Adopting and Implementing an E-Learning System for Teaching and Learning in Saudi Public K-12 Schools: The Benefits, Challenges, and Concerns

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Abstract

Classera is an e-learning system that has been adopted for use in a variety of learning environments in K-12 schools in Saudi Arabia. The system can be integrated in online, blended, or traditional settings with the aim of improving teaching and learning and helping students connect with lesson content, teachers, and peers, and teachers connect with parents. The purpose of the current study is to examine the benefits, challenges and concerns surrounding the adoption and implementation of this system. An online survey was used to gather data from a sample of 70 teachers from the 12 schools in which Classera was originally piloted. The results of the study reveal high levels of teacher satisfaction with the use of Classera with benefits including easy delivering of content, facilitating student learning, and encouraging peer collaboration and teacher-parent communication. However, challenges and concerns surrounding issues such as teacher professional development, time for training, and Internet access still persist and need to be taken into consideration to ensure the successful adoption and implementation of Classera in all K-12 schools across Saudi Arabia.

Keywords

e-learning, learning management systems, challenging of e-learning in Saudi Arabia

1. Introduction

In this day and age educators are encouraged to integrate innovative technology in their classrooms as they deliver instruction to 21st century learners who are raised and socialized into the use of such tools. Twenty-first century students view technology as "an assumed part of life" (Oblinger, 2003, p. 40) and spend most of their time playing video games, checking email, sending text messages, talking on cell phones, and watching television. Via technological devices, they are connected with family, friends, information, and entertainment 24 hours a day (Raines & Arnsparger, 2010).

According to Ayas (2006), "in the 21st century, the new vision of education is to make learning accessible to all, but it is hard to reach this goal through the use of traditional methods" (p. 14).

Technology is therefore increasingly being infused into teaching and learning and is considered an essential component of education. Technology can be used to quickly and easily teach content in a number of ways as well as make it possible to adopt newer approaches in the delivery of instruction and assessment (Lawless & Pellegrino, 2007). Accordingly, teachers are expected to enter their career or the field with knowledge of their content areas as well as knowledge of the best ways to integrate technology into the teaching of their content (Ayas, 2002). These days the expectation is that teachers have the skills to use technology to support their instruction and student learning (Wright & Wilson, 2007).

In the Kingdom of Saudi Arabia, like in any other country around the world, the popularity of technology and the expectation for infusing technology in the field of education keeps growing. Educators in the Kingdom of Saudi Arabia are in the process of integrating educational technology tools into the traditional curriculum to enhance teaching and learning. One of the growing trends involves the use of technology such as Learning Management Systems (LMS), Student Information Systems (SIS), and other distance learning and e-learning systems that come with several features and efficient and effective tools that allow for storage, management, and sharing of educational resources and knowledge to support learning in a variety of settings (Al-Busaidi & Al-Shihi, 2010). Currently, an e-learning system, Classera, has been implemented in some K-12 public schools in Saudi Arabia with the aim of improving teaching and learning through the blending of online and face-to-face learning. Classera comprises of several components such as virtual classrooms and labs, online grading and attendance, email, etc., and includes a number of tools including a Home page, Digital Library, Online Discussion Forum, and a class roster.

Even though e-learning systems have been progressively used in higher education in Saudi Arabia in the last five years, this is not the case in K-12 education. Classera is considered the first e-learning system that has been adopted and implemented by K-12 teachers to deliver educational content and resources to students in a hybrid environment. The main goal of the implementation of Classera in K-12 schools is to influence the lives of students making it necessary for teachers to find new ways to allow students to learn at their own pace while encouraging peer interaction and increased parental involvement in learning. While the system has been implemented for a while, research has not been conducted to examine whether the objectives for implementation have been met. More especially, the teachers who are at the frontline of implementation are yet to be asked about their perceptions regarding this system. This study therefore aims to explore the perspectives of Saudi teachers regarding using Classera in their classrooms. The research questions of interest include the following:

1) To what extent are K-12 teachers in Saudi Arabia satisfied with the use of Classera in their instruction? How do teachers describe their experiences with Classera? Do the teachers' experiences vary by teacher background?

2) What are the perceived benefits and concerns with using Classera in teaching and learning in Saudi K-12 classrooms?

3) What barriers and challenges prevent teachers from making effective use of Classera in their classrooms?

4) What are teachers' views on the future of the use of Classera in K-12 education in Saudi Arabia?

This study has significance for Saudi educators as they continue to make decisions regarding adopting Classera as an educational technology tool for teaching and learning. This study also helps highlight teacher perspectives about using Classera. The findings from this study can provide ideas as to how the system might be improved as decisions are being made to broaden the adoption of this e-learning system across all K-12 schools in the Kingdom of Saudi Arabia.

1.1 Theoretical Framework

Smyth (2004) emphasizes that a conceptual framework is required as a starting point for the researcher to reflect upon their investigation and to develop an awareness of the basis for their study. The theoretical framework for the current study was constructed based on a well-known and widely used model, Technology Acceptance Model (TAM) developed by Davis (1986) and based on Fishbein and Ajzen's 1975 Theory of Reasoned Action. TAM indicates that there are five factors that determine the attitude, intention, and consequently the actual use of any information system. These five factors include attitude towards use, ease of use, perceived usefulness, behavioral intention, and actual use (Legris, Ingham, & Collerette, 2003). Consequently, the successful implementation of educational technology depends largely on teachers' attitudes towards technology, which eventually influences their use in instruction (Albirini, 2006; Buabeng-Andoh, 2012). That being said, teachers play a crucial role in promoting or hindering technology integration in teaching and learning.

Teachers' acceptance of Classera will therefore play a significant role in the optimal utilization of this e-learning system in K-12 education in Saudi Arabia (Al-Busaidi & Al-Shihi, 2010). When teachers have a positive perspective towards the use of Classera and find the features of the system to be beneficial and easy and less challenging to use, then there is a high likelihood for its successful adoption and implementation for teaching and learning in K-12 schools across the Kingdom of Saudi Arabia.

1.2 Literature Review

In recent years, the frequency of use of e-learning systems for teaching and learning has increased and will continue to increase in the coming years. According to Sallum (2008), e-learning systems allow for the delivery and administration of content and resources to all students and teachers. In fact, e-learning systems contain software application and features that allow for easy access and management of learning content (Asiri, Bt Mahmud, Bakar, & Bin, 2012). The use of e-learning systems has therefore become imperative especially in higher education to support e-learning and distance education (Al-Busaidi & Al-Shihi, 2010).

This new trend of teaching helps to change the learning situation from a teacher-centered approach, where teachers set educational targets and aims, to a more personalized learning situation in which students have a greater role in shaping their teaching and learning experiences (Al-Abdulkareem, 2002).

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In this new teaching situation, the teacher's role has been changed to facilitator, manager, and collaborator of the learning process (Muir-Herzig, 2004; Wasserman & Millgram, 2005). Recently, the use of e-learning systems is considered an integral part of successful teaching (Almekhlafi & Almeqdadi, 2010) providing powerful learning experiences that lead to authentic and meaningful student achievements where teaching and learning are transformed through the support of technology (Harris, Mishra, & Koehler, 2009; Koehler & Mishra, 2008).

In Saudi Arabia, the infrastructure for higher education and distance education has been officially established and includes: 1) the use of e-learning educational portal systems; 2) the use of Learning Management Systems (LMS) in e-learning; 3) the national repository for learning objects; 4) the National Center for e-learning, and distance education that supports the educational needs of universities and colleges in the Kingdom of Saudi Arabia; 5) an award to promote and reward e-learning excellence, and 6) developing academic and administrative skills, and building electronic curriculum contents for a number of university courses (Al-Fahad, 2009).

E-learning and the use of LMS are being more and more frequently adopted in Saudi universities because of the steady rise of the Saudi student population in higher education institutions (Asiri et al., 2012). According to Alebaikan and Troudi (2010), many universities and institutions have provided different LMSs, such as Blackboard, WebCT and Tadarus (an Arabic-based LMS) to facilitate teaching and learning in higher education in Saudi Arabia. One of the LMSs used in Saudi universities is Jusur that has been established by the National E-learning and Distance Learning Center where students can download and submit homework, as well as participate in discussions via the discussion board (Alebaikan & Troudi, 2010). However, the utilization of these LMSs was very limited due to the lack of training workshops for faculty members (Alebaikan & Troudi, 2010).

Asiri, Bt Mahmud, Bakar and Bin (2012) conducted a significant study to explore the factors that influence utilization of the Jusur Learning Management System (Jusur LMS) in Saudi Arabian public universities. The study revealed that there are external and internal factors that influence the use of Jusur LMS for teaching and learning purposes (Asiri et al., 2012). The internal factors include the attitude of Saudi Arabian faculty members towards using LMS, their beliefs towards e-learning, and their competence level in using LMS while the external factors include some barriers faced by the faculty members (Asiri et al., 2012). According to Asiri et al. (2012), the faculty members' acceptance of technology plays a key role in optimal utilization of LMS in higher education. Thus, the success of the implementation of LMS greatly depends on the teachers' or instructors' attitudes toward technology and LMS specifically (Albirini, 2006; Asiri et al., 2012). In evaluation of the instructors' acceptance of LMS based on the Technology Acceptance Model, Al-Busaidi and Al-Shihi (2010) asserted that instructors' acceptance is essential for the success of the deployment of LMS in any institution that in turn, initiates, and promotes learners' utilization of LMS. Al-Shehri (2010) determined some challenges of e-learning in Saudi Arabia such as the budgetary allocation to e-learning, the knowledge and skills of teachers and learners, the infrastructure for technology and telecommunications, and organizational

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relationship of all those involved in e-learning.

The ease of use of cloud based LMS allows for instruction, and collaboration, socialization and engagement of students. This trend has had a significant impact on student achievements and learning outcomes and has led to policy makers in Saudi Arabia buying into the decision to gradually implement the use of LMS and e-learning into K-12 schools with the aim of replicating similar successes at this level of education. Classera is the first e-learning system that has been implemented in K-12 Saudi schools to promote the incorporation of online learning modalities into face-to-face instruction creating a teacher-facilitated and blended learning environment in K-12 education. Through this system, students are able to interact with the learning content and connect with teachers and their peers, both online and through face-to-face meetings. Classera has most of the LMS features including gradebook, assessments, e-textbooks, e-planners, reporting, and communication tools. Hence, in order for the teachers to make optimal use of Classera, all barriers and concerns need to be identified and addressed in order to ensure the optimal use of Classera in K-12 education in Saudi Arabia.

To summarize, the use of e-learning systems in teaching and learning has been a field of research in education for many decades. The findings from past research support the vital importance of using such systems to enhance teaching and learning. The current study aims at determining whether the same benefits as those cited in research and at the higher education level are being realized through the adoption and implementation of Classera, which is still in the first stage of implementation, in K-12 schools in Saudi Arabia. Considering that Classera is the first e-learning system that has been officially applied in some K-12 Saudi schools as an experimental step in the 2014-2015 school year, this research is intended to explore teachers' perspectives about using Classera in their classrooms; particularly the benefits of this online system on their teaching and student learning and the barriers that may prevent the effective use of this system in their teaching. This study adds to the foundational research necessary for the development, adoption, and implementation of the use of e-learning systems for teaching and learning in K-12 education in Saudi Arabia.

2. Method

2.1 Research Design

A quantitative approach was used to explore the perspectives of Saudi teachers regarding using Classera which was piloted in 12 public schools in Saudi Arabia in the 2014/15 school year. The e-learning system has been adopted and implemented in ten schools in the Asir district, one school in the Jiddah District, and one school in the Tabuk District. An online survey was used to gather data from 70 in-service teachers from the 12 schools. The teachers taught a variety of subjects and represented a variety of grade levels. Since little is known about the use of Classera in Saudi Arabia, an exploratory quantitative investigation was warranted.

2.1.1 Classera-the E-Learning System

The 2014-2015 school year was considered the beginning of the adoption and implementation period for Classera in the 12 Saudi Arabia schools. During the beginning of fall 2014, all teachers from the 12 schools were required to attend a one-week introductory face-to-face professional development training session on Classera. They received their own accounts on Classera and basic instructions on how to use the learning management system. They learned how to download lessons, modules, assignments, tests, and how to manipulate or enter grades in the system. The professional development session also focused on how to use specific features in Classera to insure that teachers were prepared to implement Classera into their classrooms when their students returned to school in the fall of 2014.

In addition to the training, teachers were strongly encouraged to ask for assistance when needed and a Classera professional assistant was provided in each school. Many demonstration videos were also provided to illustrate the use of Classera in more detail. When it came to the students, the teachers were solely responsible for teaching their students how to use the learning management system.

2.1.2 Study Procedure

Prior to conducting the research, Institutional Review Board (IRB) approval to conduct the study was sought. In addition, permission was sought and granted from the Ministry of Education in Saudi Arabia to contact and collect data from the teachers. After receiving the two approvals, the teachers were contacted via email. The email message contained the link to the survey and also included a consent form that detailed the purpose of the study and the importance of the teachers participation in the study. Data was gathered over the spring of 2015 and completed within one month of initiation of the study. The method of reverse translation was used to translate the survey that was developed in English into Arabic. Certified translation was used to ensure that there was no difference between the English and Arabic versions of the survey and to ensure that the teachers had a good understanding of the survey items. It is also important to note that participants did not receive any incentive or compensation for their participation.

2.1.3 The Survey Instrument and Data Analysis

An online survey was used to gather data from teachers. The survey was developed based on a literature review that was conducted in relation to technology integration, course management or learning management systems and teachers' perspectives in the adoption and implementation of technology in teaching and learning. The instrument, which consisted of a number of demographic questions, Likert scale items, and an open-ended item, was developed and administered through Survey Monkey. The items were used to gather data regarding teacher background (age, gender, years of teaching experience, grade level taught, educational level, and content area), teacher technology skills and training in general and skills in the use of Classera specifically, teachers' experiences with using Classera in their schools, and teacher satisfaction levels and perspectives regarding the benefits and challenges involved with using Classera in their classrooms. Also included on the survey was an open ended item that gave teachers the opportunity to provide comments on their views on the future use of

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Classera in their classrooms.

Internal consistency estimates of reliability for the closed-ended survey items yielded a Cronbach Alpha of 0.91. Item analyses were also conducted on the subscales items on the survey. Coefficient alpha values were 0.90 for the 11 items measuring perceptions of experience using Classera, 0.96 for the 14 items measuring perceptions regarding the benefits of Classera, and finally, 0.86 for the 7 items used to assess perceptions regarding the barriers to using Classera. All reliability estimates meet the desired standard level of 0.70 and above as suggested by Green and Salkind (2014). Data collected from the surveys were Analyzed using descriptive statistics and Nnalysis Of VAriance (ANOVA). The response to the open-ended question was analyzed for general ideas or themes.

3. Result

Table 1 presents teacher demographic or background data. This includes information on gender, teaching experience, and school level taught. The majority of the teachers were male (64%) as compared to female (36%). Also, close to half of the participants have been teaching between 11-20 years and more than 50% taught at the high school level.

Table 1. Teacher Background Data (N=70)

Variable	N	%
Gender Male	25	36
Female	45	64
Years of Teaching Experience 1-3 years	13	19
4-10 years	13	19
11-0 years	34	49
21+years	10	14
School Level Elementary School	5	7
Middle School	24	34
High School	41	59

When asked about their prior skills with technology, 47% of the teachers considered themselves to be average technology users who have enough skills to complete the management and communication tasks expected of them. These teachers indicated that they occasionally use technology to accomplish some of their work. About 24% of the teachers considered themselves very good technology users who have very good technology skills and use a variety of technology tools efficiently for all aspects of their work. However, only 4% owned up to being poor technology users who always needed someone else to handle their technology-based tasks.

The teachers were also asked about technology training in general and regarding the use of Classera

specifically in teaching and learning. Table 2 shows that a large group of teachers (66%) reported not receiving any kind of technology training at the university they graduated from or received their pre-service training. However, some of the teachers (31%) mentioned that they have received in-service technology related professional development training in the past and 69% indicated that they received training specifically on Classera use; though 56% said the training was not sufficient to support the use of Classera in the classroom.

Table 2. Teacher Technology Professional Development Training

Professional Development	Response	N	%
Received professional development during pre-service teacher training	Yes	24	34
	No	46	66
Received professional development during in-service training	Yes	22	31
	No	48	69
Received training in the use of Classera	Yes	48	69
	No	22	31
Classera professional training was sufficient for technology use in teaching	Yes	31	44
	No	39	56

3.1 Teacher Satisfaction and Experiences Using Classera

When asked to rate their level of satisfaction with Classera, a little over three-quarters (83%) of the teachers indicated that they are completely satisfied or satisfied with the use of the e-learning system in their classrooms (Table 3).

Table 3. Teacher Level of Satisfaction with Classera (N=59)

Satisfaction Level	N	%
Completely Dissatisfied	1	2
Dissatisfied	5	8
Neither Satisfied nor Dissatisfied	4	7
Satisfied	34	58
Completely Satisfied	15	25

Teachers also had to respond to a number of items on a 5-point scale from 1=strongly agree to 5=strongly agree assessing their experience using Classera in their schools. Table 4 shows teacher mean responses to the survey questions. In general the data show a positive experience with mean response values ranging from 3.47 to 4.37. Teachers indicated that they find the new learning management system easy to use and felt supported in the training they received and in the resources they have at

their disposal. Agreement was however lowest regarding the adequacy of the infrastructure to support the adoption and implementation of Classera (M=3.47, SD=1.35).

Table 4. Teacher Perspectives about Classera Ase

Item	N	M	SD
My school has supported the use of Classera	60	4.27	.82
The school administration has been helpful in providing instruction in the use of Classera	59	4.14	.88
A specific person (or group) is available for assistance with Classera difficulties	60	4.35	.90
The school I teach at has the infrastructure necessary to support Classera use	60	3.47	1.35
I have the resources necessary to use Classera	60	3.65	1.25
I have the knowledge necessary to use Classera	59	4.10	.92
I feel I got the training I need to use Classera effectively	60	3.82	1.20
I use Classera more in the classroom when I am provided more training	60	4.37	.76
I find Classera easy to use and it is easy for me to become skillful at using Classera	60	4.33	.86
I use Classera to support the process of teaching and learning	60	4.10	1.05
I intend to use Class sera in the upcoming school year	59	4.29	.95

Further analysis of the data using a one-way analysis of variance showed significant differences only in teacher responses across gender (F $(1, 58)$ =11.37, $p<0.05$) for the teacher background variables (see Table 5). The overall mean value for men (M=4.30) was significantly higher than that for the female teachers (M=3.57) with gender accounting for 22% of the variance in teacher perceptions regarding their experience.

Table 5. Teacher Overall Perspectives about Classera Use by Teacher Demographic Factors

Demographic Factor	F	Sig.	Partial Eta Squared
Gender	11.373	.002	.221
Experience	1.043	.384	.073
School Level	.269	.766	.013

The male and female teacher responses regarding their experiences differed significantly over almost all the areas of perception assessed with the female teacher responses being significantly lower than that for male teachers on eight out of the eleven perceptual items (see Table 6).

Table 6. Teacher Perspectives about Classera Use by Gender

Item	Female M	Male M	F
My school has supported the use of Classera	4.90	3.95	25.92***
The school administration has been helpful in providing instruction in the use of Classera	4.75	3.81	20.04***
A specific person (or group) is available for assistance with Classera difficulties	4.90	4.08	13.53**
The school I teach at has the infrastructure necessary to support Classera use	3.85	3.24	2.78
I have the resources necessary to use Classera	4.25	3.34	7.53**
I have the knowledge necessary to use Classera	4.53	3.92	5.75*
I feel I got the training I need to use Classera effectively	4.40	3.53	7.54**
I use Classera more in the classroom when I am provided more training	4.60	4.29	2.31
I find Classera easy to use and It is easy for me to become skillful at using Classera	4.60	4.24	2.44
I use Classera to support the process of teaching and learning	4.55	3.89	5.38*
I intend to use Classera in the upcoming school year	4.70	4.11	5.47*

*p<0.05; **p<0.01; *** p<0.001.

3.2 Benefits of Using Classera

On the issue of the benefits of Classera, the data show that teachers mostly agreed (*M*=4.32) that Classera encourages them to think about how technology can support their teaching goals (Table 7). The lowest mean (*M*=3.78) as indicated by teachers was that teaching with Classera helped students explore their own questions and construct their own knowledge.

Table 7. Teacher Perspectives about the Benefits of Using Classera

Item	N	M	SD
Classera encourages me to think about how technology can support my teaching goals	60	4.32	.79
Classera forums encourage my students to respond to my post and their peers	60	4.00	.88
Classera helps me think about how technology may change my teaching practices	60	4.22	.80
Classera provides me with relevant knowledge, skills, and abilities I can immediately use in my classroom	60	3.97	.99
Classera encourages me to consider how technology can be used to facilitate student learning of content	60	4.18	.87
Using Classera enables me to accomplish tasks more quickly	60	4.08	1.08
Using Classera increases my productivity	59	4.02	1.11

If I use Classera, I will increase my chances of getting a positive evaluation	60	4.17	.94
I find Classera useful for teaching	59	4.17	.97
Classera forums encourage my students to respond to my post and their peers	58	4.03	.99
Classera forums allow me and my students to include more detail and multimedia when posting and responding	59	4.15	.87
Classera forums help support class online discussions.	59	4.07	.87
Teaching with Classera makes my student happy	59	3.92	1.02
Teaching with Classera helps my students explore their own questions and construct their own knowledge.	58	3.78	1.08

Again, a one-way analysis of variance was conducted to evaluate whether significant differences existed in the teacher responses regarding the benefits of Classera. Significant differences were observed based on gender (F (1, 59) =5.76, p<0.05) and across school level (F (2, 59) =3.85, p<0.05) for the teacher background variables (see Table 8).

Table 8. Teacher Perspectives about the Benefits of Classera by Teacher Demographic Factors

Demographic Factors	F	Sig.	Partial Eta Squared
Gender	5.76	.02	.126
Experience	1.07	.37	.074
School Level	3.85	.03	.161

The overall mean value for male teachers (M=3.90) was significantly higher than that for the female teachers (M=3.32) with gender accounting for about 13% of the variance in teacher perceptions regarding the benefits of Classera. The male and female teacher responses regarding their experiences differed significantly over almost all the areas of perception assessed (see Table 9).

In the same vein, overall mean by school level showed that elementary teachers ratings were the highest (M=3.99), followed by the high school teachers (M=3.67). Middle school teacher ratings were the lowest (M=3.19). Teacher school level accounted for about 7% of the variance in teacher perceptions of the benefits of Classera and teacher differences varied across the survey items (Table 10).

Table 9. Teacher Perspectives about the Benefits of Using Classera by Gender

Item	Male Means	Female Means	F
Classera encourages me to think about how technology can support my teaching goals.	4.30	4.16	6.90**
Classera forums encourage my students to respond to my post and their peers.	4.40	3.82	6.18**
Classera helps me think about how technology may change my teaching practices.	4.55	4.08	.4.83*
Classera provides me with relevant knowledge, skills, and abilities I can immediately use in my classroom.	4.40	3.76	5.76*
Classera encourages me to consider how technology can be used to facilitate student learning of content.	4.60	4.00	6.80*
Using Classera enables me to accomplish tasks more quickly.	4.60	3.84	7.04*
Using Classera increases my productivity.	4.50	4.78	6.79*
If I use Classera, I will increase my chances of getting a positive evaluation.	4.65	3.95	8.15**
I find Classera useful for teaching.	4.58	4.00	4.80*
Classera forums encourage my students to respond to my post and their peers.	4.50	3.81	6.88**
Classera forums allow me and my students to include more detail and multimedia when posting and responding.	4.45	4.00	3.63
Classera forums help support class online discussions.	4.35	3.95	2.88
Teaching with Classera makes my student happy	4.50	3.65	10.50**
Teaching with Classera helps my students explore their own questions and construct their own knowledge.	4.42	3.49	10.99**

*p<0.05; **p<0.01; *** p<0.001.

Table 10. Teacher Perspectives about the Benefits of Using Classera by School Level

Item	Elementary Means	Middle Means	High Means	F
Classera encourages me to think about how technology can support my teaching goals	4.50	3.90	4.61	6.15**
Classera forums encourage my students to respond to my post and their peers	4.25	3.62	4.24	3.61*
Classera helps me think about how technology may change my teaching practices	4.25	3.86	4.48	.4.41*
Classera provides me with relevant knowledge, skills, and abilities I can immediately use in my classroom	4.25	3.48	4.27	4.71*

Classera encourages me to consider how technology can be used to facilitate student learning of content	4.50	3.62	4.55	4.74*
Using Classera enables me to accomplish tasks more quickly	4.50	3.52	4.42	5.41*
Using Classera increases my productivity	4.50	3.45	4.33	4.85*
If I use Classera, I will increase my chances of getting a positive evaluation	4.75	3.71	4.42	4.99*
I find Classera useful for teaching	4.50	3.86	4.38	2.07
Classera forums encourage my students to respond to my post and their peers	4.33	3.65	4.27	2.71
Classera forums allow me and my students to include more detail and multimedia when posting and responding	4.25	3.76	4.39	3.70*
Classera forums help support class online discussions	4.25	3.90	4.18	.72
Teaching with Classera makes my student happy	4.250	3.55	4.15	2.45
Teaching with Classera helps my students explore their own questions and construct their own knowledge	4.50	3.30	4.03	4.09*

*p<0.05; **p<0.01; ***p<0.001.

3.3 Barriers to Using Classera

Regarding the barriers that may prevent or limit the effective use of Classera in their classrooms, Table 11 shows that teachers agreed most strongly (*M*=4.47) that low Internet access is one of the barriers. Teachers also agreed (*M*=4.27) that having a busy schedule (and therefore limited time) is another barrier to the effective use of Classera. The teachers disagreed that there were no specialists to train them in the use of Classera and that there was not enough training or professional development when it came to the use of the technology.

Table 11. Teacher Perspectives about the Barriers to Use Classera

Barriers	N	M	SD
Low Internet access	59	4.47	.92
Lack of enough technology resources in school	59	4.05	1.25
Busy schedules leave no time	59	4.27	1.13
Teaching more than one subject	59	3.73	1.30
Requiring teaching the full textbooks	59	4.07	1.27
No specialist trainer to train teachers and student to use Classera	59	2.83	1.51
Not enough training on using Classera and technology in general	58	3.40	1.30

3.4 Teacher Perceptions of the Future of Classera

The teachers responded to an open-ended question that inquired about views on the continued use of Classera in their schools in the future. Teacher responses were organized into two themes: Support for the Continued Use of Classera and Resistance to Future use of Classera. Overall, 83% of the teacher comments were in support of the use of Classera in teaching and learning while only 17% were against its use. In addition to their comments, teachers submitted some suggestions for the improvement and effective use of Classera in Saudi public schools. In general, the teachers noted that Classera was a "wonderful" technological tool that contributed significantly to teaching and learning in Saudi public K-12 schools. One teacher wrote: "I think Classera will have a brighter future in teaching and learning in Saudi Arabia when it is used in all Saudi schools". Another teacher added: "From my point of view, Classera is a big movement towards a better learning environment. It motivates students to easily engage in interesting learning". One teacher however said "When the Internet access is the best and the use of Classera is judged on the content rather than the number of scores, the system will be more effective". Yet another wrote "I think Classera will be effective when it is used instead of textbooks and exercise books, but not with them". One teacher's response was very lengthy and was both in support and against the use of Classera. The teacher said:

Classera is a wonderful program because it supports the communication between students and their teacher. It helps in keeping the learning materials where students can find them when they need them. However, the use of Classera is still limited because of the lack of sufficient support such as the high Internet access and technology materials in each classroom. Teachers are required to finish the whole textbook, which makes using Classera an extra effort for teachers and students.

All in all, the majority of teachers are in favor of the continued adoption and implementation of Classera as it presents "an interesting and distinctive way of learning, which is different from the traditional ways of teaching", "fits the new generation", helps teachers "keep pace with the rapid technology era" and "increases the awareness of the importance of e-learning (distance learning), which will have a significant role in improving K-12 education in Saudi Arabia".

4. Discussion

The teaching of computer skills was introduced in Saudi schools in the eighties while teaching the use of computers and applying them in the context of teaching and learning of other subjects commenced in the nineties. The Saudi Arabian government later realized that education is the foundation for building a knowledge-based economy (Saqlain, Al-Qarni, & Ghadi, 2013). The goal was to move Saudi Arabia into the ranks of developed countries, which can be achieved by focusing on the quality of education, ensuring that students in the public education system are being prepared to deal with future challenges such as cultural diversity, economic changes, and globalization (Saqlain et al., 2013). Saqlain et al. (2013) argue that this can be accomplished by acquiring twenty-first century skills while maintaining the values and principles of Saudi society. The components of twenty-first century competencies, in

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relation to technology integration in teaching and learning, include global awareness, creativity, understanding new sources of information, social skills, critical and creative thinking, elaboration, evaluation, and analysis, as well as collaboration (Wallis & Steptoe, 2006; Grabarek, Ishizuka, & Toth, 2007; Lankshear & Knobel, 2003; Gunn & Hollingsworth, 2013).

One group of stakeholders known to hold the key to the successful adoption and integration of technology for the development of twenty-first century skills in teaching and learning are teachers. Teachers are at the frontline in the field of education. Therefore, in order to make progress in the area of technology integration, it is important that teacher perspectives be examined and taken into consideration. The current study is important as teacher perspectives on the use of a new e-learning system, Classera, are sought before the system is fully adopted and implemented in all K-12 public schools in Saudi Arabia. This study aimed to determine teacher perceived benefits associated with the implementation of Classera in the classroom as well as to determine the barriers that prevent teachers from the effective use of Classera in their classrooms.

The findings of the study showed that the majority of teachers in the pilot schools have positive attitudes towards using Classera in their classrooms and are willing to use this program in their classrooms. The teachers' overall perspectives about their experiences using Classera in their classrooms were good and they mostly agreed that they are willing to use Classera. It is important to note that the wide spread acceptance of the program may be as a result of the training and support teachers have received prior to and during the implementation of the system in teaching and learning. The results of the study supports previous findings from a study conducted by Saqlain et al. (2013), which revealed that when teachers are acquainted with modern technology, they are more willing to integrate it into their classrooms; teachers who are open to the use of technology have a positive attitude towards its adoption and implementation. Such teachers find the technology useful, easy, and less challenging to use.

The findings of this study also revealed that even though the teachers are "average" technology users, they are willing to effectively use Classera in their classrooms because they have received sufficient training. It is important to note though that the positive reactions do not necessarily apply to all teachers. According to Isman, Abanmy, Hussein and All-Saadany (2012), even though the overall attitudes towards using technology in the classrooms may be positive, a few of the reactions may not be in agreement. This phenomenon was noted among the teachers in this study. A few were resistant to the adoption of Classera and thought it was a "waste of time" and that "the program does not offer real learning; only videos and pictures without enriching student's mind". Also, the study results showed significant differences in perceptions across teacher factors such as gender and school level. Female teachers appeared to be less satisfied and found the benefits to be less positive for the adoption and implementation of Classera in K-12 education as compared to their male counterparts. Similarly, teachers at the middle school level rated the benefits of Classera at significantly lower levels as compared to elementary and high school teachers. The results match what has been documented in past

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research as it relates to gender disparity and attitudes towards and use of technology. For instance, findings presented in a literature review compiled by Zhou and Xu (2007) showed that males tend to be more confident, show more interest, have more access to, and demonstrate more positive attitude towards technology compared to females. Explanations presented in the literature suggest a gendered bias reaction against females when it comes to technology training and use. In addition, when comparing elementary, middle, and high school teachers, Harmes, Kemker, Kalaydjian and Barron (2000) noted that even though attitudes towards technology were comparable, elementary school teachers tended to frequently integrate technology more than teachers at the secondary school level. This trend occurs as elementary teachers tend to have the same group of students for a longer time and throughout the year.

Aside from teacher ratings regarding their satisfaction with and the benefits of Classera, teachers were asked to indicate challenges they faced on the whole with the use of Classera. Some of the challenges had to do with technology training and time. Another challenge mentioned was in regards to the availability of resources. Providing technology facilities in both urban and rural areas is a challenge for any country with a large rural sector in comparison with its low population where it is widening the digital divide between urban and rural areas. As urban areas in Saudi Arabia continue to enjoy broadband Internet, rural areas lack similar telecommunications infrastructure (Shiblaq, 2008; Butt, 2002). Moreover, some Saudi students, who live in communities that do not receive electricity, will face problems with the use of this technology. They may not even be able to adopt or implement the use of Classera if the decision is made to expand the use of this LMS across the whole country. This is one of the most significant barriers that hinder the implementation of different technology tools such as Classera into the education system of Saudi Arabia (Almalki et al., 2013). In the case of Saudi Arabia, many studies assert that even though teachers are aware of the significance of technology use to enhance the education system, some challenges arise in the process of integrating the technology in their classrooms. For instance, a qualitative study conducted by Saqlain, Al-Qarni and Ghadi (2013) investigated English language teachers' readiness to integrate technology in their classrooms. Their findings revealed the teachers were willing to use technology to enhance learning, but that the lack of resources such as lack of computers, software, language teaching software, and Internet connections in the classroom was a huge challenge. Teachers emphasized their need for training on using different sorts of effective educational technologies in the classroom. It is important to examine the affordances and constraints around technology integration in teacher education programs, which are a natural place to train teachers on how to integrate technology into teaching and learning (Kay, 2006). Mikalsen, Klefstad, Horgen and Hjeltnes (2008) stated that the biggest challenge for vocational training is when learners do not have the skills needed to use self-study material effectively. Al-Alwani and Soomro (2010) reported teachers' need for continued short-course training sessions on how to implement technology such as Classera into the curriculum.

Another qualitative study carried out by Al-Maini (2011) suggested "a lack of classroom computers,

language laboratories or other means of integrating computers into subject teaching" (p. 477). Al-Alwani and Soomro (2010) also examined the barriers that prevented 179 science teachers from using information technology in their teaching and found that these barriers included: "busy schedules, teaching more subjects, and doing some work besides teaching" (Al-Alwani & Soomro, 2010, p. 43).

The results of this study provide evidence of K-12 teachers' attitudes and perceptions about the use and benefits of Classera. Teachers believe that using Classera in teaching and learning environment has the potential to improve their teaching strategies and student learning. Also, some teachers indicated that the use of Classera helped increase their students' motivation to learn and participate in the classroom, which is similar to the findings of a study conducted by Al-Maini (2011) about the benefits of using technology in teaching English as a Foreign Language (EFL) in Saudi Arabia. It is clear that Classera is convenient for teachers where they can use Classera to create or store materials and help reduce the cost and time of delivering instruction. In addition, teachers agreed that the most benefits of using Classera forums are increased student participation and improved quality of student responses. However, the more significant barriers that prevent teachers from the effective use of Classera, as indicated by teachers are: low Internet access, lack of enough technology resources in school, having busy schedules, and being forced to teach the full textbooks. This result support the findings of other studies that determined the barriers that prevent Saudi teachers from making effective use of information technology in their classrooms (Al-Alwani & Soomro, 2010; Al-Maini, 2011; Saqlain et al., 2013).

The Saudi government is currently employing significant financial resources to support and enhance the education portfolio (Almalki, Finger, & Zagami, 2013) and it is striving to ensure that all schools, irrespective of location, and all teachers, irrespective of their background, have access to the resources necessary to adopt and implement technology such as Classera in teaching and learning (Saqlain, Al-Qarni, & Ghadi, 2013). For this purpose, these challenges which hinder the technology integration in Saudi schools must be taken into consideration, and Saudi government officials must thoroughly investigate these challenges and find ways to address them before the implementation of Classera or any other technology programs in K-12 education. This is simply because the misguided policies and funding for technology use in education may fail to have the desired educational outcomes, while costing more than other education interventions if teacher perceptions of use, benefits, and challenges are not taken into consideration (Al-Fahad, 2010).

4.1 Recommendations for Practice

Considering the above-mentioned challenges and barriers that may prevent teachers from using Classera in their classrooms, the following suggestions should be closely considered:

1) When the basic needs of technology integration are not completely provided, there is always a possibility of the failure in applying any technology-based program. As a result, continued support and resources need to be made available to the teachers. Also, given the differences by gender and school level, it is suggested that attention be paid to all teachers but more especially to the female teachers and middle school teachers as they appeared to find the use of the e-learning system less satisfactory and less beneficial. Again, important resources such as teacher training and Internet access.

2) Pre-service and in-service teacher technology training programs are essential elements of technology integration in teaching and learning. Teachers need the professional development programs to learn new technology and to integrate technology into their classroom and this training must be continued. Applying Classera in Saudi schools is a new and big movement in the K-12 education system in Saudi Arabia and to ensure its continued success, there is the need for continued technology professional development.

3) Saudi officials and administrators must recognize that technology integration in teaching and learning needs time for planning and preparation. If such an understanding is presented and provisions are made then teachers who have busy schedules will find technology use is not more than extra work. It is essential to identify ways to help teachers find more time during the day or give extra rewards for using their weekends and summers for professional development and to ensure the successful adoption and implementation of Classera in teaching and learning.

4) The textbooks should not be the main source of knowledge and teachers should not be forced to cover all the activities in the textbook, which takes all class time and leaves no time to integrate technology in their teaching methods.

5) In general, the Saudi universities should provide some technology training courses for their teachers to help prepare them for the integration of Classera in teaching and learning in their future classrooms.

4.2 Recommendations for Further Study

This study has provided baseline data on teacher perceptions about the implementation of Classera in 12 public schools where the use of a new learning management system was adopted and piloted for teaching and learning. It is recommended that this study be replicated as decisions are made to expand the use of this technology in other K-12 public schools in Saudi Arabia. It will also be necessary to conduct this study from the perspective of other stakeholders such as students, parents, and administrators to ensure that the voices of all are heard and taken into consideration as decisions and progress are made with this new technology.

5. Conclusion

While the study included the 12 public schools that had adopted and implemented Classera it is in important to note that this study focused on only three educational districts and thus the findings of this study may not generalize to other contexts and other technology platforms. The findings from this study have demonstrated that most teachers in the pilot public schools in Saudi Arabia are satisfied with the implementation of Classera in their classrooms. However, it is clear that teachers will not completely benefit from the privileges of using Classera in teaching and learning unless all challenges are taken into consideration. All barriers that hinder integrating technology in teaching and learning and preventing the effective use of Classera in Saudi schools should be addressed.

Teachers play an important role when it comes to the adoption and implementation of new interventions in schools. When it comes to the use of technology, teachers are central to the promotion of a technology-integrated environment that promotes constructivist learning. Therefore, while the short-term purpose of this study was to exploring the perspectives of Saudi teachers about using Classera in their classrooms and shows teacher satisfaction; the benefits and barriers that prevent teachers from the effective use of Classera in public schools in Saudi Arabia should continue to be explored from teacher perspectives to make sure that the challenges and barriers are overcome to ensure successful and continued adoption and implementation.

References

Al-Abdulkareem, R. (2002). *Future schools: The main changes*. King Saud University, Riyadh.

Al-Alwani, A., & Soomro, S. (2010). Barriers to effective use of information technology in science education at Yanbu, Kingdom of Saudi Arabia. *E-learning experiences and future* (pp. 35-46). Vukovar, Croatia: INTECH.

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL. *Computers & Education*, *47*(4), 373-398.

Al-Busaidi, K. A., & Al-Shihi, H. (2010). Instructors' acceptance of learning management systems: A theoretical framework. *Communications of the IBIMA*, *2010*, 1-10.

Alebaikan, R., & Troudi, S. (2010). Blended learning in Saudi universities: Challenges and perspectives. *Research in Learning Technology*, *18*(1).

Al-Fahad, F. N. (2009). Students' attitudes and perceptions towards the effectiveness of mobile learning in King Saud University, Saudi Arabia. *Online Submission*, *8*(2), 1-9.

Al-Fahad, F. N. (2010). The learners' satisfaction toward online e-learning implemented in the college of applied studies and community service, King Saud University, Saudi Arabia: Can e-learning replace the conventional system of education? *Turkish Online Journal of Distance Education*, *11*(2), 61-73.

Al-Maini, Y. (2011). Using technology in EFL in Saudi Arabia. *Literacy Information and Computer Education Journal (LICEJ)*.

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Almalki, J., Finger, G., & Zagami, J. (2013). Introducing SMART Table Technology in Saudi Arabia Education System. *International Journal of Advanced Computer Science and Applications*, *4*(2), 46-52.

Almekhlafi, A. G., & Almeqdadi, F. A. (2010). Teachers' perceptions of technology integration in the United Arab Emirates school classrooms. *Educational Technology & Society*, *13*(1), 165-175.

Asiri, M. J., Bt Mahmud, R., Bakar, K. A., & Bin Mohd Ayub, A. F. (2012). Factors influencing the use of learning management system in Saudi Arabian Higher Education: A theoretical framework. *Higher Education Studies*, *2*(2), 125-137.

Ayas, C. (2002). An examination of the relationship between the integration of technology into social studies and constructivist pedagogies. *The Turkish Online Journal of Educational Technology*, *5*(1), 14-25.

Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, *8*(1), 136-155.

Butt, D. (2002). *Slow connections-building-non urban infrastructure online* (Report). Wellington: The Waikato Polytechnic. Retrieved July 3, 2006, from http://www.icvp.com

Classera Inc. (2014). *Why Classera*? Retrieved from http://classera.com/en_us/why-classera/

Davis, F. D. (1986). *A technology acceptance model empirical testing new end-user information systems: Theory and results*. Doctoral dissertation, Massachusetts Institute of Technology.

Earle, R. S. (2002). The integration of instructional technology into public education: Promises and challenges. *Educational Technology*, *42*(1), 5-13.

E-learning Directorate General of Education in Asir. (2014). *Classera "for students of Asir"*. Retrieved October 10, 2014, from http://www.ela.edu.sa/en/content/47

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. In *Reading*. MA: Addison-Wesley.

Grabarek, D., Ishizuka, K., & Toth, L. (2007). Learning in the 21st century: 2006 SLJ Leadership Summit. *School Library Journal*, 1-8.

Green, S., & Salkind, N. (2014). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (7th ed.). Boston: Prentice Hall.

Gunn, T. M., & Hollingsworth, M. (2013). The Implementation and assessment of a shared 21st century learning vision: A district-based approach. *Journal of Research on Technology in Education* (International Society For Technology In Education), *45*(3), 201-228.

Harmes, C., Kemker, K., Kalaydjian, K., & Barron, A. E. (2000, November). *Working toward National Technology Standards: Teacher use of computers in the classroom*. Paper presented at the Annual Meeting of the Florida Educational Research Association.

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge

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and learning activity types: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education*, *41*(4), 393-416.

Isman, A., Abanmy, F. A., Hussein, H. B., & Al-Saadany, M. A. (2012). Saudi secondary school teachers "attitudes towards using interactive whiteboard in classrooms". *The Turkish Online Journal of Educational Technology*, *11*(3), 286-296.

Jennifer, D. J., & Michel, M. F. (2003). Computer-related attitudes and actions of teacher candidates. *Computers in Human Behavior*, *19*(3), 319-334.

Kay, R. H. (2006). Evaluating strategies used to incorporate technology into preservice education: A review of the literature. *Journal of Research on Computing in Education*, *38*(4), 383-408.

Koehler, M., & Mishra, P. (2008). Introducing TPACK. In *AACTE Committee on Innovation and Technology* (Eds.). Handbook of technological pedagogical content knowledge (TPACK) for educators. New York: Routledge.

Lankshear, C., & Knobel, M. (2003). *New literacies: Changing knowledge in the classroom*. Buckingham, UK: Open University Press.

Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of Educational Research*, *77*, 575-614.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & management*, *40*(3), 191-204.

Mikalsen, A. B., Klefstad, B., Horgen, S. A., & Hjeltnes, T. (2008). An integrated multimedia e-learning model for vocational training. *Proceedings of the 6th International Conference on Networked Learning*.

Ministry of Economy and Planning. (2009). *Saudi Arabia Map*. Retrieved from http://www.mep.gov.sa/index.jsp?event=SwitchLanguage&Code=EN

Muir-Herzig, R. G. (2004). Technology and its impact in the classroom. *Computers & Education*, *42*, 111-131.

Oblinger, D. (2003). Boomers, gen-xers and millennials: Understanding the new students. *EDUCAUSE Review*, *38*(4), 37-47. Retrieved from http://www.net.educause.edu/ir/library/pdf/erm0342.pdf

Özek, Y. H., Edgren, G., & Jandér, K. (2012). Implementing the critical friend method for peer feedback among teaching librarians in an academic setting. *Evidence Based Library & Information Practice*, *7*(4), 68-81.

Raines, C., & Arnsparger, A. (2010). *Millennials at work*. Retrieved from http://www.generationsatwork.com/articles_millennials_at_work.php

Sallum, S. A. (2008). Learning management system implementation: Building strategic change. *Distance Learning*, *5*(1), 68-72.

Saqlain, N., Al-Qarni, F., & Ghadi, N. (2013). Are English language teachers in Saudi Arabia Ready to integrate technology? *Procedia-ocial And Behavioral Sciences*, *103*(13th International

Educational Technology Conference), 146-153. http://dx.doi.org/10.1016/j.sbspro.2013.10.319

Shiblaq, F. K. (2008). ICT in rural New Zealand: A review of the literature. *Bulletin of Applied Computing & Information Technology*, *6*(1), 1-10.

Smyth, R. (2004). Exploring the usefulness of a conceptual framework as a research tool: A researcher's reflections. *Issues in Educational Research*, *14*(2), 167-180. Retrieved from http://www.iier.org.au/iier14/smyth.html

Stenhouse, L. (1975). *An introduction to curriculum research and development*. London: Heinemann.

Wallis, C., & Steptoe, S. (2006, December 10). How to bring our schools out of the 20th Century. *Time Magazine*. Retrieved from http://www.time.com/time/magazine/article/0,9171,1568480,00.html

Wasserman, E., & Millgram, Y. (2005). Changes in the approaches of teachers following computerization of schools. *Journal of Educational Computing Research*, *32*(3), 241-264.

Wright, C. R., Dhanarajan, G., & Reju, S. A. (2009). Recurring issues encountered by distance educators in developing and emerging nations. *International Review of Research in Open and Distance Learning*, *10*(1), 1-25.

Wright, V., & Wilson, E. (2007). A partnership of educators to promote technology integration: Designing a master technology teacher program. *Education*, *128*(1), 80-86.

Zhou, G., & Xu, J. (2007). Adoption of educational technology: How does gender matter? *International Journal of Teaching and Learning in Higher Education*, *19*(2), 140-153.