refresh by watching the movie. Besides, the students enjoy the class because through the jigsaw technique they can easily read the text and sharing it with their friends.

C. Observing

In the first cycle there were 23 students that did not pass the KKM (Kriteria Ketuntasan Minimal) or Passing Grade Score (3.0). Moreover, the mean of the first cycle was 2.3, which mean that the criteria of success was not yet reached by the researcher.

In the second cycle the researcher did the observation and found that the criteria of success have reached and it means that the research is success. The researcher can say the research is success because in the second cycle the mean that get by the students increase from 2.3 become 3.5. Furthermore, the students that did not pass the KKM (Kriteria Ketuntasan Minimal) or Passing Grade Score (3.0) in the second cycle were 5 students. In addition, the students also enjoy class because they have time to sharing with their friends. The students did not afraid to ask many question with their friends, but the researcher also helped the students in learning process.

D. Reflecting

After did all the activities and had reflection of the second meeting, the researcher and the teacher felt satisfaction with the result because there are many improvement from the students. The result of second meeting showed that the mean of the score was 3.5 and there were only 5 students that did not pass KKM (Kriteria Ketuntasan Minimal) or Passing Grade Score (3.0). in case, the previous mean of the score that get by the studenta was 2.9 and there were 23 students that did not pass KKM. So we can conclude that this research is successful.

Besides, the students also motivated to learn English, it seen that they were asked many questions when they did not know and they also enjoy the class, the students felt happy after study because in the last of teaching learning process the researcher gave them film or short movie that made the students interest.

Conclusion

It can conclude that the implementation of jigsaw technique to improve students' reading comprehension has success. It improves the second year students' reading comprehension in narrative text at SMA BATIK 1 Surakarta. The improvement could be seen from the increase of students' mean reading comprehension score form 2.9 in the preliminary study, and 2.3 in the first cycle (because there were 11 students that did not join the class), to 3.5 in the second cycle.

Moreover, the finding indicates that jigsaw technique was effective to improve students' comprehension in reading because the students can share with their friends, they can have discussion with their friend. Besides, jigsaw technique also can make the students more active in the class. The students should active in class because all of the students have their own role; every student has their own part that they should understand their own part to retell their part with their friends in expert group.

Finally, the researcher can conclude that the implementation of jigsaw technique mas positive and it can improve students' reading comprehension of narrative text. In addition, jigsaw technique also makes students more active in class and the students enjoy in learning process because they can discus with their friends.

There are some suggestions for English teacher and other researchers based on the research findings, they are, first, the researchers recommended the teacher to use jigsaw technique as one of the strategies that used in the class which can makes the students more active in teaching and learning process and it makes the students more enjoy study because they have discussion with their friend so they will not afraid to ask many questions. Secondly, based on the implementation of the jigsaw technique for second year students in SMA BATIK 1 Surakarta that has more than 40 students in every class so the researcher has suggestion for other researcher to conduct the

research by choosing the subject less than 40 students. When the amount of the students less than 40 it will make the researchers easy to handle the class.

References

Brown, H. D. (2007). *Teaching by Principles: An Interactive Approach to Language Pedagogy* (3rd ed.) New York: Pearson Longman.

Brown, H. D. (2004). *Language Assessment: Principles and Classroom Practice,* San Francisco State University: Pearson Longman,

Chambers Adult Learners' Dictionary. (2005). *Over 15000 words, definitions, and phrases,* p. 320.

Dechant (1991) cited by Macceca (2007, p.4). *Teaching Reading Skills.* (Online). http://www.slideshare.net/zimbaloco/teaching-reading-skills. Retrieved June 10, 2017

Heinemann, R. (2004). *Explanation and Examples Of Narrative Text.* (Online). http://ad-m-webquest.com/narrative-text/explanation-and-examples-of-a-report-text.

Retrieved June 9, 2014

Jeremy Harmer. (2004). *How to Teach English: An Introduction to the Practice of English Language Teaching*. Kuala Lumpur: Longman

Kistonto. (2007). *Explanation and Examples of Narrative Text.* (Online). http://ad-m-webquest.com/narrative-text/explanation-and-examples-of-a-report-text. Retrieved June 10, 2017

Kothari, C. R. (2004), *Research Methodology Methods & Techniques,* Former Principal, College of Commerce University of Rajasthan: Jaipur

Mayrina, Ina. (2011). *Using Jigsaw Technique to Improve Students' Narrative Writing (A Classroom Action Research in the Second Year of English 2 Class of MTsN Tangerang II Pamulang).* Unpublished Thesis. Syarif Hidayatullah State Islamic University Jakarta

Nunan, D. (1993). *Research Methods in Language Learning*. Cambridge: Cambridge University Press.

Ulfi Hidayati, Nuria. (2010). *Improving Students' Ability in Writing Procedure Text Using Realia (A Classroom Action Research with Students of Grade VIIG at SMP N 18 Semarang in the Academic Year of 2010/2011)*. Thesis, Walisongo State Institute for Islamic Studies Semarang 2010.

Yusuf Mauludi, Muhammad. (2011). *The Effectiveness of Jigsaw Technique To Improve Students' Reading Ability In Narrative Text* (An Experimental Research at the Eleventh Grade of MAN Kendal in the Academic Year of 2010/2011). Walisongo State Institute for Islamic Studies 2011.

Wainwright. (2007: 37). *The Effectiveness of Teaching Reading Comprehension by Using Jigsaw Technique.* (Online). http://smahillah.hubpages.com/hub/mamaazaputri2 Retrieved June 9, 2017

Wright, Tony. (2005). *Classroom Management in Language Education.* First published, Sydney: Palgrave MacMillan

About the authors

Sugeng Susilo Adi is Lecturer at English Language Education Program, Faculty of Cultural Studies, Brawijaya University, Indonesia

Fatikah Arifaini is English Teacher at a Homeschool in Surakarta, Indonesia

Return to Table of Contents

Editor's Note: Social media apps for smart phones offer new opportunities for learning. Viber offers a number of easy-to-use features that facilitate exchange of information between students and between teachers and students. It is multimedia, interactive, and ideal for collaborative learning. Like all new tools, it should be evaluated for its effectiveness for learner, teachers, and subject matters prior to adoption.

Advantages and disadvantages of using Viber as distance student learning tool in a regional university

Anand Chand and Payal Chand
Fiji

Abstract

Viber software technology is useful for student learning purposes. Viber is utilized for instant messaging, exchange images, video, audio media messages application and can be used in smart phones, i-phone, ipad, notebook, laptop and desktop. The aim of this paper was to explore the advantages and disadvantages of using Viber as a student learning tool. The paper has utilized a qualitative approach namely interviews with students and review secondary document. The main research finding reveal that students at the University of the South of Pacific find Viber as a very important tool for their studies. Students mentioned that Viber is cheap, easy, and helpful in communicating with their colleagues and peers for doing their assignments and group projects, especially for distance students who are doing courses via online and print modes. This paper contributes to the existing literature and knowledge on use of Viber for educational purposes.

Keywords: Viber, e-learning tool, group learning, distance learning, low cost,
The University of the South of Pacific.

Introduction

Viber software application was developed in 2010 by Talmon Marco and Igor Megzinik from Israel (Nunan, 2004). It is a modern software developed by the Viber Media Ltd and it is utilized for many purposes. Viber software technology is very useful and is utilized for instant messaging, exchange images, video, audio media messages application and can be used in smart phones, i-phone, ipad, notebook, laptop and desktop (Moghadam, Farahmand, Kowsary (2016). Viber is a beneficial Computer Supported Collaborative Learning (CSCL) tool. Another feature is sending 'Stickers' and by sending 'Stickers' to group members, users can communicate without writing messages (Nunan, 2004; Jost, 2003). Moreover, another unique option in Viber is the 'Doodle' and by clicking on it, a blank white page will appear and users can draw diagrams, mind maps etc. This Doodle feature is useful problem-solving types of tasks such as graphic design, solving mathematical, econometrics and scientific equations (Jost, 2003). Viber as a social networking tool has the potential to extend learning beyond the boundaries of the classroom community (Nunan, 2004). Viber is one of the extensively used applications, which has an intuitive interface and many options to use such as the touch screen or keyboard. Viber works international, it allows users to call and send SMS to other phones even without having any contract with telecommunications firms.

The main aim of this paper to examine the advantages and disadvantages of using Viber as a distance student learning tool. The paper is based on literature review of journal and primary interviews with students (undergraduate and postgraduate) in the Faculty of Business and Economics at the University of the South of Pacific in all modes of studies such as 'face-to-face', 'print', 'blended', and 'online' via distant learning.

This paper is divided into six subsections. This first section provides the introduction. The second section provides literature review related to the research topic. The third section explains the

research methodology used in this study. The fourth section presents research findings and discussions. The fifth section provides policy implications and recommendations of this paper. The sixth section provides conclusion.

The next section presents the literature on advantages and disadvantages of using Viber by student as a learning tool.

Literature review

There is some literature on the use of Viber by students as learning tool. For this paper, the literature review is narrowed down to looking at the advantages and disadvantages of using Viber.

Literature on advantages of using Viber for learning English Language

There is some literature on the use of Viber for student learning different languages and the main language foreign students want to learn is English (Moghadam, et al, 2016; Farahmand and Kowsary, 2016; Farrukh, 2015; and Harbon, 2015). Harbon (2015) reported that teachers in Australia prefer Viber and Skype as a pedagogy to teach English language and develop a student's intercultural orientation. Moreover, Moghadam, et al, (2016) looked at the use of Viber as a learning English technology in Iran University and they found that there was a positive relationship between using Viber and students' vocabulary learning and students more interested in learning English through Viber. A similar study was conducted by Farahmand and Kowsary (2016) and they mentioned that students found Viber as a useful tool to learn English and enhance their vocabulary. Furthermore, Ahmad and Farrukh (2015) evaluated the use of MOOC (Massive Open Online Course), MALL (Mobile Assisted Language Learning), 'Skype', 'Whatsapp' and Viber tools to teach English language in Pakistan and they found that these social networking applications are immensely useful for students to learn English Language. Bashir et.al, (2015) looked at the use of Viber as an online tool for assessing the student's knowledge of grammar. They found that Viber can provide a situation in which the learners could learn the grammatical features in an interactive way. Tochahi (2015) mentioned that students were motivated, interested and excited in using Viber to learn English language.

Viber for distance learning

Kaya and Bicen (2016) found that free communication tools (such as Viber, Facebook, WhatsApp, etc) increases students motivation in learning. Khaddage and Lattenman (2013) did a study on use of smart phones by Japanese and German students and reported that the majority of the students mentioned that Viber and Skype mobile apps as useful for distance learning. Viber is an informal learning tool and students can learn in a relaxed environment. Calvo, Arbiol and Iglesias (2014) highlight that for modern day students, 'chatting' via Viber is useful for learning. They argued that mobile learning was perceived positively by students in Malaysia. Furthermore, Francois (2016) highlighted that Viber is good learning tool for disabled students and mentioned that Mobile learning (e.g.Viber) is a beneficial tool for students with special needs.

Reduces the barrier of space and time

Popa and Georgescu (2015) argue that one advantage of mobile phones are that they "not a scary thing like a PC or a laptop". Nowadays any age group (ranging from 3 years old babies to 80 years old people), can use a smartphone or tablet without much experience. Furthermore, smartphone or a tablet can be utilized anywhere and anytime (no space or time barriers). Usually, m-learning happens when people are away from their offices or classrooms.

Viber increases motivation

According Behravan (2016), Viber application had many positive social effects on the students, as students are motivated to use Viber as a learning tool rather than the boring orthodox method of learning by reading in the library. At the same time, students can create useful social networks with classmates and friends for learning. Behravan (2016) stressed that Viber is vital social media for improving social interactions and social development for students.

Literature on disadvantages of using Viber: Viber can be distractive and addictive

Mutekwe (2015) argued despite promoting student centred independence some students may be more concerned about entertainment within social media tools. For example, if the instructor wants students to read but students are concentrating in an online non-academic activities then this poses a challenge in teaching such as students take long hours to complete a single task, reduced quality of work, privacy or security concerns in the teaching institutions.

Cyber Crime & Privacy

O'Brien and Torres (2012) highlighted that there is possibility for student personal information (e.g. photos) be stolen and put on adult sites. Predators and these unlawful activities cause distress to students and instructors. Faheem, Le-Khac and Kechadi (2014) highlighted that a smartphone has security risks for digital crimes such as: harassment via text messages, drug trafficking, child pornography, communications related to narcotics, etc. Forensic experts face a big challenge in order to extract data from a smartphone for evidence to be used in court of law. Another problem is the privacy issue is spyware and hacking. Studies have mentioned that this has become a concern for educators thus some countries are putting in strict regulations to control such cybercrime (O'Brien and Torres, 2012).

Methodology

This paper utilized a qualitative approach namely review of journal articles, Viber Website, and interviews with students and lecturers at the University of the South of Pacific. The first method used was literature review of journal articles. The literature review focused on the advantages and disadvantages of using Viber as a distance student learning tool. The literature review was conducted thematically and only relevant journal articles were reviewed. The second method utilized was interview of twenty (undergraduate and postgraduate) students in the Faculty of Business and Economics (FBE) at the University of the South of Pacific (USP), in all modes of studies such as ‘face-to-face’, ‘print’, ‘blended’, and ‘online’ via distant learning. A semi-structured questionnaire was used to conduct the interviews. The research findings are presented and discussed next.

Research finding and discussion

As mentioned earlier, the aim of this paper was to find out the advantages and disadvantages of using Viber as a student learning tool by the University of the South of Pacific students. The following are the research findings.

Advantages of using Viber: views of students

The major advantages of using Viber discussed above are summarized and shown in Figure 1.

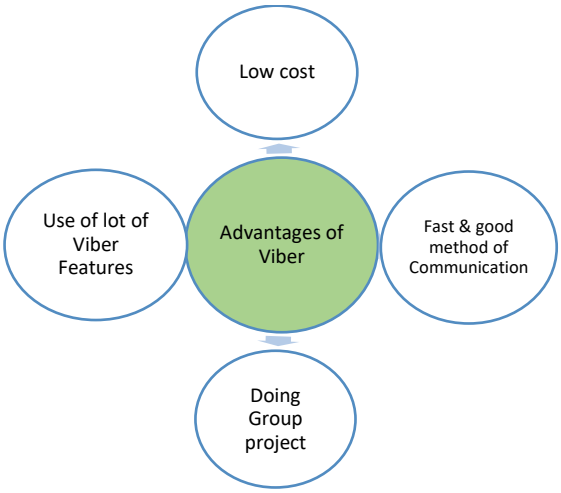

Figure 1: Advantages of using Viber as student learning tool.

Source: Developed by the Authors of this paper, (2017).

Low Cost

Firstly, students mentioned that Viber is cheap and a low cost communication tool which operates through internet data. The Viber users at USP can use Wi-Fi to call and text any student in the twelve Pacific Island countries for free rather than calling colleagues via the normal cell phones. To quote one student:

> "I use Viber every day for my studies. It is cheap and only chews a small amount of data. I do not have to come to the University the days I do not have any lectures. I can stay at home and still remain in touch with my class mates. By staying home I can also save money on bus fare and lunch cost" (Interview with a USP student, October 2017).

Viber is cheap and very useful for students to communicate with their teachers if they have queries related to the courses their studying. In most Pacific Island countries, students are 'cash-poor' and therefore they cannot call the teacher/instructors on mobile. Hence Viber becomes a useful mechanism to communicate especially for distance learning. This is particularly important for the University of The South Pacific students which has distance students spread over 12 regional countries in the Pacific Ocean. In addition to undergraduate students, postgraduate (Masters and PhD) thesis students can communicate easily with their professors at the main Laucala Campus in Fiji. For example, one postgraduate student in Cook Islands mentioned:

> "I am doing a PhD via distance and I can talk to my professor at the main Laucala Campus in Fiji to discuss my thesis. If I get confused then I use Viber rather than using emails" (Interview with a USP student, November, 2017).

Fast and good method of communication

The second main advantage mentioned by students is that Viber is fast and a good method of communicating with their colleagues and lecturers for doing their assignments especially with students who are different geographical areas of the USP Pacific region. This solves the barrier of time and space. One postgraduate student in mentioned:

> "I am a working student and I am normally busy at work. I use Viber to text messages to other students to find about the lecture notes and about assignments. My boss at work does not allow me to use mobile for calling –so I use Viber as a silent and faster method of communicating to my study group members" (Interview with a USP student, October 2017).

Doing group assignment

Another advantage of Viber identified by students, is it is possible to communicate with all the group members at once (i.e. simultaneously). Students can use Viber to communicate with a group via text and oral messages. One important feature is the availability of 'group messaging' which allows for the creation of an online 'sense of community' between the users of Viber. No separate messages are required to be sent to each members of the study group. Colleagues can share ideas with the fellow students and it is useful for group learning as well as doing group seminars, assignments and projects. Especially for working students, at odd hours in the night and weekends when students find it difficult to physically attend group meetings. In other words, group meeting can be conducted via Viber without meeting face-to-face.

One student mentioned:

> "We are doing group projects together, the first thing we do is create a group message box and then every student in the group can ask questions, clarify the jargons, post website links etc.. Via Viber, we keep on contributing without the need to meet physically" (Interview with a USP student, October 2017).

Use of Viber features

Fourthly, Viber has lot of features and it allows students to send 'picture messages', 'diagrams' 'videos', 'recorded voice', 'strikers' and 'website links' which makes students communicate more clearly if verbal messages are hard to comprehend (Nunan, 2004; Jost, 2003).

One student mentioned:

> "I like Viber because it has availability of cut and paste features which allows me to directly forward the website links of journal articles to my class mates. I can also send website address links to group members (Interview with a USP student, November 2017).

Furthermore, Viber has screen notification when a Viber text or a call is received and it has push notification for new text messages which lets the users respond without opening the whole Viber page. Another feature of unlimited word limit in single message in Viber allows students to complete whole set of discussion in a single message.

In summary, the main advantages of Viber are: voice messaging, text and verbal communication it's the fastest communication medium for the distance students. It allows unlimited free calls and text messages to other Viber users.

Disadvantages of using Viber: views of students

The major disadvantages of using Viber discussed above are summarized and shown in figure 2.

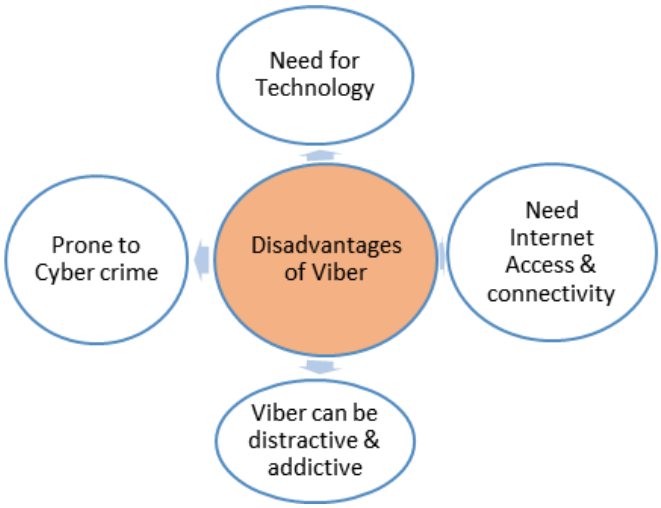

Figure 2. Disadvantages of using Viber as student learning tool.

Source: Developed by the Authors of this paper, (2017).

Need for Technology

The first disadvantage of Viber mentioned by students mentioned that some students are poor and hence do not have smart phones laptop, desktop, iPhone, notebook and iPad etc and thus they cannot use Viber to communicate with their colleagues. Also, Viber application is not available for most phone models including Nokia, Symbian, etc. One student highlighted:

> "I do not have a smart phone. Smart phones in Fiji cost around USD $100 and I come from poor family and my father can't afford to give a smart phone and give money for purchasing internet data. So when I am doing group assignment, I miss out on the conversation that my group members are doing via Viber. I feel disadvantaged." (Interview with a USP student, November 2017).

Another limitation is that it is not possible to communicate with people who do not have Viber accounts (i.e. non-Viber users) and hence user's need to register and mobile phone number needed to subscribe.

Need internet access and connectivity

The second disadvantage of using Viber is that it needs internet access and good connectivity. Hence students from poor family who do not have access to internet and data at home and hence cannot use Viber for their studies. Even those students who have internet at home, my not have the money to purchase data to use for Viber. One student said:

> "My family is poor and I am struggling to pay the cost of my education. I do not have money for purchasing internet data and I only use the internet available at the University. I feel bad when I cannot use Viber and it does affect my studies" (Interview with a USP student, November 2017).

Furthermore, the quality of Viber application is determined by the Wi-Fi or G signals and small island countries in the Pacific region, the Wi- Fi connections are weak.

Viber can be distractive and addictive

The third disadvantage of Viber is that excessive use of Viber can make students divert their attention from learning. Students mentioned that Viber affects their studies especially when they spent a lot of time chatting with other students and use Viber for social chatting. One student admitted:

> "I normally wake up whole night and use Viber to chat with me friends. I sleep around 6am every morning and wake up at 2pm in the daytime. I miss most my lectures and over the last year this has affected my studies and I have failed half my courses. I have got addicted to Viber, but from next year I will try to cut the use of Viber" (Interview with a USP student, November 2017).

Prone to cyber crime

The fourth disadvantage of Viber is that it can be used by students for illegal activities such as exchanging of pornographic materials and hacking other user's accounts. One female student confided:

> "I have gone through a situation whereby my boyfriend had exchanged my nude photos with his other friends using Viber, after we had broken up. My boyfriend wanted to portray a bad image of myself. When I came to know about this from my cousin I was really embraced, depressed and at a stage wanted to commit suicide. Currently I am seeing a university counselor for my depression. I have decided not to be a Viber user since a lot of messages were coming to me from unknown male callers.

Furthermore, Viber can be used by the hackers to activate other user's account and send messages on behalf of other users. This create a situation of identity theft. Hence, people can use Viber for non-educational purposes.

Policy implication and recommendations

There are a number of policy implication and recommendations for various stakeholders.

Recommendations for teaching institutions

Firstly, university and teaching institutions should encourage students to use Viber for their studies. Universities should provide more internet excess through Wi-Fi hotspots/pocket Wi-Fi so that student learning via Viber can take place anywhere in the university and not just in the classroom and computer labs. Universities should encourage students to learn in informal environments such as under the trees, lobby area, cafeteria, coffee shops, dining hall, student dormitory, etc. This will reduce the pressure for the need for bigger classrooms and computer rooms and also solves overcrowding of computer labs. Furthermore, to enable students to access reading material, the university should convert courses which uses Open Educational Resources (OER) so that students can freely access learning materials via internet rather than purchasing expensive text books. The saving of money from text book can be further used by students to purchase internet data top-up cards to use for online excess.

Recommendations for Governments

Secondly, government should consider to give students internet allowances (in the student scholarship packages) which will allow students to purchase data top-up cards to use with Viber. For example, in Fiji, government scholarship scheme currently provides book allowances and similarly the government can provide internet data cards.

Recommendations for Teachers

Teachers should focus on designing and disseminating news and forums through use of Viber application as its instant way of receiving information and feedback, picture messages, video messages and voice messages, etc. which can be communicated to students.

Recommendations for Parents

Parents should to assist their children financially to buy internet data for learning as students nowadays prefer digital reading/learning (mainly from personal mobile phones and laptops) rather than reading hardcopy teaching materials. However, parents will need to monitor children to use Viber more for academic purpose rather than using for social networking.

Recommendations for Students

Finally, students should make maximum use of Viber for their studies. Students need to be digital literate and able to use the all the features of the smart phone such as 'Doodle'.

Conclusion

This paper has examined the potential for using Viber as a student learning Tool**.** The paper has utilized a qualitative approach namely interviews with students and review secondary document to explore the advantages and disadvantages of using Viber as a distance student learning tool**.** The main advantages of Viber includes low cost, fast and good method of communication, doing project work. The main disadvantages of Viber were: lack of technology, need internet access and connectivity, Viber can be distractive and addictive and finally Viber is prone to cybercrime. On the whole, the main research finding reveal that students at the University of the South of Pacific find Viber as a very tool for their studies. Students mentioned that Viber is cheap, easy, and helpful in communicating with their colleagues and peers for doing their assignments and group projects, especially for distance students who are doing courses via online and print modes.

References

Ahmad, A. and Farrukh, F. (2015). Significance of social applications on a mobile phone for English task-based language learning. *Teaching English with Technology*, *15*(2), 94-105.

Bashir, S., Bashir, Z. and Nazir, M., (2015). Time management and its application in academic life: a study of Omani students at Dhofar University, Sultanate of Oman. *ANGLISTICUM. Journal of the Association for Anglo-American Studies*, *4*(2), 15-20.

Behravan, H., (2016). The 2016 International Academic Research Conference in Munich.

Calvo, R., Arbiol, A. and Iglesias, A., (2014). Are all chats suitable for learning purposes? A study of the required characteristics. *Procedia Computer Science*, *27*, 251-260.

Faheem, M., Le-Khac, N.A. and Kechadi, T., (2014). Smartphone Forensic Analysis: A Case Study for Obtaining Root Access of an Android Samsung S3 Device and Analyse the Image without an Expensive Commercial Tool, *Journal of Information Security, 2*014, 5, 83-90.

Farahmand, F. and Kowsary, M.A., (2016). The Effects of Using Viber on Iranian EFL University Students' Vocabulary Learning (An Interactionist View). *Research Scholar: An International Refereed e-Journal of Literary Explorations*, Vol. 4 (1), 33-39.

Francois, U. (2016). Glimpse of Mobile Learning Technologies: A Golden Mean in Current Educational Field. *International Education and Research Journal*, *2* (10).

Ghareb, M.I. and Mohammed, S.A., (2016). The Effect of E-Learning and the Role of New Technology at University of Human Development. *International Journal of Multidisciplinary and Current Research*, 41, 299-307.

Harbon, L., (2015). Assessing culture learning. *Developing Indigenous Models of English Language Teaching and Assessment,* edited by FA Hamicd, LB. P. Yadnya, and IGAG Sosiowati, 119-130.

Kahari, L., (2013). The effects of Cell phone use on the study habits of University of Zimbabwe First Year Faculty of Arts students. *International Journal of Education and Research*, *10*, 1-12.

Kaya, T. and Bicen, H., (2016). The effects of social media on students' behaviors; Facebook as a case study. *Computers in Human Behavior*, *59*, 374-379.

Jost, N. (2003). Issues in Task-based Language Instruction. JALT Conference Proceedings. Tokyo: Association for Language Teaching, 332-336.

Khaddage, F. and Lattenman, C., (2013). The future of mobile apps for teaching and learning. *Handbook of mobile learning*, 119-128.

Mutekwe, E., (2015). Higher Education and the Social Media Technology: A Dilemma Unfolding in Institutions of Higher Learning. *Journal of Education and Human Development*, 4(3), 119-133.

Nunan, D. (2004). Task Based Language Teaching. Cambridge: Cambridge University Press.

O'Brien, D., & Torres, A.M. (2012). Social networking and online privacy: Facebook users' perceptions. *Irish Journal of Management*, 31(2), 63-97.

Popa, S.R.M and Georgescu, M (2015). Creative m-learning apps available on mobile markets. *eLearning & Software for Education*, (1).

Tabot, A. and Hamada, M., (2014), September. Mobile learning with Google App engine. In Embedded Multicore/Manycore SoCs (MCSoc), 2014 *IEEE 8th International Symposium*. 63-67.

Withell, A.J., Cochrane, T., Reay, S., Gaziulusoy, I. and Inder, S., (2012). Augmenting the design thinking studio.

About the authors

Dr. Anand Chand is an Associate Professor, School of Management and Public Administration, Faculty of Business and Economics, The University of the South Pacific, Suva, Fiji.

E-mail: chand_a @usp.ac.fj

Ms. Payal Chand is a Research Officer at the Office of the Pro-Vice Chancellor Research at Fiji National University. Prior to this she was working as Research Administrator at College of Medicine, Nursing and Health Sciences at Fiji National University, Suva, Fiji Islands. Payal has MCom Degree from The University of the South Pacific.

E-mail: payal.chand@fnu.ac.fj

Return to Table of Contents

Return to Table of Contents

Editor's Note: Can tools designed for employee motivation successfully motivate students? What factors ensure success? What threats must be managed to avoid failure?

Herzberg's two factor theory and motivation level of students in the classroom: juxtaposing situational variables from Madagascar

Suwastika Naidu, Atishwar Pandaram, Jone Lako, Maureen Dayal, Maureen Dayal
Fiji

Abstract

The Herzberg's Two Factor Theory of motivation is one of the prominent theories of motivation that is frequently applied by academics and researchers in the area of motivation in different organizational setting. This paper extends the existing literature by applying the Herzberg's Two Factor Theory of motivation to student learning in the classroom setting. The unique contextual variables present in Madagascar were used as a theoretical basis for developing the model. This model is named as SUPAMANJO's1 model of student motivation as it aligns the authors teaching experience in developing countries to the unique variables present in Madagascar. The 'motivators' that affect student's motivation are (1) recognition of students, (2) curriculum design, (3) student empowerment, (4) opportunity creation and (5) achievement. The 'hygiene' factors that cause student dissatisfaction are (1) attracting students, (2) accessibility of education, (3) capacity constraints, (4) quality of instruction design, (5) students attitude towards technology, and (6) parental time spent.

Keywords: Supamanjo's Model, student, motivation, technology, parents,

Introduction

Teaching delivery differs by geographical region because there are some unique variables present in different geographical contexts and these variables have to be incorporated in teaching delivery so that students can easily learn and adjust to the teaching environment. A common example is problems that students in the Pacific Island Countries face to adjust to American accent as many small island developing countries follow the British accent. One of the prominent management theories, known as the Herzberg's Two Factor theory of motivation, was developed by Herzberg in the 1950s (Kotler and Fox, 1995; DeShields et al., 2005). Researchers have used this theory to explain employee motivation, but some bold authors have taken the lead to apply this theory to student's motivation in different geographical settings. These authors undertook a generic approach in applying Herzberg's Two Factor theory of motivation to different education settings. These authors did not account for some of the unique variables that may be present in specific geographical settings while applying the Herzberg's Two Factor Theory of Motivation to different geographical settings.

This study expands the existing literature in two ways. First, it uses the existing literature to incorporate the unique variables that are present in Madagascar to the development of the student motivation model. Some of the factors that were identified as unique to the context of Madagascar were multi-grade teaching, poor facilities, and capacity constraints to the delivery of education in Madagascar. Secondly, the model proposed in this study has not isolated factors that are unique to primary education, secondary education and tertiary education.

[1] The name of the model has been derived from the author's first two letters of their first names.

This paper is divided into five sections. Section two outlines the background of education and learning in Madagascar. Section three outlines Herzberg's Two Factor Theory and motivation level of students in the classroom. Section four reviews the literature and presents the research hypotheses. Section five proposes the SUPAMANJO's model of student motivation and section six presents conclusion and directions for future research.

Background of education and learning in Madagascar

Madagascar is one the poorest countries in the world with Gross Domestic Product (GDP) per capita standing at US$415.80 in the year 2016 (Trading Economics Database, 2017). In comparison to the world's average, GDP per capita of Madagascar is only 3%. This statistic is devastating, in the sense that the output per individual is very low in comparison to what individuals in other countries are able to produce.

The donor agencies have played an essential role in the provision of basic education services in Madagascar. For instance, donor agencies, such as the World Bank have always played a lead role in the provision of advice, expanding educational opportunities throughout the country (World Bank, 2002). Since the early 2000's, a number of changes could be noticed in the provision of basic education services in Madagascar. During the period 2001 to 2008, the number of children who were able to access primary education services doubled to over 4 million (UNICEF, 2017).

This doubling of children in the primary education system was the result of a number of institutions collaborating to achieve the international target of universal primary education for all. According to Lassibille and Tan (2003), primary education absorbs the bulk of an economy's fiscal expenditure in education. Madagascar is not an exception to this phenomenon. The political crisis of the year 2009 had a major impact on the educational system of this country. Political crisis is always coupled with economic recessions that pressure policy makers to use contractionary fiscal policies to counter the crisis. This is exactly what happened in Madagascar.

As a result, this political crisis led donor agencies to immediately reduce their aid for the provision of education services. As reported by UNICEF (2017), an estimate of 2 million children between the ages of 3 to 6 years live in Madagascar. Before the children could enter the primary education system, they need to attend pre-school so they are well prepared for their primary education and do not lose interest in their studies. Statistics show that less than 10% of children between the ages of 3 to 6 years are able to go to preschool. Lack of pre-school education implies that many students drop out of the education system because they are not well prepared to meet the challenges of the primary education system.

Moreover, a number of factors constrain the ability of students to perform better in their studies. According to UNICEF (2017), some of these factors are lack of funding to build classrooms and supply educational materials to schools. As a result, students study in overcrowded rooms with teachers who are not trained to teach in pre-schools or in primary and secondary schools. Most teachers in the local public primary schools are recruited by local parents association with very limited role played by the Ministry of Education in the recruitment process (UNICEF, 2017). For the recruitment to be fair, the committee involved in recruitment and selection should be well qualified and the members should have strong recruitment skills. The committee also needs to be well represented and balanced in terms of ethnicity and gender. It is quite difficult to say that the local parents association that is involved in recruiting most of the teachers to teach in the public primary schools meet this criteria (UNICEF, 2017).

Table 1:
Government's fiscal policy on education spending in Madagascar

Variables	Values
Government Expenditure on Education (% of GDP; Year 2014)	2.1
Government current and transfer expenditure on education (as % of total government expenditure on education; Year 2014)	97.0
Expenditure on tertiary as % of government expenditure on education (Year 2014)	15.2
Government expenditure on tertiary education per student in constant 2013 US$ (Year 2014)	478
Government expenditure on tertiary education per student in constant 2013 PPP$ (Year 2014)	1457
Government expenditure on tertiary education as % of GDP (Year 2014)	0.4

Developed by the Authors of this Paper from the Global Education Monitoring Report, (2017).

Table 1 shows that government expenditure on education as % of GDP for the year 2014 was 2.1%. The government current and transfer expenditure on education as % of total government expenditure on education was 97%. Expenditure on tertiary as % of government expenditure on education was 15.2%. The government expenditure on the tertiary education delivery, as compared to primary and secondary education was relatively low. The government's fiscal expenditure on tertiary education forms a key component of types of resources and facilities that would be available in the tertiary institutions. Government expenditure on tertiary education per student on constant 2013 US$ was $478. Globally, the cost of tertiary education is quite high as compared to primary and secondary education. Therefore, the government expenditure on tertiary education per student is insufficient to meet the daily financial demands of students studying in the tertiary institutions across Madagascar. Government expenditure on tertiary education as % of GDP was 0.4%. This shows the lack of commitment by government to invest in capacity building of citizens.

Herzberg's two factor theory and motivation level of students in the classroom

The Herzberg's Two Factor Theory of motivation was first proposed in the year 1959 by the famous psychologist Frederick Herzberg (Herzber *et al.,* 1959). One of the main assumptions of this theory was that job satisfaction and dissatisfaction are not related to each other. This theory can be linked directly to the Abraham Maslow's Hierarchy of Needs Theory that an employee's needs affects his or her motivation level therefore, managers should design programs that are geared towards meeting these needs of the employees (Herzberg, 1964; Herzberg, 1966). Herzberg highlighted that individuals are not gratified with the lower level needs and try to seek satisfaction from higher level needs, such as, desire to achieve, advancement, work design etc. There are only a few studies that have used Herzberg's Two Factor Theory of Motivation to explain student's motivation and how this could be enhanced in the learning environment (Herzberg, 1964; Herzberg, 1966). According to Herzberg's theory, the study of motivation can be divided into two categories: motivators and hygiene factors. The factors that are labelled as motivators are responsible for increasing employee satisfaction and the factors that are labelled as hygiene factors result in dissatisfaction if they are missing from their work design (Herzberg,

1964; Herzberg, 1966). Figure one captures some of the motivator and hygiene factors in the Herzberg's Two Factor Theory of Motivation.

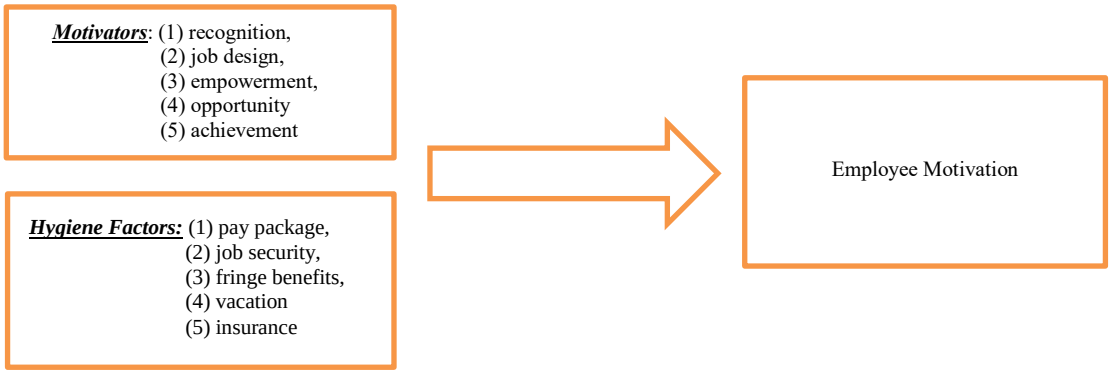

Figure 1: Motivators, Hygiene Factors and Herzberg's Two Factor Theory of Motivation

Source: Developed by the authors of this paper by using information from (Herzberg, 1964; Herzberg, 1966).

There are only a few studies that have applied the Herzberg's Two Factor Theory of Motivation to the classroom learning environment where we are concerned with student motivation rather than the employee motivation. Parcel and Dufur (2001) study explored the role of family and school in improving students learning abilities. The findings from this study highlighted that recognition is essential in improving students learning achievements.

The desire to achieve and be recognized for these achievements is an intrinsic factor that drives students to perform better in college and higher education studies. Without the desire to achieve and the need to be recognized for performance, students would not be geared to perform better in their examinations. Teaching pedagogies should be designed to enable students to reach their full potential. The teaching pedagogies that are used for primary teaching may not be similar to the teaching pedagogies used for high school and tertiary learning. Activities for tertiary learning may be more practical in nature while the activities for primary education learning may be more fun and entertainment oriented in order to engage students in the classroom learning environment. DeShields *et al*. (2005) related the classroom delivery environment to learning outcomes and quality of students experience while studying in different colleges and higher education institutions. DeShields and his colleague stated that the quality of academic advising provided by staff is counted as an extrinsic factor that may increase student dissatisfaction if not provided in a timely and consistent fashion. Kotler and Fox (1995) stated that three factors, such as, (1) attracting students, (2) processing applications and (3) providing guidance to students affect the students dissatisfaction level. These three factors may be treated as hygiene factors. Volery and Lord (2000) highlighted that some of the hygiene factors or extrinsic factors that may increase student dissatisfaction in college or higher education institutions are (1) accessibility of education, (2) capacity constraints, (3) quality of instructional delivery, and (4) students attitude towards technology.

Literature review and research hypotheses

There are a handful of studies conducted on how motivators increase satisfaction and hygiene factors lead to dissatisfaction (Lundberg *et al.,* 2009). However, to date, none of the existing studies have used motivators and hygiene factors to discuss how students learning experience are affected in the presence of these factors in the context of Madagascar. There are a number of reasons why there are too few studies conducted on this topic in the context of Madagascar. First, Madagascar is a developing country; therefore, authors usually tend to focus their research on those countries that are likely to attract global attention. These countries usually include the

USA, UK, Brazil, China, India, etc. Second, a close examination of existing literature shows that studies have given more priority to policy issues as compared to research on enhancing the student's motivation level. This section aims to integrate the unique context of Madagascar to the ten research hypotheses proposed in this paper and develop a model that can explain how students learning experience in Madagascar varies with changes in the 'hygiene' and 'motivators'.

Motivators: increasing students satisfaction

Similar to the situation in any developed country, students in Madagascar have the need for recognition and achievement. Without these intrinsic desires, there would be no reason for students to work hard towards their goal. Lassibille and Tan (2003) found that private schools in Madagascar generally are more effective and efficient than the public schools. As a result of this efficiency, private schools may be able to allocate more resources to recognize well performing students and improve job design, empowerment, opportunity and achievement.

H1: There is a strong correlation between recognition of students and student's satisfaction from the education system.

H2: There is a strong correlation between curriculum design and student's satisfaction from the education system.

H3: There is a strong correlation between empowerment of students and student's satisfaction from the education system.

H4: There is a strong correlation between opportunity creation and student's satisfaction from the education system.

H5: There is a strong correlation between achievement and student's satisfaction from the education system.

Hygiene factors: leads to student dissatisfaction

Woolf *et al.,* (2009) highlighted that technology improves student's perception and general behavior towards learning activities. There are a number of studies that have focused on the impact of capacity constraints on student's motivation level. These studies are mainly based on the largest developed and developing countries. There are only a few studies that have examined the impact of the capacity constraint on learning outcomes and student's motivation level in Madagascar. Glick and Sahn (2006) used an economic model to examine how poor school facilities and multi-grade teaching delivery affect the quality of teaching delivered in primary schools in Madagascar. This study found that when teachers teach a number of grades at once, they are not able to spend enough time with students in each grade. There are two ways that teachers usually teach in a classroom setting. First is teaching the class as one whole group and second is using a one-to-one approach to handling student's issues. When teachers teach a number of grades simultaneously, they are not able to provide each student with enough guidance and support. Unlike the curriculum design in the high school and tertiary education, teaching at the primary school level is quite different. In tertiary institutions, instructors rely on student centered learning while in primary schools, the delivery is teacher centered. This is a common problem in Madagascar but these issues may not be present in developed countries such as US, UK, Japan, Singapore, Australia and New Zealand.

H6: There is a strong correlation between attracting student's and student's dissatisfaction from the education system.

H7: There is a strong correlation between accessibility of education and student's dissatisfaction from the education system.

H8: There is a strong correlation between capacity constraints and student's dissatisfaction from the education system.

H9: There is a strong correlation between quality of instructional delivery and student's dissatisfaction from the education system.

H10: There is a strong correlation between students attitude towards technology and student's dissatisfaction from the education system.

H11: There is a strong correlation between parental time spent on children and student's dissatisfaction from the education system.

Proposing model of motivators and hygiene factors for Madagascar

Based on the above hypotheses, the following research model is proposed. This model captures unique factors present in Madagascar that may affect the design and delivery of education. There are two common factors highlighted in this model - (1) hygiene and (2) motivators.

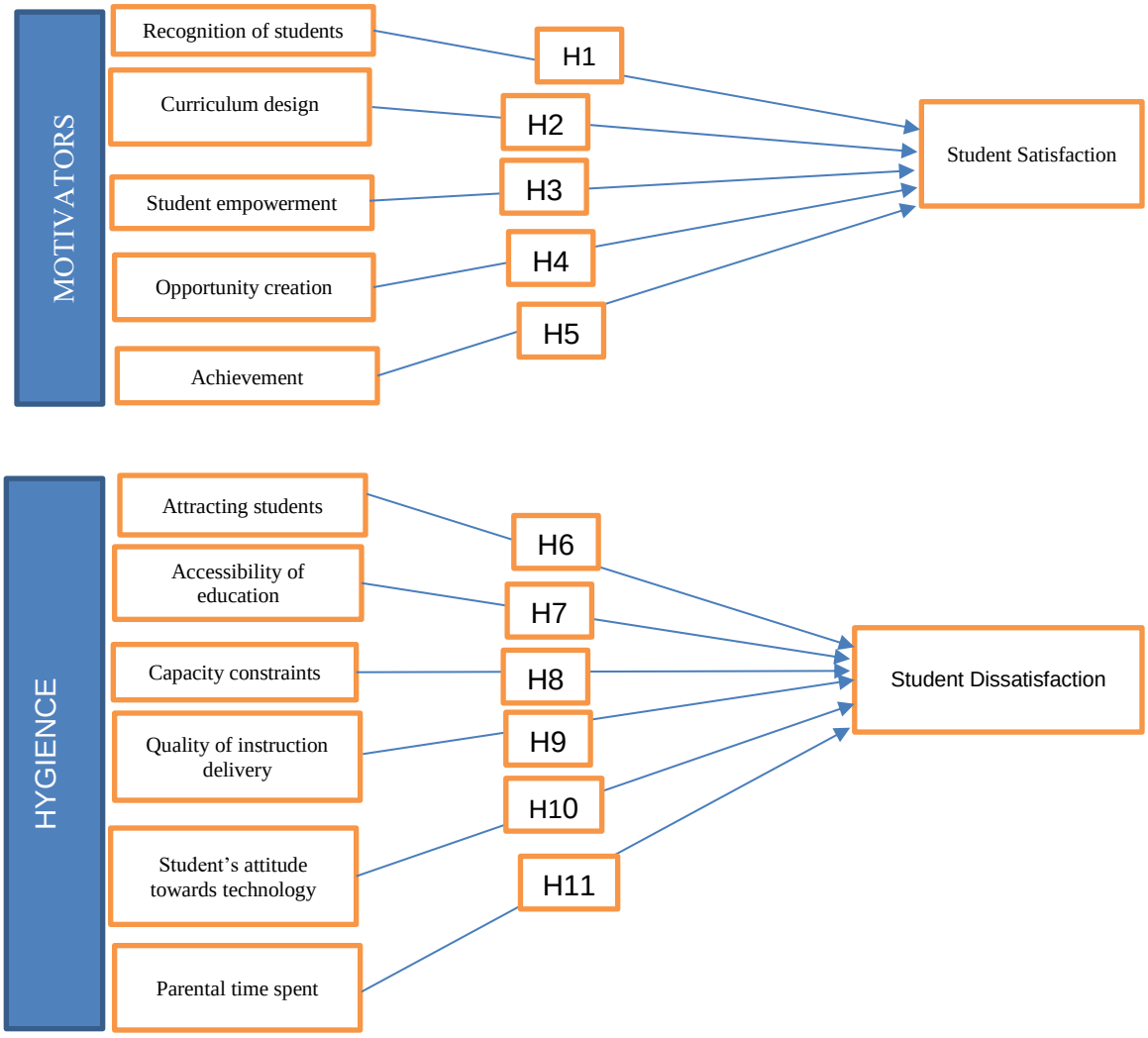

Figure 1: Herzberg's two factor theory and students dissatisfaction and satisfaction level

Source: Developed by the Authors of this Paper, (2017).

Conclusion and directions for future research

The main aim of this paper was to develop a research model that could explain the student's motivation level in Madasgar. The 'motivators' that affect student's motivation are (1) recognition of students, (2) curriculum design, (3) student empowerment, (4) opportunity creation and (5) achievement. The 'hygiene' factors that cause student dissatisfaction are (1) attracting students, (2) accessibility of education (3), capacity constraints, (4) quality of instructional design, (5) students attitude towards technology, and (6) parental time spent. The proposed model designed by the authors of this study is named as SUPAMANJO's model of student motivation. Future researchers can test this model in different geographical settings.

References

DeShields Jr, O. W., Kara, A., & Kaynak, E. (2005). Determinants of business student satisfaction and retention in higher education: applying Herzberg's two-factor theory. *International journal of educational management*, 19(2), 128-139.

Glick, P., & Sahn, D. E. (2006). The demand for primary schooling in Madagascar: Price, quality, and the choice between public and private providers. *Journal of Development Economics*, *79*(1), 118-145.

Herzberg, F. (1966). Work and the Nature of Man. Cleveland: World Publishing. OCLC 243610.

Herzberg, F. (January–February 1964). The Motivation-Hygiene Concept and Problems of Manpower. Personnel Administrator (27): 3–7.

Herzberg, F., Mausner, B., Snyderman, B. B. (1959). The Motivation to Work, 2nd ed., New York: John Wiley.

Kotler, P. and Fox, K.F.A. (1995), Strategic Marketing for Educational Institutions, 2nd ed., Prentice-Hall, Englewood Cliffs, NJ.

Lassibille, G., & Tan, J. P. (2003). Student learning in public and private primary schools in Madagascar. *Economic Development and Cultural Change*, *51*(3), 699-717.

Lundberg, C., Gudmundson, A., & Andersson, T. D. (2009). Herzberg's Two-Factor Theory of work motivation tested empirically on seasonal workers in hospitality and tourism. *Tourism management*, *30*(6), 890-899.

Parcel, T. L., & Dufur, M. J. (2001). Capital at home and at school: Effects on student achievement. *Social forces*, *79*(3), 881-911.

Trading Economics Database. (2017). Madagascar GDP Per Capita. https://tradingeconomics.com/madagascar/gdp

UNICEF. (2010). Education. https://www.unicef.org/madagascar/eng/education.html

Volery, T., & Lord, D. (2000). Critical success factors in online education. *International journal of educational management*, *14*(5), 216-223.

Woolf, B., Burleson, W., Arroyo, I., Dragon, T., Cooper, D., & Picard, R. (2009). Affect-aware tutors: recognising and responding to student affect. *International Journal of Learning Technology*, *4* (3-4), 129-164.

World Bank. (2002). *Education and training in Madagascar: toward a policy agenda for economic growth and poverty reduction*. World Bank Country Study, Washington DC.

About the authors

Dr. Suwastika Naidu is Lecturer, School of Management and Public Administration, Faculty of Business and Economics. University of the South Pacific, Suva, Fiji Islands

E-mail: naidu_s@usp.ac.fj

Dr. Atishwar Pandaram is Lecturer, School of Management and Public Administration, Faculty of Business and Economics, University of the South Pacific, Suva, Fiji

E-mail: pandaram_a@usp.ac.fj

Mr. Jone Lako is Assistant Lecturer, School of Management and Public Administration, Faculty of Business and Economics, University of the South Pacific, Suva, Fiji

E-mail: lako_j@usp.ac.fj

Dr. Anand Chand is Associate Professor, School of Management and Public Administration, Faculty of Business and Economics, University of the South Pacific, Suva, Fiji

E-mail: chand_a@usp.ac.fj

Ms. Maureen Dayal is Assistant Lecturer, School of Management and Public Administration, Faculty of Business and Economics, University of the South Pacific, Suva, Fiji

E-mail: dayal_m@usp.ac.fj

Return to Table of Contents